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APPLICANT'S SUPPLEMENTAL RESPONSE TO DATA REQUEST 16 AND 26: ADDITIONAL INFORMATION REGARDING ALTERNATIVES

In this section of Applicant's Supplemental Response to CEC Staff Data Requests 16 and 26, Applicant describes the changes to the Alternatives section that will result from the changes to the Project Description relating to the removal of Unit 3. Per staff's request, Applicant uses a strike-out/underline format to identify changes to the Alternatives section of the Application for Certification that will result from the changes to the Project Description.

The Alternatives sub-sections that have been modified are listed in the table of contents below. If there has been no change to an Alternatives sub-section relating to Applicant's Supplemental Response to Data Request 16 and 26, the section is labeled "no changes" in the table of contents below. For the reasons stated in the cover letter for this submittal, the applicant is now proposing that On-Site Alternative 3 be considered the "Preferred Alternative".

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SECTION 6 ALTERNATIVES

The following section provides an overview of the on-site and off-site alternatives being considered for this Application for Certification (AFC), as well as technology alternatives, access route alternatives, water supply alternatives, Bradshaw Trail re-route alternatives, and construction back-up power and telecommunications alternatives.

6.1 ALTERNATIVES

This section discusses a reasonable range of alternatives for the Rio Mesa Solar Electric Generating Facility (Rio Mesa SEGF or Project) and examines the ability of these alternatives to feasibly attain most of the project objectives set forth in Section 6.1.3, and to minimize or avoid significant environmental impacts of the Project.

6.1.1 Summary of Alternatives

The alternatives analyzed and discussed in this section are summarized below.

- The No Project Alternative: This alternative discusses existing conditions as well as what would be reasonably expected to occur in the foreseeable future if the Project is not approved and does not take place. An evaluation of this no project or "no action" alternative is required by the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) and is discussed in Section 6.2.
- On-Site Project Alternatives: A detailed analysis of three on-site alternatives, including the Preferred Alternative (the Project or Rio Mesa SEGF) is provided in Section 6.3. The three on-site alternatives are shown on Figures 6.3-1 (rev), Figure 6.3-2 and ~~through~~ 6.3-3 (rev). The on-site alternatives are compared in terms of their environmental impacts and compliance with the project objectives.
- Off-Site Project Alternatives: Nine off-site alternatives identified in Section 6.4.1 are evaluated for feasibility using project screening criteria identified in Section 6.4.2 and shown on Figure 6.4-1 (rev). Seven of the nine off-site alternatives were considered but ultimately rejected from further consideration because development of a solar generating facility that attains most of the project objectives is not considered feasible from a technical or economic standpoint on any of these sites as demonstrated in Section 6.4.3. Development of a solar generating facility that attains most of the project objectives is considered feasible from a technical and economic standpoint for two of the nine off-site alternatives. These two off-site alternatives are carried forward for detailed alternatives analysis in Section 6.4.4.
- Technology Alternatives: Ten alternative types of energy technologies are assessed with respect to commercial availability, implementation feasibility, and cost-effectiveness in Section 6.5.
- Alternative Access Routes: Five alternative routes for accessing the project site are described in Section 6.6 and shown on Figure 6.6-1 (rev).
- Alternative Water Supply Options: Five alternative water supply options, including the preferred groundwater option, are described and evaluated for feasibility in Section 6.7.

- ~~Bradshaw Trail Re-Route Alternatives: The existing location of Bradshaw Trail and three re-route alternatives are described in Section 6.8 and shown on Figure 6.8-1.~~

- Construction Back-up Power and Telecommunications: Two alternatives for Project construction and emergency back-up power and the approach for providing telecommunications are discussed in Sections 6.9 and 6.10, respectively.

6.1.2 Regulatory Background (no changes)

6.1.3 Project Objectives (no changes)

6.2 NO PROJECT ALTERNATIVE

Under the No Project Alternative, the Applicant will not receive authorization to construct and operate a new solar power generation facility. As a result, the Project will not be developed. In addition to foregoing the benefits to the state of 500~~750~~ MW of renewable generation and greenhouse gas (GHG) reduction, the No Project Alternative will not meet any of the project objectives.

Electricity that would have been produced by the Project would have to be generated by another source and/or imported to southern California. Common available sources include older power generation facilities that operate less efficiently and release larger quantities of air pollutants and GHG emissions than the proposed facility, and new thermal power plants.

Under the No Project Alternative, it will not be necessary for the BLM to issue a ROW grant for the portions of the Project gen-tie line, upgraded Bradshaw Trail, and 33kV construction/emergency backup power supply line located on BLM administered public lands. In addition, BLM will not need to amend the CDCA Plan. The No Project Alternative will reflect rejection of the Project as submitted in the ROW grant application and no further action will be required on the part of BLM. The No Project Alternative will be evaluated in the preliminary Staff Assessment and Draft EIS issued in parallel by the CEC and the BLM under CEQA and NEPA, respectively.

In accordance with CEQA Guidelines §15126.6(e)(2), the "no project" analysis set forth below discusses the existing conditions at the time environmental analysis was commenced, as well as what would be reasonably expected to occur in the foreseeable future if the Project were not approved. A more detailed discussion of existing conditions is provided in Section 5.0 of this AFC.

6.2.1 Air Quality

Ambient air concentrations of ozone (O_3), NO_2, SO_2, CO, PM_{10}, and $PM_{2.5}$ are recorded at monitoring stations in Riverside County. The project site is located in the Mojave Desert Air Basin (MDAB) under the jurisdiction of the Mojave Desert Air Quality Management District (MDAQMD). The immediate area surrounding the project site (within 1.5 to 2 miles) is an area with sparse population. Further out, areas to the north, northwest, west, and southwest are all vacant with very sparse population. However, there are suburban areas with moderate residential populations more than two miles to the east (the City of Blythe is located approximately 13 miles to the northeast). Monitoring stations are generally positioned to represent area-wide ambient conditions rather than the localized impacts of any particular emission source

or group of sources. In rural areas of Riverside County, pollutant concentrations are not expected to vary dramatically from one location to the next since emission sources are few and widely distributed. The MDAB is classified as a nonattainment area with respect to state ambient standards for ozone and PM_{10}. The project location is classified as an attainment area or unclassified for all other state and federal criteria pollutants.

The No Project Alternative will not involve construction or operation of the Project. Therefore, the minimal increases in construction and operational emissions associated with generation of fugitive dust and combustion emissions from vehicles and heavy equipment, natural gas combustion in the auxiliary~~, startup,~~ and nighttime preservation boilers, diesel emergency generators, cooling systems, ~~tractor towed trailers~~mirror washing vehicles, and fire pump engines will not occur. Nonetheless, it is highly likely that the No Project Alternative will result in greater fossil fuel consumption, GHG emissions, and air pollution than the Project over the long term. Without the Project, electricity will likely be generated from older, less-efficient plants that will remain online or from new natural gas-fired plants that have higher air pollutant and GHG emissions than the Project. Moreover, since solar energy is typically produced during periods of peak demand, much of the replacement power will likely be generated by peaker plants with significantly greater criteria air pollutant and GHG emissions. In addition, off-highway vehicle (OHV)-related air pollution emissions will continue under the No Project Alternative. Accordingly, overall air quality impacts will be greater under the No Project Alternative relative to the Preferred Alternative. Additional detail pertaining to the air quality impacts and air quality monitoring and control at the project site is discussed in Section 5.1 and its related Appendix of this AFC.

6.2.2 Biological Resources (no changes)

6.2.3 Cultural Resources (no changes)

6.2.4 Geologic Hazards and Resources

The project area is primarily situated on the Palo Verde Mesa, which slopes eastward at approximately 40 feet per mile towards the Palo Verde Valley within the Colorado River floodplain. The Palo Verde Mesa is bounded to the south and west by the volcanic and plutonic rocks that form the Mule Mountains, to the north by an extension of the Chuckwalla Valley that separates the Mule and McCoy Mountains, and to the east by the broad floodplain of the Colorado River. Gullies and washes run approximately west to east through the project site on the north and south sides. The ~~common area located at the~~ eastern edge of the project site is near the bluff at the edge of the Mesa, which drops approximately 30 to 40 feet to the Palo Verde Valley below.

The project area is located in seismically active southern California, a region that has experienced numerous earthquakes in the past. According to the Alquist-Priolo Earthquake Fault Zone (EFZ) Maps (CGS 2010), there are no EFZs within the project area. No active fault zones are present within 20 miles of the Project. Seismic shaking levels are generally low to moderate, since the nearest active fault (showing movement in the last 11,000 years) is the San Andreas Fault, located approximately 55 miles to the southwest. Therefore, fault rupture is not of immediate concern in the project vicinity. The faults that have been mapped in the project area are considered ancient geologic structures and are not seismic hazard concerns. There are no known significant mineral resources present on the project site.

Under the No Project Alternative, development of a solar power generation facility will not occur. Therefore, impacts related to geologic hazards and resources will not occur. While the Preferred Alternative will result in less than significant geologic hazards and resources impacts, the potential for such impacts will be lower under the No Project Alternative. However, because geologic hazards and resources impacts are less than significant under the Preferred Alternative (during construction and operation), the No Project Alternative will not avoid a significant impact of the Project. In addition, the No Project Alternative will not meet any of the project objectives. Additional detail pertaining to geologic hazards and resources at the project site is discussed in Section 5.4 and its related Appendix of this AFC.

6.2.5 Hazardous Materials Handling (no changes)

6.2.6 Land Use

The project site is located approximately 13 miles southwest of Blythe, California in the Mojave Desert, and consists of large private or County-owned landholdings, small private land holdings, and land administered by the BLM. Portions of the Project gen-tie line, upgraded Bradshaw Trail, and 33kV construction/emergency backup power supply line are located on public land administered by the BLM. The project site is previously disturbed and generally surrounded by previously disturbed land to the north, south, and west, and by agricultural land to the east.

There are no incorporated towns, cities, or villages located within the project site or along the proposed gen-tie line. The closest town is Palo Verde, located on the Riverside and Imperial County line, along State Route 78, approximately two miles east of the southeast corner of the planned development boundary of the project site. There are no State lands on the project site or along the gen-tie line corridor. There are no ACECs or Wilderness Areas on the project site. Bradshaw Trail, which is used primarily as an OHV route, runs ~~through a portion~~north of the project site. No prime farmlands, farmlands of statewide importance, or unique farmlands (as defined by the California Department of Conservation) are located on the project site, although there is Farmland of Local Importance as designated by the Riverside County General Plan on site. Approximately 1.55 acres of prime farmlands and approximately 0.67 acres of farmlands of statewide importance are located within the ROW of the proposed access road located north of 34th Avenue. These prime farmlands and farmlands of statewide importance include both fallow and active lands. Prime farmlands are situated approximately 0.3 mile to the east of the ~~proposed common area~~ temporary construction logistics area associated with the project site, and approximately 0.7 mile east of the proposed gen-tie line corridor. There are no lands under a Williamson Act contract within one mile of the project site or gen-tie line.

According to a review of local, state, and federal land use plans for the area, existing land uses on the project site will continue under the No Project Alternative. The site will likely continue to be used by OHV users and for other recreational activities, and such uses will likely continue to impact the existing site conditions in a similar manner. Impacts associated with restricting use of the site for Project construction and operation will not occur. Existing zoning ordinances and applicable land use plans will not require modification or amendment. Farmland of Local Importance as designated by the Riverside County General Plan, 1.55 acres of prime farmland, and 0.67 acres of farmlands of statewide importance will not be converted to nonagricultural use. No impacts to farmlands will occur. While the Preferred Alternative will result in less than significant land use impacts, the degree of such impacts will be lower

under the No Project Alternative. However, because land use impacts are less than significant under the Preferred Alternative (during construction and operation), the No Project Alternative will not avoid a significant impact of the Project. In addition, the No Project Alternative will not meet any of the project objectives. Additional detail pertaining to land use at the project site is provided in Section 5.6.

6.2.7 Noise (no changes)

6.2.8 Paleontological Resources (no changes)

6.2.9 Public Health and Safety

The nearest residence to the project site boundary is approximately 8,200 feet south of the solar array fence line for Plant 1. The nearest residence to any power block equipment is approximately ~~13,120~~ 14,760 feet east of the Plant 1~~3~~ power block. No daycare, hospital, park, preschool, or school receptors were found within six miles of the project site.

Under the No Project Alternative, public health and safety will not be affected by criteria air pollutants or toxic air contaminants associated with Project construction or operation. The Preferred Alternative will have less than significant public health and safety impacts. The potential for such impacts will be greater under the No Project Alternative due to greater fuel consumption, GHG emissions, and air pollution resulting from status quo activities compared to the Project over the long term. As described previously in Section 6.2.1, under the No Project Alternative electricity will likely be generated from older, less-efficient plants that will remain online or from new gas-fired plants that have higher air pollutant and toxic air contaminant emissions than the Project. Moreover, since solar energy is typically produced during periods of peak demand, much of the replacement power will likely be generated by peaker plants with significantly greater criteria air pollutant and toxic air contaminant emissions. In addition, OHV-related air pollution emissions will continue under the No Project Alternative. Therefore, public health impacts are likely to be greater under the No Project Alternative. Additional detail pertaining to public health and safety at the project site is discussed in Section 5.9.

6.2.10 Socioeconomics

According to the California Economic Development Department (EDD), the unemployment rate as of June 2011 for Riverside County is 14.4 percent and the City of Blythe is 17.2 percent, well above the State unemployment average of 12.1 percent. Moreover, unemployment rates are as high as 31.6 percent in the study area. For example, the unemployment rate is 31.6 percent in the city of Calexico in Imperial County, California; 28.5 percent in Imperial County, California; 27.1 percent in the city of El Centro in Imperial County, California; 27.3 percent in Yuma County, Arizona; and 22.1 percent in the city of Yuma, Arizona. These data are current as of June 2011 for California and May 2011 for Arizona. See Table 5.10-9 for a detailed listing of unemployment rates in the study area.

The study area for the purposes of socioeconomic analysis will include the counties and communities within an approximate two-hour commute from the project site, including eastern Riverside County and portions of Imperial County, California and La Paz, Maricopa, and Yuma Counties in Arizona. Communities include Coachella, Palm Springs, Palm Desert, Cathedral City, and Indio in Riverside

County, California; El Centro and Calexico in Imperial County, California; the City of Yuma in Yuma County, Arizona; and Lake Havasu City in Mohave County, Arizona.

Under the No Project Alternative, the Project will not be built and, therefore, will not provide the anticipated increase in jobs or the potential increase in revenues to the local economy. Specifically, an average of 840~~1,040~~ workers per month over the approximately three-year construction period, including a maximum of 2,200~~2,500~~ workers during peak construction activities in Months 22 and 23~~ 21~~ of the proposed schedule, will not be employed under this alternative. Approximately 100~~150~~ full-time, living-wage operations jobs will not be created. Substantial indirect and induced employment also will not be created. Members of labor unions affiliated with the Building and Construction Trades Council in Riverside, California as well as other labor unions in the surrounding area will not be hired to work on the Project under the No Project Alternative.

In addition, the No Project Alternative will not support employment and wages in other industries in Riverside County or the communities surrounding the project site. Total construction labor costs of approximately $462~~$661~~ million and operations payroll of approximately $12~~$16~~ million will not be spent under the No Project Alternative. ~~Nearly $8~~Approximately $5.5 million in sales and use tax revenue for Riverside County during construction, annual sales tax revenue of $45,694~~$68,200~~, and approximately $7 million in annual property tax revenue will not be generated.

Under the No Project Alternative, direct income of approximately $71~~$102~~ million from the 35~~36~~-month construction period and approximately $12.3~~$16.4~~ million annually during operations will not be realized. Substantial direct, indirect, and induced jobs and wages and their positive contributions to the local economy and communities in the project vicinity will not be realized under the No Project Alternative.

Vacant housing as well as temporary housing within the Study Area will not be used by construction or full-time operations workers under the No Project Alternative. Local schools, public services, facilities, and utilities will not be affected under the No Project Alternative. As discussed below, the Preferred Alternative will result in substantive positive socioeconomic impacts that will not occur under the No Project Alternative. Additional detail pertaining to socioeconomics impacts is provided in Section 5.10.

6.2.11 Soils

Most of the near-surface material in the project area is comprised of Holocene and Pleistocene-age fluvial and alluvial fan deposits. These deposits consist primarily of dense granular material (sand and gravel). Looser and finer-grained materials are present in some near-surface areas and within the washes. A review of aerial photographs suggests that rock outcrops of Tertiary volcanic origin may be present on the western margins of the site and to the southwest of the generator tie line (gen-tie line) corridor; larger (boulder-sized) material may also exist in these areas. The *Preliminary Geotechnical Evaluation* report prepared for the private land portion of the project site (Ninyo and Moore 2011) indicates that the near surface soils are typically poorly graded sand and silty sand with gravel, cobbles and boulders. The soils are expected to have a low shrink-swell potential based on soil types and laboratory testing, however, the report indicates that loose and gypsiferous soils are present that could be subject to settlement under loading or wetting.

Soils in the project area and along the linear project elements have a variety of characteristics depending on landform and location. The soils associated with the project features have a land capability class of 7 and are considered to have severe limitations for cultivation in their natural, non-irrigated state. Without irrigation, land uses for these soils are limited to pasture, range, or wildlife habitat. Natural vegetation in the area is very sparse and dominated by salt- and drought-tolerant species. Table 5.11-2 in Section 5.11 summarizes generalized soil characteristics of soil associations located on the project site and within a one-mile buffer, based on the component soil series, including texture, depth, drainage, permeability, and runoff potential.

No farmlands that are prime, of statewide importance, or unique as defined by the California Department of Conservation are situated on the project site, although such farmlands are located within one mile of the project site. The new access road that will be constructed north of and parallel to 34th Avenue will cross prime farmlands and farmlands of statewide importance. Farmlands of Local Importance as designated in the Riverside County General Plan are located on the project site.

The No Project Alternative will not involve construction or operation of the Project. Therefore, there will be no potential for run-off, erosion, and sediment transportation as a result of grading, ground disturbance, and vegetation removal. Existing rates of soil erosion and surface runoff will continue. While the Preferred Alternative will result in less than significant soils impacts, the potential for such impacts will be lower under the No Project Alternative. Farmlands of local importance will not be affected under the No Project Alternative. However, because soils impacts are less than significant under the Preferred Alternative (during construction and operation), the No Project Alternative will not avoid a significant impact of the Project. In addition, the No Project Alternative will not meet any of the project objectives. Farmland impacts of the No Project Alternative are discussed further under Section 6.2.6. Additional detail pertaining to soils on the project site is discussed in Section 5.11.

6.2.12 Traffic and Transportation

The project site is located in a previously disturbed area. Regional roadway facilities in the surrounding area include I-10, a four-lane, east-west interstate freeway approximately 12 miles to the north, and State Route 78, a two-lane, north-south state highway to the east. Local roadway facilities include 34th Avenue, 30th Avenue-Bradshaw Trail, Lovekin Boulevard, 28th Avenue, and Neighbours Boulevard.

All of these roadway, freeway, and state highway segments operate at Level of Service (LOS) C without the Project. All intersections operate at LOS A and freeway on- and off-ramps operate at LOS A or B without the Project. Similar to existing conditions, these freeway, state highway, and roadway segments and intersections are forecast to operate at LOS C or higher under Year 2015 No Project conditions. Public transportation does not serve the project site or its immediate vicinity.

Bradshaw Trail ~~bisects~~ runs east-to-west to the north of the project site. The current routing of Bradshaw Trail through the agricultural lands and the project site was formerly known as the Butterfield Trail, and may not represent an actual routing of the historic trail. Bradshaw Trail runs ~~through the~~ northern ~~portion~~ of the project site and is a 65-mile dirt road that is periodically graded by the Riverside County Transportation Department and managed by the BLM. Bradshaw Trail provides access to the area northern ~~portion~~ of the site. The portion that runs north of ~~through~~ the project site is primarily used as an off highway vehicle (OHV) access route.

Under the No Project Alternative, no workers will travel to the project site during construction or operation. Further, no heavy equipment or construction deliveries will be brought to the site. Planned improvements as outlined in Section 5.12 will not be made. There will be no increase in vehicle trips under the No Project Alternative. While the Preferred Alternative will have less than significant transportation and traffic impacts, such impacts will be lower under the No Project Alternative. However, because transportation and traffic impacts are less than significant under the Preferred Alternative (during construction and operation), the No Project Alternative will not avoid a significant impact of the Project. In addition, the No Project Alternative will not meet any of the project objectives. Additional detail pertaining to traffic and transportation at the project site is provided in Section 5.12.

6.2.13 Visual Resources

The project site is located on the Palo Verde Mesa within the Colorado Desert region of the desert southwest. The site itself is characterized by gently rolling open terrain and is dominated by desert scrub vegetation and well-defined ephemeral washes. The project site is previously disturbed by several off highway vehicle (OHV) trails, two 161 kilovolt (kV) transmission lines that traverse the eastern and northern boundary of the project site, and the TCGT gas transmission line that traverses the eastern boundary of the project site.

The Palo Verde Valley borders the eastern limits of the Palo Verde Mesa and project site. This area is predominantly used for agriculture and crop production. While principally open space, it is characterized by cultivated crops and other anthropogenic influences. In addition to the agricultural areas, the Palo Verde Valley also contains the Cibola National Wildlife Refuge, the Colorado River, and the communities of Palo Verde, Ripley, and Blythe. In addition to these communities, the Colorado River, Cibola NWR, and Mule Mountain Long-Term Visitor Area (LTVA) are some of the key features that attract concentrations of travelers, recreationists, and visitors to the area. BLM lands within the VSOI also contain Off Route Trails, which draw Off Highway Vehicle (OHV) users to the area. The Palo Verde Mountain Wilderness is 3.75 miles south of the Project. These mountains are distinguished by their jagged peaks and rocky outcrops, which provide contrast to the comparatively flat Palo Verde Mesa and Valley. To the west and north of the project site lie the Mule Mountains. These mountains contain the BLM-designated Mule Mountains ACEC, which is situated approximately 2 miles north and 0.7 mile west of the project site, and 0.6 mile southwest of the gen-tie line corridor. Bradshaw Trail, a designated Back Country Byway, originates near the eastern boundary of the project site and traverses westward through the Mule Mountains. Evidence of an historic mining operation is visible on portions of the mountain facade.

Based on United States Forest Service distance definitions, the Preferred Alternative was reviewed for sensitive resources within the following view ranges. In the foreground **(**0 to 0.5 mile) the observer can view details of trees, shrubs, wildflowers, and animals. In the middle ground (0.5 to 5 miles), the observer can see forest stands, natural openings, masses of shrubs, and rock outcrops. Finally, in the background (5 miles), the observer can view mountain peaks, ridgelines, and patterns of forest stands and openings. Six key observation points were identified for the project site as representative of viewers who will live, work or travel through the viewshed: the nearest residence to the site approximately 1.16 miles to the southeast (which is not currently inhabited, but assumed habitable for purposes of visual analysis), Bradshaw Trail nearly two miles to the east, Interstate 10 (I-10) approximately 11~~8~~ miles to the north, State Route 78 at

34th Avenue approximately 0.9 miles to the east, Cibola National Wildlife Refuge approximately 4.1 miles to the southeast, and Neighbours Blvd. off-ramp at I-10. There are no officially designated State scenic highways in the Project viewshed. There are no designated scenic vista points in the Project Visual Sphere of Influence.

Under the No Project Alternative, the Project will not be constructed or operated and the site will be maintained in its present state. Visual resources impacts will not occur under the No Project Alternative. However, because visual resources impacts are less than significant under the Preferred Alternative (during construction and operation), the No Project Alternative will not avoid a significant impact of the Project. In addition, the No Project Alternative will not meet any of the project objectives. Additional detail pertaining to visual resources is provided in Section 5.13.

6.2.14 Waste Management (no changes)

6.2.15 Water Resources (no changes)

6.2.16 Worker Safety (no changes)

6.3 ON-SITE ALTERNATIVES

The following sections provide an overview of the on-site alternatives that are being considered as part of the Project.

6.3.1 Description of the On-Site Alternatives

During development of the design options for the Rio Mesa SEGF, the following three on-site alternative configurations were evaluated. The major project features distinguishing the three on-site alternatives are summarized in Table 6.3-1.

1. The 750 MW MWD and BLM ~~Preferred~~ Alternative ~~(the Project or Rio Mesa SEGF)~~: three 250 MW plants located on a combination of MWD-owned private land and BLM-administered public land (see Figure 6.3-1).
2. The 750 MW MWD-Only Alternative: three 250 MW plants located solely on MWD-owned land, both to the east and to the west of the WAPA 161 kV transmission line (see Figure 6.3-2). and
3. The 500 MW MWD-Only Alternative (the Project or Rio Mesa SEGF): two 250 MW plants located solely on MWD-owned land, but only to the west of the WAPA 161 kV transmission line (see Figure 6.3-3 (rev)).

Table 6.3-1
Major Project Features Distinguishing the On-Site Alternatives

Project Features	750 MW MWD and BLM Alternative ~~Preferred Alternative~~	750 MW MWD-Only Alternative	500 MW MWD-Only Preferred Alternative
Plant Capacity (Nominal MW)	750 MW, three plants	750 MW, three plants	500 MW, two plants
Annual Production (MWHs)	2,205,000	2,205,000	1,424,600~~1,470,000~~
Solar Power Towers	Three approximately750-foot-tall towers	Three approximately 750-foot-tall towers	Two approximately 750-foot-tall towers
Solar Plant Land Ownership	MWD and BLM	MWD Only	MWD Only
Avoids Major Washes	Yes	No	Yes
WAPA Gen-tie Line Relocation	No	Yes. Along eastern project boundary.	No.
IID Transmission Line Relocation	Yes	No	No
Bradshaw Trail Alignment (see Figure 6.8-1)	Alignment is re-routed along northern Project boundary	Existing alignment	Existing alignment
Common Area Location	East of WAPA line	East of WAPA line	West of WAPA line
Preferred Access	34th Avenue	34th Avenue	Bradshaw Trail

BLM = Bureau of Land Management
gen-tie line = generator tie line
IID = Imperial Irrigation District
MW = megawatt
MWH = megawatt hours
MWD = Metropolitan Water District of Southern California
WAPA = Western Area Power Administration

Factors used to develop these on-site alternatives include Project feasibility based on technical and economic factors, and potential to accomplish most of the project objectives, as set forth in Section 6.1.3. The major project features described below are included in all of the on-site alternatives.

- Connection to the SCE grid through a new 220 kV common gen-tie line located on approximately 1,300 acres of BLM-administered land. The new gen-tie line will run north approximately 10 miles to connect to the newly-approved SCE CRS.
- Connection of the natural gas system to the TransCanada Gas Transmission Company (TCGT) North Baja Transmission Line, which passes through MWD land and adjacent to the existing WAPA 161 kV transmission line that also runs through the project site.
- Installation of on-site wells located in the common area to provide raw water.
- Installation of a raw water treatment plant in the common area to clean raw water; the water treatment system also will include evaporation ponds, on-site septic systems, and leach fields.
- Use of an air-cooled condenser for the main steam cycle to minimize water consumption.

- Construction of shared facilities, including a combined administration, control, maintenance, and warehouse building, mobile equipment maintenance facilities for the maintenance crew and operators, and a common switchyard.
- Access to the project site via 34th Avenue or Bradshaw Trail via State Route 78 to the east.

6.3.2 Right-of-Way Grant and California Desert Conservation Area Plan Amendment

The FLPMA provides a framework for the BLM to manage lands in perpetuity for the benefit of present and future generations. The law provides direction for land use planning, administration, range management, ROW grants, designated management areas (including specific locations and general designation of wilderness areas), and effects on existing rights. Each of the on-site alternatives requires a ROW grant from the BLM.

On-Site Alternative 1 will use BLM-administered public lands for development of a solar electric generating facility, ~~and~~ a common gen-tie line, a 33kV construction/emergency backup power supply line, and one of the permanent access roads. On-Site Alternatives 2 and 3 will use BLM-administered public lands solely for a common gen-tie line, a 33kV construction/emergency backup power supply line, and one of the permanent access roads. A ROW grant is an authorization to use public land for a specific project, such as transmission lines, power plants, and telecommunication sites. A ROW grant authorizes rights and privileges for a specific use of the land for a certain period of time, in accordance with appropriate terms and conditions.

Each of the on-site alternatives would be processed as a ROW authorization under FLPMA Subchapter V and CFR Title 43 Part 2800. Each on-site alternative must comply with the BLM's planning, environmental, and ROW application requirements. The BLM would consider information about project design, existing land use information, and environmental impacts. Pursuant to CFR Title 43 Section 1610.5-3, a ROW granted by BLM must be consistent with the relevant Resource Management Plan(s) (RMP). The RMPs relevant to the on-site alternatives are the California Desert Conservation Area (CDCA) Plan and the Northern and Eastern Colorado Desert (NECO) Coordinated Management Plan.

The CDCA Plan organizes BLM-administered lands into one of four multiple-use class (MUC) designations: Controlled Use (C), Limited Use (L), Moderate Use (M), and Intensive Use (I). With the exception of privately-owned parcels, the on-site alternatives including linear features are located on BLM-administered public lands designated MUC-L and MUC-M. The class designations govern the type and degree of land use actions allowed within the areas defined by class boundaries. For sites associated with power generation or transmission not identified in the CDCA Plan, a CDCA Plan Amendment Application must be submitted and approved in order for those uses to be allowed. The on-site alternatives and linear facilities are not identified in the existing CDCA Plan/NECO Plan. In accordance with Chapter 7 of the CDCA Plan, a CDCA Plan Amendment will be required for development of a solar electric generating facility and a common gen-tie line under On-Site Alternative 1 and development of a common gen-tie line under On-Site Alternatives 2 and 3 (BLM 1980).

6.3.3 Environmental Impact Analysis of the On-Site Alternatives

The following sections evaluate each on-site alternative for its ability to accomplish the project objectives, and describe the anticipated environmental impacts. An analysis of the on-site alternatives has revealed that the Preferred Alternative (On-Site Alternative 3) is believed to be the environmentally preferable alternative. Potential environmental impacts of the Preferred Alternative are presented in greater detail in Section 5.0 of this AFC.

6.3.3.1 On-Site Alternative 1 ~~– Preferred Alternative~~

~~The Preferred Alternative (the Project or Rio Mesa SEGF)~~ Alternative 1 consists of three 250 MW plants located on a combination of MWD-owned private land and BLM-administered public land, as shown on Figure 6.3-1. The private land portions of the project site are currently under option by the Applicant and meet all of the project objectives.

The layout of the heliostat field is carefully designed to minimize the placement of mirrors in the major washes located on site. Bradshaw Trail and the IID transmission line will be re-routed along the northwestern project boundary to allow for installation of heliostats on BLM land where the existing transmission line is located. ~~The Preferred Alternative accomplishes all of the project objectives as shown in Table 6.3-2.~~

Alternative 1 does not satisfy two of the project objectives and partially achieves one of the project objectives as described below in Table 6.3-2. Alternative 1 will not conform to the requirement of the 20-year Power Purchase Agreement (PPA) assigned to RMS 1for the Applicant to achieve a commercial on-line date (COD) of 2015 (project objective #7). Additionally the inclusion of RMS 3 in Alternative 1 prohibits the ability to site the Project in a timely manner (project objective #8). And while the project would develop a solar generating facility that assists BLM with its mission to approve 10,000 MW of renewable energy projects on public lands in a manner that reduces impacts (i.e., edge effects) and leverages resources being developed on private lands (i.e., shared facilities), it would not be able to do so by 2015 (project objective #12). The inclusion of RMS 3 in Alternative 1 would jeopardize the Applicant's ability to meet the 2015 COD for RMS 1.

Among the on-site alternatives, ~~the Preferred Alternative~~Alternative 1 was initially ~~is most likely to be~~ identified as the USACE Least Environmentally Damaging Practicable Alternative (LEDPA)~~. The Preferred Alternative also is~~ and the least damaging practicable alternative with regard to the aquatic ecosystem in the Application for Certification. However, through the discovery phase of the Project, information became available indicating that On-Site Alternative 3 is most likely to be identified as the USACE LEDPA and the least damaging practicable alternative with regard to the aquatic ecosystem because removal of RMS 3 would reduce impacts to Waters of the U.S.

In response to CEC Staff Data Requests Set 1B (#88-90), the Applicant provided a table (Table DR 90-1) showing the acreages of USACE jurisdictional waters that would be directly impacted by each on-site

alternative.[1] The table provides acres of direct impacts to Waters of the U.S. for Alternative 1 based on the detailed solar field, power block, and common area layout. However, because detailed layouts were not available at the time for On-Site Alternatives 2 and 3, acres of direct impacts could not be calculated to the same level of detail as for Alternative 1. Therefore, direct impacts to Waters of the U.S. were estimated for On-Site Alternatives 2 and 3 using the approach described in Table DR 90-1. The estimated approach indicated that impacts to Waters of the U.S. were lower under On-Site Alternative 3 relative to Alternative 1. Furthermore, calculations of direct impacts to Water of the U.S. based on the detailed layout that has since been created for On-Site Alternative 3 confirm that impacts to Waters of the U.S. would be lower under On-Site Alternative 3 (51 acres) relative to Alternative 1 (63.2 acres). For additional information please refer to Applicant's Response to CEC Staff Data Request Set 2B (#173-185), docketed with the CEC on July 5, 2012 (see the response to Data Request 183).

Table 6.3-2
On-Site Alternative 1 – ~~Preferred Alternative~~750 MW MWD and BLM: Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
1. Safely and economically construct and operate a nominal 750 megawatt (MW) solar generating facility in southeastern Riverside County, California capable of providing clean, renewable, competitively priced solar-generated electricity.	~~The Preferred Alternative~~ Alternative 1 will consist of three 250-MW (nominal) plants, for a total of 750 MW (nominal) of clean, renewable solar electricity.	Yes
2. Assist Southern California Edison (SCE) in meeting its obligations under the Renewables Portfolio Standard (RPS) and the California Global Warming Solutions Act.	Alternative 1 ~~The Preferred Alternative~~ will have a 750 MW (nominal) capacity and 2,205,000 megawatt-hours (MWH) annual production of renewable electricity, and will connect to the SCE grid through a new 220 kilovolt (kV) common gen-tie line that will connect to the newly approved SCE Colorado River Substation (CRS).	Yes
3. Consistent with national policy, which encourages the development of new or significantly improved technologies to "avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases" (see, e.g., 42 U.S.C. §16513[a]), use BrightSource's proprietary solar power tower technology in another utility-scale project, further proving economic viability of the technology.	Alternative 1 ~~The Preferred Alternative~~ will use BrightSource's proprietary solar power tower technology.	Yes

[1] See page 16, Table DR-90-1, of the Applicant's Response to Data Requests Set 1B (Nos. 85-154), docketed with CEC on March 28, 2012. Available at: http://www.energy.ca.gov/sitingcases/riomesa/documents/applicant/2012-03-29_Applicants_Response_to_Data_Requests_Set_1B_TN-64486.pdf

Table 6.3-2
On-Site Alternative 1 – ~~Preferred Alternative~~750 MW MWD and BLM: Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
4. Develop a project that minimizes land consumption on a MWH per acre basis.	Alternative 1 ~~The Preferred Alternative~~ will provide approximately 2,205,000 MWH annual production on approximately 5,750 developable acres, or approximately 383 MWH annual production per acre.	Yes
5. Locate the solar generating facility in an area of high insolation.	Alternative 1 ~~The Preferred Alternative~~ is located in an area of high insolation.	Yes
6. Select a site with minimal slope, predominantly five percent or less.	Alternative 1 ~~The Preferred Alternative~~ is located on a site with minimal slope, predominantly five percent or less.	Yes
7. Design and develop the Project to conform to the requirements of the site-assigned 20-year Power Purchase Agreements (PPAs) for the Applicant, including a commercial on-line date (COD) of 2015.	Alternative 1 ~~The Preferred Alternative~~ cannot feasibly achieve a commercial on-line date of 2015.	No~~Yes~~
8. Site the project in a timely and environmentally responsible manner by selecting a location with minimal potentially significant impacts, where compliance with applicable laws, ordinances, regulations and standards (LORS) is feasible.	While u~~U~~nder Alternative 1~~the Preferred Alternative~~, all impacts are less than significant and compliance with all LORS is feasible, inclusion of RMS 3 in Alternative 1 would jeopardize the Applicant's ability to site the Project in a timely manner.	~~Yes~~No
9. Secure site control within a reasonable timeframe, using a reasonable effort at a reasonable cost.	Alternative 1 ~~The Preferred Alternative~~ is located on Metropolitan Water District of Southern California (MWD)-owned private land and Bureau of Land Management (BLM)-administered public land. An option agreement already has been executed with MWD for approximately 6,741 acres of MWD land, and use of right-of-way (ROW) is available for an approximately 2,800-acre parcel of BLM-administered land.	Yes
10. Respond to MWD's requests for proposal (RFPs) to develop a solar electric generation facility on MWD-owned land.	Alternative 1 ~~The Preferred Alternative~~ responds to the MWD RFPs by developing a solar electric generation facility on MWD-owned land.	Yes

Table 6.3-2
On-Site Alternative 1 – ~~Preferred Alternative~~750 MW MWD and BLM: Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
11. Locate the Project near existing electric transmission equipment with a California Independent System Operator (CAISO) point of interconnection and natural gas infrastructure.	Alternative 1 ~~The Preferred Alternative~~ is located approximately 10 miles south of the new SCE CRS. The natural gas system of Alternative 1~~the Preferred Alternative~~ will connect to the TransCanada Gas Transmission Company (TCGT) North Baja Transmission Line, which passes through the MWD land adjacent to the existing Western Area Power Administration (WAPA) 161 kV transmission line that also runs through the site.	Yes
12. Develop a solar generating facility that assists BLM with its mission to approve 10,000 MW of renewable energy projects on public lands by 2015 in a manner that reduces impacts (i.e., edge effects) and leverages resources being developed on private lands (i.e., shared facilities).	Alternative 1~~The Preferred Alternative~~ will develop a portion of the 750 MW (nominal) facility on a 2,800 acre parcel administered by the BLM. However, Alternative 1~~The Preferred Alternative has~~ will not achieve a commercial on-line date of 2015.	Partial~~Yes~~

BLM	=	Bureau of Land Management	MWH	=	Megawatt-hour
BrightSource	=	BrightSource Energy, Inc.	PPA	=	Power Purchase Agreement
CAISO	=	California Independent System Operator	RFP	=	Requests for proposal
COD	=	commercial on-line date	ROW	=	right-of-way
CRS	=	Colorado River Substation	SCE	=	Southern California Edison
kV	=	kilovolt	TCGT	=	TransCanada Gas Transmission Company
LORS	=	laws, ordinances, regulations and standards	U.S.	=	United States
MW	=	Megawatts	WAPA	=	Western Area Power Administration
MWD	=	Metropolitan Water District of Southern California			

Air Quality

Alternative 1~~The Preferred Alternative~~ is located in the Mojave Desert Air Basin (MDAB) under the jurisdiction of the Mojave Desert Air Quality Management District (MDAQMD). For purposes of state and federal air quality planning, the MDAB is classified as a nonattainment area with respect to state ambient standards for ozone and PM_{10}. The MDAB is an attainment area or unclassified for all other state and federal criteria pollutants.

Alternative 1~~The Preferred Alternative~~ will install and operate three identical 250 MW (nominal) solar plants. Each plant will include a power block with ~~eight~~ five emitting units: ~~five~~ two natural gas-fired boilers, two diesel fuel-fired emergency engines, and a wet surface air cooler (these changes were made pursuant to the Applicant's boiler optimization proposal). Potential sources of air pollution in the common area include diesel fuel-fired emergency equipment consisting of a small emergency generator and a fire pump. Criteria air pollutant emissions also will result from mirror cleaning, which involves

combustion and fugitive dust emissions from ~~tractor-towed trailers~~mirror washing vehicles. Construction activities will be performed over a 36-month schedule. Sources of air pollution during construction include combustion and fugitive dust emissions resulting from worker and delivery vehicle trips, stationary and mobile heavy equipment operations, travel over the work site and roads, grading of the site, and earth moving.

An assessment of ambient air quality impacts of Alternative 1~~the Preferred Alternative~~ was conducted using EPA-approved air quality dispersion models. Ambient air quality impact analyses were conducted to satisfy MDAQMD and CEC requirements for analysis of impacts from criteria pollutants (i.e., NO_2, CO, PM_{10}, $PM_{2.5}$, and SO_2) and noncriteria pollutants (i.e., toxic air contaminant [TAC] emissions) during construction and operations. Emissions under Alternative 1~~the Preferred Alternative~~ are below levels requiring review under the federal Prevention of Significant Deterioration (PSD) program. The auxiliary~~,~~ startup~~,~~ and nighttime preservation boilers will be subject to New Source Performance Standards (NSPS). The boilers are exempt from the continuous opacity and SO_X monitoring requirements of the NSPS because they will burn natural gas. ~~Continuous emissions monitoring systems (CEMS) will be used to meet the NO_x monitoring requirement for the auxiliary boilers.~~ Auxiliary/s~~S~~tartup boilers will use predictive emissions monitoring for NO_X ~~in lieu of CEMS~~. Emergency generators will comply with Nonroad Tier 2 and Tier 3 emissions standards, respectively. Fire pump engines will be certified to Tier 3 Nonroad standards.

Emissions under Alternative 1~~the Preferred Alternative~~ do not meet the MDAQMD thresholds requiring best available control technology or offsets. As a result, air quality modeling analysis is not required under MDAQMD new source review regulations. Nonetheless, dispersion modeling performed demonstrates that Alternative 1~~the Preferred Alternative~~ will not interfere with the attainment or maintenance of applicable state and federal air quality standards or cause additional violations of any standards. Alternative 1~~The Preferred Alternative~~ will not result in any significant air quality impacts. Every MWH generated by Alternative 1~~the Project~~ will displace a MWH generated by a more traditional (i.e., fossil-fuel-fired) source of electricity. As a result, Alternative 1 ~~the Project~~ will lower greenhouse gas (GHG) emissions. Additional detail pertaining to air quality impacts and air quality monitoring and control of the Project is provided in Section 5.1.

While construction and operational air pollutant emissions under Alternative 1 are not expected to result in significant air quality impacts, construction and operational air quality impacts are expected to be greater under Alternative 1 relative to the Preferred Alternative (Alternative 3).

Biological Resources

Alternative 1~~The Preferred Alternative~~ is located within the boundaries of the NECO Plan, which amended the CDCA Plan (BLM, 2002). Among other things, the NECO Plan established two Desert Wildlife Management Areas (DWMAs), encompassing approximately 1.75 million acres, managed as ACECs for recovery of the Desert tortoise (a federal- and state-listed threatened species). Alternative 1~~The Preferred Alternative site~~ is located outside of DWMAs, ACECs, Herd Management Areas (HMAs), and designated critical habitat (DCH), and it will not substantially affect the integrity of these high-value biological resource areas. Additionally, Alternative 1~~the Project~~ will not substantially prevent movement to and from high-value biological areas. Construction and operations of Alternative 1~~the~~

~~Preferred Alternative~~ will result in less than significant impacts to biological resources, including special status wildlife species on the project site, Desert tortoise and Gila woodpecker.

Alternative 1~~The Preferred Alternative~~ minimizes development within the large washes located on site. Potentially jurisdictional WUS and WSC will be affected by Alternative 1.~~the Preferred Alternative. The Preferred Alternative also is the least damaging practicable alternative to the aquatic ecosystem. Therefore, the Preferred Alternative is most likely to be identified as the USACE LEDPA.~~ Among the on-site alternatives, Alternative 1 was initially identified as the USACE ~~Least Environmentally Damaging Practicable Alternative (~~LEDPA~~)~~ and the least damaging practicable alternative with regard to the aquatic ecosystem in the AFC. However, through the discovery phase of the Project, information became available indicating that On-Site Alternative 3 is most likely to be identified as the USACE LEDPA and the least damaging practicable alternative with regard to the aquatic ecosystem because removal of RMS 3 would reduce impacts to Waters of the U.S.

In response to CEC Staff Data Requests Set 1B (#88-90), the Applicant provided a table (Table DR 90-1) showing the acreages of USACE jurisdictional waters that would be directly impacted by each on-site alternative.[2] The table provides acres of direct impacts to Waters of the U.S. for Alternative 1 based on the detailed solar field, power block, and common area layout. However, because detailed layouts were not available at the time for On-Site Alternatives 2 and 3, acres of direct impacts could not be calculated to the same level of detail as for Alternative 1. Therefore, direct impacts to Waters of the U.S. were estimated for On-Site Alternatives 2 and 3 using the approach described in Table DR 90-1. The estimated approach indicated that impacts to Waters of the U.S. were lower under On-Site Alternative 3 relative to Alternative 1. Furthermore, calculations of direct impacts to Water of the U.S. based on the detailed layout that has since been created for On-Site Alternative 3 confirm that impacts to Waters of the U.S. would be lower under On-Site Alternative 3 (51 acres) relative to Alternative 1 (63.2 acres). For additional information please refer to Applicant's Response to CEC Staff Data Request Set 2b (#173-185), docketed with the CEC on July 5, 2012 (see the response to Data Request 183). Additional detail pertaining to biological resources is provided in Section 5.2.

While construction and operations under Alternative 1 are not expected to result in significant biological resources impacts, impacts are expected to be greater under Alternative 1 relative to the Preferred Alternative (Alternative 3) in proportion to the larger footprint of the 750 MW facility.

Cultural Resources

~~The Preferred Alternative~~The Alternative 1 site features cultural resources, including archaeological sites and archaeological isolated finds. Recommendations on eligibility are included in the Cultural Resources Technical Report. The historic period architectural survey identified historic-period built environment properties present in the project area. The segment of Bradshaw Trail present in the project area does not appear eligible for listing in the NRHP, CRHR or for consideration as a historical resource for purposes of CEQA.

[2] See page 16, Table DR-90-1, of the Applicant's Response to Data Requests Set 1B (Nos. 85-154), docketed with CEC on March 28, 2012. Available at: http://www.energy.ca.gov/sitingcases/riomesa/documents/applicant/2012-03-29_Applicants_Response_to_Data_Requests_Set_1B_TN-64486.pdf

Based on information received to date, avoidance of impacts to some cultural resources recommended as eligible for NRHP and CRHR appears to be feasible. Such impacts could be avoided during the final design phases of ~~the Preferred Alternative~~Alternative 1, largely because certain topography, such as large on-site washes, has been identified as being unsuitable for construction and as a result sites will be avoided. Although determinations of eligibility have yet to be made, it is anticipated that an agreement document along with treatment plans will be prepared and will resolve adverse effects to NRHP eligible resources. In addition, mitigation measures for significant resources under CEQA will reduce impacts to less-than-significant levels. With approved mitigation measures in place cultural resources impacts under ~~the Preferred Alternative~~Alternative 1 will be mitigated to less than significant levels. Additional detail pertaining to cultural resources is provided in Section 5.3.

While construction and operations under Alternative 1 are not expected to result in significant cultural resources impacts, impacts are expected to be greater under Alternative 1 relative to the Preferred Alternative (Alternative 3) in proportion to the larger footprint of the 750 MW facility.

Geologic Hazards and Resources

Based on the seismic setting, ~~the Preferred Alternative~~Alternative 1 is likely to experience strong seismic shaking within the lifetime of the Project. ~~The Preferred Alternative~~Alternative 1 will be designed in accordance with the seismic design requirements of the 2010 California Building Code (CBC), a design level geotechnical investigation, and applicable LORS. The Project will be designed and constructed to withstand earthquake shaking.

The potential for ~~the Preferred Alternative~~Alternative 1 to result in geologic hazards (i.e., liquefaction, subsidence and settlement, slope stability, expansive soils, and eolian processes) is generally considered low. However, the active alluvial channels that transect the project area, as well as the areas underlain by eolian sands may be relatively loose at or near the ground surface. Areas where the alluvial washes have incised relatively steep walls in the existing Palo Verde Mesa, as well as the eastern edge of the Palo Verde Mesa where it rises above the Colorado River Basin, have potential for slope instability as a result of natural erosion. Some large on-site washes will be avoided. ~~The Preferred Alternative~~Alternative 1 will require minor grading and excavation, thereby altering the terrain of the site. ~~The Preferred Alternative~~Alternative 1 will result in changes in drainage, cuts, and fills. The site includes soils potentially corrosive to foundation materials including steel and concrete.

Compliance with applicable LORS and a design level geotechnical report as described in Section 5.4 will ensure that the effects of ~~the Preferred Alternative~~Alternative 1 related to geologic hazards, including potentially corrosive soils, are less than significant. ~~The Preferred Alternative~~Alternative 1 will not result in a loss of availability of a known significant mineral resource that would be of value to the region and residents of the state. In addition, there is no potential for impact by a tsunami or seiche. Impacts related to geologic hazards, geologic resources, and mineral resources are less than significant. Additional detail pertaining to geologic hazards and resources is provided in Section 5.4.

Geologic hazards, geologic resources, and mineral resources impacts under Alternative 1 are not expected to differ substantially from those under the Preferred Alternative. Alternative 1 will not substantially lessen a significant impact of the Project.

Hazardous Materials Handling

~~The Preferred Alternative~~Alternative 1 will generate small quantities of hazardous materials that will be disposed in accordance with current regulations. Waste lubricating oil will be recovered and recycled by a waste oil recycling contractor, spent lubrication oil filters will be disposed of in a Class I landfill, and workers will be trained to handle hazardous wastes generated at the site.

Chemical cleaning wastes will consist of alkaline and acid cleaning solutions used during pre-operational chemical cleaning of the boilers, and acid cleaning solutions used for chemical cleaning of the boilers after the units are put into service. These wastes, which contain high concentrations of metals, will be temporarily stored on site in portable tanks or sumps, and disposed of offsite by the chemical cleaning contractor in accordance with applicable regulatory requirements.

A variety of chemicals will be stored and used during construction and operation of ~~the Preferred Alternative~~Alternative 1 site. The storage, handling, and use of all chemicals will be conducted in accordance with applicable LORS. Chemicals will be stored in appropriate chemical storage facilities. Bulk chemicals will be stored in storage tanks, if needed, and most other chemicals will be stored in returnable delivery containers. Chemical storage and chemical feed areas will be designed to contain leaks and spills. Concrete containment pits and drain pipes will be designed to allow a full-tank capacity spill to occur without the containment being breached. For multiple tanks located within the same containment area, the capacity of the largest single tank will determine the volume of the containment area and drain piping necessary. Drain pipes for reactive chemicals will contain traps and will be isolated from other drains to eliminate noxious or toxic vapors.

Safety showers and eyewashes will be provided adjacent to or in the vicinity of chemical storage and use areas. Plant personnel will use approved personal protective equipment during chemical spill containment and cleanup activities. Personnel will be properly trained in the handling of these chemicals and instructed in the procedures to follow in case of a chemical spill or accidental release. Adequate supplies of absorbent material will be stored on site for spill cleanup. Impacts related to hazardous materials handling are not expected to differ substantially among the on-site alternatives. Additional detail pertaining to hazardous materials is provided in Section 5.5.

While construction and operations under Alternative 1 are not expected to result in significant hazardous materials handling impacts, impacts are expected to be marginally but not substantially greater under Alternative 1 relative to the Preferred Alternative (Alternative 3) in proportion to the additional storage, handling, and use of hazardous materials associated with the 750 MW facility.

Land Use

~~The Preferred Alternative~~Alternative 1 will not physically divide an established community, conflict with any applicable plan, policy, or regulation adopted for purposes of avoiding or mitigating an environmental effect, including the Chocolate-Mule Mountains HMA, or convert any farmland of importance as designated by the California Department of Conservation or Riverside County currently used or proposed to be used for agricultural purposes to nonagricultural use. There are no ACECs or Wilderness Areas on the site. There are, however, prime farmlands adjacent to linears associated with the project but these are located approximately 0.3 miles to the east of ~~the Preferred Alternative~~Alternative 1 site and

approximately 0.7 miles east of the gen-tie line corridor. No land within one mile of ~~the Preferred Alternative~~Alternative 1 site or gen-tie line is subject to a Williamson Act contract. Farmlands may be indirectly affected by ~~the Preferred Alternative~~Alternative 1, but impacts will be less than significant.

Similar to the Preferred Alternative (Alternative 3), ~~A~~a small portion of active farmland will be converted to nonagricultural use as a result of the access road improvements and paving of 34th Avenue. However, the small amount of farmland necessary for road improvements will result in a small effect to agricultural land that is within existing Riverside County ROW for purposes of road improvements, and will not significantly alter agricultural uses in the Study Area. This is considered a less than significant impact.

The Applicant submitted a Change of Zone Application to the Riverside County Planning Department to ensure consistency with applicable land use plans, policies, and regulations. Although ~~the Preferred Alternative~~Alternative 1 will install fencing that will close off a portion of the Chocolate-Mule Mountains Herd Area (HA), the Chocolate Mule Mountains HMA is located approximately 10 miles to the south of the Project and will not be affected.

Bradshaw Trail, which is used primarily as an OHV route, runs through a portion of the ~~Preferred Alternative~~Alternative 1 site. Once complete, the construction and operation of ~~the Preferred Alternative~~Alternative 1 are not anticipated to conflict with any LORS. Additional detail pertaining to land use is provided in Section 5.6 and Section 6.6.2.

Land use impacts under Alternative 1 are not expected to differ substantially from those under the Preferred Alternative. Alternative 1 will not substantively lessen a significant impact of the Project.

Noise

~~The Preferred Alternative~~Alternative 1 will result in temporary noise level increases during construction and long-term noise level increases during operations. Sources of noise during construction include site clearing and excavation, concrete pouring, steel erection, mechanical, cleanup, concrete batch plants, and heliostat post installation. The loudest pieces of construction equipment include heavy duty trucks, scrapers, cranes, pneumatic tools, rock drills, concrete batch plants, and vibratory pile drivers. Construction is expected to occur 24 hours a day, seven days a week.

Primary sources of noise during operation include the SRSG, Air Cooled Condenser (ACC) fans, auxiliary boilers, start-up boilers, start-up vents, as well as various other equipment pieces including pumps, fans, transformers, and preservation boilers.

Noise sensitive receptors identified in the project vicinity include residential properties along State Route 78 between Lugo Road and 32nd Avenue, and a small cluster of mobile homes located northwest of the intersection of Palo Verde Road and Spencer Road. There are no schools or hospitals within a two-mile distance from the project boundary, a buffer zone that should be large enough to include per CEC Siting Regulations Appendix B (g)(4)(a) an area "where, during either construction or operation, there is a potential increase of 5 dBA or more, over existing background levels."

Construction noise and vibration will not be felt or heard at any local schools or in towns in the project area. Noise generated will be contained mainly at the site and attenuation from the ground between the

Palo Verde Mesa and residences in the valley is expected to absorb any sound waves that could adversely affect sensitive receptors. Noise level increases will likely result from construction equipment, and, since construction will be occurring largely during daylight hours, any impacts will be temporary and during business hours. Because all increases over existing daytime ambient sound are anticipated to be five dBA or less, daytime aggregate construction noise is expected to be less than significant.

Night-time construction will be limited to activities that require around-the-clock support, such as solar tower construction. Notification to sensitive receptors in the area will be made prior to the commencement of around-the-clock construction work. Because all increases over existing nighttime ambient sound are anticipated to be six dBA or less, nighttime aggregate construction noise is expected to be less than significant. No significant noise impacts will result from the construction laydown area, steam blow noise, or construction-generated vehicle trips on State Route 78. Therefore, noise impacts will be less than significant during construction of ~~the Preferred Alternative~~Alternative 1.

Predicted full operation noise levels from ~~the Preferred Alternative~~Alternative 1 do not exceed 40 dBA hourly Leq at noise-sensitive receptors or cause an increase greater than 5 dBA over existing ambient sound levels. For these reasons, full power generation operation of ~~the Preferred Alternative~~Alternative 1 will have less than significant noise impacts. Since start-up and nighttime operations will generate lower noise levels than full operations, neither startup nor nighttime operations will result in significant noise impacts. No significant noise impacts will result from project maintenance (e.g., mirror washing), power transmission, tonal noise, or ground and airborne vibration. Additional detail pertaining to noise is provided in Section 5.7.

Noise impacts under Alternative 1 are not expected to differ substantially from those under the Preferred Alternative. Alternative 1 will not substantially lessen a significant impact of the Project.

Paleontological Resources

~~The Preferred Alternative~~Alternative 1 will have potentially adverse impacts to paleontological resources during construction ground disturbance activities including clearing of vegetation, grading, excavating for structure foundations, trenching for pipelines or utilities, and building of access roads. The construction of supporting facilities, such as temporary construction areas, laydown areas, and parking areas, also will have potentially adverse impacts to paleontological resources. A properly designed and implemented mitigation program will ensure that potential impacts of construction ground disturbance activities are less than significant.

Operation of ~~the Preferred Alternative~~Alternative 1 will have less than significant impacts to paleontological resources if the access roads between heliostats are paved. If access roads are on the bare surface of the mesa, mitigation measures will be needed to ensure paleontological resources impacts are less than significant. Additional detail pertaining to paleontological resources is provided in Section 5.8.

While construction and operations under Alternative 1 are not expected to result in significant paleontological resources impacts, impacts are expected to be greater under Alternative 1 relative to the Preferred Alternative (Alternative 3) in proportion to the larger footprint of the 750 MW facility.

Public Health and Safety

Public health impacts for the proposed solar generating facility are primarily related to air quality. However, the nature of the proposed facility is such that it will not pose significant health risks at any location, under any weather conditions, and under any operating conditions. It will not generate concentrations of pollutants that result in significant public health impacts.

There are no sensitive receptors in close enough proximity to this alternative to experience adverse public health effects from the concentrations of pollutants produced during construction and operations. The nearest residence to the project site boundary is approximately 8,200 feet south of the solar array fence line for Plant 1. The nearest residence to any power block equipment is approximately 13,120 feet east of the Plant 3 power block. No daycare, hospital, park, preschool, or school receptors were found within six miles of the project site.

Criteria air pollutant emissions will be below levels that exceed ambient air quality standards or add a significant contribution of PM_{10}, background concentrations of which already exceed ambient standards. Public health impacts will be less than significant under ~~the Preferred Alternative~~Alternative 1. Additional detail pertaining to public health and safety is provided in Section 5.9.

Public health impacts under Alternative 1 are not expected to differ substantially from those under the Preferred Alternative. The nature of the proposed facilities are such that neither a 500 MW facility under Alternative 3 nor a 750 MW facility under Alternative 1 will pose significant health risks at any location, under any weather conditions, and under any operating conditions. Alternative 1 will not substantively lessen a significant impact of the Project.

Socioeconomics

The most significant socioeconomic benefits of ~~the Preferred Alternative~~Alternative 1 are the creation of jobs and additional revenues. The benefits of ~~the Preferred Alternative~~Alternative 1 include the creation and introduction of 2,500 jobs at the peak of construction, and up to 150 jobs during long-term operation and maintenance of ~~the Preferred Alternative~~Alternative 1.

Most of the construction workforce for ~~the Preferred Alternative~~Alternative 1 is expected to be hired from labor unions affiliated with the Building and Construction Trades Council in Riverside, California as well as other labor unions in the surrounding area. In addition, construction of ~~the Preferred Alternative~~Alternative 1 also will support employment and wages in other industries in Riverside County, with impacts related to spending by workers likely to occur in the communities surrounding the site. Total construction payroll will be approximately $661 million over the approximately three-year construction period. Local expenditures for construction materials and supplies are expected to total approximately $102 million during the construction phase, within the four counties of this study area. In the event purchases are made within Riverside County, which has a tax rate of 7.75 percent as of July 1, 2011, construction will generate approximately $8 million in total sales tax, or approximately $2.6 million each year over the construction phase of ~~the Preferred Alternative~~Alternative 1. As a result, the construction phase is expected to have positive impacts through increased sales tax revenue. Construction materials and supplies purchased within this study area will likely include, but are not limited to,

concrete, rebar, formwork materials, asphalt, fencing, and local purchases in support of field staff. The total capital cost of construction of ~~the Preferred Alternative~~Alternative 1 is approximately $3 billion.

Based on the assumptions stated above, the total estimated beneficial economic impacts from the 36-month construction period within the study area will be as follows (rounded values in 2011 dollars):

- Direct (Preferred Alternative) income creation: $102 million
- Indirect income creation: $16.1 million
- Induced income creation: $222.7 million
- Total income creation: $899.4 million

Additionally, using the assumptions above during the construction phase, ~~the Project~~Alternative 1 will create estimated employment within the study area as follows:

- Direct (Project) employment: 1,040
- Indirect employment: 257
- Induced employment: 4,631
- Total employment creation: 5,928

This additional employment is a result of Alternative 1~~the Project~~'s local construction expenditures on materials and supplies as well as from spending by local construction workers.

When completed, Alternative 1~~the Project~~ is expected to result in approximately 150 full-time living-wage jobs in Riverside County, with an annual payroll of approximately $16.4 million, which will include all salaries, overtime, benefits, and incentives. Approximately 85 percent or $14 million of annual payroll will be paid to permanent employees, and the remaining 15 percent or about $2.4 million will be paid to short-term contract operations employees. Operations employees will include management, engineering, administrative staff, skilled workers, and operators. Most of these employees will be hired locally; however, some will be hired from existing Applicant staff. During the operations phase, Alternative 1~~the Project~~'s estimated annual employment creation within Riverside County will be as follows (rounded values):

- Direct (Project) employment: 150
- Indirect employment: 1
- Induced employment: 89
- Total employment creation: 240

These impacts will occur in Riverside County and will occur on an annual basis for the duration of Alternative 1~~the Project~~ operation.

In addition, an annual operations and maintenance budget of $880,000 will be spent locally (within Riverside County) on goods and supplies. The total economic impacts of operation of Alternative 1~~the Project~~ were estimated using an input-output model that was developed with IMPLAN modeling software

and data (Minnesota IMPLAN Group 2011). The annual estimated economic impacts from the operation of Alternative 1~~the Project~~ within Riverside County will be as follows (rounded values in 2011 dollars):

- Direct (total labor costs) income: $16.4 million
- Indirect income: $53,746
- Induced income: $3.5 million
- Total income creation: $19.9 million

Local purchases of materials, supplies, equipment, and services are expected to total approximately $68,200 a year in sales tax revenue once the Project is fully operational. The estimate of annual property tax is approximately $7 million based on current tax law. These benefits will occur in Riverside County on an annual basis for the duration of Alternative 1~~the Project~~ operation.

Potential impact to schools and public services are anticipated under ~~the Preferred Alternative~~Alternative 1. Schools in Palo Verde Unified School District are below enrollment capacity, and enrollment levels have been, and are expected to continue, declining. ~~The Preferred Alternative~~Alternative 1 will not adversely affect enrollment and associated facility and staffing impacts by the district. Moreover, ~~the Preferred Alternative~~Alternative 1 will not adversely affect local housing supply, public services, facilities, or utilities. Because of the substantial number of jobs created, the associated local spending in the area to support the construction and operation of Alternative 1~~the Project~~, and the tax revenue associated with a project of this magnitude, ~~the Preferred Alternative~~Alternative 1 will have a substantial positive socioeconomic impact. Additional detail pertaining to socioeconomics is provided in Section 5.10.

While construction and operations under Alternative 1 and the Preferred Alternative will both result in beneficial socioeconomic impacts, beneficial impacts are expected to be greater under Alternative 1 relative to the Preferred Alternative (Alternative 3) in proportion to the size of the additional solar plant. However, Alternative 1 would not substantially lessen a significant socioeconomic impact of the Project.

Soils

The potential for direct impacts to soils associated with ~~the Preferred Alternative~~Alternative 1 will be greatest during construction, when there is increased potential for run-off, erosion, and sediment transportation as a result of disturbance, grading, and removal of vegetation (where necessary). Additionally, grading will be associated with the relocation of Bradshaw Trail and portions of the IID transmission line, and in the developed sections of the common area, such as the administrative building, heliostat assembly building complex, and the evaporation ponds.

~~The Preferred Alternative~~Alternative 1 will implement significant erosion control measures during construction to prevent accelerated soil erosion and dust generation that could reduce soil productivity and adversely impact water quality. These measures will address both water erosion and wind erosion. ~~The Preferred Alternative~~Alternative 1 will implement temporary BMPs during construction in accordance with the Storm Water Pollution Prevention Plan (SWPPP) required by the California State Water Resources Control Board for all construction projects over one acre in size and the drainage, erosion, and sediment control plan (DESCP) required by the CEC. In addition, ~~the Preferred~~

~~Alternative~~Alternative 1 will incorporate strategies that take advantage of the site's natural attributes to reduce temporary impacts during construction, including restricting the amount of land that is cleared and graded, preserving vegetation where it will not interfere with construction or operation, minimizing soil compaction and decompacting soils where necessary, revegetation of areas, and stormwater control design that promotes sheet flow and greater infiltration rather than channelization and concentration of stormwater.

Compliance with existing LORS will ensure that temporary impacts of ~~the Preferred Alternative~~Alternative 1 to soils, including erosion and disturbance, are less than significant during construction.

Operation of Alternative 1~~the Project~~ will not result in significant impacts to the soil from erosion or compaction. Routine vehicle traffic during operations will be limited to proposed roads, most of which will be paved or covered with gravel. Access routes will also be graded between alternate rows of the heliostat arrays to permit bi-weekly washing of the mirrors with a pick-up truck-mounted tanker. These same routes will be used for the occasional cutting of vegetation to reduce the risk of fire due to plant regrowth.

When linear facilities need to be inspected or maintained, vehicle traffic near these areas will be limited to that necessary to perform the inspection or maintenance activity. Preparation and implementation of an Industrial SWPPP in accordance with the statewide General Industrial Permit will ensure that soil impacts are less than significant during operations. Emissions, principally NOX from the auxiliary boilers, will result in less than significant impacts to soil-vegetation systems. Mitigation measures to ensure that soils impacts of ~~the Preferred Alternative~~Alternative 1 are less than significant are described in Section 5.11. Additional detail pertaining to soils is provided in Section 5.11.

While construction and operations under Alternative 1 are not expected to result in significant soils impacts, impacts are expected to be greater under Alternative 1 relative to the Preferred Alternative (Alternative 3) in proportion to the larger footprint of the 750 MW facility.

Traffic and Transportation

~~The Preferred Alternative~~Alternative 1 will generate vehicle trips during the temporary construction period as well as long-term operations. Vehicle trips will include construction and operations employees as well as delivery trucks. The Alternative 1~~project~~ site can be accessed from 34th Avenue and 30th Avenue (Bradshaw Trail). The preferred access to the site will be along 34th Avenue. Truck traffic will only use the preferred access at 34th Avenue. In conjunction with construction and operation of ~~the Preferred Alternative~~Alternative 1, the segment of 34th Avenue between the Alternative 1~~project~~ site and State Route 78 will be paved as a two lane undivided roadway and the eastbound approach at the intersection of State Route 78 and 34th Avenue will be improved to include a stop sign.

During construction, the recommended access route to the project site for 50 percent of workers and delivery trucks will be 34th Avenue via State Route 78. The recommended access route to the Alternative 1~~project~~ site for the remaining 50 percent of workers will be 30th Avenue via Lovekin Boulevard. Alternative access routes include 30th Avenue (Bradshaw Trail) via State Route 78 and 22nd Avenue via

State Route 78. Delivery trucks will not use the 30th Avenue via Lovekin Boulevard access route or the 22nd Avenue access route during construction.

During the peak construction month, construction workers will not arrive at the same time during the morning peak period (7:00 AM to 9:00 AM) or depart at the same time during the evening peak period (4:00 PM to 6:00 PM). The traffic analysis for the construction phase of ~~the Preferred Alternative~~Alternative 1 is based on a single-shift, 10-hour day and 40-hour week, but assumes some construction workers will work 8-hour shifts and depart the Alternative 1~~project~~ site between 2:00 PM to 4:00 PM, which is outside of the evening peak period (4:00 PM to 6:00 PM). In order to provide a worst-case analysis scenario that conservatively exceeds anticipated construction conditions, the traffic analysis conservatively assumes that more than half (55 percent) of the worker vehicles will arrive during the morning peak period (7:00 AM – 9:00 AM) and leave the site during the evening peak period (4:00 PM to 6:00 PM).

Construction vehicle trips during the peak month of construction under ~~the Preferred Alternative~~Alternative 1 will result in less than significant impacts to freeway, highway, and roadway segments and intersections. All freeway and highway roadway segments are forecast to continue to operate at LOS C during construction. Intersections are forecast to operate at LOS D or better.

Traffic impacts during operations will be less than significant under ~~the Preferred Alternative~~Alternative 1. Operations will not adversely affect LOS for any freeway, highway, roadway, or intersection. Freeway, highway, and roadway segments will continue to operate at LOS C during long-term operations. Intersections will continue to operate at LOS A during long-term operations with the exception of the intersection of State Route 78 and 22nd Avenue, which will change from LOS A to LOS B during the PM peak hour. Additional detail pertaining to traffic and transportation is provided in Section 5.12.

While construction and operations under Alternative 1 are not expected to result in significant transportation and traffic impacts, impacts are expected to be greater under Alternative 1 relative to the Preferred Alternative (Alternative 3) in proportion to the additional construction and operational vehicle trips associated with the larger footprint of the 750 MW facility.

Visual Resources

~~The Preferred Alternative~~Alternative 1 will be a new, dominant feature of the landscape visible from population centers in the area. This alternative will change the existing visual character of the area, but the moderate to low scenic quality in the project area will not be adversely affected by ~~the Preferred Alternative~~Alternative 1. The solar power towers are the most visually noticeable elements of ~~the Preferred Alternative~~Alternative 1. They will change the character of the area, but they will not visually dominate the area in a manner that would substantially degrade existing visual character or the quality of the site and its surroundings. The new transmission lines will be located adjacent to existing WAPA and SCE transmission lines and, as such, will not result in a significant change to the existing landscape. Existing open and expansive views existing in the area will not be occluded by ~~the Preferred Alternative~~Alternative 1. Neither day nor nighttime views in the area will be adversely affected by new sources of substantial light and glare associated with ~~the Preferred Alternative~~Alternative 1.

High-sensitivity viewpoints identified in the study area include existing nearby residences, the Palo Verde Mountain Wilderness, Cibola NWR, and recreational users traveling along Bradshaw Trail. Moderate-sensitivity viewers identified in the study area consist of recreational users travelling along State Route 78 and I-10. The more distant open space and agricultural areas were identified as moderate-to-low sensitivity views due to the fact this area is used for food production and not recreation. Some portions of the ~~Preferred Alternative~~Alternative 1 site are likely to be visible from these viewpoints. ~~The Preferred Alternative~~Alternative 1 will not result in significant visual impacts to any views or viewpoints for a variety of reasons including the moderate to low quality of existing views, the higher elevation of ~~the Preferred Alternative~~Alternative 1 on Palo Verde Mesa relative to viewpoints, and the presence within viewsheds of natural and man-made features including transmission lines, agricultural activities, vegetation, topography, berms, and elevated irrigation ditches.

Visual resources impacts are less than significant. Additionally, the Project may draw positive visual interest to the area as one of the largest projects of its kind in California. Some viewers may see the Project as having a beneficial visual resources impact. Additional detail pertaining to visual resources is provided in Section 5.13.

While construction and operations under Alternative 1 are not expected to result in significant visual resources impacts, impacts are expected to be greater under Alternative 1 relative to the Preferred Alternative (Alternative 3) in proportion to the larger footprint and one additional 750-foot-tall tower associated with the 750 MW facility.

Waste Management

Small amounts of construction and demolition waste will be generated during construction of Alternative 1~~the Project~~, and incremental amounts of hazardous and non-hazardous waste will be generated during operation. Most of the hazardous and non-hazardous waste generated during construction and operation will be recycled. The non-hazardous waste that cannot be recycled will be disposed of in Class I and Class III landfills in California, consistent with applicable LORS. The capacity of Class I and Class III landfills is listed in Table 5.14-2. The recycling and disposal capacities of the landfills are adequate to handle the waste generated under Alternative 1~~at the Project~~.

Alternative 1~~The Project~~ will generate non-hazardous solid waste that will add to the total waste generated in Riverside County and in California. However, adequate recycling and landfill capacities exist to handle the waste generated by Alternative 1~~the project~~, as well as additional projects in Riverside County. The majority of the waste generated during construction and operation will be recycled. The solid waste anticipated to be generated under Alternative 1~~at the project site~~ during construction and operation will be disposed as indicated in Tables 5.14-3 and 5.14-4. Approximately 3,089,583 tons of solid waste was reported to have been placed in landfills in Riverside County in 2010 (CIWMB 2011). Therefore, Alternative 1~~the Project~~'s impact on solid waste disposal capacity will be less than significant.

Alternative 1~~The Project~~ will generate hazardous waste that will add to the total waste generated in Riverside County. Most hazardous waste generated by Alternative 1~~the Project~~ will be recycled. Hazardous waste treatment and disposal capacity in California is adequate to handle the hazardous waste generated by Alternative 1~~the Project~~. Significant impacts will not occur. Additional detail pertaining to waste management is provided in Section 5.14.

Despite generating more waste, this alternative is essentially the same as the Preferred Alternative (Alternative 3) from a waste management perspective. Adverse environmental impacts associated with waste management will be less than significant under Alternative 1 and the Preferred Alternative. Alternative 1 will not substantively lessen a significant impact of the Project.

Water Resources

Alternative 1~~The project site~~, located in Palo Verde Mesa, is underlain by the Palo Verde Mesa Groundwater Basin (PVMGB). Water resources management and use fall under the jurisdiction of Riverside County Department of Public Works, the California Regional Water Quality Control Board (RWQCB), Colorado River Basin Region, the California Department of Toxic Substances Control, the United States Army Corps of Engineers, the United States Environmental Protection Agency, the United States Bureau of Reclamation, the BLM, and local water districts and agencies.

Operations have the potential to impact water quality primarily through improper storage and use of materials. ~~The Preferred Alternative~~Alternative 1 will adhere to proper material storage and handling as well as any other applicable good housekeeping procedures. Construction and operation of ~~the Preferred Alternative~~Alternative 1 will employ stormwater design BMPs and adhere to a SWPPP, State water quality standards, and other applicable federal, state, and local LORS addressing stormwater runoff and surface water quality. As a result, drainage patterns, drainage volumes and peak flow rates from the site will be similar to existing conditions. Since natural channels/washes will be minimally disturbed and occupied structures will not be placed in areas identified as located within a 100-year floodplain, flooding conditions for ~~the Preferred Alternative~~Alternative 1 will be similar to those under existing conditions. Therefore, construction and operation of ~~the Preferred Alternative~~Alternative 1 will have a less than significant impact to surface water runoff.

~~The Preferred Alternative~~Alternative 1 will require use of approximately 400 acre-feet per year (afy) of groundwater for construction and up to 260 afy during operation. The primary uses of groundwater during construction will be for dust control and the on-site concrete batch plant. During operations water will be used for process make-up, auxiliary system augmentation cooling, mirror washing, dust control, drinking, and for domestic sanitary purposes. Groundwater will be accessed through wells that will be installed on site, and wastewater will be discharged to a treatment process to the extent practicable. Concentrate from the wastewater treatment will be disposed into two evaporation ponds located in the common area. Alternative 1~~The Project~~ will use less than half of its available annual water allocation from the Metropolitan Water District of Southern California during operations and approximately two-thirds of the allocation during peak construction. Over 25 to 30 years, Alternative 1~~Project~~ water use would constitute less than 0.2 percent of total water estimated in storage within the PVMGB (6.8 million acre feet). As a result, the amount of groundwater use by Alternative 1~~the Project~~ is considered a less than significant impact. Additionally, ~~the Preferred Alternative~~Alternative 1 will comply with existing LORS addressing groundwater quality and wastewater discharge. As described above, Alternative 1~~the Project~~ will discharge wastewater to a treatment process. Mitigation measures to help reduce water resources impacts to a less than significant level are described in 5.15. Additional detail pertaining to water resources is provided in Section 5.15.

While construction and operations under Alternative 1 are not expected to result in significant water resources impacts, impacts are expected to be greater under Alternative 1 relative to the Preferred Alternative (Alternative 3) in proportion to the additional water use associated with the larger footprint of the 750 MW facility.

Worker Safety

Impacts relating to worker safety will be mitigated through implementation of worker training programs that are designed to address the specific hazards of the job. Jobs and associated risks will be identified at periodic safety tailgate meetings. On-site activities will be discussed and coordinated to prevent potential injuries from occurring to workers, as well as subcontractor crews. In addition, exposures to hazards will be minimized using applicable personal protective equipment programs and other preventive measures that will comply with all health and safety LORS. A comprehensive health, safety, and fire prevention program and an accident, injury and illness prevention program that will address issues such as potential UXO found on site will be compiled prior to construction and operation of ~~the Preferred Alternative~~Alternative 1. Additional detail pertaining to worker safety is provided in Section 5.16.

Impacts relating to worker safety will be activity-specific rather than site-specific. Regardless of the site location, the Applicant will arrange for all health and safety plans to be in place ahead of time, and all exposures to hazards will be minimized, using applicable personal protective equipment programs and other preventive measures complying with all health and safety LORS. A comprehensive health and safety program, fire prevention program, and accident/injury/illness prevention program will be compiled prior to construction, as well. Worker safety impacts under Alternative 1 are not expected to differ substantially from those under the Preferred Alternative. Alternative 1 will not substantially lessen a significant impact of the Project.

6.3.3.2 On-Site Alternative 2

The major project features distinguishing On-Site Alternative 2 from the Preferred Alternative (Alternative 3) are summarized in Table 6.3-3 and described below. In addition, Alternative 2 is shown on Figure 6.3-2. Alternative 2 features are described below.

- Construction and operation of three 250 MW nominal capacity plants solely on MWD-owned land (i.e., plants will not be constructed on BLM-administered public land).
- Relocation of the WAPA 161 kV line to the eastern boundary of the site (due to the technical infeasibility of beaming across a transmission line).
- ~~Construction of a new gen-tie line connecting Alternative 2 to the SCE CRS. The gen-tie line will cross the existing Bradshaw Trail, but the trail will not be affected by the solar field layout. Bradshaw Trail will not need to be relocated.~~
- Grading within all large washes on the site prior to installation of the heliostats in order to accommodate all three plants within MWD-owned land.

Alternative 2 does not satisfy four of the project objectives as described below in Table 6.3-3. Project objectives that will not be achieved by Alternative 2 include: 1) building on slopes less than five percent;

2) conforming to the 2015 commercial on-line date requirement of the 20-year PPAs for the Applicant; 3) siting the project in a timely manner by selecting a location with minimal potentially significant impacts; and 4) assisting BLM with its mission to approve 10,000 MW of renewable energy projects on public lands by 2015.

Table 6.3-3
On-Site Alternative 2 – 750 MW MWD-Only Alternative
Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
1. Safely and economically construct and operate a nominal 750 megawatt (MW) solar generating facility in southeastern Riverside County, California capable of providing clean, renewable, competitively priced solar-generated electricity.	Alternative 2 will consist of three 250 MW (nominal) plants, for a total of 750 MW (nominal) of clean, renewable solar electricity.	Yes
2. Assist Southern California Edison (SCE) in meeting its obligations under the Renewables Portfolio Standard (RPS) and the California Global Warming Solutions Act.	Alternative 2 will have a 750 MW (nominal) capacity and 2,205,000 megawatt-hours (MWH) annual production of renewable electricity, and will connect to the SCE grid through a new 220 kilovolt (kV) common gen-tie line that will connect to the new SCE Colorado River Substation (CRS).	Yes
3. Consistent with national policy, which encourages the development of new or significantly improved technologies to "avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases" (see, e.g., 42 U.S.C. §16513[a]), use BrightSource's proprietary solar power tower technology in another utility-scale project, further proving economic viability of the technology.	Alternative 2 will use BrightSource's proprietary solar power tower technology.	Yes

Table 6.3-3
On-Site Alternative 2 – 750 MW MWD-Only Alternative
Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
4. Develop a project that minimizes land consumption on a MWH per acre basis.	The Alternative 2 will provide approximately 2,205,000 MWH annual production on approximately 5,750 developable acres, or approximately 383 MWH annual production per acre.	Yes
5. Locate the solar generating facility in an area of high insolation.	Alternative 2 is located in an area of high insolation.	Yes
6. Select a site with minimal slope, predominantly five percent or less.	Alternative 2 will involve development in the large washes on lands exceeding a slope of five percent. The Preferred Alternative (Alternative 3) avoids the large washes on site.	No
7. Design and develop the Project to conform to the requirements of the site-assigned 20-year Power Purchase Agreements (PPAs) for the Applicant, including a commercial on-line date (COD) of 2015.	Alternative 2 will require relocation of the existing Western Area Power Administration (WAPA) transmission line, the coordination of which will likely delay the COD beyond 2015. The Preferred Alternative (Alternative 3) does not require relocation of the WAPA line.	No
8. Site the project in a timely and environmentally responsible manner by selecting a location with minimal potentially significant impacts, where compliance with applicable laws, ordinances, regulations and standards (LORS) is feasible.	Compared to the Preferred Alternative (Alternative 3), Alternative 2 results in greater adverse impacts to air quality, biological resources, cultural resources, paleontological resources, soils, transportation and traffic, visual resources, and water resources.	No
9. Secure site control within a reasonable timeframe, using a reasonable effort at a reasonable cost.	Alternative 2 is located on Metropolitan Water District of Southern California (MWD)-owned private land. An option agreement already has been executed with MWD for approximately 6,741 acres of MWD land.	Yes
10. Respond to MWD's requests for proposal (RFPs) to develop a solar electric generation facility on MWD-owned land.	Alternative 2 responds to the MWD RFPs by developing a solar electric generation facility on MWD-owned land.	Yes

Table 6.3-3
On-Site Alternative 2 – 750 MW MWD-Only Alternative
Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
11. Locate the Project near existing electric transmission equipment with a California Independent System Operator (CAISO) point of interconnection and natural gas infrastructure.	Alternative 2 is located 10 miles south of the new SCE CRS. The natural gas system of the Preferred Alternative will connect to the TransCanada Gas Transmission Company (TCGT) North Baja Transmission Line, which passes through MWD land adjacent to the existing WAPA 161 kV transmission line that also runs through the site.	Yes
12. Develop a solar generating facility that assists BLM with its mission to approve 10,000 MW of renewable energy projects on public lands by 2015 in a manner that reduces impacts (i.e., edge effects) and leverages resources being developed on private lands (i.e., shared facilities).	Alternative 2 will develop all three solar power plants on Metropolitan Water District of Southern California (MWD)-owned private land. BLM land will not be used to generate renewable energy. ~~Only~~ Portions of the gen-tie line, 33kV construction/emergency backup power supply line, and the upgraded Bradshaw Trail access road will be located on BLM land under Alternative 2.	No

BLM = Bureau of Land Management
BrightSource = BrightSource Energy, Inc.
CAISO = California Independent System Operator
COD = commercial on-line date
CRS = Colorado River Substation
kV = kilovolt
LORS = laws, ordinances, regulations and standards
MW = megawatts
MWD = Metropolitan Water District of Southern California
MWH = Megawatt-hour
PPA = Power Purchase Agreement
RFP = request for proposals
SCE = Southern California Edison
TCGT = TransCanada Gas Transmission Company
WAPA = Western Area Power Administration

Air Quality

Alternative 2 is located in the same air basin as the Preferred Alternative (Alternative 3): the MDAB under the jurisdiction of the MDAQMD. ~~Like the Preferred Alternative,~~ Alternative 2 will install and operate three identical 250 MW (nominal) solar plants, whereas the Preferred Alternative (Alternative 3), will install and operate two 250 MW (nominal) solar plants. ~~Each plant~~Alternative 2 will include ~~a~~ three power blocks, each with the same ~~eight~~ five emitting units: ~~five~~two natural gas-fired boilers, two diesel fuel-fired emergency engines, and a wet surface air cooler, while ~~as~~ the Preferred Alternative will include two power blocks with the same five emitting units each: two~~five~~ natural gas-fired boilers, two diesel fuel-fired emergency engines, and a wet surface air cooler (these changes were made pursuant to the Applicant's boiler optimization proposal). The Alternative 2 common area will include the same diesel fuel-fired emergency equipment as the Preferred Alternative (Alternative 3), consisting of a small emergency generator and a fire pump. Criteria air pollutant emissions resulting from mirror cleaning

including combustion and fugitive dust emissions will be greaternot be different since this aAlternative 2 will employ the samea greater scope of mirror cleaning on the same schedule as relative to the Preferred Alternative (i.e., Alternative 2 will involve washing of approximately 85,000 additional heliostats). Alternative 2 will be operated in the same fashion as the Preferred Alternative (Alternative 3), but will consist of one additional solar plant. Therefore, Ooperational air quality impacts of Alternative 2 will benot differ substantively greater than from the Preferred Alternative (Alternative 3). Same as the Preferred Alternative (Alternative 3), operations of emitting units under this alternative will comply with applicable LORS as described in Section 5.1. In conclusion, operations under this alternative are essentially the same as the Preferred Alternative from an air quality perspective. While operational air pollutant emissions under Alternative 2 are not expected to result in a significant air quality impacts, operational air quality impacts are expected to be greater under Alternative 2 relative to the Preferred Alternative (Alternative 3). However, operational air quality impacts will be less than significant under both Alternative 2 and the Preferred Alternative (Alternative 3).

In general, construction under this alternative will consist of similar types and magnitude of activities over the same 36-month schedule, including Alternative 2 will result in greater criteria air pollutant emissions during construction relative to the Preferred Alternative (Alternative 3) due to additional worker and delivery vehicle trips, stationary and mobile heavy equipment operations, travel over the work site and roads, grading of the site, and earth moving associated with construction of an additional solar plant (i.e., power block area, approximately 85,000 heliostats, a ring road, and spoke roads). HoweverAdditionally, two project features of Alternative 2 will further contribute toresult in greater criteria air pollutant emissions during construction relative to the Preferred Alternative (Alternative 3): grading within the large washes avoided in the Preferred Alternative (Alternative 3) and relocation of the WAPA line, which is not relocated in the Preferred Alternative (Alternative 3). Additional grading activities within the large washes will increase emissions associated with fugitive dust and combustion emissions from vehicles and heavy equipment. Relocation of the WAPA transmission line will involve a substantive increase in construction vehicle trips, equipment use, ground disturbance, and dust generation relative to the Preferred Alternative (Alternative 3).

Greater criteria air pollutant emissions under Alternative 2 can be addressed through construction BMPs and compliance with applicable LORS. Nevertheless, the greater criteria air pollutant emissions during construction of Alternative 2, while not likely to result in a significant impact, constitute a higher potential for adverse air quality impacts relative to the Preferred Alternative (Alternative 3).

Biological Resources

Alternative 2 will result in greater biological resources impacts due to additional grading activities and site disturbance associated with and construction of an additional solar plant (i.e., power block area, approximately 85,000 heliostats, a ring road and spoke roads), development within the large washes and grading and ground disturbance associated with relocation of the WAPA transmission line. These washes are potentially jurisdictional WUS and WSC. Additionally, the WAPA transmission line relocation to the east of the MWD-owned land will result in greater ground disturbance and potential for adverse biological resources impacts relative to the Preferred Alternative. Like the Preferred Alternative, Alternative 2 will not impact any DWMA, HMA, ACEC, or DCH. Alternative 2 will install permanent fencing around an additional approximately 1,500 acres relative to the Preferred Alternative (Alternative

3). Alternative 2 would permanently affect wildlife species, habitat, and movement to a greater degree in proportion to the larger size of the fenced area. Therefore, ~~D~~during the operational phase, impacts under Alternative 2 will be greater than~~similar to~~ the Preferred Alternative (Alternative 3). Overall, construction and operational impacts to biological resources from Alternative 2 are greater than impacts associated with the Preferred Alternative (Alternative 3).

Cultural Resources

Alternative 2 will result in greater potential for cultural resources impacts relative to the Preferred Alternative (Alternative 3) due to additional ground disturbance and grading associated with construction of an additional solar plant (i.e., power block area, approximately 85,000 heliostats, a ring road and spoke roads), grading and earth moving in the large on-site washes, as well as ground disturbance and development on the portion of the project site east of the existing WAPA line. Washes have a naturally higher density of cultural artifacts relative to other topographical features. Cultural resources have been noted on MWD lands east of the WAPA line. The Preferred Alternative (Alternative 3) will avoid the cultural resources located on MWD land that would be affected by the additional solar plant under Alternative 2, within the large on-site washes, and potential cultural resources on the portion of the project site east of the existing WAPA line. ~~This~~ ~~a~~Same as the Preferred Alternative (Alternative 3), Alternative 2 will construct portions of a common gen-tie line, construction and emergency backup power line, and one of the permanent access roads on BLM land, but will not construct portions of the solar generating facility on BLM land. As a result, potential for cultural resources impacts on public lands is substantially the same ~~lower~~ under Alternative 2 relative to the Preferred Alternative (Alternative 3). ~~In addition, Alternative 2 will not require relocation of Bradshaw Trail.~~

Although determinations of eligibility have yet to be made, it is anticipated that an agreement document along with treatment plans will be prepared and will resolve adverse effects of Alternative 2 to NRHP eligible resources. In addition, mitigation measures for significant resources under CEQA are provided that will reduce impacts to less-than-significant levels. With approved mitigation measures cultural resources impacts will be mitigated to less than significant. Nevertheless, the potential for cultural resources impacts within the large on-site washes and portions of the project site east of the WAPA line under Alternative 2, while not likely to result in a significant impact, constitutes a ~~marginally~~ higher potential for adverse cultural resources impacts relative to the Preferred Alternative (Alternative 3).

Geologic Hazards and Resources

Alternative 2 will result in greater potential for geologic hazards relative to the Preferred Alternative (Alternative 3) due to the additional grading activities within the large on-site washes required to develop the 750 MW solar generating facility only on MWD-owned land. Relocation of the WAPA transmission line also increases the potential for geologic hazards associated with grading and ground disturbance activities. Potential geologic hazards will be associated erosion, loose soils, and unstable slopes. Alternative 2 will not differ substantively from the Preferred Alternative in terms of exposure to strong seismic shaking or adverse impacts from potentially corrosive soils. Alternative 2 will not adversely affect significant mineral resources.

Land Use

Alternative 2 includes MWD land both east and west of the existing WAPA line, whereas the Preferred Alternative (Alternative 3) only includes development on MWD lands west of the WAPA line. Similar to the Preferred Alternative, Alternative 2 does not include development on BLM-managed public lands other than lands associated with the gen-tie line, 33kV construction/emergency backup power supply line, and Bradshaw Trail access road.

No incorporated towns, cities, or villages are located within Alternative 2. The nearest town to the site is Palo Verde, located along State Route 78, approximately 1.13 miles east of the southeast boundary. No State lands are present within this on-site alternative, nor in the gen-tie line corridor area. No ACECs or Wilderness Areas will be affected by any of the on-site alternatives. Similar to the Preferred Alternative, Bradshaw Trail, which is used primarily as an OHV route, will not require relocation for Alternative 2. No farmlands that are prime, of statewide importance, or unique (as defined by the California Department of Conservation) are located on site. However, prime farmlands adjacent to linear features, located approximately 0.3 miles to the east of the Alternative 2 site and approximately 0.7 miles east of the gen-tie line corridor, are associated with the Project. No land within one mile of the Alternative 2 site or gen-tie line is subject to a Williamson Act contract.

Same as the Preferred Alternative, a small portion of active farmland will be converted to nonagricultural use as a result of the access road improvements for ~~and paving of~~ 34th Avenue. However, the small amount of farmland necessary for road improvements will result in a small effect to agricultural land that is within existing Riverside County ROW for purposes of road improvements, and will not significantly alter agricultural uses in the Study Area. This is considered a less than significant impact.

Construction and operation of Alternative 2 is not anticipated to conflict with any LORS for the area. Alternative 2, similar to the Preferred Alternative, will need a Change of Zone with Riverside County prior to construction. In addition, Alternative 2 will require a height variance to allow construction of the solar power towers, which is anticipated to be processed as part of the CEC licensing process. Land use impacts under Alternative 2 are not expected to differ substantially from the Preferred Alternative, other than Alternative 2 not requiring Bradshaw Trail to be relocated.

Hazardous Materials Handling

~~The same~~Fewer quantities of hazardous materials will be stored at the Preferred Alternative site ~~as under~~relative to Alternative 2. Risks posed to the general public from storing and using hazardous materials will be minimal, due to the fact that both on-site alternatives are located some distance from population centers. Hazardous materials impacts under Alternative 2 are not expected to differ substantially from those under the Preferred Alternative.

Noise

Operations and maintenance (e.g., mirror cleaning) will generate ~~the same~~similar noise levels under Alternative 2 and the Preferred Alternative. Short-term noise level increases during construction of Alternative 2 also will be ~~the same as~~similar to the Preferred Alternative. This alternative will comply with applicable LORS as described in Section 5.7. Construction and operations noise levels and impacts

to sensitive receptors will be similar to the Preferred Alternative under Alternative 2, with the following exception: Alternative 2 will include construction activities closer to noise sensitive receptors on MWD land east of the WAPA transmission line and relocate the WAPA transmission line to the east. Operations and maintenance on MWD lands east of the existing WAPA line under Alternative 2 also will be in closer proximity to noise sensitive receptors than the Preferred Alternative, thus exposing sensitive receptors to higher noise levels. As a result, construction and operations noise impacts to sensitive receptors are expected to be greater under Alternative 2 relative to the Preferred Alternative. However, both alternatives are expected to be compliant with federal, state, and local LORS. Noise impacts will be less than significant under Alternative 2 and the Preferred Alternative.

Paleontological Resources

Construction under Alternative 2 will result in greater potential for paleontological resources impacts relative to the Preferred Alternative due to ground disturbance and grading in the large on-site washes as well as ground disturbance and development on the portion of the project site east of the existing WAPA line. The Preferred Alternative will not conduct construction ground disturbance activities in the large on-site washes and on the portion of the project site east of the existing WAPA line. This alternative will have essentially the same paleontological resources impacts as the Preferred Alternative during operations. Nevertheless, construction impacts to paleontological resources will be greater under Alternative 2 relative to the Preferred Alternative.

Public Health and Safety

Public health impacts for the proposed solar generating facility are primarily related to air quality. However, the nature of the proposed facility is such that it will not pose significant health risks at any location, under any weather conditions, and under any operating conditions. It will not generate concentrations of pollutants that result in significant public health impacts. Since this alternative proposes the same type of facility in the same location as the Preferred Alternative, the potential impacts to public health are essentially the same. While construction will generate higher air emissions from combustion and fugitive emissions due to grading in the large washes and relocation of the WAPA transmission line, there are no sensitive receptors in close enough proximity to this alternative to experience adverse public health effects from the concentrations of pollutants produced during construction or operations. The nearest residence to the project site boundary is approximately 8,200 feet south of the solar array fence line for Plant 1. The nearest residence to any power block equipment is approximately 13,120 feet east of the Plant 3 power block. No daycare, hospital, park, preschool, or school receptors were found within six miles of the project site.

Criteria air pollutant emissions will be below levels that exceed ambient air quality standards or add a significant contribution of PM_{10}, background concentrations of which already exceed ambient standards. In conclusion, this alternative is essentially the same as the Preferred Alternative from a public health perspective. Public health impacts will be less than significant under Alternative 2 and the Preferred Alternative.

Socioeconomics

Alternative 2 ~~will be~~would have beneficial socioeconomic impacts that are ~~essentially the same as~~greater than that of the Preferred Alternative (Alternative 3)~~ from a socioeconomic perspective~~. Location of the three solar plants within MWD-owned land and relocation of the WAPA transmission line will result in a greater ~~essentially the same~~ amount of job creation, revenue generation, and economic output as the two solar plants of the Preferred Alternative. Impacts to schools, housing supply, public services, facilities, and utilities will be the same as the Preferred Alternative.

Soils

Direct soils impacts under Alternative 2 will primarily occur as a result of grading and development in the large washes. Alternative 2 will generate additional soil and sediment transport within these washes. Substantial restabilization methods/activities will need to occur in the major washes to minimize runoff that will result from this Alternative. Soils impacts for Alternative 2 will be greater than the Preferred Alternative (Alternative 3).

Traffic and Transportation

Alternative 2 will generate ~~essentially the same number of~~additional vehicle trips during construction and operations as compared to the Preferred Alternative (Alternative 3) due to the additional construction workers and permanent operations employees associated with the additional solar plant. Trip distribution and access routes ~~also~~ will be essentially the same, except that Bradshaw Trail is the primary access road under the Preferred Alternative. ~~Therefore, c~~Construction vehicle trips under Alternative 2 will result in less than significant impacts to freeway, highway, and roadway segments and intersections. Moreover, operations under Alternative 2 will not adversely affect LOS for any freeway, highway, roadway, or intersection. Traffic impacts during operations will be less than significant under the Alternative 2. Traffic impacts for Alternative 2 will be greater than the Preferred Alternative. ~~In conclusion, this alternative and the Preferred Alternative are essentially the same from a traffic perspective.~~

Visual Resources

Alternative 2 will have greater visibility relative to the~~be essentially the same as the~~ Preferred Alternative (Alternative 3)~~ from a visual perspective~~. Location of the three solar plants within MWD-owned land and relocation of the WAPA transmission line will result in ~~similar, if not the same,~~a greater level of impact to existing visual character of the area and sensitive viewpoints relative to the two solar plants of the Preferred Alternative. Impacts related to new sources of light and glare under Alternative 2 will likely be ~~the same~~greater than ~~as~~ the Preferred Alternative due to the presence of three towers and solar fields. Alternative 2 will generate the same level of visual interest as the Preferred Alternative. Visual impacts under Alternative 2 will be greater than the Preferred Alternative, although both are considered less than significant.

Waste Management

Construction and operations under this alternative will generate ~~the same~~ greater quantities of solid waste, wastewater, and hazardous waste than~~as~~ the Preferred Alternative (Alternative 3). Management, treatment, and disposal methods ~~also~~ will be the same. Recycling, landfill, and hazardous waste treatment and disposal capacity is adequate to accommodate expected waste generation levels for this alternative and the Preferred Alternative. In conclusion, this alternative is essentially the same as the Preferred Alternative from a waste management impacts perspective. Adverse environmental impacts associated with waste management will be less than significant under Alternative 2 and the Preferred Alternative.

Water Resources

Water resources impacts under Alternative 2 will be greater than the Preferred Alternative due to increased water use during construction, operations, and greater potential for stormwater runoff to adversely impact surface water quality. Alternative 2 will require the use of more water during construction for two reasons: 1) grading will be required within the large washes, and 2) water will be required for dust control purposes during relocation of the WAPA transmission line. While construction groundwater usage will be greater relative to the Preferred Alternative, it will not exceed the maximum of 600 afy of groundwater for which the Applicant has contracted with MWD. Grading within the large washes also will increase potential for increased stormwater runoff discharge and adverse impacts to surface water quality. During operation, water usage will be greater than ~~substantively the same as~~ the Preferred Alternative.

Worker Safety

Impacts relating to worker safety will be activity-specific rather than site-specific. The risks associated with jobs will be identified at periodic safety tailgate meetings. On-site activities will be discussed and coordinated to prevent workers and subcontractors from potential injury. Regardless of the alternative, the Applicant will arrange for all health and safety plans to be in place ahead of time, and all exposures to hazards will be minimized using applicable personal protective equipment programs and other preventive measures that will comply with all health and safety LORS.

6.3.3.3 On-Site Alternative 3

The major project features distinguishing On-Site Alternative 3 from Alternative 1~~the Preferred Alternative~~ are summarized in Table 6.3-4 and described below. In addition, Alternative 3 is shown on Figure 6.3-3 (rev). Alternative 3 includes the features described below.

- Two 250 MW plants to be developed solely on MWD-owned land (i.e., plants will not be constructed on BLM-administered public land).
- Due to the technical infeasibility of beaming across a transmission line, and the conflicts with Project objectives associated with relocation of the WAPA 161 kV transmission line, Alternative 3 will be located on the west side of the WAPA 161 kV transmission line only.

- The new gen-tie line connecting Alternative 3 to the SCE CRS will cross the existing Bradshaw Trail, but the trail will not be affected by the solar field layout. Bradshaw Trail will not need to be relocated.
- Alternative 3 minimizes development within the large washes on the site, which is consistent with ~~the Preferred~~ Alternative 1.

Alternative 3 does not completely satisfy three of the project objectives, as described below in Table 6.3-4. By constructing only two plants, Alternative 3 does not fully comply with the objective of providing 750 MW of clean, renewable, competitively priced solar-generated electricity. Moreover, Alternative 3 can feasibly achieve a commercial on-line date of 2015, but it will not provide 750 MW as required by the site-assigned PPAs for the Applicant. By not constructing solar plants on BLM-administered public land, Alterative 3 will not assist BLM with its mission to approve 10,000 MW of renewable energy projects on public lands by 2015.

Table 6.3-4
On-Site Alternative 3 – Preferred Alternative: 500 MW MWD-Only Alternative (Alternative 3)
Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
1. Safely and economically construct and operate a nominal 750 megawatt (MW) solar generating facility in southeastern Riverside County, California capable of providing clean, renewable, competitively priced solar-generated electricity.	Alternative 3 will consist of two 250 MW (nominal) plants, for a total of 500 MW (nominal) of clean, renewable, solar electricity. It will, however, be safely and economically constructed and operated in southeastern Riverside County, California and capable of providing clean, renewable, competitively priced solar-powered electricity.	Partially
2. Assist Southern California Edison (SCE) in meeting its obligations under the Renewables Portfolio Standard (RPS) and the California Global Warming Solutions Act.	Alternative 3 will have a 500 MW (nominal) capacity and 1,424,600~~1,470,000~~ megawatt-hours (MWH) annual production of renewable electricity, and will connect to the SCE grid through a new 220 kilovolt (kV) common gen-tie line that will connect to the new SCE Colorado River Substation (CRS).	Yes
3. Consistent with national policy, which encourages the development of new or significantly improved technologies to "avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases" (see, e.g., 42 U.S.C. §16513[a]), use BrightSource's proprietary solar power tower technology in another utility-scale project, further proving economic viability of the technology.	Alternative 3 will use BrightSource's proprietary solar power tower technology.	Yes
4. Develop a project that minimizes land consumption on a MWH per acre basis.	Alternative 3 will provide approximately 1,424,600~~1,470,000~~ MWH annual production on approximately 3,833 developable acres, or approximately 383 MWH annual production per	Yes

Table 6.3-4
On-Site Alternative 3 – Preferred Alternative: 500 MW MWD-Only Alternative (Alternative 3)
Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
	acre.	
5. Locate the solar generating facility in an area of high insolation.	Alternative 3 is located in an area of high insolation.	Yes
6. Select a site with minimal slope, predominantly five percent or less.	Alternative 3 is located on a site with minimal slope, predominantly five percent or less.	Yes
7. Design and develop the Project to conform to the requirements of the site-assigned 20-year Power Purchase Agreements (PPAs) for the Applicant, including a commercial on-line date (COD) of 2015.	Alternative 3 can feasibly achieve a commercial on-line date of 2015, but it will not provide 750 MW as required by the PPAs.	No[1]
8. Site the project in a timely and environmentally responsible manner by selecting a location with minimal potentially significant impacts, where compliance with applicable laws, ordinances, regulations and standards (LORS) is feasible.	Under the Preferred Alternative, all impacts are less than significant and compliance with all LORS is feasible. ~~Compared to the Preferred Alternative, Alternative 3 results in greater adverse impacts to Public Health and higher GHG emissions. Impacts to air quality, biological resources, cultural resources, paleontological, soils, traffic, water resources, geological hazards, hazardous materials, land use, noise, visual, waste management and worker safety will be lower under Alternative 3. However, because impacts are considered less than significant under the Preferred Alternative (during both construction and operation), Alternative 3 will not substantively lessen any significant impacts of the Project. Alternative 3 will have socioeconomic benefits, but to a lesser degree than the Preferred Alternative.~~	Yes
9. Secure site control within a reasonable timeframe, using a reasonable effort at a reasonable cost.	Alternative 3 is located on MWD-owned private land. An option agreement already has been executed with MWD for approximately 6,741 acres of MWD land.	Yes
10. Respond to MWD's requests for proposal (RFPs) to develop a solar electric generation facility on MWD-owned land.	Alternative 3 responds to the MWD RFPs by developing a solar electric generation facility on MWD-owned land.	Yes

Table 6.3-4
On-Site Alternative 3 – Preferred Alternative: 500 MW MWD-Only Alternative (Alternative 3)
Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
11. Locate the Project near existing electric transmission equipment with a California Independent System Operator (CAISO) point of interconnection and natural gas infrastructure.	Alternative 3 is located approximately 10 miles south of the proposed SCE CRS. The natural gas system under the Preferred Alternative will connect to the TransCanada Gas Transmission Company (TCGT) North Baja Transmission Line, which passes through the MWD land adjacent to the existing Western Area Power Association (WAPA) 161 kV transmission line that also runs through the site.	Yes
12. Develop a solar generating facility that assists BLM with its mission to approve 10,000 MW of renewable energy projects on public lands by 2015 in a manner that reduces impacts (i.e., edge effects) and leverages resources being developed on private lands (i.e., shared facilities).	Alternative 3 will develop two solar power plants on Metropolitan Water District of Southern California (MWD)-owned private land. BLM-administered public lands will not be used to generate renewable energy. ~~Only~~ Portions of the gen-tie line, 33kV construction/emergency backup power supply line, and upgraded Bradshaw Trail access road will be located on BLM land under Alternative 3.	No

Acronyms:

BLM	=	Bureau of Land Management	MWH	=	Megawatt-hour
BrightSource	=	BrightSource Energy, Inc.	MWD	=	Metropolitan Water District of Southern California
CAISO	=	California Independent System Operator	PPA	=	Power Purchase Agreement
COD	=	commercial on-line date	RFP	=	request for proposals
CRS	=	Colorado River Substation	SCE	=	Southern California Edison
kV	=	kilovolt	TCGT	=	TransCanada Gas Transmission Company
LORS	=	laws, ordinances, regulations and standards	WAPA	=	Western Area Power Administration
MW	=	megawatts			

[1]Alternative 3 will not satisfy BrightSource's requirements to provide 750 MW under the three PPA's because the PPA that would have been assigned to RMS 3 can no longer be fulfilled through construction of just RMS 1 and RMS 2. Moreover, the Applicant will not be required to amend either of the two remaining PPA's because RMS 1 and RMS 2 can still be constructed consistent with the requirements of the PPA's assigned to RMS 1 and RMS 2.

Air Quality

Alternative 3 is located in the same air basin as ~~the Preferred Alternative~~Alternative 1: the MDAB under the jurisdiction of the MDAQMD.

Alternative 3 will install and operate two 250 MW (nominal) solar plants~~, as opposed to three 250 MW (nominal) solar plants under the Preferred Alternative~~. In general, air quality impacts under Alternative 3 will be lower relative to the ~~Preferred Alternative~~other on-site alternatives in proportion with the smaller footprint and lower 500 MW (nominal) capacity of the solar generating facility. Combustion and fugitive dust emissions during construction will be lower due to the concurrent construction of two, rather than three, 250 MW (nominal) solar plants. In addition, air emissions during construction of Alternative 3 will

be lower than the Preferred Alternative because Bradshaw Trail and the IID transmission line will not be relocated. Air emissions during operations will be lower due to the operation of two solar plants totaling 10~~16~~ emitting units, compared with three solar plants totaling ~~24~~ 15 emitting units under the other on-site alternatives~~the Preferred Alternative~~. Air emissions associated with mirror washing also will be lower under Alternative 3~~ relative to the Preferred Alternative~~. ~~However, because air quality impacts are considered less than significant under the Preferred Alternative (during both construction and operation), Alternative 3 will not substantively lessen a significant impact of the Project.~~

Moreover, the GHG emissions reduction benefits of Alternative 3 will be lower relative to the ~~Preferred Alternative~~other on-site alternatives in proportion with the lower capacity of the 500 MW (nominal) solar generating facility. ~~In addition, Alternative 3 will not contribute to national policy objectives to site more renewable energy projects on public lands and will fulfill fewer of BrightSource Energy's PPA obligations. Therefore, Alternative 3 does not meet key project objectives.~~

Biological Resources

During construction, Alternative 3 will have fewer potential impacts to biological resources than the other on-site alternatives ~~Preferred Alternative~~ in proportion to the smaller footprint of the 500 MW (nominal) facility. This alternative will construct a common gen-tie line on BLM land, but will not construct portions of the solar generating facility on BLM land. As a result, Alternative 3 will have fewer impacts than the other on-site alternatives.~~ Preferred Alternative~~. ~~However, because biological resources impacts are considered less than significant under the Preferred Alternative with implementation of mitigation measures (during both construction and operation), Alternative 3 will not substantively lessen a significant impact of the Project. In addition, Alternative 3 will not contribute to national policy objectives to site more renewable energy projects on public lands and will fulfill fewer of BrightSource Energy's PPA obligations.~~

Cultural Resources

Alternative 3 will install and operate two 250 MW (nominal) solar plants, as opposed to three 250 MW (nominal) solar plants under the other on-site alternatives~~Preferred Alternative~~. In general, the potential for cultural resources impacts under Alternative 3 will be lower relative to the other on-site alternatives ~~Preferred Alternative~~ in proportion with the smaller footprint of the 500 MW (nominal) solar generating facility. This alternative will construct a common gen-tie line on BLM land, but will not construct portions of the solar generating facility on BLM land. As a result, potential for cultural resources impacts on public lands under Alternative 3 will be lower than under the other on-site alternatives.~~ Preferred Alternative~~. Alternative 3 will address potential cultural resources impacts in the same manner as the other on-site alternatives.~~ Preferred Alternative~~, through an agreement document along with treatment plants for NRHP eligible resources and mitigation measures for significant resources under CEQA. In conclusion, Alternative 3 will have a lower overall potential for cultural resources impacts than the other on-site alternatives.~~ Preferred Alternative~~. ~~However, because cultural resources impacts are considered less than significant under the Preferred Alternative (during both construction and operation), Alternative 3 will not substantively lessen a significant impact of the Project. In addition, Alternative 3 will not attain project objectives to construct a 750 MW (nominal) solar generating facility, conform to the requirements of the PPAs, or assist the BLM with its mission to approve renewable energy projects on public lands.~~

Geologic Hazards and Resources

Impacts related to geologic hazards and resources are less than significant for ~~both~~ Alternative 3 and the other on-site alternatives.~~ Preferred Alternative~~. Although Alternative 3 will construct and develop a solar generating facility with a smaller footprint and lower capacity than the other on-site alternatives ~~Preferred Alternative~~, the potential for geologic hazards will not be proportionally lower for Alternative 3. ~~Both~~ Each on-site alternative~~s~~ would construct and develop on portions of the site with similar potential for geologic hazards. The other on-site alternatives ~~Preferred Alternative~~ will not be exposed to a potentially adverse geologic hazard that could be avoided by development of a solar generating facility with a smaller footprint and lower capacity under Alternative 3. Alternative 3 will not adversely affect significant mineral resources. ~~Additionally, Alternative 3 will not attain project objectives to construct a 750 MW (nominal) solar generating facility, conform to the requirements of the PPAs, or assist the BLM with its mission to approve renewable energy projects on public lands.~~

Hazardous Materials Handling

Fewer hazardous materials are likely to be stored, handled, and used at the project site under Alternative 3 due to the reduced number of plants relative to the other on-site alternatives.~~ Preferred Alternative~~. Any risk to the general public from storing, handling, and using hazardous materials will be minimal, due to the fact that the on-site alternatives are located some distance from population centers. Hazardous materials impacts under Alternative 3, while reduced, are not expected to differ substantially from impacts under the other on-site alternatives.~~ Preferred Alternative~~. All on-site alternatives will comply with existing LORS governing the storage, handling, and use of hazardous materials. ~~Moreover, because hazardous materials handling impacts are considered less than significant under the Preferred Alternative (during both construction and operation), Alternative 3 will not substantively lessen a significant impact of the Project. In addition, Alternative 3 will not attain project objectives to construct a 750 MW (nominal) solar generating facility, conform to the requirements of the PPAs, or assist the BLM with its mission to approve renewable energy projects on public lands.~~

Land Use

~~Like the Preferred Alternative site,~~ Alternative 3 will be located on MWD lands, avoiding the major washes and the area west of the WAPA line. Alternative 3 avoids development on BLM-administered lands but would require BLM-administered lands to be crossed for construction of portions of the gen-tie line, 33kV construction/emergency backup power supply line, and upgraded Bradshaw Trail access road associated with the Project. No incorporated towns, cities, or villages are located within this alternative. The closest town is Palo Verde, located along State Route 78, approximately 1.9 miles east of the southeast boundary of the site in Riverside County at the Imperial County line. No State lands are present within this alternative, including the gen-tie line corridor.

No ACEC, DWMA, or Wilderness Areas are located within Alternative 3. Bradshaw Trail, which is used primarily as an OHV route, runs ~~through a portion~~north of this alternative site. Due to its location at the northernmost portion of the project area, is not anticipated that development activities associated with this specific Alternative would impact Bradshaw Trail. The project site does not include prime farmland, farmland of statewide importance, or unique farmland as defined by the California Department of

Conservation. There are prime farmlands and farmlands of statewide importance within the ROW for the access road improvements located north of 34th Avenue. However, prime farmlands, adjacent to project linear features associated with the Project, are situated approximately 0.8 miles to the east of the Alternative 3 project site and approximately 0.7 miles east of the gen-tie line corridor. No land within one mile of Alternative 3 or the Project gen-tie line is subject to a Williamson Act contract.

Similar to the other on-site alternatives~~Preferred Alternative~~, a small portion of active farmland will be converted to nonagricultural use as a result of the access road improvements ~~and paving~~north of 34th Avenue. However, unlike the other on-site alternatives, the small amount of farmland necessary for 34th Avenue access road improvements under Alternative 3 will result in a small effect to agricultural land (1.55 acres of prime farmlands and 0.67 acres of farmlands of statewide importance) that is located north of~~within~~ existing Riverside County ROW for purposes of road improvements, and will not significantly alter agricultural uses in the Study Area. This is considered a less than significant impact.

Construction and operation of Alternative 3 is not anticipated to conflict with any LORS for the area. Alternative 3, similar to the other on-site alternatives~~Preferred Alternative~~, will need a Change of Zone with Riverside County prior to construction. In addition, Alternative 3 will require a height variance to allow construction of the solar power towers, which is anticipated to be processed as part of the CEC licensing process. Alternative 3 will have fewer impacts than ~~the Preferred Alternative~~ the other on-site alternatives due to the reduced project size. However, because land use impacts are considered less than significant under ~~the Preferred Alternative~~Alternative 1 (during both construction and operation), Alternative 3 (Preferred Alternative) will not substantively lessen a significant impact of the Project. In addition, Alternative 3 will not attain project objectives to construct a 750 MW (nominal) solar generating facility, conform to the requirements of the PPAs (see footnote 1 in Table 6.3-4), or assist the BLM with its mission to approve renewable energy projects on public lands.

Noise

Despite the smaller capacity and footprint of Alternative 3 (Preferred Alternative), noise impacts will be similar to the other on-site alternatives~~Preferred Alternative~~ because sources of construction, operations, and maintenance noise will be located essentially the same distance from noise sensitive receptors. Construction, operation, and maintenance of one less solar plant under Alternative 3 will not substantially reduce noise levels to which sensitive receptors are exposed under the ~~Preferred Alternative~~other on-site alternatives. ~~Moreover, because noise impacts are considered less than significant under the Preferred Alternative (during both construction and operation), Alternative 3 will not substantively lessen a significant impact of the Project. In addition, Alternative 3 will not attain project objectives to construct a 750 MW (nominal) solar generating facility, conform to the requirements of the PPAs, or assist the BLM with its mission to approve renewable energy projects on public lands.~~

Paleontological Resources

Alternative 3 will install and operate two 250 MW (nominal) solar plants, as opposed to three 250 MW (nominal) solar plants under the other on-site alternatives~~Preferred Alternative~~. In general, the potential for paleontological resources impacts under Alternative 3 will be lower relative to the other on-site alternatives~~Preferred Alternative~~ in proportion with the smaller footprint of construction ground

disturbance activities for the 500 MW (nominal) solar generating facility. Under Alternative 3, potential paleontological resources impacts during construction will be less than significant in the same manner as the other on-site alternatives~~Preferred Alternative~~, through properly designed and implemented mitigation program. Operation of Alternative 3 will have similar impacts to paleontological resources if the access roads between heliostats are paved. However, if access roads are on the bare surface of the mesa, Alternative 3 will have a lower potential for paleontological resources impacts due to the smaller footprint of the facility and lower number of heliostats. In conclusion, Alternative 3 will have a lower overall potential for paleontological resources impacts than the other on-site alternatives~~Preferred Alternative~~. ~~However, because paleontological resources impacts are considered less than significant with mitigation under the Preferred Alternative (during both construction and operation), Alternative 3 will not substantively lessen a significant impact of the Project. In addition, Alternative 3 will not attain project objectives to construct a 750 MW (nominal) solar generating facility, conform to the requirements of the PPA, or assist the BLM with its mission to approve renewable energy projects on public lands.~~

Public Health and Safety

Public health impacts for a solar generating facility are primarily related to air quality. In general, air quality impacts under Alternative 3 will be lower relative to the other on-site alternatives ~~Preferred Alternative~~ in proportion with the smaller footprint and lower 500 MW (nominal) capacity of the solar generating facility. Combustion and fugitive dust emissions during construction will be lower due to the concurrent construction of two, rather than three, 250 MW (nominal) solar plants. In addition, air emissions during construction of Alternative 3 will be lower than the other on-site alternatives ~~Preferred Alternative~~ because Bradshaw Trail and the IID transmission line will not be relocated. However, the nature of the proposed facilities are such that neither a 500 MW facility under Alternative 3 nor a 750 MW facility under the other on-site alternatives ~~Preferred Alternative~~ will pose significant health risks at any location, under any weather conditions, and under any operating conditions. Neither Alternative 3 nor the other on-site alternatives ~~Preferred Alternative~~ will generate concentrations of pollutants that result in significant public health impacts. Moreover, this alternative is in the same location as the other on-site alternatives~~Preferred Alternative~~. There are no sensitive receptors in close enough proximity to this location to experience adverse public health effects from the concentrations of pollutants produced during construction and operations.

Although Alternative 3 will lead to marginally lower air emissions and associated public health impacts during construction and operations relative to the other on-site alternatives~~Preferred Alternative~~, Alternative 3 will indirectly lead to greater air emissions and associated public health impacts due to greater fuel consumption, GHG emissions, and air pollution resulting from less renewable energy generation relative to the other on-site alternatives~~Preferred Alternative~~. Electricity generated by a third solar plant under the other on-site alternatives ~~Preferred Alternative~~ will instead, under Alternative 3, likely be generated from older, less-efficient plants that will remain online or from new gas-fired plants that have higher air pollutant and toxic air contaminant emissions than the Project. Moreover, since solar energy is typically produced during periods of peak demand, much of the replacement power will likely be generated by peaker plants with significantly greater criteria air pollutant and toxic air contaminant emissions. Therefore, overall adverse public health impacts are likely to be greater under Alternative 3 as a result of relatively less renewable generation. ~~In addition, Alternative 3 will not attain project objectives~~

~~to construct a 750 MW (nominal) solar generating facility, conform to the requirements of the PPAs, or assist the BLM with its mission to approve renewable energy projects on public lands.~~

Socioeconomics

The main socioeconomic benefit of Alternative 3 will be the creation and introduction of jobs to the area, which, in turn, should increase expenditures in the area. The reduced size of this alternative will reduce the number of construction and operation jobs created compared to the other on-site alternatives~~Preferred Alternative~~. Even with the reduced project scope, thousands of construction jobs for approximately 30 months, and up to 100 long-term operations and maintenance jobs will be brought to the area. This job influx to the area will result in a substantial net increase in expenditures in the area.

Alternative 3 will result in a substantial number of materials and supplies coming to Riverside County. Alternative 3 also will produce a substantial number of construction and operation jobs, with direct, indirect, and induced income effects, though significantly fewer than under the other on-site alternatives~~Preferred Alternative~~. Additionally, Alternative 3 will contribute significantly to local expenditures and County tax coffers, but at approximately two-thirds the level of the other on-site alternatives~~Preferred Alternative~~.

~~Alternative 3 will result in fewer socioeconomic benefits than the other on-site alternatives Preferred Alternative. In addition, Alternative 3 will not attain project objectives to construct a 750 MW (nominal) solar generating facility, conform to the requirements of the PPAs, or assist the BLM with its mission to approve renewable energy projects on public lands.~~

Soils

Direct impacts to soils for Alternative 3 will likely occur during construction, when run-off, erosion, and sediment transportation occurs as a result of the disturbance and removal of some vegetation. Soil impacts are expected to be less than significant as grading will be confined to power block areas, certain areas of the solar fields (as required to permit safe vehicle access), and developed sections of the common area, such as the administrative building, heliostat assembly building complex, and the evaporation ponds. During the operational phase of Alternative 3, direct impacts to soils will be negligible due to the infrequent vehicular travel occurring at the project site for Alternative 3. Alternative 3 will have fewer impacts than the other on-site alternatives~~Preferred Alternative~~. ~~However, because soils impacts are considered less than significant under the Preferred Alternative (during both construction and operation), Alternative 3 will not substantively lessen a significant impact of the Project. In addition, Alternative 3 will not attain project objectives to construct a 750 MW (nominal) solar generating facility, conform to the requirements of the PPAs, or assist the BLM with its mission to approve renewable energy projects on public lands.~~

Traffic and Transportation

Under Alternative 3, trip distribution and access routes will be essentially the same as the other on-site alternatives~~Preferred Alternative~~. However, the number of construction vehicle trips will be ~~approximately one-third~~ smaller in rough proportion with the smaller footprint of the 500 MW (nominal) capacity solar generating facility under Alternative 3. As a result, Alternative 3 will have fewer traffic

impacts than the other on-site alternatives ~~Preferred Alternative~~ during construction. However, because traffic impacts are considered less than significant under the construction phase of the ~~Preferred Alternative~~other on-site alternatives, Alternative 3 will not substantively lessen a significant impact of the Project. Traffic impacts during operation of Alternative 3 will be essentially the same as the other on-site alternatives~~Preferred Alternative~~. ~~In addition, Alternative 3 will not attain project objectives to construct a 750 MW (nominal) solar generating facility, conform to the requirements of the PPAs, or assist the BLM with its mission to approve renewable energy projects on public lands.~~

Visual Resources

The solar power towers are the most visually noticeable elements of the on-site alternatives~~Preferred Alternative~~. They will change the character of the area, although they will not visually dominate the area in a manner that would substantially degrade existing visual character or the quality of the site and its surroundings. Alternative 3 will construct two approximately 750-foot-tall towers as opposed to three under the other on-site alternatives~~Preferred Alternative~~. As a result, Alternative 3 will have less of an impact on existing visual character relative to the other on-site alternatives~~Preferred Alternative~~. Furthermore, construction of one less approximately 750-foot-tall tower under Alternative 3 will have less of an impact on sensitive viewpoints. Despite constructing one less solar plant, Alternative 3 will likely generate a similar, if not the same, level of visual interest as the other on-site alternatives~~Preferred Alternative~~. ~~However, because visual resources impacts are considered less than significant under the Preferred Alternative (during both construction and operation), Alternative 3 will not substantively lessen a significant impact of the Project. In addition, Alternative 3 will not attain project objectives to construct a 750 MW (nominal) solar generating facility, conform to the requirements of the PPAs, or assist the BLM with its mission to approve renewable energy projects on public lands.~~

Waste Management

Construction and operations under this alternative will generate approximately two-thirds the amount of solid waste, wastewater, and hazardous waste as the other on-site alternatives~~Preferred Alternative~~. Management, treatment, and disposal methods also will be the same under this alternative and the other on-site alternatives~~Preferred Alternative~~. Recycling, landfill, and hazardous waste treatment and disposal capacity is adequate to accommodate expected waste generation levels for this alternative and the other on-site alternatives~~Preferred Alternative~~. Therefore, despite generating less waste, this alternative is essentially the same as the other on-site alternatives ~~Preferred Alternative~~ from a waste management perspective. Adverse environmental impacts associated with waste management will be less than significant under Alternative 3 and the other on-site alternatives~~Preferred Alternative~~. ~~Therefore, Alternative 3 will not substantively lessen a significant impact of the Project. In addition, Alternative 3 will not attain project objectives to construct a 750 MW (nominal) solar generating facility, conform to the requirements of the PPAs, or assist the BLM with its mission to approve renewable energy projects on public lands.~~

Water Resources

Since Alternative 3 includes the development of only two plants, it is expected that Alternative 3 will utilize about one-third less water than under the other on-site alternatives ~~Preferred Alternative~~ (during

the entire operation of the power plants). The size of the underground aquifer currently is estimated to be approximately 30 to 50 thousand acre-feet. Because water usage is projected to be low, at approximately ~~187~~ 173.3 afy, and the wells will be at least one-half mile from the nearest existing well on the adjacent agricultural lands, impacts to the aquifer and to any adjacent water users is expected to be less than significant. Alternative 3 will have less of an impact on water supply than the ~~Preferred Alternative~~other on-site alternatives. However, neither Alternative 3 nor the other on-site alternatives ~~Preferred Alternative~~ will have adverse water supply impacts. ~~The Preferred Alternative will use less than half of its available annual water allocation from the Metropolitan Water District of Southern California during operations and approximately two-thirds of the allocation during peak construction. Because water resources impacts are considered less than significant under the Preferred Alternative (during both construction and operation), Alternative 3 will not substantively lessen a significant impact of the Project. In addition, Alternative 3 will not attain project objectives to construct a 750 MW (nominal) solar generating facility, conform to the requirements of the PPAs, or assist the BLM with its mission to approve renewable energy projects on public lands~~.

Worker Safety

Impacts relating to worker safety will be activity-specific rather than site-specific. Regardless of the site location, the Applicant will arrange for all health and safety plans to be in place ahead of time, and all exposures to hazards will be minimized, using applicable personal protective equipment programs and other preventive measures complying with all health and safety LORS. A comprehensive health and safety program, fire prevention program, and accident/injury/illness prevention program will be compiled ahead of time, as well. Worker safety impacts under Alternative 3 are not expected to differ substantially from those under the other on-site alternatives~~Preferred Alternative~~. ~~Therefore, Alternative 3 will not substantively lessen a significant impact of the Project. In addition, Alternative 3 will not attain project objectives to construct a 750 MW (nominal) solar generating facility, conform to the requirements of the PPAs, or assist the BLM with its mission to approve renewable energy projects on public lands.~~

6.4 OFF-SITE ALTERNATIVES

The following sections provide an overview of impacts associated with the off-site alternatives being considered.

6.4.1 Description of the Off-Site Alternatives (no changes)

6.4.2 Screening Criteria (no changes)

6.4.3 Comparison of the Off-Site Alternatives to Screening Criteria (no changes)

6.4.4 Off-Site Alternatives Carried Forward for Further Analysis

As explained in Section 6.4.3, Off-Site Alternative A and Off-Site Alternative G are carried forward for detailed analysis because development of a solar generating facility on these sites that attains the project objectives is considered feasible from a technical and economic standpoint.

This section analyzes the potential environmental impacts of these two off-site alternatives. The potential environmental impacts of these two off-site alternatives are compared to the environmental impacts of the Preferred Alternative (see Section 6.3.2 for discussion of the environmental impacts of the Preferred Alternative).

6.4.4.1 Right-of-Way Grant and California Desert Conservation Area Plan Amendment (no changes)

6.4.4.2 Off-Site Alternative A – MWD Property East of the Project Site

The following sections examine the potential environmental impacts of development of a 750 MW (nominal) solar generating facility on Off-Site Alternative A – MWD Property East of the Project Site. In addition, the environmental impacts of this alternative are compared to the environmental impacts of the Preferred Alternative. Compliance of Off-Site Alternative A with the project objectives is summarized in Table 6.4-2.

Table 6.4-2
Off-Site Alternative A – MWD Property East of the Project Site Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
1. Safely and economically construct and operate a nominal 750 megawatt (MW) solar generating facility in southeastern Riverside County, California capable of providing clean, renewable, competitively priced solar-generated electricity.	Off-Site Alternative A will consist of two~~three~~ 250-MW (nominal) plants, for a total of 500~~750~~ MW (nominal) of clean, renewable solar electricity. It will, however, be safely and economically constructed and operated in southeastern Riverside County, California and capable of providing clean, renewable, competitively priced solar-powered electricity.	Partially~~Yes~~
2. Assist Southern California Edison (SCE) in meeting its obligations under the Renewables Portfolio Standard (RPS) and the California Global Warming Solutions Act.	Off-Site Alternative A will have a 500~~750~~ MW (nominal) capacity and 1,424,600~~2,205,000~~ megawatt-hours (MWH) annual production of renewable electricity, and will connect to the SCE grid through a new 220 kilovolt (kV) common gen-tie line that will connect to the newly approved SCE Colorado River Substation (CRS).	Yes
3. Consistent with national policy, which encourages the development of new or significantly improved technologies to "avoid, reduce, or sequester air pollutants or	Off-Site Alternative A will use BrightSource's proprietary solar power tower technology.	Yes

Table 6.4-2
Off-Site Alternative A – MWD Property East of the Project Site Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
anthropogenic emissions of greenhouse gases" (see, e.g., 42 U.S.C. §16513[a]), use BrightSource's proprietary solar power tower technology in another utility-scale project, further proving economic viability of the technology.		
4. Develop a project that minimizes land consumption on a MWH per acre basis.	Off-Site Alternative A will provide approximately 1,424,600~~2,205,000~~ MWH annual production on approximately 3,833~~5,750~~ developable acres, or approximately 383 MWH annual production per acre.	Yes
5. Locate the solar generating facility in an area of high insolation.	Off-Site Alternative A is located in an area of high insolation.	Yes
6. Select a site with minimal slope, predominantly five percent or less.	Off-Site Alternative A is located on a site with minimal slope, predominantly five percent or less.	Yes
7. Design and develop the Project to conform to the requirements of the site-assigned 20-year Power Purchase Agreements (PPAs) for the Applicant, including a commercial on-line date (COD) of 2015.	Off-Site Alternative A cannot feasibly achieve a commercial on-line date of 2015, although such an achievement will be more difficult than the Preferred Alternative due to opposition from PVID and the need to purchase privately-owned, prime farmlands including lands under Williamson Act contract not owned by MWD to make the site contiguous. Subsequent to filing of the AFC, MWD withdrew its RFP for a potential solar facility at the Alternative A site.	No~~Yes~~
8. Site the project in a timely and environmentally responsible manner by selecting a location with minimal potentially significant impacts, where compliance with applicable laws, ordinances, regulations and standards (LORS) is feasible.	Compared to the Preferred Alternative, Off-Site Alternative A results in greater adverse impacts to biological resources, geologic hazards and resources, land use (farmland conversion), soils, visual resources, and water resources. Impacts to paleontological resources will be lower.	No
9. Secure site control within a reasonable timeframe, using a reasonable effort at a reasonable cost.	Off-Site Alternative A is located on Metropolitan Water District of Southern California (MWD)-owned private land that will be available for lease in January 2012.	Yes
10. Respond to MWD's requests for proposal (RFPs) to develop a solar electric generation facility on MWD-owned land.	Off-Site Alternative A responds to the MWD RFPs by developing a solar electric generation facility on MWD-owned land.	Yes
11. Locate the Project near existing electric transmission equipment with a California	Off-Site Alternative A is located approximately 10.5 miles southeast of the new SCE CRS. The	Yes

Table 6.4-2
Off-Site Alternative A – MWD Property East of the Project Site Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
Independent System Operator (CAISO) point of interconnection and natural gas infrastructure.	natural gas system of Off-Site Alternative A will connect to the TransCanada Gas Transmission Company (TCGT) North Baja Transmission Line, which is approximately 1.5 miles to the west.	
12. Develop a solar generating facility that assists BLM with its mission to approve 10,000 MW of renewable energy projects on public lands by 2015 in a manner that reduces impacts (i.e., edge effects) and leverages resources being developed on private lands (i.e., shared facilities).	Off-Site Alternative A will develop two ~~three~~ plants on MWD-owned land. BLM-administered public lands will not be used to generate renewable energy. Only the gen-tie line will be located on BLM land under Off-Site Alternative A.	No

Acronyms:

BLM	=	Bureau of Land Management	MWH	=	Megawatt-hour
BrightSource	=	BrightSource Energy, Inc.	MWD	=	Metropolitan Water District of Southern California
CAISO	=	California Independent System Operator	PPA	=	Power Purchase Agreement
COD	=	commercial on-line date	PVID	=	Palo Verde Irrigation District
CRS	=	Colorado River Substation	RFP	=	request for proposals
kV	=	kilovolt	SCE	=	Southern California Edison
LORS	=	laws, ordinances, regulations and Standards	TCGT	=	TransCanada Gas Transmission Company
MW	=	megawatts	WAPA	=	Western Area Power Administration

Air Quality

Developing an identical solar generating facility at an alternate location will not result in different types or quantities of criteria air pollutant, toxic air contaminant, and GHG emissions during construction or operations. ~~Same as the Preferred Alternative, t~~This alternative will install and operate two~~three~~ identical 250 MW (nominal) solar plants. Each plant will include a power block with five~~eight~~ emitting units: two~~five~~ natural gas-fired boilers, two diesel fuel-fired emergency engines, and a wet surface air cooler. The common area will include diesel fuel-fired emergency equipment consisting of a small emergency generator and a fire pump. Criteria air pollutant emissions resulting from mirror cleaning including combustion and fugitive dust emissions will not be different since this alternative will employ the same scope of mirror cleaning on the same schedule as the Preferred Alternative.

Construction under this alternative will consist of the same types and magnitude of activities over the same 35~~36~~-month schedule, including worker and delivery vehicle trips, stationary and mobile heavy equipment operations, travel over the work site and roads, grading of the site, and earth moving. As a result, combustion and fugitive dust emissions under this alternative will not be different from the Preferred Alternative. Since this alternative is 1~~0~~.5 miles to the east of the Preferred Alternative, the length of the gen-tie line connecting this alternative to the new CRS will be slightly longer but substantially the same length as the approximately 10-mile-long gen-tie line under the Preferred Alternative. Therefore, combustion and fugitive dust emissions resulting from gen-tie line construction activities could be marginally higher but are expected to be substantively the same under this alternative.

Same as the Preferred Alternative, this alternative will comply with applicable LORS as described in Section 5.1. In conclusion, this alternative is essentially the same as the Preferred Alternative from an air quality perspective. Air quality impacts will be less than significant under Off-Site Alternative A and the Preferred Alternative.

Biological Resources (no changes)

Cultural Resources (no changes)

Geologic Hazards and Resources (no changes)

Hazardous Materials Handling (no changes)

Land Use

Off-Site Alternative A is located entirely on private lands under the jurisdiction of Riverside and Imperial counties approximately 10~~0~~.5 miles east of the Preferred Alternative. Zoning designations and height requirements for Off-Site Alternative A are discussed in Section 6.4.3.1. Rezoning and height variances will be required to make this alternative consistent with applicable land use plans and zoning ordinances in Riverside and Imperial counties. Off-Site Alternative A is located east and northeast of the town of Palo Verde. Off-Site Alternative A will not physically divide an established community or conflict with any plan, regulation, or program adopted for purposes of mitigating or avoiding an environmental impact.

This site is primarily active agricultural land, including Prime Farmland, Farmland of Statewide Importance, and Unique Farmland as defined by the California Department of Conservation (CDC). A small area of land in the northeastern corner is under a Williamson Act contract. Conversion of important farmlands defined by the CDC and lands under a Williamson Act contract to nonagricultural use constitute potentially significant impacts. The Preferred Alternative will not convert ~~important farmlands or~~ Williamson Act lands to nonagricultural use. However, the Preferred Alternative (Alternative 3) will convert approximately 1.55 acres of prime farmlands and 0.67 acres of farmlands of statewide importance to nonagricultural use. Nevertheless, Off-Site Alternative A will convert a substantially greater amount of important farmlands defined by the CDC to nonagricultural use. Therefore, adverse land use impacts will be greater under Off-Site Alternative A.

Noise (no changes)

Paleontological Resources (no changes)

Public Health and Safety (no changes)

Socioeconomics (no changes)

Soils (no changes)

Traffic and Transportation (no changes)

Visual Resources (no changes)

Waste Management (no changes)

Water Resources

Off-Site Alternative A is primarily underlain by the Palo Verde Mesa Groundwater Basin, but also is located within the Palo Verde Valley Groundwater Basin. These basins contain sufficient quantities of water to support construction and operation of the 500~~750~~ MW solar generating facility on this site. Raw water can likely be drawn from existing or constructed onsite wells. Water consumption is activity-specific rather than location-specific and will be substantively the same under the Preferred Alternative and Off-Site Alternative A for both construction activities and operations. Water supply impacts will not be substantively different under Off-Site Alternative A.

Similar to the Preferred Alternative, Off-Site Alternative A will adhere to proper material storage and handling as well as any other applicable good housekeeping procedures. Construction and operation of the Off-Site Alternative A will employ stormwater design BMPs and adhere to a SWPPP, State water quality standards, and other applicable federal, state, and local LORS addressing stormwater runoff and surface water quality. Water quality impacts will not be substantively different under Off-Site Alternative A. Flooding is not a potential issue for Off-Site Alternative A. In conclusion, this alternative is the same as the Preferred Alternative from a water resources perspective. Water resources impacts are less than significant under Off-Site Alternative A and the Preferred Alternative.

Worker Safety (no changes)

6.4.4.3 Off-Site Alternative G – Sonoran West Site

The following sections examine the potential environmental impacts of development of a 500~~750~~ MW (nominal) solar generating facility on Off-Site Alternative G – Sonoran West Site. In addition, the environmental impacts of this alternative are compared to the environmental impacts of the Preferred Alternative. Compliance of Off-Site Alternative G with the project objectives is evaluated in Table 6.4-3.

Table 6.4-3
Off-Site Alternative G – Sonoran West Site
Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
1. Safely and economically construct and operate a nominal 750 megawatt (MW) solar generating facility in southeastern Riverside County, California capable of providing clean, renewable, competitively priced solar-generated electricity.	Off-Site Alternative G will consist of two~~three~~ 250-MW (nominal) plants, for a total of 500~~750~~ MW (nominal) of clean, renewable solar electricity. It will, however, be safely and economically constructed and operated in southeastern Riverside County, California and capable of providing clean, renewable, competitively priced solar-powered electricity.	Partially~~Yes~~
2. Assist Southern California Edison (SCE) in meeting its obligations under the Renewables Portfolio Standard (RPS) and the California Global Warming Solutions Act.	Off-Site Alternative G will have a 500~~750~~ MW (nominal) capacity and 1,424,600~~2,205,000~~ megawatt-hours (MWH) annual production of renewable electricity, and will connect to the SCE grid through a new 220 kilovolt (kV) common gen-tie line that will connect to the newly approved SCE Colorado River Substation (CRS).	Yes
3. Consistent with national policy, which encourages the development of new or significantly improved technologies to "avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases" (see, e.g., 42 U.S.C. §16513[a]), use BrightSource's proprietary solar power tower technology in another utility-scale project, further proving economic viability of the technology.	Off-Site Alternative G will use BrightSource's proprietary solar power tower technology.	Yes
4. Develop a project that minimizes land consumption on a MWH per acre basis.	Off-Site Alternative G will provide approximately 1,424,600~~2,205,000~~ MWH annual production on approximately 3,833~~5,750~~ developable acres, or approximately 383 MWH annual production per acre.	Yes
5. Locate the solar generating facility in an area of high insolation.	Off-Site Alternative G is located in an area of high insolation.	Yes
6. Select a site with minimal slope, predominantly five percent or less.	Off-Site Alternative G is located on a site with minimal slope, predominantly five percent or less.	Yes
7. Design and develop the Project to conform to the requirements of the site-assigned 20-year Power Purchase Agreements (PPAs) for the Applicant, including a commercial on-line date (COD) of 2015.	Off-Site Alternative G can feasibly achieve a commercial on-line date of 2015~~.~~, but it will not provide 750 MW as required by the PPAs (please see footnote 1 to Table 6.3-4). In addition, since the Applicant filed an AFC for the RMS Project, BrightSource has continued to evaluate the	No~~Yes~~

Table 6.4-3
Off-Site Alternative G – Sonoran West Site
Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
	Sonoran West project site, and BrightSource intends to develop both projects. Sonoran West would not meet key project objectives including the attainment of a COD of 2015 as required in the PPA for RMS 1.	
8. Site the project in a timely and environmentally responsible manner by selecting a location with minimal potentially significant impacts, where compliance with applicable laws, ordinances, regulations and standards (LORS) is feasible.	Compared with the Preferred Alternative, Off-Site Alternative G results in greater adverse impacts related to geologic hazards and resources and water resources.	No
9. Secure site control within a reasonable timeframe, using a reasonable effort at a reasonable cost.	Off-Site Alternative G is located on BLM-administered public land.	Yes
10. Respond to MWD's requests for proposal (RFPs) to develop a solar electric generation facility on MWD-owned land.	Off-Site Alternative G does not respond to MWD's RFPs to develop on MWD-owned land. Off-Site Alternative G is located solely on BLM land.	No
11. Locate the Project near existing electric transmission equipment with a California Independent System Operator (CAISO) point of interconnection and natural gas infrastructure.	Off-Site Alternative G is located adjacent to the new SCE CRS. The natural gas system under Off-Site Alternative G will connect to the SoCal Gas line, which less than one mile to the north.	Yes
12. Develop a solar generating facility that assists BLM with its mission to approve 10,000 MW of renewable energy projects on public lands by 2015 in a manner that reduces impacts (i.e., edge effects) and leverages resources being developed on private lands (i.e., shared facilities).	Off-Site Alternative G will develop 500~~750~~ MW (nominal) of renewable energy on BLM-administered public lands by 2015.	Yes

Acronyms:

BLM	=	Bureau of Land Management	MWD	=	Metropolitan Water District of Southern California
BrightSource	=	BrightSource Energy, Inc.	MWH	=	Megawatt-hour
CAISO	=	California Independent System Operator	PPA	=	Power Purchase Agreement
COD	=	commercial on-line date	RFP	=	request for proposals
CRS	=	Colorado River Substation	SCE	=	Southern California Edison
kV	=	kilovolt	SoCal Gas	=	Southern California Edison
LORS	=	laws, ordinances, regulations and standards	TCGT	=	TransCanada Gas Transmission Company
MW	=	megawatts	WAPA	=	Western Area Power Administration

Air Quality

Developing an identical solar generating facility at an alternate location will not result in different types or quantities of criteria air pollutant, toxic air contaminant, and GHG emissions during construction or operations. Same as the Preferred Alternative, this alternative will install and operate twothree identical 250 MW (nominal) solar plants. Each plant will include a power block with fiveeight emitting units: twofive natural gas-fired boilers, two diesel fuel-fired emergency engines, and a wet surface air cooler. The common area will include diesel fuel-fired emergency equipment consisting of a small emergency generator and a fire pump. Criteria air pollutant emissions resulting from mirror cleaning including combustion and fugitive dust emissions will not be different since this alternative will employ the same scope of mirror cleaning on the same schedule as the Preferred Alternative.

Construction under this alternative will consist of the same types and magnitude of activities over the same 3536-month schedule, including worker and delivery vehicle trips, stationary and mobile heavy equipment operations, travel over the work site and roads, grading of the site, and earth moving. As a result, combustion and fugitive dust emissions under this alternative will not be different from the Preferred Alternative. Since Off-Site Alternative G is located adjacent to the new CRS, the length of the gen-tie line connecting this alternative to the new CRS will be shorter than the approximately 10-mile-long gen-tie line under the Preferred Alternative. Therefore, combustion and fugitive dust emissions resulting from gen-tie line construction activities under this alternative will be lower than the Preferred Alternative. However, since gen-tie line construction is a minor component of overall construction activities, overall construction air emissions under this alternative will only be marginally lower relative to the Preferred Alternative. Same as the Preferred Alternative, this alternative will comply with applicable LORS as described in Section 5.1. In conclusion, this alternative is essentially the same as the Preferred Alternative from an air quality perspective. Air quality impacts will be less than significant under Off-Site Alternative G and the Preferred Alternative.

Biological Resources (no changes)

Cultural Resources (no changes)

Geologic Hazards and Resources (no changes)

Hazardous Materials Handling (no changes)

Land Use (no changes)

Noise (no changes)

Paleontological Resources (no changes)

Public Health and Safety (no changes)

Socioeconomics (no changes)

Soils (no changes)

Traffic and Transportation (no changes)

Visual Resources (no changes)

Waste Management (no changes)

Water Resources

Off-Site Alternative G is underlain by the Chuckwalla Valley Groundwater Basin (CVGB). The CVGB contains sufficient quantities of water to support construction and operation of a 500~~750~~ MW solar generating facility on this site. Raw water can likely be drawn from existing or constructed onsite wells. Water consumption is activity-specific rather than location-specific and will be substantively the same under the Preferred Alternative and Off-Site Alternative G for both construction activities and operations. Water supply impacts will not be substantively different under Off-Site Alternative G.

Same as the Preferred Alternative, Off-Site Alternative G will adhere to proper material storage and handling as well as any other applicable good housekeeping procedures. Construction and operation of the Off-Site Alternative G will employ stormwater design BMPs and adhere to a SWPPP, State water quality standards, and other applicable federal, state, and local LORS addressing stormwater runoff and surface water quality. Water quality impacts will not be substantively different under Off-Site Alternative G.

Flooding is a potential issue for Off-Site Alternative G. Based on USGS topographic maps and aerial images, there are ephemeral 'blue-line' drainages through the site. Ephemeral drainages located on alluvial fans have a tendency to be highly erosive and can shift laterally during intense flooding events.

Development of the site would require protection of these drainages, for example, through setbacks of project features from drainages or engineering stabilization controls.

Potential flooding hazards can likely be addressed through project design and compliance with applicable LORS. Nevertheless, the greater risk of flooding under Off-Site Alternative G, while not likely to result in a significant impact, constitutes a higher potential for adverse water resources impacts relative to the Preferred Alternative.

Worker Safety (no changes)

6.5 TECHNOLOGY ALTERNATIVES (NO CHANGES)

6.5.1 Other Solar Thermal Technologies (no changes)

6.5.2 Central Tower Concentrating Solar Power with Integral Thermal Storage System (no changes)

6.5.3 Solar Photovoltaic Technology (no changes)

6.5.4 Integrated Gasification Combined Cycle (no changes)

6.5.5 Oil, Coal or Other Solid Fuel Conventional Furnace/Boiler Steam Turbine (no changes)

6.5.6 Nuclear (no changes)

6.5.7 Geothermal (no changes)

6.5.8 Biomass (no changes)

6.5.9 Wind (no changes)

6.5.10 Hydroelectric (no changes)

6.6 ALTERNATIVE ACCESS ROUTES

Alternative access routes during operations will be used for the Project. Each plant also will have perimeter and maintenance access roads within the solar field. The following provides a description of the preferred and alternative access routes for the Project (see Figure 6.6-1 (rev)).

6.6.1 34th Avenue (Secondary~~Preferred~~)

The secondary~~preferred~~ access route to the project site is via 34th Avenue, which is accessible from State Route 78, 1.5 miles north of the town of Palo Verde at the Riverside-Imperial County line. From State Route 78, this access route runs west between agricultural lands on a 60-foot-wide County ROW before reaching the project site.

6.6.2 South Lovekin Boulevard to 28th Avenue (Alternate) (no changes)

6.6.3 Bradshaw Trail via 30th Avenue (PreferredAlternate)

The Preferred Aaccess to the project site is also can be made via Bradshaw Trail, which is north of bisects the project site. The existing alignment of Bradshaw Trail through the agricultural lands north ofand the project site was formerly known as the Butterfield Trail, which may not represent an actual routing of the historic trail.

Bradshaw Trail runs through the northern portionnorth of the project site and is currently a 65-mile-long unpaved road periodically graded by the Riverside County Transportation Department and managed by the BLM, and is used primarily as an access route by OHV enthusiasts. Bradshaw Trail provides access to the northwestern corner of the sitesite from the north, yet the portion that runs through the project site is primarily used as an OHV route. The Project may impact recreational uses along this stretch. However, according to the BLM Palm Springs South Coast Field Office website, accessing Bradshaw Trail at its end near the town of Ripley (east of the project site) is not recommended due to its rerouting through and around agricultural fields on private land. The BLM instead recommends accessing the trail from Wiley's Well Road, approximately 4.3 miles west of the project site, and continuing to the west as a means of experiencing the historic trail. As part of the Project, the Applicant has suggested rerouting the trail outside the project site to maintain public access and use of this trail in the future. See Section 6.8 for a discussion of Bradshaw Trail re-route alternatives.

6.6.4 22nd Avenue via State Route 78 (Alternate) (no changes)

6.6.5 Mesa Drive via Interstate-10 (Alternate) (no changes)

6.7 ALTERNATIVE WATER SUPPLY OPTIONS

This Section describes the current water supply to the Project as well as the alternative water supply options that will be used during construction and operation of the Project. Water users in the Palo Verde area obtain supplies from both surface and groundwater sources. Historically and currently, most water utilized for irrigation is derived from the Colorado River. Water supplied for domestic and urban uses is through either private wells or public agencies. The principal agencies for water supply in the area include the City of Blythe, Palo Verde Irrigation District (PVID), MWD, and others.

6.7.1 Water Supply

To save water, due to the desert environment in which the Project is located, each plant will use an air-cooled condenser for the main steam cycle. The capital cost of an air-cooling system can be several times greater than that of a wet cooling system. The air-cooling system also requires the plant to operate at a higher temperature, thereby lowering the efficiency of the power block by up to 15 percent compared to wet cooling systems. However, use of air-cooling technology requires up to 90 percent less groundwater consumption compared with wet cooling in terms of afy. Typical water uses for an air-cooled plant are steam-cycle makeup, quench water for boiler blowdown, and mirror washing water. Because the Project is located in a desert where water resources are limited and degraded, air-cooling was selected.

As a result of the air-cooling system, water consumption will be minimal (estimated at no more than 84.585 afy for each of the twothree plants, and 4.3five afy for the common area, for a total of 173.3260 afy). A wet cooling system, by contrast, would consist of a steam surface condenser, cooling tower, and circulating water pumping system. The surface condenser receives exhaust steam from the low-pressure section of the steam turbine and cooling water circulating within the condenser tubes causes the steam to condense back to water for reuse in the steam cycle. The surface condenser is a shell-and-tube heat exchanger with the steam condensing on the shell side and the circulating water flowing in one or more passes within the tubes. Heat is rejected by spraying the circulating water inside of a mechanical draft evaporative cooling tower. The consumptive water loss through evaporation and drift is significant.

Raw water will be drawn for the Project from one of three wells located in the common area. In terms of annual operation usage, it is estimated that 84.585 afy will be required for each of the twothree plants, with an additional 4.3five afy for the common area, or a total of 173.3260 afy for the for the entire 500750 MW (nominal) facility.

As an alternative, the Project may develop groundwater wells for each plant individually. The resultant total would be fiveseven ground water wells, where each plant would be supplied by two wells (one primary and one backup). For Rio Mesa I and II, the wells would likely be located within the power block area. The wells for Rio Mesa III would be located within the common area, with an additional third well in the common area to serve common area needs. While the number of wells increases from three to fiveseven, the water usage would not change.

Each plant will have a treated water tank sized to accommodate two days of reserve process water. The common area will have a treated water tank sized to accommodate one day additional reserve of process water for the plants that includes makeup for demineralizer and wet-surface air cooler. A separate mirror wash tank will be provided as well. In addition, a combined service water/firewater storage tank will be provided that has sufficient capacity for service water and a dedicated two-hour reserve volume for firewater. A dedicated two-hour firewater storage tank will also be provided in the common area to fight a two-hour fire.

The Project will operate from eight to 16 hours a day, seven days a week throughout the year, with the exception of a scheduled shutdown in winter (at a time negotiated with the Transmission System Operator) for maintenance. However, the water treatment plant will operate continuously, in order to minimize water treatment system size and capital cost, and to use off-peak energy at night. A more detailed description of the water supply system, treatment, and permits is provided in Section 5.15.

6.7.2 Groundwater (*Preferred*)

The groundwater alternative is a viable water supply option for the Project. The Applicant under its land lease with the MWD has an executed contract for use of up to 600 afy of groundwater drawn from under the leased land. Use of on-site groundwater has many benefits when considering water supply for the Project and the quantity of groundwater is likely to support construction and operations of the Project, based on prior testing conducted by the San Diego Gas and Electric Company, when they considered the site for its SunDesert project in the 1970s. The available groundwater does not meet drinking water standards. This is considered favorable since the CEC generally favors use of the poorest, most inferior quality water for supplying power projects operations.

Additionally, current estimates of the size of the underground aquifer are approximately 30-50 thousand acre feet. Water usage for the Project is projected to be a maximum of 173.3~~260~~ afy during operation, and a maximum of 400 afy during construction. The anticipated location of the wells will be at least one-half mile from the nearest existing well on nearby agricultural lands. Therefore, impacts on the aquifer and any adjacent water users are expected to be less than significant. See Section 5.15 for more information.

6.7.3 Trucking Water to the Project Site from Surrounding Areas (*Alternative*) (no changes)

6.7.4 Agricultural Supply or Return Water (no changes)

6.7.5 Water from a Secondary Service Provider (no changes)

6.7.6 Reclaimed Water from the City of Blythe (no changes)

6.8 BRADSHAW TRAIL RE-ROUTE ALTERNATIVES (DELETED)

~~Bradshaw Trail is the only route that~~does not ~~bisects the project site. Sections 6.8-1 through 6.8-4 include an explanation of why leaving the trail in its existing location is infeasible and identify three re-route alternatives to the existing location of the trail. The locations of the existing Bradshaw Trail and its re-route alternatives are shown on Figure 6.8-1.~~

~~6.8.1 Existing Location~~

~~A map of this route is provided in Figure 6.8-1. The current location of Bradshaw Trail (as explained in Section 5.3 and Section 5.6) may or may not follow the historic route of the original trail. In fact, there is much evidence to the contrary that the "current" route is the historic route.~~

~~Leaving the trail in the existing location for the Project is infeasible as it will cause development and other production problems, including a severe hindrance to solar field maintenance and mirror washing. It also will impact overall power production and total MW produced for the northern plant by reducing acreage in critical areas for mirrors close to the solar tower. This option will not meet the Project objectives.~~

~~6.8.2 North Re-route Around Project with 22nd Avenue Access Point (Preferred)~~

~~A map of this route is provided in Figure 6.8-1. This is an alternative access route that will incorporate Bradshaw Trail being rerouted along the northwest project boundary to coincide with the existing Gravel Pit Road which also serves as a maintenance road for the IID's 161 kV "F" transmission line. Upon reaching the northernmost footprint of the site, access to Bradshaw Trail would be from 22nd Avenue/Gravel Pit Road 3.5 miles north of the plant entrance road off of State Route 78. When traveling from Blythe or I-10, this reroute provides a more direct route to historic sections of Bradshaw Trail west of the project site and the mesa from State Route 78 than exists currently.~~

~~6.8.3 North Re-route Around Existing Project using Existing Access at 30th Avenue~~

~~A map of this route is provided in Figure 6.8-1. This re-route alternative incorporates the trail heading north around the Project, around the Project's northernmost plant, Rio Mesa III. This re-route will ensure that sections of Bradshaw Trail are still accessible from State Route 78; however, it will add length to the trail.~~

~~6.8.4 Re-route Between Rio Mesa II and III~~

~~A map of this route is provided on Figure 6.8-1. The Applicant is considering another alternative access to Bradshaw Trail that will run between Rio Mesa II and III. This re-route alternative will be accessible to the general public; however, it will also add length to the trail and will require the installation of a fence on either side of the rerouted trail, affecting the number of heliostats for the solar fields of Rio Mesa II and III and overall project costs.~~

6.9 CONSTRUCTION AND BACKUP POWER (NO CHANGES)

6.10 TELECOMMUNICATIONS (NO CHANGES)

6.11 REFERENCES (NO CHANGES)

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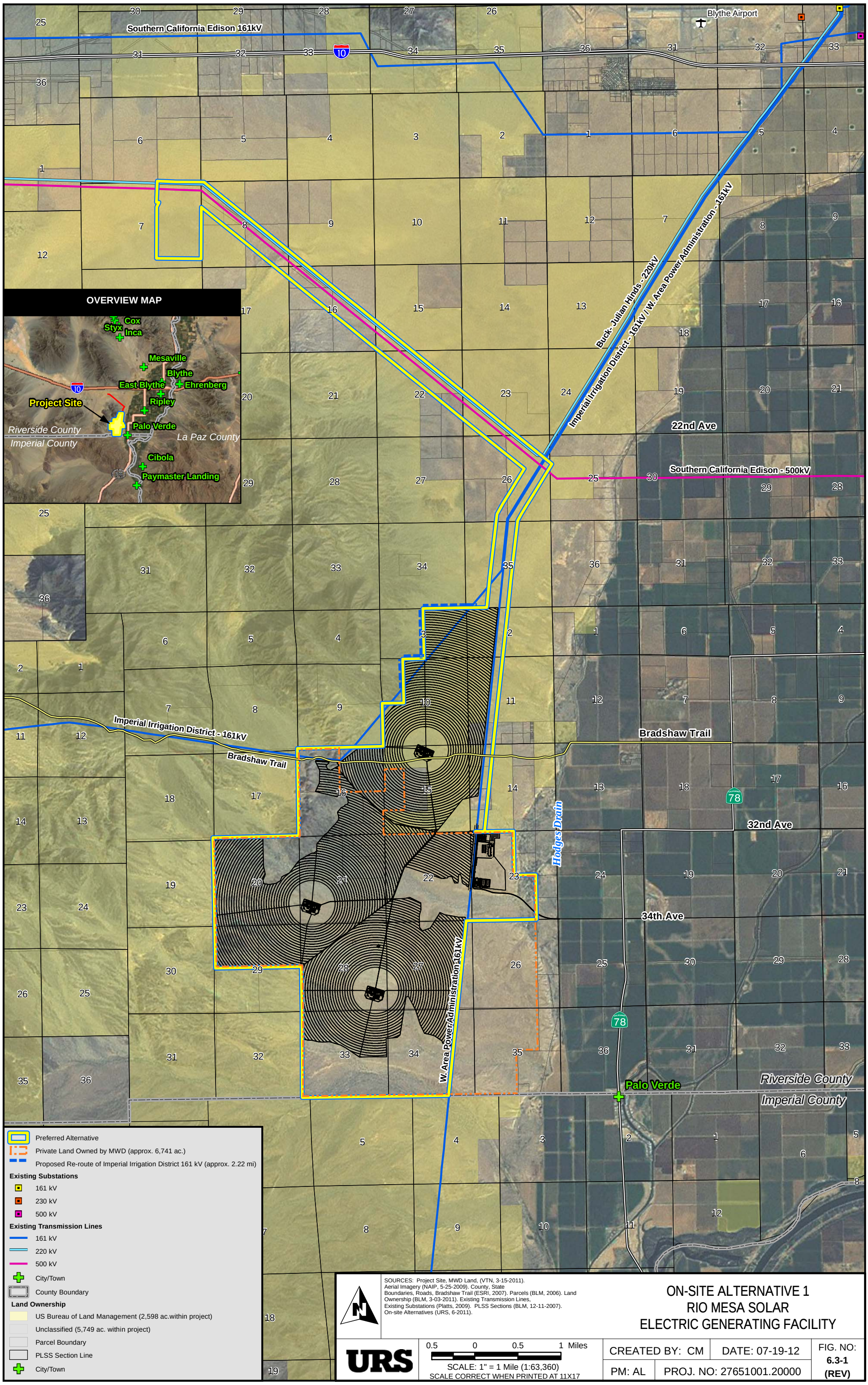

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OVERVIEW MAP

Cox
Styx
Inca
Mesaville
Blythe
East Blythe
Ehrenberg
Ripley
Project Site
Palo Verde
Riverside County
La Paz County
Imperial County
Cibola
Paymaster Landing

Southern California Edison 161kV
Blythe Airport
Buck- Julian Hinds - 220kV
Imperial Irrigation District - 161kV / W.Area Power Administration - 161kV
22nd Ave
S. Neighbours Blvd
Southern California Edison - 500kV
Ripley
Rannells Blvd
28th Ave
Imperial Irrigation District - 161kV
Bradshaw Trail
30th Ave
32nd Ave
Hodges Drain
34th Ave
Existing Gas Line
W.Area Power Administration 161kV
Palo Verde
Riverside County
Imperial County

Fenceline Boundary of Solar Field (3,805 acres) *Includes Common Areas, Switchyard and Gas Metering Yard
Common Areas Boundary (19.5 acres) *Included in Fenceline acres
Switchyard (2.47 acres) *Included in Fenceline acres
Gas Metering Yard (0.52 acres) *Included in Fenceline acres
Temporary Construction Logistics Area (103 acres)
Private Land Owned by MWD (approx. 6,741 ac.)
Private Lands within the Project (approx. acres: 67 T-line)
Private Lands within the Project - Right of Entry Obtained (approx. 386 ac.)
Draft Solar Field and Common Area Layout
Bradshaw Trail Off Site
Existing Gas line (50ft. easement corridor, gas line is off-centered, 12.5ft. west of eastern easement boundary)

Access Road Corridors to be Improved

34th Ave Access Road Corridor to be Improved (1.02 mile, 200ft. corridor, 100ft. from c/l, 25 ac.)
Bradshaw Trail Access Road Corridor to be Improved 2.96 miles, 200ft. corridor, 100ft. from c/l, 71 ac.)
Drainage Crossing Upgrade (500ft. radius from center point, 18 ac. each; 72 ac. total)

Proposed 33kV Service Line

SCE 33kV Proposed Service (Existing ROW overbuild) (approx. 5.1 miles, 200 ft. corridor, 100 ft. from c/l, 119 ac.)
SCE 33kV Proposed Service (New ROW) (approx. 3.1 miles, 200 ft. corridor, 100 ft. c/l, 77 ac. total)

Proposed Project 230kV Transmission Line Corridor - (approx. 9.9 mi)

Proposed Project 230kV Transmission Line Centerline (approx. 9.9 mi offsite)
ROW Corridor approx. 1,641 ac. (1,300 ft. corridor, approx 650ft. from c/l; approx acres: 1196 BLM, 445 Private)
CRS Substation (77 ac.)
Colorado River Substation Gen-tie Area (approx. 114 ac.)

Existing Substations

161 kV
230 kV
500 kV

Existing Transmission Lines

161 kV
220 kV
500 kV
City/Town
County Boundary

Land Ownership

US Bureau of Land Management
Unclassified
Parcel Boundary
PLSS Section Line

Total Project Acreage: 5,955 ac. (Draft Fenceline Boundary 3805 ac., Construction Area 103 ac., Transmission Line 1641 ac., Gen-Tie Areas 114 ac., Bradshaw Trail Access Corridor to improve 71 ac., 34th Ave Access Road Corridor to improve 25 ac., SCE 33kV Service Line 196 ac.)

SOURCES: Draft Solar Field Layout & Fenceline, MWD Land (Bechtel, 6-13-2012). Transmission Line Corridor (URS, 6-14-2012). Private Lands (BSE, 2012). Existing Gasline, Transmission Line Centerline, Buck-Julian Hinds 220kV (Power Engineers, 6-14-2012). CRS Substation, Potential Gen-tie Area (Power Engineers, 5-7-2012). Aerial Imagery (NAIP, 5-25-2009). County, State Boundaries, Roads, Bradshaw Trail (ESRI, 2007). Parcels (BLM, 2006). Land Ownership (BLM, 3-03-2011). Existing Transmission Lines, Existing Substations (Platts, 2009). PLSS Sections (BLM, 12-11-2007). Improved Access Roads, Drainage Crossing Upgrade (URS, 3-18-2011). 33kV Proposed Service Transmission Lines (BSE, 2011).

URS

3000 0 3000 6000 Feet

SCALE: 1" = 6000' (1:72,000)
SCALE CORRECT WHEN PRINTED AT 11X17

ON-SITE ALTERNATIVE 3
(500-MW MWD-ONLY ALTERNATIVE)
RIO MESA SOLAR
ELECTRIC GENERATING FACILITY

CREATED BY: DT	DATE: 7/12/2012	FIG. NO: 6.3-3 (REV)
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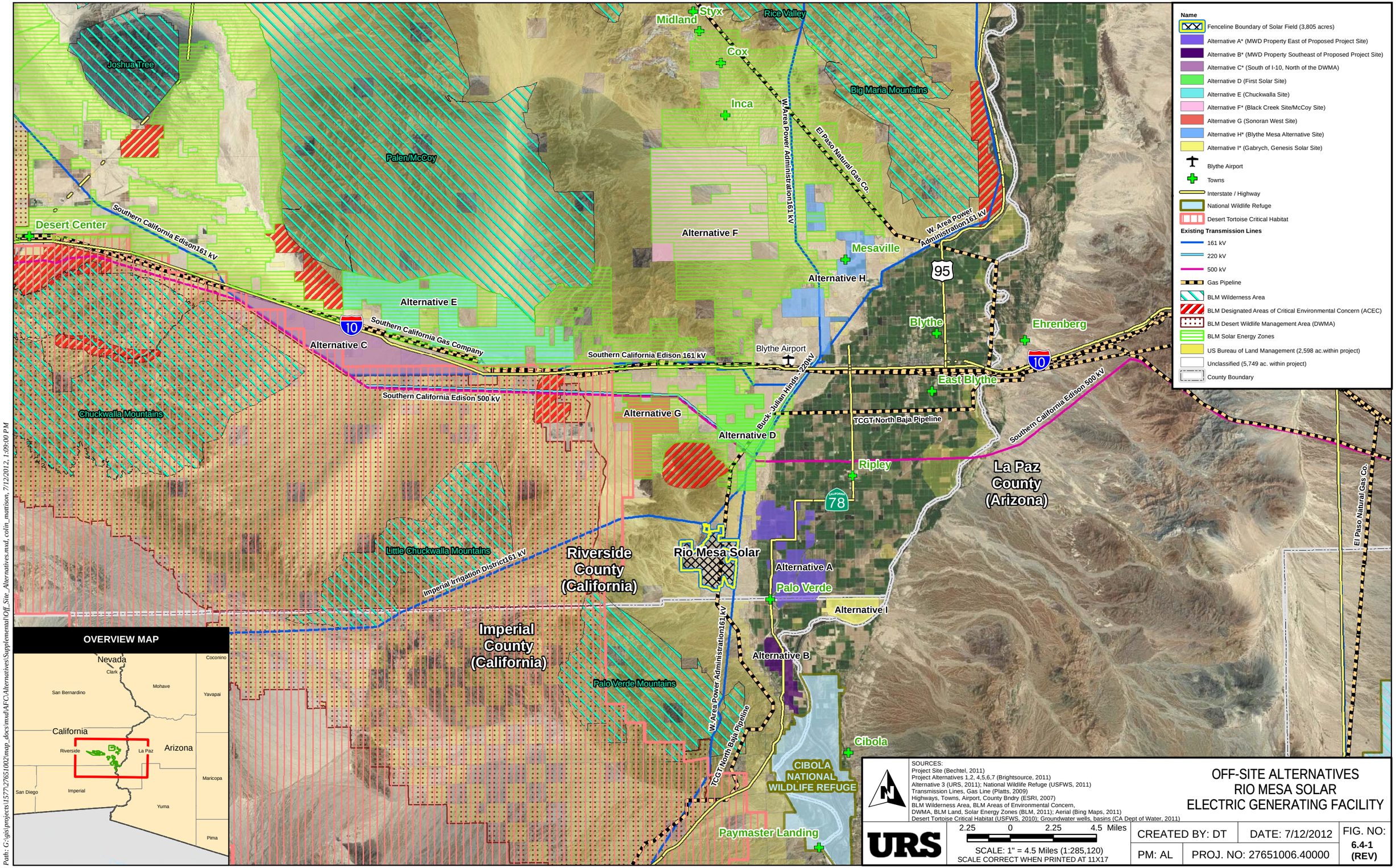

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Southern California Edison 161kV

Blythe Airport

Buck- Julian Hinds - 220kV

Imperial Irrigation District - 161kV / W.Area Power Administration - 161kV

22nd Ave

S. Neighbours Blvd

Southern California Edison - 500kV

Ripley

Rannells Blvd

28th Ave

Imperial Irrigation District - 161kV

Bradshaw Trail

30th Ave

32nd Ave

Hodges Drain

34th Ave

Existing Gas Line

W.Area Power Administration 161kV

Palo Verde

Riverside County

Imperial County

OVERVIEW MAP

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- CRS Substation (77 ac.)
- Colorado River Substation Gen-tie Area (approx. 114 ac.)

Existing Substations

- 161 kV
- 230 kV
- 500 kV

Existing Transmission Lines

- 161 kV
- 220 kV
- 500 kV
- City/Town
- County Boundary

Land Ownership

- US Bureau of Land Management
- Unclassified
- Parcel Boundary
- PLSS Section Line

Total Project Acreage: 5,955 ac. (Draft Fenceline Boundary 3805 ac., Construction Area 103 ac., Transmission Line 1641 ac., Gen-Tie Areas 114 ac., Bradshaw Trail Access Corridor to improve 71 ac., 34th Ave Access Road Corridor to improve 25 ac., SCE 33kV Service Line 196 ac.)

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URS

3000 0 3000 6000 Feet

SCALE: 1" = 6000' (1:72,000)

SCALE CORRECT WHEN PRINTED AT 11X17

ON-SITE ALTERNATIVE 3 (PREFERRED ALTERNATIVE) RIO MESA SOLAR ELECTRIC GENERATING FACILITY

CREATED BY: DT	DATE: 7/19/2012	FIG. NO: 6.3-3 (REV)
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