TABLE OF CONTENTS

TABLE OF CONTENTS

Tables

Figures

This page intentionally left blank

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 through 6.3-3. 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. 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.
- 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

The Energy Facilities Siting Regulations (Title 20, California Code of Regulations [CCR], Appendix B) guidelines titled *Information Requirements for an Application* require an applicant to consider:

> "the range of reasonable alternatives to the project, including the No Action Alternative, that would feasibly achieve most of the basic objectives of the project, but would avoid or substantially lessen any of the significant impacts of the project, and an evaluation of the comparative merits of the alternatives."

CEQA also requires consideration of:

> "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant impacts of the project, and evaluate the comparative merits of the alternatives." (14 CCR 15126.6[a])

Thus, the focus of an alternatives analysis should be on those alternatives that:

> "could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects." (14 CCR 15126.6[c])

The CEQA Guidelines (14 CCR 15126.6[c]) further provide that, "among the factors that may be used to eliminate alternatives from detailed consideration in an Environmental Impact Report" are:

- failure to meet most of the project objectives;
- infeasibility; and
- inability to avoid significant environmental impacts.

NEPA similarly requires that federal agencies identify and analyze of a reasonable range of alternatives in an Environmental Impact Statement (EIS) prior to approving or taking federal action that could have a significant impact on the environment. The EIS must rigorously explore and objectively evaluate all reasonable alternatives that meet the purpose of and need for the proposed action, including those alternatives that are not within the jurisdiction of the lead agency: "reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant" (CEQ 1981). NEPA also requires a brief explanation of the reasons for eliminating an alternative from detailed study.

The United States (U.S.) Bureau of Land Management (BLM) is the lead federal agency for NEPA compliance for the Project. The Federal Land Policy and Management Act (FLPMA) tasks BLM with responsibility for preparation of NEPA documents for projects proposed on public land. Specifically, FLPMA §1765 directs BLM to pursue the following objectives when considering whether to grant a right-of-way (ROW) for the use of public lands:

> "minimize damage to scenic and aesthetic values and fish and wildlife habitat and otherwise protect the environment…require compliance with State standards for public health and safety, environmental protection, and siting, construction, operation, and maintenance of [ROWs] … [and] … require location of the [ROW] along a route that will cause least damage to the environment, taking into consideration feasibility and other relevant factors."

For this Project, the Moreno Valley BLM field office will assume responsibility for ensuring compliance with NEPA.

The Unites States Army Corps of Engineers (USACE) will be a cooperating agency with the BLM on the Final EIS for the Project. The federal Clean Water Act Section 404(b)(1) Guidelines (Guidelines) promulgated by the United States Environmental Protection Agency explain that, when an action is subject to NEPA and the USACE is a permitting agency for some or all of that action, the analysis of alternatives prepared for NEPA will, in most cases, provide the information needed for analysis under the Guidelines. The Guidelines also state that, in some cases, the NEPA document may address, "…a broader range of alternatives than required to be considered under [the Guidelines] or may not…consider alternatives in sufficient detail to respond to the details of these Guidelines. In the latter case, it may be necessary to supplement these NEPA documents with this additional information." (40 CFR §230.10(a)(4)). In light of this statement in the Guidelines, and because the Project purpose statements under NEPA and the Guidelines are not necessarily identical, the USACE can review and refine the Project purpose, for its needs, to ensure that the standards of the Guidelines are met.

The USACE's Final Section 404(b)(1) Alternative Analysis for the Project will include the following statement of basic and overall Project purpose:

"The basic project purpose comprises the fundamental, essential, or irreducible purpose of the proposed action, and is used by the USACE to determine whether an applicant's project is water dependent (*i.e.*, whether it requires access or proximity to or siting within a special aquatic site). The basic project purpose for the proposed action is "Energy Production". Although the basic project purpose is not water dependent, the Project will not affect any special aquatic sites. Therefore, the rebuttable presumption that there are less damaging alternatives for the proposed activity that will not affect aquatic sites does not apply (40 CFR §230.10(a)(3))."

6.1.3 Project Objectives

The project objectives are identified below.

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.

2. Assist Southern California Edison (SCE) in meeting its obligations under the Renewables Portfolio Standard (RPS) and the California Global Warming Solutions Act.

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 Energy Inc.'s (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.

5. Locate the solar generating facility in an area of high insolation.

6. Select a site with minimal slope, predominantly five (5) percent or less.

7. Design and develop the Project to conform to the requirements of the site-assigned 20-year Power Purchase Agreements (PPAs) for Rio Mesa Solar Holdings, LLC, including a commercial on-line date (COD) of 2015.

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.

9. Secure site control within a reasonable timeframe, using a reasonable effort at a reasonable cost.

10. Respond to Metropolitan Water District of Southern California's (MWD's) requests for proposal (RFPs) to develop a solar electric generation facility on MWD-owned land.

11. Locate the Project near existing electric transmission equipment with a California Independent System Operator (CAISO) point of interconnection and natural gas infrastructure.

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).

Some of the Project's objectives, listed above, are to provide clean, renewable, solar-powered electricity to the state of California, and help California electric utilities meet their RPS procurement requirements. In recent years, the California State Legislature has passed several laws and state agencies have adopted plans regarding renewable energy that are relevant to the Project. These laws and plans are summarized below.

- **2002:** RPS Program, which requires 20 percent of the electricity sold by regulated California utilities to be generated from renewable energy by 2017, was established.
- **2003:** Energy Action Plan I accelerated the 20 percent deadline, discussed above, to 2010.

- **2005:** Energy Action Plan II examined a further goal of 33 percent by 2020; modified some requirements for electric corporations that serve customers outside of California and have 60,000 or fewer customer accounts in California.
- **2006:** Senate Bill 107 codified the accelerated 20 percent deadline into law.
- **2011:** Senate Bill X 1-2 increased California's RPS to 33 percent by 2020. The new RPS requires regulated sellers of electricity to procure 33 percent of their total energy supplies from certified renewable resources by December 31, 2020.

Since its seminal RPS decision (D.03-06-071 in Rulemaking 01-10-024), the CPUC has addressed its responsibilities in implementing the RPS in various proceedings. The CPUC opened Rulemaking (R.) 04-04-026 to address RPS implementation issues across the board. R.06-02-012 addressed the need to develop further rules, procedures, and policies for RPS implementation. R.06-05-027 was opened as a successor proceeding, which continued ongoing oversight of the RPS program, including the annual RPS procurement cycle, reporting, compliance, enforcement, and limited specific policy issues. In August 2008, the CPUC opened R.08-08-009 as the successor proceeding to R.06-05-027, and R.11-05-005 was initiated in May 2011, as the successor proceeding to R.08-08-009. In addition to the ongoing implementation and administration of the RPS program, R.11-05-005 also implements recent amendments to RPS statutes. These amendments, among other things, set an RPS procurement target of 33 percent of retail sales by 2020.

To achieve the RPS targets, the state's electric utilities, under the direction and oversight of the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC), initiated several processes to competitively select renewable power projects that will minimize costs for their customers, minimize effects to the existing electricity system, and comply with state and federal permitting requirements. In response to these initiatives, the Applicant investigated potential sites throughout California that were suitable for the development of a utility-scale solar electric generating facility, particularly those sites that were located reasonably close to transmission infrastructure and in areas with good insolation. The location selected for the Project is ideally suited for solar generation, given the high availability of solar energy at the site throughout the year, the proximity to transmission, and the minimum effect of the Project on environmental resources. The Applicant has a portfolio of multiple PPAs as a result of the utilities' procurement processes and has signed several multiple-year contracts under which utilities will buy the energy produced by this Project.

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 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 Project. 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, 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

The project site is located within the boundaries of the NECO Plan, which amended the CDCA Plan (BLM, 2002). The site is consists mostly of previously disturbed land surrounded primarily by previously disturbed land to the north, south, and west with agricultural lands located to the east. The project site is comprised primarily of creosote desert scrub with areas of desert wash scrub within the on-site washes. Portions of the site are disturbed due to the presence of existing infrastructure and past activities, such as transmission lines, pipelines, and past military training activities. BLM lands and other private lands in which the gen-tie line will be sited are mainly comprised of desert scrub habitat and disturbed lands associated with existing infrastructure. The project site has several utility lines with maintenance roads running through it and has been subject to disturbance from illegal off-road vehicle use, dumping of trash, and historic use for military training during World War II, including tank training.

No designated critical habitat (DCH), special management areas, wilderness study areas, or Areas of Critical Environmental Concern (ACEC) are located within the project site or gen-tie line corridor. The Mule Mountain ACEC is located approximately two miles north of the project site; it is approximately 0.7 miles west and 0.6 miles southwest of the gen-tie line corridor. The Palo Verde Mountains Wilderness area is approximately three miles southwest of the project site. Desert tortoise critical habitat is located approximately five miles west of the project site.

The primary vegetation types are Colorado Desert creosote bush scrub, creosote bush/white burr sage scrub, and blue palo verde/ironwood woodland. Disturbed areas are associated with unpaved roads and trails, maintenance areas for existing transmission line poles, and rights-of-way (ROWs) along underground pipeline routes. Wildlife movement is not currently restricted on or through the project site in any direction. Special-status wildlife species on the site include Desert tortoise and Gila woodpecker.

The project site contains well-defined, ephemeral washes with smaller, broad alluvial fan/plains intertwined with high topographic variation. On-site drainage patterns ultimately flow to Hodges Drain, the Palo Verde Outfall, and into the Colorado River. Active flow channels are devoid of vegetation. Potentially jurisdictional Waters of the United States (WUS) and potentially jurisdictional Water of the State of California (WSC) were identified and mapped in the project site.

Existing uses in the area will likely continue to impact biological resources through disturbance, habitat degradation, fragmentation, or potential mortality. These include OHV use, agricultural activities, Imperial Irrigation District (IID) and Western Area Power Administration (WAPA) transmission line maintenance activities, roadway maintenance activities, and storm water run-off. Impacts from these existing uses will likely continue under the No Project Alternative.

Due to the fact that the No Project Alternative will not involve construction or operation of the Project, no adverse biological resources impacts will occur, including adverse impacts to special-status wildlife species, WUS, and WSC. The Preferred Alternative will have less than significant biological resources impacts with implementation of mitigation measures. Therefore, the degree of biological resources impacts will be lower under the No Project Alternative. However, because biological 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 biological resources at the project site is provided in Section 5.2.

6.2.3 Cultural Resources

The project area is situated in a predominately previously disturbed area. Primary sources of previous surface and subsurface disturbance in and adjacent to the project area include: agriculture; historic period military training associated with the Desert Training Center [DTC]; unpaved roads; previous groundwater testing and wells; transmission towers and one underground gas transmission pipeline; and recreational uses. Apart from these disturbances, the landscape and topography in the project area generally resembles its natural environment.

Cultural resource investigations and reports for this site were conducted in accordance with state and federal requirements and guidance as described in Section 5.3.2. In summary, the project site features cultural resources, including archaeological sites and archaeological isolated finds. Recommendations on eligibility are included in the Cultural Resources Technical Report (Under Confidential Filing).

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.

Existing uses in the project area currently impact cultural resources through disturbance, including OHV use, agricultural activities, transmission line construction associated with nearby power plants, and roadway construction and maintenance activities. Impacts to cultural resources as a result of these existing uses will likely continue under the No Project Alternative. The site will remain in the current state and no additional cultural resources impacts will occur.

Under the No Project Alternative, land disturbance that could have the potential to result in loss or degradation of cultural resources will not occur. The Preferred Alternative will have less than significant cultural resources impacts. Therefore, the degree of cultural resources impacts will be lower under the No Project Alternative. However, because cultural 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 cultural resources at the project site is discussed in Section 5.3. Additional detail pertaining to Bradshaw Trail is discussed in Sections 5.3, 5.6, and 6.6.

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

The project site is previously disturbed but no hazardous materials are known to be present as a result of current or past activities. Under the No Project Alternative, hazardous materials associated with construction and operation will not be brought onto the project site and no hazardous materials handling will occur. While the Preferred Alternative will have less than significant hazardous materials handling impacts, the potential for such impacts will be lower under the No Project Alternative. However, because hazardous materials handling 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 hazardous materials management at the project site is provided in Section 5.5.

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. 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 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. Prime farmlands are situated approximately 0.3 mile to the east of the proposed common 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 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

The project site and the surrounding vicinity are generally previously disturbed. The ambient sound environment comprises naturally occurring sources (such as wind through vegetation and noise from seasonal insects, birds, and other fauna) that could be intermittent or relatively continuous depending on location and environmental conditions (e.g., geographical, meteorological, seasonal, time of day, etc.). Contributing man-made noise sources are likely to include occasional OHV traffic, equipment and vehicle use associated with farming activities, roadway traffic from State Route 78, aircraft overflights, and residential, commercial, and industrial activities. Representative ambient noise levels at a set of locations in the vicinity of the project site were measured during a field survey. This data, which includes observations regarding perceived sources, is provided in Section 5.7.4.

The 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."

Under the No Project Alternative, no noise will be generated from the Project because the Project will not be constructed or operated. Hence, there will be no changes to the current ranges of natural environmental conditions and types and intensities of human activities (both transportation-related and stationary) that might otherwise cause a change to the range of ambient environmental sound levels and their character. While the Preferred Alternative will have less than significant noise impacts, the degree of such impacts will be lower under the No Project Alternative. However, because noise 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 noise at the project site is provided in Section 5.7.

6.2.8 Paleontological Resources

The project site lies on the Palo Verde Mesa, which lies above the north and west side of the current Colorado River Valley. Whereas the geology of most areas in the Mojave Desert and some parts of the Colorado Desert are dominated by mountains, alluvial fans, and basins, the project area also has a major geological component from the Colorado River. The Project is considered part of the Colorado Desert physiographic province. No vertebrate paleontology localities are known within several miles of the project site. Two records of Pleistocene tortoise specimens were recovered from the Chemehuevi Formation geologic unit at the Blythe Energy Center west of Blythe and northeast of the Project. A widely distributed paleosol (i.e., fossil soil) was encountered during the field survey of the project site including a one-mile radius. This Palo Verde Mesa paleosol has a high sensitivity for paleontological resources. In addition to the Palo Verde Mesa paleosol, undisturbed fossiliferous sediments on the site include fine grained sediments identified as Chemehuevi Formation by some authors and late Pleistocene silts, sands, and gravels.

Some current uses of the site and surrounding area adversely affect paleontological resources through disturbance, OHV use, agricultural activities, transmission line construction, and roadway construction. Impacts as a result of these existing uses will likely continue under the No Project Alternative. In addition, the natural processes of water and wind erosion and abrasion from blowing sand may degrade exposed paleontological resources, as well as revealing additional specimens.

Under the No Project Alternative, no potential will exist for land disturbance associated with construction or operation of the Project to cause loss or degradation of paleontological resources. The Preferred Alternative will have less than significant paleontological resources impacts. Therefore, the degree of adverse paleontological resources impacts will be lower under the No Project Alternative. However, because paleontological 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 regarding paleontological resources for the project site is provided in Section 5.8.

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 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.

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 1,040 workers per month over the approximately three-year construction period, including a maximum of 2,500 workers during peak construction activities in Month 21 of the proposed schedule, will not be employed under this alternative. Approximately 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 $661 million and operations payroll of approximately $16 million will not be spent under the No Project Alternative. Nearly $8 million in sales and use tax revenue for Riverside County during construction, annual sales tax revenue of $68,200, and approximately $7 million in annual property tax revenue will not be generated.

Under the No Project Alternative, direct income of approximately $102 million from the 36-month construction period and approximately $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. 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 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 northern portion of the site. The portion that runs 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 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

According to the Phase I Environmental Site Assessment (ESA) prepared for the project site, in the mid-1970s, the project site was considered as a possible location for a nuclear power plant, and many water wells were installed at that time to evaluate the characteristics of the underlying aquifers as potential water source. During the visual reconnaissance conducted for the Phase I ESA, evidence of illegal disposal on the project site consisted of several automobile bodies discarded along existing roads and washes and several small piles of rusty cans, broken glass, tires and metal and debris. No oil stains were observed on the surface oil in these locations. Additionally, the rusty shells of several drums were observed in the dumping areas. No unusual stains were observed in the vicinity of the drums. Debris deposited more recently, consisting of piles of tires, fire rings, and miscellaneous metal debris, including

an abandoned metal tank, was observed on the southeastern border of the site near areas where many off-road vehicle tracks were present. During the site reconnaissance, potential unexploded ordnance (UXO) or munitions and explosives of concern (MEC) also was identified (much of the desert had been used for military training exercises during World War II). No Recognized Environmental Conditions associated with current or historical on-site operations were identified at the project site. A review of environmental databases that was conducted to identify the presence of sites of potential environmental concern within a one-mile radius of the Project site revealed that no properties of potential environmental concern were listed on the databases reviewed.

Under the No Project Alternative, waste associated with construction or operation of the Project will not be generated, thus management of existing waste and refuse will not need to be considered. The above-described items illegally disposed on the project site will not be removed under the No Project Alternative as they will under the Preferred Alternative. In addition, the existing potential for public health hazards resulting from UXO or MEC will remain unchanged under the No Project Alternative. The potential for such public health hazards will be lower under the Preferred Alternative. However, because waste management 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 waste management at the project site is provided in Section 5.14.

6.2.15 Water Resources

The project site is located in the Palo Verde Hydrologic Area within the Colorado River Hydrologic Region. The northern end of the gen-tie line and the new substation are located within the Ford Hydrologic Area. Within the California Regional Water Quality Control Board (RWQCB) Colorado River Basin region, the project site is within the East Colorado River Basin Planning Area. This hydrologic region has a subtropical desert climate with hot summers and short, mild winters. Annual rainfall amounts range from less than three to approximately six inches. Clear and sunny conditions typically prevail, and the region receives 85 to 90 percent of the maximum possible sunshine each year; the highest value in the U.S. The project site is located on an alluvial fan with multiple ephemeral washes originating in the surrounding mountains and generally trending from west to east. The washes convey runoff to Hodges Drain, which borders the project site to the east. Hodges Drain conveys runoff approximately two miles south to the Palo Verde Outfall Drain. Runoff continues south approximately 6.5 miles within the Palo Verde Outfall Drain where it discharges to the Colorado River. The upstream tributary watershed to the site is approximately 50 square miles. Palo Verde Mesa is underlain by a large groundwater basin generally referred to as the Palo Verde Mesa Groundwater Basin (PVMGB). The project site and PVMGB lie on a mesa at higher elevation than the Colorado River floodplain. Groundwater is derived primarily from a surficial alluvial aquifer that is connected to the Colorado River. In the PVMGB, groundwater is also derived from the surficial alluvial aquifer and from older Tertiary deposits, including Miocene-age fanglomerate and the Bouse Formation. Despite recent drier than normal hydrologic conditions in the Colorado River watershed, groundwater consumption in the area has remained at a near constant level.

On-site groundwater wells are proposed as the source of water for the Project, and studies have shown that sufficient water will be available at the project site. The Applicant secured through its land lease

agreement with MWD (Appendix 5.15E) access to up to 600 afy of groundwater. Furthermore, the use of the small quantities of water required for a dry-cooled plant will not result in adverse impacts to groundwater supplies or quality and will not affect neighboring wells.

Under the No Project Alternative, there is no potential for discharges from the project site that could degrade water quality. Also, the No Project Alternative will not require the use of groundwater in the PVMGB. While the Preferred Alternative will have less than significant water resources impacts, the potential such impacts will be lower under the No Project Alternative. However, because water 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 water resources for the project site is discussed in Section 5.15.

6.2.16 Worker Safety

Under the No Project Alternative, the Project will not be constructed and operated. Therefore, workers will not be employed by the Applicant or its subcontractors, and no risk of injury will exist to workers. However, because worker safety 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 worker safety at the project site is provided in Section 5.16.

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 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: 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).

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

Project Features	Preferred Alternative	750 MW MWD-Only Alternative	500 MW MWD-Only 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	1,470,000
Solar Power Towers	Three approximately750-foot-tall towers	Three approximately 750-foot-tall towers	Two approximately 750-foot-tall towers
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

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. On-Site Alternatives 2 and 3 will use BLM-administered public lands solely for a common gen-tie line. 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 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) 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.

Among the on-site alternatives, the Preferred Alternative is most likely to be identified as the USACE Least Environmentally Damaging Practicable Alternative (LEDPA). The Preferred Alternative also is the least damaging practicable alternative with regard to the aquatic ecosystem.

Table 6.3-2
On-Site Alternative 1 – Preferred 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.	The Preferred Alternative 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.	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.	The Preferred Alternative will use BrightSource's proprietary solar power tower technology.	Yes

Table 6.3-2
On-Site Alternative 1 – Preferred 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 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.	The Preferred Alternative is located in an area of high insolation.	Yes
6. Select a site with minimal slope, predominantly five percent or less.	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.	The Preferred Alternative can feasibly achieve a commercial on-line date of 2015.	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.	Under the Preferred Alternative, all impacts are less than significant and compliance with all LORS is feasible.	Yes
9. Secure site control within a reasonable timeframe, using a reasonable effort at a reasonable cost.	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.	The Preferred Alternative 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 Independent System Operator (CAISO) point of interconnection and natural gas infrastructure.	The Preferred Alternative 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 the MWD land adjacent to the existing Western Area Power Administration (WAPA) 161 kV transmission line that also runs through the site.	Yes

Table 6.3-2
On-Site Alternative 1 – Preferred Alternative: Summary of Compliance with Project Objectives

Project Objective	Evaluation of Compliance	Compliance with Project Objective?
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).	The Preferred Alternative will develop a portion of the 750 MW (nominal) facility on a 2,800 acre parcel administered by the BLM. The Preferred Alternative has a commercial on-line date of 2015.	Yes

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 = Requests for proposal
ROW = right-of-way
SCE = Southern California Edison
TCGT = TransCanada Gas Transmission Company
U.S. = United States
WAPA = Western Area Power Administration

Air Quality

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.

The Preferred Alternative will install and operate three identical 250 MW (nominal) solar plants. Each plant will include a power block with eight emitting units: five natural gas-fired boilers, two diesel fuel-fired emergency engines, and a wet surface air cooler. 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. 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 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 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. Startup 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 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 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. The Preferred Alternative will not result in any significant air quality impacts. Every MWH generated by the Project will displace a MWH generated by a more traditional (i.e., fossil-fuel-fired) source of electricity. As a result, 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.

Biological Resources

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). 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, the Project will not substantially prevent movement to and from high-value biological areas. Construction and operations of 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.

The Preferred Alternative minimizes development within the large washes located on site. Potentially jurisdictional WUS and WSC will be affected by 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. Additional detail pertaining to biological resources is provided in Section 5.2.

Cultural Resources

The Preferred Alternative 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.

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, 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 will be mitigated to less than significant levels. Additional detail pertaining to cultural resources is provided in Section 5.3.

Geologic Hazards and Resources

Based on the seismic setting, the Preferred Alternative is likely to experience strong seismic shaking within the lifetime of the Project. The Preferred Alternative 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 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 will require minor grading and excavation, thereby altering the terrain of the site. The Preferred Alternative 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 related to geologic hazards, including potentially corrosive soils, are less than significant. The Preferred Alternative 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.

Hazardous Materials Handling

The Preferred Alternative 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 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.

Land Use

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

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 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 site. Once complete, the construction and operation of the Preferred Alternative 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.

Noise

The Preferred Alternative 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.

Predicted full operation noise levels from the Preferred Alternative 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 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.

Paleontological Resources

The Preferred Alternative 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 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.

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. Additional detail pertaining to public health and safety is provided in Section 5.9.

Socioeconomics

The most significant socioeconomic benefits of the Preferred Alternative are the creation of jobs and additional revenues. The benefits of the Preferred Alternative 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.

Most of the construction workforce for the Preferred Alternative 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 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. 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 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 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 the Project's local construction expenditures on materials and supplies as well as from spending by local construction workers.

When completed, 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, 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 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 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 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 the Project operation.

Potential impact to schools and public services are anticipated under the Preferred Alternative. 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 will not adversely affect enrollment and associated facility and staffing impacts by the district. Moreover, the Preferred Alternative 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 the Project, and the tax revenue associated with a project of this magnitude, the Preferred Alternative will have a substantial positive socioeconomic impact. Additional detail pertaining to socioeconomics is provided in Section 5.10.

Soils

The potential for direct impacts to soils associated with the Preferred Alternative 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 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 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 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 to soils, including erosion and disturbance, are less than significant during construction.

Operation of 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 are less than significant are described in Section 5.11. Additional detail pertaining to soils is provided in Section 5.11.

Traffic and Transportation

The Preferred Alternative 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 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, the segment of 34th Avenue between the 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 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 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 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 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. 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.

Visual Resources

The Preferred Alternative 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. The solar power towers are the most visually noticeable elements of the Preferred Alternative. 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. 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.

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 site are likely to be visible from these viewpoints. The Preferred Alternative 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 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.

Waste Management

Small amounts of construction and demolition waste will be generated during construction of 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 at the Project.

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 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 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, the Project's impact on solid waste disposal capacity will be less than significant.

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

Water Resources

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 will adhere to proper material storage and handling as well as any other applicable good housekeeping procedures. Construction and operation of the Preferred Alternative 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 will be similar to those under existing conditions. Therefore, construction and operation of the Preferred Alternative will have a less than significant impact to surface water runoff.

The Preferred Alternative 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. 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, 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 the Project is considered a less than significant impact. Additionally, the Preferred Alternative will comply with existing LORS addressing groundwater quality and wastewater discharge. As described above, 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.

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. Additional detail pertaining to worker safety is provided in Section 5.16.

6.3.3.2 On-Site Alternative 2

The major project features distinguishing On-Site Alternative 2 from the Preferred Alternative 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 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 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 2 results in greater adverse impacts to air quality, biological resources, cultural resources, paleontological resources, soils, 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 the gen-tie line 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: 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. Each plant will include a power block with the same eight emitting units as the Preferred Alternative: five natural gas-fired boilers, two diesel fuel-fired emergency engines, and a wet surface air cooler. The Alternative 2 common area will include the same 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. Alternative 2 will be operated in the same fashion as the Preferred Alternative. Operational air quality impacts of Alternative 2 will not differ substantively from the Preferred Alternative. Same as the Preferred Alternative, 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.

Operational air quality impacts will be less than significant under Alternative 2 and the Preferred Alternative.

In general, construction under this alternative will consist of similar types and magnitude of activities over the same 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. However, two project features of Alternative 2 will result in greater criteria air pollutant emissions during construction relative to the Preferred Alternative: grading within the large washes avoided in the Preferred Alternative and relocation of the WAPA line, which is not relocated in the Preferred Alternative. 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.

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.

Biological Resources

Alternative 2 will result in greater biological resources impacts due to grading activities and 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. During the operational phase, impacts under Alternative 2 will be similar to the Preferred Alternative. Overall, impacts to biological resources from Alternative 2 are greater than impacts associated with the Preferred Alternative.

Cultural Resources

Alternative 2 will result in greater potential for cultural 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. Washes have a naturally higher density of cultural artifacts relative to other topographical features. Cultural resources have been noted on lands east of the WAPA line. The Preferred Alternative will avoid the cultural resources within the large on-site washes and on the portion of the project site east of the existing WAPA line. 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 is lower under Alternative 2. 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.

Geologic Hazards and Resources

Alternative 2 will result in greater potential for geologic hazards relative to the Preferred Alternative 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 only includes development on MWD lands west of the WAPA line. Alternative 2 does not include development on BLM-managed public lands other than lands associated with the gen-tie line.

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. 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 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 quantities of hazardous materials will be stored at the Preferred Alternative site as under 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 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 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 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 essentially the same as the Preferred Alternative from a socioeconomic perspective. Location of the three solar plants within MWD-owned land and relocation of the WAPA transmission line will result in essentially the same amount of job creation, revenue generation, and economic output as 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.

Traffic and Transportation

Alternative 2 will generate essentially the same number of vehicle trips during construction and operations as the Preferred Alternative. Trip distribution and access routes also will be essentially the same. Therefore, 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. In conclusion, this alternative and the Preferred Alternative are essentially the same from a traffic perspective.

Visual Resources

Alternative 2 will be essentially the same as the Preferred Alternative 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, level of impact to existing visual character of the area and sensitive

viewpoints. Impacts related to new sources of light and glare under Alternative 2 will likely be the same as the Preferred Alternative. Alternative 2 will generate the same level of visual interest as the Preferred Alternative.

Waste Management

Construction and operations under this alternative will generate the same quantities of solid waste, wastewater, and hazardous waste as the Preferred Alternative. 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 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 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 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 the Preferred Alternative are summarized in Table 6.3-4 and described below. In addition, Alternative 3 is shown on Figure 6.3-3. 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.

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 – 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 1,470,000 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

Table 6.3-4
On-Site Alternative 3 – 500 MW MWD-Only Alternative (Alternative 3)
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 3 will provide approximately 1,470,000 MWH annual production on approximately 3,833 developable acres, or approximately 383 MWH annual production per acre.	Yes
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
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 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 – 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 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 the gen-tie line 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			

Air Quality

Alternative 3 is located in the same air basin as the Preferred Alternative: 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 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 16 emitting units, compared with three solar plants totaling 24 emitting units under 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 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 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 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 Preferred Alternative. In general, the potential for cultural resources impacts under Alternative 3 will be lower relative to the 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 Preferred Alternative. Alternative 3 will address potential cultural resources impacts in the same manner as the 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 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 Preferred Alternative. Although Alternative 3 will construct and develop a solar generating facility with a smaller footprint and lower capacity than the Preferred Alternative, the potential for geologic hazards will not be proportionally lower for Alternative 3. Both alternatives would construct and develop on portions

of the site with similar potential for geologic hazards. The 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 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 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 the gen-tie line 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 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. 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 Preferred Alternative, 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.

Construction and operation of Alternative 3 is not anticipated to conflict with any LORS for the area. Alternative 3, similar to the 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. However, because land use 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.

Noise

Despite the smaller capacity and footprint of Alternative 3, noise impacts will be similar to the 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. 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 Preferred Alternative. In general, the potential for paleontological resources impacts under Alternative 3 will be lower relative to the 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 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 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 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 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 Preferred Alternative will pose significant health risks at any location, under any weather conditions, and under any operating conditions. Neither Alternative 3 nor the Preferred Alternative will generate concentrations of pollutants that result in significant public health impacts. Moreover, this alternative is in the same location as the 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 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 Preferred Alternative. Electricity generated by a third solar plant under the 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 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 Preferred Alternative.

Additionally, Alternative 3 will contribute significantly to local expenditures and County tax coffers, but at approximately two-thirds the level of the Preferred Alternative.

Alternative 3 will result in fewer socioeconomic benefits than the 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 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 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 Preferred Alternative during construction. However, because traffic impacts are considered less than significant under the construction phase of the Preferred Alternative, 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 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 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 Preferred Alternative. As a result, Alternative 3 will have less of an impact on existing visual character relative to the 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 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 Preferred Alternative. Management, treatment, and disposal methods also will be the same under this alternative and the Preferred Alternative. Recycling, landfill, and hazardous waste treatment and disposal capacity is adequate to accommodate expected waste generation levels for this alternative and the Preferred Alternative. Therefore, despite generating less waste, this alternative is essentially the same as the Preferred Alternative from a waste management perspective. Adverse environmental impacts associated with waste management will be less than significant under Alternative 3 and the 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 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 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. However, neither Alternative 3 nor the 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 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

Nine off-site alternatives, identified below, were evaluated during the development phase of the Project, and are shown on Figure 6.4-4.

- Off-Site Alternative A – MWD Property East of the Project Site
- Off-Site Alternative B – MWD Property Southeast of the Project Site
- Off-Site Alternative C – Site South of I-10, North of the DWMA
- Off-Site Alternative D – First Solar Site
- Off-Site Alternative E – Chuckwalla Site
- Off-Site Alternative F – McCoy Site
- Off-Site Alternative G –Sonoran West Site
- Off-Site Alternative H – Blythe Mesa Alternative
- Off-Site Alternative I – Gabrych, Genesis Solar Site

The nine off-site alternatives being considered were evaluated for feasibility using the project feasibility screening criteria described in Section 6.4.2.

6.4.2 Screening Criteria

The Applicant developed the criteria listed below to evaluate the feasibility of nine off-site alternatives and the Project for solar power development. For purposes of this AFC, development of a solar generating facility that attains the project objectives is not considered feasible from a technical or economic standpoint if a site does not meet the screening criteria. Section 6.4.3 compares the nine off-site alternatives to these screening criteria.

- **Site Suitability (Insolation, Size, and Grade)**: The site needs to be located in an area with long hours of sunlight (low levels of cloudiness). Ideally, the site should consist of at least nine square miles of contiguous land, and, to reduce erosion potential, should be relatively flat with a predominant grade of five percent or less.

- **Site Control**: The land has to be available for sale or use (e.g., lease or ROW grant). If private land, the landowner must be willing to negotiate a long-term option agreement, so that site control does not require a large capital investment until the license is obtained. If public land, the parcels must be free of competing ROW applications, and the jurisdictional agency must maintain a compatible development timeframe.
- **Proximity to Infrastructure**: The site needs to be located in reasonably close proximity to high-voltage transmission lines or corridors with the ability to interconnect to the CAISO system. In addition, the site needs to be located in reasonably close proximity to a gas transmission system and an adequate water supply.
- **Accessibility**: The site should have ease of access with reasonably close proximity to existing access roads being preferred.
- **Environmental Sensitivity**: The site should have few or no environmentally sensitive areas (particularly biological and cultural resources) and should allow development with minimal environmental impacts.
- **Jurisdictional Issues**: The proposed use should be consistent with existing LORS and jurisdictional policies.
- **Solar Energy Zones**: Sites within currently proposed solar energy zones (PSEZ) on BLM land are currently on administrative hold preventing any advancement of the permitting process until late 2012 at the earliest. This moratorium does not apply to applications submitted before June 30, 2009, nor does it apply to the transmission gen-tie lines from project sites to the point of interconnection with the CAISO.
- **Economic Viability**: The site needs to be economically viable and competitive with other renewable technologies including wind, geothermal, and solar technologies. The site should be located on property currently available at a reasonable cost (including grading and water costs), have reasonable proximity to existing natural gas and electric transmission line infrastructure, and have good insolation. Likely mitigation requirements also will affect economic viability. Sites with excellent insolation may be able to carry higher mitigation costs and infrastructure costs. Please refer to Figure 6.4-1, Off-Site Alternatives.

6.4.3 Comparison of the Off-Site Alternatives to Screening Criteria

A discussion of the project feasibility screening criteria for all nine off-site alternatives is presented below and summarized in Table 6.4-1 (primary factors for elimination are shown in bold type within the body of the table). Off-Site Alternative A and Off-Site Alternative G are carried forward for detailed analysis because the comparison with the screening criteria suggests that development of a solar generating facility that attains most of the project objectives identified in Section 6.1.3 is feasible from a technical and economic standpoint on these sites. The potential environmental impacts of Off-Site Alternatives A and G are evaluated and compared with the environmental impacts of the Preferred Alternative in Section 6.4.4, with a focus on whether these off-site alternatives would avoid or substantially reduce environmental impacts of the Preferred Alternative.

The comparison of the other seven off-site alternatives with the screening criteria demonstrates that development of a solar generating facility that attains the project objectives is not feasible from a technical or economic standpoint on any of these seven sites. Moreover, the comparison indicates that these seven off-site alternatives would not avoid or substantially reduce environmental impacts as compared to the Preferred Alternative.

Table 6.4-1
Comparison of Project Feasibility Screening Criteria for the Off-Site Alternatives

Description	Site Suitability	Ability to Secure Site Control	Proximity to Infrastructure			Access	Environmental Sensitivity	Jurisdictional Issues	BLM Proposed SEZ	Economic Viability	Conclusion
			Electrical[1]	Natural gas[2]	Water						
Project/Preferred Alternative	Good overall insolation, grade, shape, and size	Good – MWD option agreement executed	Approx. 9.7 miles from new CRS	TCGT line on site	Groundwater on site	Good	Low	Fair – Riverside County and BLM rezone and CDCA Plan amendment	No. Not located within proposed SEZ on BLM land.	Good – MWD option agreement executed, first in line BLM ROW application	Feasible. Carried forward for detailed alternatives analysis.
Off-Site Alternative A – MWD Property East of Proposed Project Site	Good overall insolation, grade, shape, and size	Good, but requires more effort, time, cost than Preferred Alternative due to MWD timing, Williamson Act cancellation, private lands acquisition, PVID opposition	Approx. 2 miles from transmission line, 10.5 miles from new CRS	Approx. 1.5 miles to TCGT line	Groundwater on site	Good	Medium – agricultural lands, Williamson Act contract, proximity to Colorado River, canal relocation	Fair – Imperial and Riverside County, rezones necessary	No. Not located within proposed SEZ on BLM land.	Good, but less viable than Preferred Alternative due to MWD timing, Williamson Act cancellation, private lands acquisition, PVID opposition	Feasible. Carried forward for detailed alternatives analysis.

Table 6.4-1
Comparison of Project Feasibility Screening Criteria for the Off-Site Alternatives

Description	Site Suitability	Ability to Secure Site Control	Proximity to Infrastructure			Access	Environmental Sensitivity	Jurisdictional Issues	BLM Proposed SEZ	Economic Viability	Conclusion
			Electrical[1]	Natural gas[2]	Water						
Off-Site Alternative B – Imperial County Land South of Proposed Project Site	Good overall insolation, shape, and grade, insufficient size	Good, but requires more effort, time, cost than Preferred Alternative due to MWD timing, PVID opposition	Approx. 9.3 miles	Less than 1 mile to TCGT line	Groundwater on site	Good	Medium – agricultural lands, proximity to Colorado River and CNWR	Fair – BLM and Imperial County, rezones necessary	No. Not located within proposed SEZ on BLM land.	Poor – Insufficient size	Infeasible. Eliminated from further consideration.
Off-Site Alternative C – South of I-10, North of DWMA	Good overall insolation, shape, and grade, insufficient shape	Poor – multiple land owners	Adjacent	Adjacent to SoCal Gas line	Groundwater on site	Good	High – critical habitat for Desert tortoise, adjacent to I-10 and BLM DWMA, proximity to Wilderness Area	Fair – BLM and Riverside County, small portion needs a rezone	No. Not located within proposed SEZ on BLM land.	Poor – shape of land, mitigation costs	Infeasible. Eliminated from further consideration.
Off-Site Alternative D – First Solar Site	Good overall insolation and shape, insufficient size at this time, substantial grading required	Poor – stacked in line behind other developer	On site	TCGT line on-site	Groundwater on site	Fair – road improvements may be required	Medium – proximity to BLM ACEC, substantial grading required	Good – BLM land	Yes. Located within proposed SEZ on BLM land, but application not subject to moratorium.	Poor – site control, insufficient size at this time	Infeasible. Eliminated from further consideration.

Table 6.4-1
Comparison of Project Feasibility Screening Criteria for the Off-Site Alternatives

Description	Site Suitability	Ability to Secure Site Control	Proximity to Infrastructure			Access	Environmental Sensitivity	Jurisdictional Issues	BLM Proposed SEZ	Economic Viability	Conclusion
			Electrical[1]	Natural gas[2]	Water						
Off-Site Alternative E – Chuckwalla Site	Good overall insolation, shape, grade, and size	Poor – stacked in line behind other developers	Approx. 1.4 miles	Adjacent to SoCal Gas line	Groundwater on site	Good	High – within Ford Dry Lake, adjacent to ACEC and Wilderness Area	Good – BLM land	Yes. Located within proposed SEZ on BLM land.	Poor – site control, mitigation costs	Infeasible. Eliminated from further consideration.
Off-Site Alternative F – Black Creek/McCoy Site	Good overall insolation, shape, and size, substantial grading required	Poor – stacked in line behind other developers	Approx. 7.2 miles	Approx. 5.5 miles to SoCal Gas line	Groundwater on site	Fair – road improvements may be required	Medium – proximity to McCoy mountains, substantial grading required	Good – BLM land	Yes. Located within proposed SEZ on BLM land.	Poor – site control	Infeasible. Eliminated from further consideration.
Off-Site Alternative G – Sonoran West Site	Good overall insolation, shape, size, and grade	Good – first in line BLM ROW application	Adjacent to CRS	Less than 1 mile to SoCal Gas line	Groundwater on site	Fair – road improvements may be required	Medium – adjacent to DWMA, proximity to ACECs	Good – BLM land	Yes. Located within proposed SEZ on BLM land.	Good – first in line BLM ROW application	Feasible. Carried forward for detailed alternatives analysis.
Off-Site Alternative H – Blythe Mesa Alternative Site	Good overall insolation, and grade, three fragmented areas, insufficient size	Poor – stacked in line behind other developers, 23 land owners	Approx. 5.5 miles	Less than 1 mile to SoCal Gas line	Groundwater on site	Fair – road improvements may be required	Medium – agricultural lands and infrastructure improvements to link fragmented areas	Fair – BLM and Riverside County, rezone necessary	No. Not located within proposed SEZ on BLM land.	Poor – site control, 23 land owners, three fragmented areas, insufficient size	Infeasible. Eliminated from further consideration.

Table 6.4-1
Comparison of Project Feasibility Screening Criteria for the Off-Site Alternatives

Description	Site Suitability	Ability to Secure Site Control	Proximity to Infrastructure			Access	Environmental Sensitivity	Jurisdictional Issues	BLM Proposed SEZ	Economic Viability	Conclusion
			Electrical[1]	Natural gas[2]	Water						
Off-Site Alternative I – Gabrych Genesis Solar Site	Good overall insolation, grade, **insufficient size**	**Poor – multiple land owners**	Approx. 7 miles	Approx. 5 miles to TCGT line	Groundwater on site	Fair – road improvements may be required	Medium – agricultural land, proximity to Colorado River, location in flood zone	Fair – BLM and Imperial County, portions needs a rezone	No. Not located within proposed SEZ on BLM land.	**Poor – insufficient size, mitigation costs**	Infeasible. Eliminated from further consideration.

Notes:

Primary factors for elimination are shown in **bold**.

1. Distance measured from the SCE Blythe – Devers 500 kV line.

2. Distance measured from either Southern California Gas (SCG) gas transmission line or the TCGT North Baja gas transmission line as noted.

Acronyms:

Approx. = approximately
ACEC = Area of Critical Environmental Concern
BLM = Bureau of Land Management
CDCA = California Desert Conservation Area
DWMA = Desert Wildlife Management Area
MWD = Metropolitan Water District of Southern California
PVID = Palo Verde Irrigation District
SoCal Gas = Southern California Gas Company
SEGF = Solar Electric Generating Facility
SEZ = BLM Proposed Solar Energy Zone
TCGT = TransCanada Gas Transmission Company

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

Off-Site Alternative A is located less than 0.5 miles east of the Preferred Alternative project site on MWD-owned land in Riverside and Imperial Counties. The site is situated on approximately 7,377 acres of agricultural land with generally flat topography and good overall insolation. The site partially meets the screening criterion for a minimum size of nine square miles (5,750 acres) of contiguous land. Purchase of privately-owned, prime farmlands including lands under Williamson Act contract not owned by MWD in Sections 7, 8, 17, 19, and 20 will be needed to make the site contiguous. Purchasing and converting these prime farmlands including lands under Williamson Act contract to nonagricultural use will increase the timeframe, effort, and cost of obtaining site control, although site control is still considered feasible.

On July 12, 2011, MWD issued RFP 974 intending to make this site available for lease for agricultural or solar energy use in January 2012. Through communications with the Applicant, MWD expressed interest in the development of this site, subject to two conditions: (1) that development of this occur after development of the Palo Verde Mesa; and (2) agreement by some of the surrounding farmers to shift their land from crop production to solar power. Since the issuance of RFP 974, the Palo Verde Irrigation District (PVID) Board of Directors has made known to MWD its strong objections to shifting the use of MWD's prime agricultural lands in the Palo Verde Valley from active agriculture to solar energy generation. PVID is committed to keeping the Palo Verde Valley lands in agriculture and is likely to oppose solar energy development on this site. MWD issued an addendum to the RFP responding to questions from various respondents. MWD acknowledged in its response to question 1 that it "will consider non-agricultural uses, however, there may be adverse community reaction to the use of prime agricultural lands for non-agricultural uses." Further discussions with MWD revealed that it was not anxious to take on the PVID on this issue. As a result, BrightSource elected to not proceed with a response to RFP 974 at this time.

Proximity to infrastructure is considered adequate due to the fact that it is located approximately 1.5 miles east of the TCGT North Baja gas transmission line, and approximately ten miles southeast of the CRS. Access to groundwater is considered feasible on this site. With State Route 78 bisecting the site, accessibility is considered good.

Off-Site Alternative A has a medium environmental sensitivity for the following reasons: (1) it is located on agricultural land currently used for agricultural purposes, including a small area of land in the northeastern corner under Williamson Act contracts that will require cancellation; (2) irrigation canals will have to be relocated to develop this site; (3) its proximity to the Colorado River in conjunction with being located on agricultural lands, could pose adverse environmental impacts related to migratory birds, water resources, (4) it is located within a 100 year floodplain, and (5) project delays will impact the ability of this alternative to satisfy the project objective for a commercial on-line date of 2015.

The relatively small, southernmost portion of the site located in Imperial County is zoned for General Agriculture (A-2), according to the Imperial County Zoning Ordinance. The A-2 zone allows electrical generating plants that use less than 50 MW, and solar energy generators with a Conditional Use Permit (CUP). The maximum allowable height is 120 feet. The vast majority of the site is located in Riverside County and primarily zoned for Rural Residential (R-R), according to the Riverside County Zoning Ordinance, with a very small portion zoned for Light Agriculture (A-1). The R-R Zone allows public utility uses of structures and the pertinent facilities necessary and incidental to the development and

transmission of electrical power and gas, such as hydroelectric power plants, booster or conversion plants, transmission lines, and pipelines. The maximum allowable height in the R-R Zone is 105 feet. Typical uses within the A-1 zone include single-family dwellings, light agriculture, and animal husbandry, with a maximum allowable height of 75 feet. Rezoning and a height variance will be required under this alternative. In addition, the partial location in Imperial County conflicts with the requirement of the 20-year PPAs for the Applicant and the project objective to develop on land within Riverside County. The site is not located within a proposed SEZ on BLM land.

To the extent mitigation requirements resulting from the alternative's proximity to the Colorado River and other potential environmental impacts will increase costs, the economic viability of this alternative will be negatively affected.

Although there are potentially adverse environmental impacts and issues negatively affecting economic viability, development of a solar generating facility that attains most of the project objectives is considered feasible from an economic and technical standpoint under Off-Site Alternative A. Therefore, Alternative A is carried forward for detailed analysis in Section 6.4.4.

6.4.3.2 Off-Site Alternative B – MWD Property Southeast of the Project Site

Off-Site Alternative B is located approximately 2.7 miles southeast of the Preferred Alternative project site, primarily on MWD-owned land in Imperial County. The southern portion of the site includes BLM-administered public lands. The site is situated on approximately 2,227 acres of agricultural land with generally flat topography and good overall insolation. It does not meet the screening criterion for a minimum size of nine square miles (5,750 acres) of contiguous land, so it is not suitable for development of a 750 MW solar generating capacity.

On July 12, 2011, MWD issued RFP 974 intending to make this site available for lease for agricultural or solar energy use in January 2012. Through communications with the Applicant, MWD expressed interest in the development of this site, subject to two conditions: (1) that development of this occur after development of the Palo Verde Mesa; and (2) agreement by some of the surrounding farmers to shift their land from crop production to solar power. Since the issuance of RFP 974, the Palo Verde Irrigation District (PVID) Board of Directors has made known to MWD its strong objections to shifting the use of MWD's prime agricultural lands in the Palo Verde Valley from active agriculture to solar energy generation. PVID is committed to keeping the Palo Verde Valley lands in agriculture and is likely to oppose solar energy development on this site. MWD issued an addendum to the RFP responding to questions from various respondents. MWD acknowledged in its response to question 1 that it "will consider non-agricultural uses, however, there may be adverse community reaction to the use of prime agricultural lands for non-agricultural uses." Further discussions with MWD revealed that it was not anxious to take on the PVID on this issue. As a result, BrightSource elected to not proceed with a response to RFP 974 at this time.

The site has adequate proximity to electric and natural gas infrastructure. It is less than one mile east of the TCGT North Baja gas transmission line and approximately 10 miles southeast of the CRS. Access to groundwater is considered feasible on this site. With State Route 78 bisecting the site, accessibility is considered good.

Off-Site Alternative B has a medium environmental sensitivity because it is located on agricultural lands and adjacent to the Colorado River and Cibola National Wildlife Refuge (CNWR) and its close proximity to the Colorado River and CNWR could pose adverse environmental impacts related to migratory birds, water resources, and the risk of flooding. Permitting delays are likely to result from these potentially adverse environmental impacts. Project delays will harm the ability of this alternative to use the Project to fulfill its PPA portfolio obligations.

The majority of the site is zoned General Agriculture (A-2), but there also are parcels zoned for Heavy Agriculture (A-3), Open Space/Recreation (S-1), and Government Special (G-S), according to the Imperial County Zoning Ordinance. The A-2 zone allows electrical generating plants less than 50 MWs and solar energy generators with a CUP. The maximum allowable height is 120 feet. The S-1 zone also allows electrical generating plants less than 50 MW with a CUP. The A-3 zone allows solar energy plants with a CUP with a maximum allowable height of 120 feet. The G-S zone does not allow solar energy development. Rezoning will be required to develop several hundred MW solar thermal facility on this site. In addition, the location in Imperial County conflicts with the requirement of the 20-year PPAs for the Applicant and the project objective to develop on land within Riverside County. The site is not located within a proposed SEZ on BLM land.

This alternative also is not economically viable due to the insufficient size of the site for a 750 MW generating facility. This conflict with the PPAs also reduces the economic viability of the alternative. To the extent mitigation requirements resulting from the alternative's proximity to the Colorado River and CNWR will increase costs, the economic viability of this alternative will be negatively affected.

The size of this alternative is insufficient by more than 5.5 square miles (3,500 acres). Therefore, developing a solar generating facility on this site that attains most of the project objectives is not technically or economically feasible. This alternative would not meet key project objectives including construction of a nominal 750 MW facility and conformance with the 20-year PPAs for the Applicant. Moreover, this alternative would not avoid or substantially reduce environmental impacts as compared to the Preferred Alternative. As a result of these factors, Off-Site Alternative B was eliminated from further consideration.

6.4.3.3 Off-Site Alternative C – South of I-10, North of DWMA

Off-Site Alternative C is located approximately 13.7 miles east of the Preferred Alternative project site in Riverside County. The site is situated on a total of 11,119 acres of land under the jurisdiction of the BLM and Riverside County and is bounded by I-10 to the north and the BLM DWMA on the southwest and southeast. The site features generally flat lands with good insolation and sufficient acreage for development of 750 MW of solar generating capacity. Despite the size, the obtuse triangular shape makes this site unsuitable for development of a 750 MW facility. This alternative will require negotiations with multiple land owners. As a result, site control will likely be more complex and time-consuming relative to the Project, although site control is still considered feasible.

This alternative has high environmental sensitivity for the following reasons. Portions of the site are critical habitat for the Desert tortoise and are located adjacent to the BLM DWMA and approximately one mile northeast of the Chuckwalla Mountains BLM Wilderness Area. Significant adverse impacts to biological resources are likely to occur under this alternative.

The site has adequate proximity to electric and natural gas infrastructure. A 500 kV transmission line is adjacent to the southwestern boundary of the site, and the Southern California Gas Company line extends along the I-10 corridor adjacent to the northern boundary of the site. Access to groundwater is considered feasible as groundwater is present beneath the site. Accessibility is considered acceptable due to the adjacency of I-10.

The BLM-administered lands comprise approximately 8,853 acres. Of the 2,266 acres under the jurisdiction of the County, 2,237 are zoned Controlled Development (W-2-10) and 29 acres are zoned Natural Assets (N-A). The W-2-10 Zone allows public utility uses, including a solar electric generating facility. The portion of the site zoned N-A will require a Change of Zone with Riverside County. The site has adequate proximity to electric and natural gas infrastructure. The site is not located within a proposed SEZ on BLM land.

With ownership divided among multiple land owners and 750 MW of generating capacity being impractical, this alternative will not be economically viable. These characteristics also conflict with the 20-year PPA requirements and project objectives to construct 750 MW of generating capacity with a commercial on-line date of 2015. To the extent mitigation requirements resulting from the alternative's likely adverse impacts to biological resources will increase costs, the economic viability of this alternative will be further harmed.

The obtuse triangular shape of the site and the Desert tortoise critical habitat designation make development of a solar generating facility that attains most of the project objectives technically and economically infeasible. This alternative would not meet key project objectives including construction of a nominal 750 MW facility, conformance with the 20-year PPAs for the Applicant, and development of renewable energy on BLM lands that reduces environmental impacts. Moreover, this alternative would not avoid or substantially reduce environmental impacts as compared to the Preferred Alternative. Biological resources impacts would likely be greater under this off-site alternative. As a result of these factors, Off-Site Alternative C was eliminated from further consideration.

6.4.3.4 Off-Site Alternative D – First Solar Site

Off-Site Alternative D is located in Riverside County on approximately 7,294 acres of BLM lands adjacent to the Preferred Alternative project site. First Solar currently holds a pending ROW application for its Desert Quartzite project in this same area. The Applicant submitted a BLM ROW application for this land and it is stacked in line behind First Solar's application. It is uncertain when, if ever, the Applicant will become first in line for this site. Site control is not considered feasible at this time.

First Solar has indicated that it might not utilize its entire ROW. The remaining land that could be released by First Solar features good insolation, but its grade and size are not suitable for development of 750 MW of solar generating capacity. A preliminary study indicated that the area available to the Applicant from First Solar includes challenging terrain that will require a large amount of grading.

The site has adequate proximity to electric and natural gas infrastructure. A 500 kV transmission line and the TCGT North Baja gas transmission line cross the site. Additionally, access to groundwater is considered feasible on this site. Accessibility is considered fair due to the proximity of I-10 and the likelihood that some road improvements may be required.

The site has medium environmental sensitivity due to its proximity to a BLM ACEC and the potential for adverse impacts to biological, cultural, and paleontological resources related to the large amount of grading required for site development. BLM's jurisdiction over the site does not present any substantive issues. The site is located within a PSEZ on BLM land. However, because the Applicant submitted a ROW application on May 12, 2009, Off-Site Alternative D would not be subject to the moratorium on development within PSEZs.

The infeasibility of site control and insufficient size of the site make this alternative economically unviable. These characteristics also conflict with the 20-year PPA requirements and the project objective to develop 750 MW of generating capacity with a commercial online date of 2015. To the extent mitigation requirements resulting from the alternative's likely adverse impacts to biological, cultural, and paleontological resources and substantial grading activities will increase costs, the economic viability of this alternative will be further harmed.

The second in line status of the BLM ROW application makes development of a solar generating facility that attains most of the project objectives technically and economically infeasible. This alternative would not meet key project objectives including construction of a nominal 750 MW facility, conformance with the 20-year PPAs for the Applicant, and development of renewable energy on BLM lands that reduces environmental impacts. Moreover, this alternative would not avoid or substantially reduce environmental impacts as compared to the Preferred Alternative. Adverse environmental impacts would likely be greater under this off-site alternative, primarily due to the challenging terrain that will require a large amount of grading. As a result of these factors, Off-Site Alternative D was eliminated from further consideration.

6.4.3.5 Off-Site Alternative E – Chuckwalla Site

Off-Site Alternative E is located in Riverside County on approximately 17,447 acres of BLM-administered lands immediately north of I-10 and immediately south of the Palen/McCoy BLM Wilderness Area. It is approximately 10.6 miles northwest of the Preferred Alternative project site. The NextEra Energy Resources Genesis Solar project and the EnXco Mule Mountains project have submitted pending ROW applications on this site. The site features good insolation with suitable size and grade. The Applicant submitted a ROW application for this land and it is currently stacked in line behind these other developers. It is uncertain when, if ever, the Applicant will become first in line for this site. Site control is not considered feasible at this time.

The site is located in close proximity to electric and natural gas infrastructure, therefore access to both is considered sufficiently adequate. A 500 kV line is located approximately 1.4 miles to the south. Groundwater access is considered feasible on this site. The Southern California Gas Company line extends along the I-10 corridor adjacent to the southern boundary of the site. Accessibility is considered good due to the adjacency of I-10.

The site has a high environmental sensitivity due to its location within the Ford Dry Lake bed and adjacent to the Palen Dry Lake ACEC to the west, and the Palen/McCoy BLM Wilderness Area to the north, all areas of known cultural and biological sensitivity. Significant adverse impacts to biological and cultural resources are likely to occur under this alternative. BLM's jurisdiction over the site does not, however, present any substantive issues. However, because the Applicant submitted a ROW application

on May 12, 2009, Off-Site Alternative E would not be subject to the moratorium on development within PSEZs.

The infeasibility of site control makes this alternative economically unviable and conflicts with the 20-year PPA requirements and a basic project objective to develop 750 MW of generating capacity with a commercial online date of 2015. To the extent mitigation requirements resulting from the alternative's likely adverse impacts to biological and cultural resources will increase costs, the economic viability of this alternative will be further harmed.

The status of the BLM ROW application stacked in line behind other developers makes development of a solar generating facility that attains most of the project objectives technically and economically infeasible. This alternative would not meet key project objectives including construction of a nominal 750 MW facility, conformance with the 20-year PPAs for the Applicant, and development of renewable energy on BLM lands that reduces environmental impacts. Moreover, this alternative would not avoid or substantially reduce environmental impacts as compared to the Preferred Alternative. Adverse environmental impacts would likely be greater under this off-site alternative, primarily due to the location within and adjacent to areas of known cultural and biological sensitivity. As a result of these factors, Off-Site Alternative E was eliminated from further consideration.

6.4.3.6 Off-Site Alternative F – Black Creek/McCoy Site

Off-Site Alternative F is located in Riverside County approximately 12 miles north of the Preferred Alternative project site. The site consists of approximately 20,608 acres of BLM-administered land north of I-10 and west of Midland Road. It features good insolation with suitable size. However, the southwestern portion of the site will require substantial grading due to the topography associated with the McCoy mountain range.

NextEra Energy Resources currently holds a pending ROW application for its McCoy project area on the southern half of the site, and EnXco currently holds a pending right-of-way application for its McCoy project area on the northern half of the site. The Applicant submitted a ROW application for this land and it is currently stacked third in line for the site. It is uncertain when, if ever, the Applicant will become first in line for this site. Site control is not considered feasible at this time.

The site has adequate proximity to electric and natural gas infrastructure. A 500 kV transmission line is located approximately 7.2 miles to the south, and the Southern California Gas Company gas line extends along the I-10 corridor approximately 5.5 miles to the south. Access to groundwater is considered feasible on this site. Accessibility is considered fair due to the proximity of I-10 and the likelihood that some road improvements may be required.

The site has a medium environmental sensitivity due to its proximity to the McCoy Mountains and requirement for substantial grading in the southwestern portion. BLM's jurisdiction over the site does not present any substantive issues. The site is located within a PSEZ on BLM land. However, because the Applicant submitted a ROW application on May 12, 2009, Off-Site Alternative F would not be subject to the moratorium on development within PSEZs.

The infeasibility of site control makes this alternative economically unviable and conflicts with the 20-year PPA requirements and the project objective to develop 750 MW of generating capacity with a commercial on-line date of 2015. To the extent mitigation requirements resulting from the alternative's requirement for substantial grading will increase costs, the economic viability of this alternative will be further harmed.

The third in line status of the BLM ROW application makes development of a solar generating facility that attains most of the project objectives technically and economically infeasible. This alternative would not meet key project objectives including construction of a nominal 750 MW facility, conformance with the 20-year PPA for the Applicant, and development of renewable energy on BLM lands that reduces environmental impacts. Moreover, this alternative would not avoid or substantially reduce environmental impacts as compared to the Preferred Alternative. Adverse environmental impacts would likely be greater under this off-site alternative, primarily because of the requirement for substantial grading in the southwestern portion of the site. As a result of these factors, Off-Site Alternative F was eliminated from further consideration.

6.4.3.7 Off-Site Alternative G –Sonoran West Site

Off-Site Alternative G is located in Riverside County approximately 3.5 miles to the northwest of the Preferred Alternative project site. The site consists of approximately 6,623 acres of BLM land south of I-10 and east of Wiley Well Road. The site has good insolation and suitable grade. The size is suitable for development of 750 MW of solar generating capacity. The Applicant submitted a ROW application for this land that is currently stacked first in line for the site. Site control is considered feasible.

The site has adequate proximity to electric and natural gas infrastructure. A 500 kV transmission line crosses the northern portion of the site and the Southern California Gas Company line extends along the I-10 corridor less than one mile to the north. Access to groundwater is considered feasible on this site. Accessibility is considered fair due to the proximity of I-10 and the likelihood that some road improvements may be required.

The site has a low environmental sensitivity for the following reasons. The western site boundary is adjacent to the BLM DWMA, and the site is situated between the Chuckwalla Valley Dune Thicket ACEC to the west and the Mule Mountain ACEC to the southeast. BLM's jurisdiction over the site does not present any substantive issues. The site is located within a PSEZ on BLM land. However, because the Applicant submitted a ROW application on May 12, 2009, Off-Site Alternative G would not be subject to the moratorium on development within PSEZs.

Development of a solar generating facility that attains most of the project objectives is considered feasible from an economic and technical standpoint under Off-Site Alternative G. Therefore, Off-Site Alternative G is carried forward for detailed analysis in Section 6.4.4.

6.4.3.8 Off-Site Alternative H – Blythe Mesa Alternative Site

Off-Site Alternative H is located in Riverside County north of I-10, approximately 8.2 miles north of the Preferred Alternative project site. There are approximately 395 acres of land administered by the BLM. Approximately 5,970 acres are under the jurisdiction of Riverside County.

The site consists of three generally flat, unconnected areas with good insolation, none of which meet the criterion for nine square miles (5,750 acres) of contiguous land needed to develop 750 MW of generating capacity. Ridgeline Energy, LLC currently holds a pending ROW application for its Gypsum Solar project area on BLM lands in portions of the northern areas. The Applicant submitted a ROW application for this land and it is currently stacked in line behind the other developer. It is uncertain when, if ever, the Applicant will become first in line for this land. Moreover, securing control of this site will require acquisition of at least 79 parcels of land from 23 separate landowners, which will be time consuming. Site control is not considered feasible at this time.

The site has adequate proximity to electric and natural gas infrastructure. A 500 kV transmission line is located approximately 5.5 miles to the south. The Southern California Gas Company gas transmission line is located less than one mile to the south along the I-10 corridor. Access to groundwater is considered feasible on this site. Accessibility is considered fair due to the proximity of I-10 and the likelihood that some road improvements may be required.

The site has a medium environmental sensitivity due to its location on agricultural lands and need for road and other infrastructure improvements to link the three detached areas. These improvements will require ground disturbance with potential adverse environmental impacts to soils, and biological, cultural, and paleontological resources.

The lands under the jurisdiction of Riverside County are zoned W-2-10, N-A, and A-1. The W-2-10 Zone consists of approximately 5,195 acres and allows for public utility uses including development of a solar generating facility. The N-A portion, approximately 185 acres, and the A-1 portion, approximately 464 acres, will each require a Change of Zone with Riverside County. The portion of the site under BLM jurisdiction does not present any substantive issues. The site is not located within a proposed SEZ on BLM land.

The site is not economically viable due to being stacked behind another pending BLM ROW application, its three detached land areas, and division into 79 parcels owned by 23 separate land owners. This alternative conflicts with the 20-year PPA requirements and project objectives for 750 MWs of generating capacity with a commercial on-line date of 2015.

The second in line status of the BLM ROW application, lack of adequate contiguous land, and the time needed to acquire at least 79 parcels of land from 23 separate landowners make development of a solar generating facility that attains most of the project objectives technically and economically infeasible. This alternative would not meet key project objectives including construction of a nominal 750 MW facility, conformance with the 20-year PPAs for the Applicant, and development of renewable energy on BLM lands that reduces environmental impacts. Moreover, this alternative would not avoid or substantially reduce environmental impacts as compared to the Preferred Alternative. Adverse environmental impacts would likely be greater under this off-site alternative, primarily because of the location on agricultural lands and need for road and other infrastructure improvements required to link the three detached areas. As a result of these factors, Off-Site Alternative H was eliminated from further consideration.

6.4.3.9 Off-Site Alternative I – Gabrych Genesis Solar Site

Off-Site Alternative I is located in Imperial County approximately 4.7 miles southeast of the Preferred Alternative project site. The site consists of approximately 1,554 acres of BLM lands and approximately 502 acres of unclassified lands. Topography is generally flat with good overall insolation. However, with a total of 2,056 acres, the site is not of sufficient size for development of 750 MW of generating capacity. Site control will require negotiations with multiple land owners. As a result, site control will likely be more complex and time-consuming relative to the Project, although site control is still considered feasible.

The site has adequate proximity to electric and natural gas infrastructure. It is located approximately five miles east of the TCGT North Baja gas transmission line and approximately seven miles south of a 500 kV transmission line. Access to groundwater is considered feasible on this site. Accessibility is considered fair due to the proximity of I-10 and the likelihood that some road improvements may be required.

The site has a medium environmental sensitivity due to its location on agricultural lands, adjacency to the Colorado River, and partial location within the 100-year flood zone. Its proximity to the Colorado River and location in a flood zone could pose adverse environmental impacts related to water resources and the risk of flooding. Permitting delays are likely to result from these potentially adverse environmental impacts. Project delays will harm the ability of this alternative to satisfy the basic project objective for a commercial on-line date of 2015.

The site is zoned primarily General Agriculture (A-2) and Government Special (G-S), according to the Imperial County Zoning Ordinance (Imperial County, 2008). The A-2 zone allows electrical generating plants less than 50 MW and solar energy generators with a CUP. The maximum allowable height is 120 feet. The G-S zone does not allow solar energy development. A rezone will be required. In addition, the location in Imperial County conflicts with the requirement of the 20-year PPAs for the Applicant and the project objective to develop on land within Riverside County. The portion of the site under BLM jurisdiction does not present any substantive issues. The site is not located within a proposed SEZ on BLM land.

This site is not economically viable due to its insufficient size and inability to accommodate the planned generating capacity. To the extent mitigation requirements resulting from the alternative's proximity to the Colorado River and CNWR and location within a flood zone will increase costs, the economic viability of this alternative will be negatively affected.

The size of this alternative is insufficient by approximately 5.75 square miles (3700 acres). Therefore, developing a solar generating facility on this site that attains most of the project objectives is not technically or economically feasible. This alternative would not meet key project objectives including construction of a nominal 750 MW facility and conformance with the 20-year PPAs for the Applicant. Moreover, this alternative would not avoid or substantially reduce environmental impacts as compared to the Preferred Alternative. Adverse environmental impacts would likely be greater under this off-site alternative, primarily due to its location on agricultural lands, adjacency to the Colorado River, and partial location within the 100-year flood zone. As a result of these factors, Off-Site Alternative I was eliminated from further consideration.

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

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. Off-Site Alternatives A and G require a ROW grant from the BLM.

Off-Site Alternative A will use BLM-administered public lands solely for a common gen-tie line. Off-Site Alternative G will use BLM-administered public lands for development of a solar electric generating facility and a common gen-tie line. 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.

Off-Site Alternatives A and G would be processed as a ROW authorization under FLPMA Subchapter V and CFR Title 43 Part 2800. Off-Site Alternatives A and G 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. Off-Site Alternatives A and G 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 common gen-tie line under Off-Site Alternative A and development of a solar electric generating facility and a common gen-tie line under Off-Site Alternative G (BLM 1980).

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 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.	Off-Site Alternative A 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.	Off-Site Alternative A 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 A 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.	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

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?
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 can 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.	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 Independent System Operator (CAISO) point of interconnection and natural gas infrastructure.	Off-Site Alternative A is located approximately 10.5 miles southeast of the new SCE CRS. The 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.	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 A will develop 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, this alternative will install and operate three identical 250 MW (nominal) solar plants. Each plant will include a power block with eight emitting units: 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 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 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

The potential for biological resources impacts is substantively the same for the Preferred Alternative and Off-Site Alternative A due to their close proximity to each other (approximately 0.5 miles apart) and the similar types and sensitivities of biological resources present on the sites. Off-Site Alternative A includes potentially jurisdictional WUS and WSC. Several burrowing owls have been documented on the site, and the site includes native desert wetland habitat. Migratory bird species may use this alternative site to forage. Neither this alternative nor the Preferred Alternative is located within a DWMA, HMA, ACEC, DCH or otherwise designated as an area of high biological value or importance. In conclusion, this alternative is essentially the same as the Preferred Alternative from a biological resources perspective. Biological resources impacts will be less than significant with implementation of mitigation measures under Off-Site Alternative A and the Preferred Alternative.

Cultural Resources

The potential for cultural resources impacts is substantively the same for the Preferred Alternative and Off-Site Alternative A since they are located in close proximity to each other (approximately 0.5 miles apart) and both feature similar types of cultural resources, including resources eligible or potentially eligible for the NRHP and CRHR. Off-Site Alternative A will address potential cultural resources impacts

in the same manner as the Preferred Alternative, through an agreement document along with treatment plants for NRHP eligible resources and mitigation measures for significant resources under CEQA. In conclusion, this alternative is essentially the same as the Preferred Alternative from a cultural resources perspective. Cultural resources impacts will be less than significant under Off-Site Alternative A and the Preferred Alternative.

Geologic Hazards and Resources

The potential for fault rupture and seismic shaking is substantively the same for the Preferred Alternative and Off-Site Alternative A since they are located in close proximity to each other (approximately 0.5 miles apart). Off-Site Alternative A is not located within an Alquist-Priolo Earthquake Fault Zone (EFZ) or an active fault zone. However, this alternative has a high potential for liquefaction due to the likely presence of loose, granular alluvial soil and shallow groundwater. This alternative is located within an area of high liquefaction susceptibility according to the Riverside County General Plan. The high potential for liquefaction as well as other geologic hazards can be addressed through geotechnical studies, project design, and compliance with applicable LORS. Nevertheless, the greater risk of liquefaction under Off-Site Alternative A, while not likely to result in a significant impact, constitutes a higher potential for adverse geologic hazards relative to the Preferred Alternative.

Hazardous Materials Handling

The quantity and types of hazardous materials stored and handled during construction and operations will be substantively the same regardless of the location. Under both the Preferred Alternative and Off-Site Alternative A, compliance with existing LORS will ensure there are no significant hazards to the public or the environment related to the handling or accidental release of hazardous materials. For Off-Site Alternative A, no hazardous materials are known to be present on the site as a result of current or past activities. In the unlikely event hazardous materials are accidentally released, the risk of impact to the public is not any greater at this alternative location relative to the Preferred Alternative.

Land Use

Off-Site Alternative A is located entirely on private lands under the jurisdiction of Riverside and Imperial counties approximately 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. Therefore, adverse land use impacts will be greater under Off-Site Alternative A.

Noise

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

However, Off-Site Alternative A is located in closer proximity to noise sensitive receptors in the town of Palo Verde relative to the Preferred Alternative. Therefore, noise sensitive receptors will be exposed to higher construction and operations noise levels under Off-Site Alternative A relative to the Preferred Alternative. However, both alternatives are expected to be compliant with federal, state, and local LORS.

Paleontological Resources

Off-Site Alternative A will be located on farmland disturbed by past and present ground disturbance related to agricultural activities. In addition, Off-Site Alternative A is located within a historical floodplain of the Colorado River. As a result, the likelihood of encountering paleontological resources is considered low. Off-Site Alternative A is likely to have fewer impacts to paleontological resources relative to the Preferred Alternative. However, because the Preferred Alternative will have less than significant impacts with mitigation (during construction and operation), Off-Site Alternative A will not substantively lessen a significant impact of the Project. In addition, Off-Site Alternative A does not meet project objectives to select a site with minimal potential environmental impacts and assist the BLM with its mission to develop renewable energy projects on public lands.

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 is located in close proximity to the Preferred Alternative (approximately 0.5 miles to the east), the potential impacts to public health are essentially the same. 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. 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 Off-Site Alternative A and the Preferred Alternative.

Socioeconomics

The significant socioeconomic benefits of the Preferred Alternative will be the same under this alternative. The levels of job creation and additional tax revenue generation will not change. From a socioeconomic perspective, the primary difference from the Preferred Alternative is that Imperial County will receive some of the additional tax revenue since a small portion of this alternative is under their jurisdiction. As a result, revenue generation for Riverside County will be marginally lower under this

alternative. The labor markets served by this alternative will be the same as the Preferred Alternative. The positive effect on economic output also will be the same. There are no adverse socioeconomic impacts under Off-Site Alternative A or the Preferred Alternative.

Soils

This alternative will generally disturb the same amount of land area because the size of the proposed solar generating facility will be same as the Preferred Alternative. This alternative site is generally level with gradual slopes, although small areas in the western portion of the site feature steep slopes. Sand and gravel are likely to dominate subsurface conditions in this portion of the site. As a result, there are slope stability concerns in the western portion of the site.

The potential for slope instability will be addressed through geotechnical studies, project design, and compliance with applicable LORS. Nevertheless, the greater risk of slope instability under Off-Site Alternative A, while not likely to result in a significant impact, constitutes a higher potential for adverse soils impacts relative to the Preferred Alternative.

Traffic and Transportation

Off-Site Alternative A will generate essentially the same number of vehicle trips during construction and operations as the Preferred Alternative. Due to its location approximately 0.5 miles east of the Preferred Alternative, trip distribution and access routes will be different under Off-Site Alternative A. However, vehicle trips under this alternative will likely utilize many of the same roadways, particularly I-10 and State Route 78, as well as different roadways with similar classifications and capacities as roadways utilized under the Preferred Alternative. Same as the Preferred Alternative, Off-Site Alternative A will schedule construction worker shifts so that some workers depart the project site outside of the PM peak hour between 2:00 PM and 4:00 PM.

As a result, construction vehicle trips under this alternative are not expected to result in temporary significant impacts to freeway, highway, and roadway segments or intersections. Moreover, operations under this alternative will have less than significant traffic impacts, same as the Preferred Alternative. In conclusion, this alternative is essentially the same as the Preferred Alternative from a traffic and transportation perspective.

Visual Resources

Off-Site Alternative A will include the same project features with the same visual appearance as the Preferred Alternative. However, Off-Site Alternative A will be located approximately 0.5 miles to the east of the Preferred Alternative. For purposes of visual resources impacts, the location of Off-Site Alternative A is distinct from the location of the Preferred Alternative in two important respects: (1) closer proximity to sensitive visual receptors, and (2) lower elevation within Palo Verde Valley, which makes Off-Site Alternative A more visible within views from sensitive viewpoints relative to the Preferred Alternative, which is less visible due to its higher elevation on the Palo Verde Mesa. As a result, visual resources impacts will be greater under Off-Site Alternative A relative to the Preferred Alternative.

Waste Management

Construction and operations under this alternative will generate the same quantities of solid waste, wastewater, and hazardous waste as the Preferred Alternative. 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 perspective. Adverse environmental impacts associated with waste management will be less than significant under Off-Site Alternative A and the Preferred Alternative.

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 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

Worker safety impacts are generally activity-specific rather than location-specific. The Applicant will prepare appropriate health and safety plans to protect workers and reduce the potential for injuries regardless of the location. Therefore, this alternative is essentially the same as the Preferred Alternative from a worker safety perspective. Worker safety impacts will not occur under Off-Site Alternative A or the Preferred Alternative.

6.4.4.3 Off-Site Alternative G – Sonoran West Site

The following sections examine the potential environmental impacts of development of a 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 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.	Off-Site Alternative G 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.	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 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.	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.	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?
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 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 three identical 250 MW (nominal) solar plants. Each plant will include a power block with eight emitting units: 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 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 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

The potential for biological resources impacts is substantively the same for the Preferred Alternative and Off-Site Alternative G due to their close proximity to each other (approximately 3.5 miles apart) and the similar types and sensitivities of biological resources present on the sites. Off-Site Alternative G may include potentially jurisdictional WSC. It is not known at this time whether or not potentially jurisdictional WUS are present on this site. Neither this alternative nor the Preferred Alternative is located within a DWMA, HMA, ACEC, DCH or otherwise designated as an area of high biological value or importance. In conclusion, this alternative is essentially the same as the Preferred Alternative from a biological resources perspective. Biological resources impacts will be less than significant with implementation of mitigation measures under Off-Site Alternative G and the Preferred Alternative.

Cultural Resources

The potential for cultural resources impacts is substantively the same for the Preferred Alternative and Off-Site Alternative G since they are located in close proximity to each other (approximately 3.5 miles apart) and both feature similar types of cultural resources, including resources eligible or potentially eligible for the NRHP and CRHR. In conclusion, this alternative is essentially the same as the Preferred Alternative from a cultural resources perspective. Cultural resources impacts will be less than significant under Off-Site Alternative G and the Preferred Alternative.

Geologic Hazards and Resources

Off-Site Alternative G lies within the Chuckwalla Valley and near the western limits of the Palo Verde Mesa on the northern flank of the Mule Mountains. The southwest portion of the project site is characterized by gently sloping alluvium and alluvial fans that emanate from the Mule Mountains, which transitions into a broad structural depression with localized eolian and lacustrine deposits in the northeast

portion of the project site. Gullies and washes, generally draining toward the north, dissect much of the project site. The southern-most edge of the project site lies within the flanks of the Mule Mountains, where granitic bedrock outcrops result in moderate relief terrain. While the site is, in general, gently sloping, steeper slopes are adjacent to the Mule Mountains on the southernmost edge of the site, as well as adjacent to the larger washes.

Available information suggests that most of the near-surface material is comprised of Late Quaternary and Holocene-age alluvial and alluvial fan deposits, and Holocene-age alluvium, eolian deposits of wind-blown sand, and playa lake deposits. Desert pavement is likely present as a surface characteristic of the alluvial fan deposits. The alluvial deposits are expected to consist primarily of medium dense to dense granular material (sand and gravel). Looser and finer-grained materials may be present within the washes, eolian deposits, and playa lake deposits.

The potential for fault rupture and seismic shaking is substantively the same for the Preferred Alternative and Off-Site Alternative G since they are located in close proximity to each other (approximately 3.5 miles apart). Off-Site Alternative G is not located within an Alquist-Priolo Earthquake Fault Zone (EFZ) or an active fault zone. Active faults are not present on the Off-Site Alternative G site and fault rupture is not a concern. Faults mapped near the site are considered ancient geologic structures and are not seismic hazard concerns. Seismic shaking levels are generally low to moderate, because the site is at least 60 miles east of the active seismic sources associated with the tectonic plate boundary and the San Andreas Fault System.

Under Off-Site Alternative G, the potential for seismic settlement, subsidence, and ground fissures is expected to be low. The moderate potential for liquefaction on the site is likely due to the presence of loose near-surface soil. Liquefaction is not expected to be a hazard under Off-Site Alternative G due to the depth of groundwater. Liquefaction potential is low under the Preferred Alternative. The moderate potential for liquefaction as well as other geologic hazards can be addressed through geotechnical studies, project design, and compliance with applicable LORS. Nevertheless, the greater risk of liquefaction under Off-Site Alternative G, while not likely to result in a significant impact, constitutes a marginally higher potential for adverse geologic hazards relative to the Preferred Alternative.

Hazardous Materials Handling

The quantity and types of hazardous materials stored and handled during construction and operations will be substantively the same regardless of the location. Under both the Preferred Alternative and Off-Site Alternative G, compliance with existing LORS will ensure there are no significant hazards to the public or the environment related to the handling or accidental release of hazardous materials. For Off-Site Alternative G, no hazardous materials are known to be present on the site as a result of current or past activities. In the unlikely event hazardous materials are accidentally released, the risk of impact to the public is not any greater at this alternative location relative to the Preferred Alternative.

Land Use

Off-Site Alternative G is located south of I-10 and east of Wiley's Well Road, approximately seven miles west of the City of Blythe in eastern Riverside County, California. The site consists of BLM-administered public lands, including land proposed for Southern California Edison's (SCE) Colorado River Substation.

The site is previously disturbed and surrounded by I-10 to the north, previously disturbed land to the south and east with the Ironwood State Prison and Chuckwalla Valley State Prison to the west. The northernmost portion of the project site is located in a BLM utility corridor and Department of Energy (DOE) Utility/Transportation right-of-way (ROW) corridor identified in the Westwide Energy Corridor (WWEC) Final Programmatic Environmental Impact Statement (PEIS).

No incorporated towns or cities are located within the project site. The closest community, the City of Blythe, is located along I-10, approximately 13 miles to the east near the border of California and Arizona. The project site is located on public land administered by the BLM. There are no State or private lands within Off-Site Alternative G.

Off-Site Alternative G is located on lands with MUC designation M. Solar electric facilities are allowed under MUC designation M once NEPA requirements are met. This alternative would be in conformance with the MUC M designation. Similar to the Preferred Alternative, Off-Site Alternative G requires an amendment to the CDCA Plan.

Similar to the Preferred Alternative, Off-Site Alternative G is not located within an HMA, ACEC, or Wilderness Area. The Mule Mountains ACEC is located immediately south and southeast of this alternative. This site is located within the Chocolate-Mule Mountains HA. An HA is an area in which wild horses and burros were known to occur prior to the establishment of HMAs. The location of the BLM HA is not anticipated to constrain development under Off-Site Alternative G. This alternative site does not include any important farmlands as defined by the CDC or farmlands of local importance as defined by Riverside County. No farmland will be converted to nonagricultural use under Off-Site Alternative G.

In conclusion, this alternative is essentially the same as the Preferred Alternative from a land use impact perspective. Land use impacts will be less than significant under Off-Site Alternative G and the Preferred Alternative.

Noise

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

There are no noise sensitive receptors, including residences, schools, hospitals, national, state, and local parks within two miles of Off-Site Alternative G. The Ironwood and Chuckwalla Valley State Prisons are located less than two miles from the western boundary, but are not considered noise sensitive receptors. Construction and operations noise levels and impacts to sensitive receptors will be similar to the Preferred Alternative under Off-Site Alternative G.

Paleontological Resources

Off-Site Alternative G lies within the Chuckwalla Valley and near the western limits of the Palo Verde Mesa on the northern flank of the Mule Mountains. The southwest portion of the project site is

characterized by gently sloping alluvium and alluvial fans that emanate from the Mule Mountains. This transitions into a broad structural depression with localized eolian and lacustrine deposits in the northeast portion of the project site. Gullies and washes, generally draining toward the north, dissect much of the project site. The southern-most edge of the project site lies within the flanks of the Mule Mountains, where granitic bedrock outcrops result in moderate relief terrain. While the site is, in general, gently sloping, steeper slopes are adjacent to the Mule Mountains on the southernmost edge of the site, as well as adjacent to the larger washes.

Available information suggests that most of the near-surface material is comprised of Late Quaternary and Holocene-age alluvial and alluvial fan deposits, and Holocene-age alluvium, eolian deposits of wind-blown sand, and playa lake deposits. Desert pavement is likely present as a surface characteristic of the alluvial fan deposits. The alluvial deposits are expected to consist primarily of medium dense to dense granular material (sand and gravel). Looser and finer-grained materials may be present within the washes, eolian deposits, and playa lake deposits.

Based on the limited information available and due to its location in close proximity to the Preferred Alternative (approximately 3.5 miles to the northwest), Off-Site Alternative G is likely to have a similar potential for paleontological resource impacts relative to the Preferred Alternative. Paleontological resources impacts will be less than significant under Off-Site Alternative G and 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 is located in close proximity to the Preferred Alternative (approximately 3.5 miles to the northwest), the potential impacts to public health are essentially the same. 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. 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 Off-Site Alternative G and the Preferred Alternative.

Socioeconomics

The significant socioeconomic benefits of the Preferred Alternative will be the same under this alternative. The levels of job creation and additional tax revenue generation will not change. Same as the Preferred Alternative, this alternative will provide jobs for the same labor markets and additional tax revenue for Riverside County. The positive effect on economic output also will be the same for both locations. There are no adverse socioeconomic impacts under Off-Site Alternative G or the Preferred Alternative.

Soils

Off-Site Alternative G will generally disturb the same amount of land area because the size of the proposed solar generating facility will be same as the Preferred Alternative. The southwest portion of the site is characterized by gently sloping alluvium and alluvial fans that emanate from the Mule Mountains. Gullies and washes, generally draining toward the north, dissect much of the site. This alternative site is generally level with gradual slopes, although steeper slopes are adjacent to the Mule Mountains on the southernmost edge of the site, as well as adjacent to the larger washes.

The potential for soils impacts will be addressed through geotechnical studies, project design, and compliance with applicable LORS. In conclusion, this alternative is essentially the same as the Preferred Alternative from a soils impacts perspective. Soils impacts will be less than significant under Off-Site Alternative G and the Preferred Alternative.

Traffic and Transportation

Off-Site Alternative G will generate essentially the same number of vehicle trips during construction and operations as the Preferred Alternative. Due to its location approximately 3.5 miles to the northwest of the Preferred Alternative, trip distribution and access routes will be different under Off-Site Alternative G. However, vehicle trips under this alternative will likely utilize I-10, as well as different roadways with similar classifications and capacities as roadways utilized under the Preferred Alternative. Same as the Preferred Alternative, Off-Site Alternative G will schedule construction worker shifts so that some workers depart the project site outside of the PM peak hour between 2:00 PM and 4:00 PM.

As a result, construction vehicle trips under this alternative are not expected to result in temporary significant impacts to freeway, highway, and roadway segments or intersections. Moreover, operations under this alternative will have less than significant traffic impacts, same as the Preferred Alternative. In conclusion, this alternative is essentially the same as the Preferred Alternative from a traffic and transportation perspective.

Visual Resources

Off-Site Alternative G will include the same project features with the same visual appearance as the Preferred Alternative. However, Off-Site Alternative G will be located approximately 3.5 miles to the northwest of the Preferred Alternative and less than one mile south of I-10. The adjacent segment of I-10 has been nominated and is eligible for designation as a State Scenic Highway. Sensitive viewers within 10 miles of this alternative include Wiley's Well Rest Stop, Bradshaw Trail, BLM-designated Open Route trails, BLM Wilderness Areas, ACEC, DWMA, and LTVA. Portions of Off-Site Alternative G such as the solar power towers will be visible to varying extents from these viewpoints, but this alternative will not substantially degrade existing views. No residences, schools, or parks are located within 10 miles of this alternative.

Similar to the Preferred Alternative, Off-Site Alternative G will change the existing visual character of the area, but overall scenic quality in the area will not be adversely affected. Existing open and expansive views existing in the area will not be occluded by Off-Site Alternative G. Impacts related to new sources

of light and glare under Off-Site Alternative G will likely be the same as the Preferred Alternative. Off-Site Alternative G will generate the same level of visual interest as the Preferred Alternative.

Waste Management

Construction and operations under this alternative will generate the same quantities of solid waste, wastewater, and hazardous waste as the Preferred Alternative. 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 perspective. Adverse environmental impacts associated with waste management will be less than significant under Off-Site Alternative G and the Preferred Alternative.

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 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

Worker safety impacts are generally activity-specific rather than location-specific. The Applicant will prepare appropriate health and safety plans to protect workers and reduce the potential for injuries regardless of the location. Therefore, this alternative is essentially the same as the Preferred Alternative

from a worker safety perspective. Worker safety impacts will not occur under Off-Site Alternative G or the Preferred Alternative.

6.5 TECHNOLOGY ALTERNATIVES

BrightSource was founded to commercialize a cost-effective solar energy technology. A Project goal is to produce solar energy using BrightSource's proprietary solar power tower technology. In developing its proprietary technology, BrightSource evaluated other solar technologies, including solar trough, Stirling engines and photovoltaic technologies. However, these technologies are not as cost-effective as the solar power tower technology ultimately developed by BrightSource. For the Project, BrightSource considered the following energy generation technology alternatives:

- Other solar thermal technologies
- Central tower concentrating solar power with integral thermal storage system
- Solar photovoltaic technology
- Integrated gasification combined cycle
- Oil, natural gas, coal, or other solid fuel conventional furnace/boiler steam turbine
- Nuclear
- Geothermal
- Biomass
- Wind
- Hydroelectric

As explained below, BrightSource evaluated the alternatives technologies for commercial availability, implementation feasibility, and cost-effectiveness. The alternatives technologies were deemed unable to meet the project objectives.

6.5.1 Other Solar Thermal Technologies

Several other solar thermal technologies are currently being developed and refined. Solar thermal is defined as "the process of concentrating sunlight on a relatively small area to create the high temperature necessary to vaporize water or other liquids to drive a turbine (or other engine) for generation of electric power" (CEC Glossary 2003). These projects include technologies such as solar trough, Stirling engines, and compact linear Fresnel reflectors. These technologies are not as cost-effective as the solar power tower technology and were eliminated from consideration.

6.5.2 Central Tower Concentrating Solar Power with Integral Thermal Storage System

Some concentrating solar power (CSP) technology projects generate power from sunlight by focusing energy onto a tower-mounted central receiver, using an integral thermal storage system. One example is the Rice Solar Energy Project (RSEP). Because all the solar energy is focused on one central point,

central receiver tower technology can achieve high temperatures, resulting in efficient energy collection, thermal storage and electricity production systems. The thermal storage system allows renewable solar energy to be stored efficiently and used when needed. Because the storage system effectively decouples solar energy collection from electricity generation, a stable electricity supply can be produced.

A distinguishing factor of the RSEP technology is the use of liquid salt as the heat transfer medium in the receiver. In the liquid state, salt has viscosity and appearance similar to that of water, and has several highly beneficial properties in solar applications. First, liquid salt has highly efficient heat transfer properties and retains heat for long periods with minimal losses. Second, the salt can be heated to high temperatures without degradation, resulting in efficient energy storage and electricity production systems. Finally, once melted and in the liquid state, the salt does not change phase and will not be subject to the negative operational impacts of intermittent cloud cover. Thus, the combination of liquid salt as both the heat transfer and storage medium in a central receiver/tower application produces the following benefits:

- decouples the collection of solar energy from the generation of electricity and hence can generate power at any time of day;
- maximizes the cost-effectiveness of its storage system by heating the liquid salt to high temperatures with very little thermal loss in storage;
- achieves high steam-turbine cycle efficiencies; and
- allows power production to be dispatched during periods of peak demand, reducing the overall cost of power.

The use of integral thermal storage was not selected due to its higher cost. In addition, use of integral thermal storage does not meet the project objective to use BrightSource's proprietary solar power tower technology.

6.5.3 Solar Photovoltaic Technology

In general, PV technology differs from solar thermal in that PV technology converts light directly into electricity (CEC Glossary 2003). Solar PV technology is an electrical process using silicon-based semiconductors to convert sunlight (e.g., photons) directly into direct current (DC) electricity flow. Multiple PV panels are wired together to increase the total system output. DC current flows through a device called an "inverter" which generates an alternating current that can be tied to the power distribution system for power delivery. PV technology does not involve thermal energy or the production of steam to drive turbines. In addition, a PV system is relatively simple to operate and maintain using modest amounts of water to keep the panels clean. However, a PV installation generally requires more land surface area to generate the same amount of electricity on an annual basis, compared with other solar technologies. In addition, due to strict dependence on solar irradiance to generate electron flow, PV systems produce highly intermittent electricity under routine conditions of haze and cloud cover. PV panel output can fluctuate by the minute with normal variations in the intensity of solar irradiance. PV technology was not selected because of its inherent technical limitations, chiefly intermittency, which, at the desired scale, poses significant challenges to grid system stability. CSP technology was chosen for this Project in order to conserve land and for its greater reliability relative to PV technology. In addition,

solar photovoltaic technology does not meet the project objective to use BrightSource's proprietary solar power tower technology.

6.5.4 Integrated Gasification Combined Cycle

Integrated gasification combined cycle (IGCC) technology gasifies applications that burn coal or petroleum coke in a gas turbine cycle. The coal gasification equipment is located at the same site as the power generating equipment (a combustion turbine, a heat recovery steam generator, and a steam turbine). IGCC technology has been used on a limited basis for commercial applications, and its cost-effectiveness consistently varies. IGCC will also require either the importation of coal by truck and/or rail to the project area from outside California or the importation of coke from petroleum refineries. Additional issues include increased traffic levels and on-site coal/coke storage, and the control of coal dust from coal that is in storage is a large capital cost. Although IGCC can result in lower emissions than a conventional coal-fired power plant, an IGCC plant will still have substantially more pollutant emissions (both criteria and GHG emissions) than a gas-fired combined-cycle plant. Also, IGCC will not provide renewable energy and will not meet the Project's objectives. Therefore, this technology was eliminated from consideration.

6.5.5 Oil, Coal or Other Solid Fuel Conventional Furnace/Boiler Steam Turbine

These technologies are commercially available and could be implemented. However, because of relatively low efficiency, they emit a greater volume of air pollutants per kilowatt-hour generated than solar power. Use of these fuel sources does not meet the Project objectives of being a renewable source, nor does it meet the project objective of utilizing BrightSource's proprietary CSP technology. Efficiencies with these types of technologies range from 35 to 40 percent, which is comparable to that of a gas-fired boiler/steam turbine unit. These technologies will require either the importation of coal by rail and/or truck from outside the state or the importation of coke from in-state petroleum refineries. These technologies will result in increased traffic and will also require on-site storage. Finally, these technologies will produce more emissions (both criteria and greenhouse gas emissions) than a natural gas-fueled facility of equivalent size, require a larger site, and be more costly to build and operate. Therefore, these technologies were eliminated from consideration.

6.5.6 Nuclear

California law prohibits the construction of new nuclear plants until the scientific and engineering feasibility of disposing of high-level radioactive waste has been demonstrated. To date, the CEC has been unable to identify a disposal feasibility that would allow this alternative to be viable in California, as required by law. Therefore, this technology was eliminated from consideration.

6.5.7 Geothermal

Geothermal technology was eliminated from further consideration because none of the alternative sites have sufficient geothermal resources. In addition, the cost-effective application of geothermal technology requires more expensive means and longer lead times for permitting and equipment design than that required for solar technology. In addition, geothermal technology does not meet the project objective to

use BrightSource's proprietary solar power tower technology. Therefore, this technology was eliminated from consideration.

6.5.8 Biomass

Biomass fuels, including forestry and mill wastes, agricultural field crop and food processing waste, and construction and urban wood wastes, were eliminated from further consideration because none of the alternatives sites have sufficient quantities of such fuels to make them a practical alternative fuel. Also, potential issues include problems with competition from other biomass product customers which drives up tipping fees, logistics, long travel routes to access sufficient fuel, and quality control and quantity of municipal solid waste created. In addition, biomass facilities can produce considerable air pollutant emissions. Biomass technology does not meet the project objective to use BrightSource's proprietary solar power tower technology. Therefore, this technology was eliminated from further consideration.

6.5.9 Wind

Wind energy involves the use of wind power to drive a rotor or propeller, which in turn drives a generator. In California, the average wind generation capacity factor has been 25 to 30 percent. Wind energy equipment is relatively tall and has potentially substantial visual impacts due in part to the large numbers of wind turbines required to meet the project objectives related to generation of 750 MW. Wind generation is intermittent and does not coincide with peak electricity demand. Only a limited number of sites have sufficient wind available for energy generation purposes. The project area is not identified as an important wind energy resource area in the Renewable Energy Atlas of the West (Nielsen et al. 2006). In addition, wind energy technology does not meet the project objective to use BrightSource's proprietary technology, nor does it satisfy the objectives related to compliance with the PPAs and the MWD RFPs. For these reasons, this technology was eliminated from further consideration.

6.5.10 Hydroelectric

Most of the sites appropriate for hydroelectric facilities have already been developed in California and any remaining potential sites face lengthy environmental licensing periods. It is doubtful that this technology could be implemented within 3 to 5 years, which conflicts with the project objective to have a commercial on-line date of 2015. Large-scale hydroelectric projects tend to have significant adverse impacts to biological resources, including plant and animal species and possible loss of wilderness resources. Moreover, large-scale hydroelectric facilities do not qualify as renewable power resources under the RPS, and, therefore, do not attain the project objectives. In addition, this type of facility does not meet the objective of using BrightSource's proprietary technology. Therefore, it was eliminated from further consideration.

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).

6.6.1 34th Avenue (Preferred)

The 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)

Another alternate access route to the project site is from I-10 via South Lovekin Boulevard. This route is envisioned to be used for access in tandem with State Route 78, thereby splitting the traffic demand at the two interchanges along I-10. This route runs south along South Lovekin Boulevard from I-10 for approximately 7.5 miles, and then continues west along 28th Avenue for 6 miles. The route then turns south and extends for 2miles south to 32nd Avenue, and then west for 1 mile to State Route 78 for 1.3 miles to the Project access at 34th Avenue.

6.6.3 Bradshaw Trail via 30th Avenue (Alternate)

Access to the project site also can be made via Bradshaw Trail, which bisects the project site. The existing alignment of Bradshaw Trail through the agricultural lands and 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 portion 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. Bradshaw Trail provides access to the northwestern corner of the site, 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)

Another alternate access route to the project site is from I-10 via State Route 78. This route runs south for approximately 4.25 miles to 22nd Avenue. The route extends west on 22nd Avenue for 4 miles to the edge of the mesa, where the road transitions from a paved road to an improved unpaved road. At this point, the route turns southwest and follows 22nd Avenue (Gravel Pit Road) for approximately 2.4 miles to the gen-tie line access road to the north of the northern boundary of the project site. Dust suppression mitigation measures will need to be incorporated for this alternative route to the project area.

6.6.5 Mesa Drive via Interstate-10 (Alternate)

Mesa Drive via I-10 has been considered as a potential alternate access route to the project site. However, this route needs improvements to become a viable alternate access route. This route runs south along Mesa Drive from I-10 for approximately 2.5 miles, and then continues east for 0.7 mile to Ludy Boulevard. The route then turns south and extends south for 2.3 miles to Gravel Pit Road, and then south for 2.4 miles to the gen-tie line access road for 0.4 mile to the northern boundary of the Project. All of these roads are existing roads. Mesa Drive is a paved road for approximately 0.4 mile, but the remainder of Mesa Drive is an improved unpaved road. Ludy Boulevard, Gravel Pit Road, and the gen-tie line access road are all unpaved roads that would need to be improved prior to use as an alternate access route. Dust suppression mitigation measures will be incorporated for this alternative route to the project area.

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 85 afy for each of the three plants, and five afy for the common area, for a total of 260 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 85 afy will be required for each of the three plants, with an

additional five afy for the common area, or a total of 260 afy for the for the entire 750 MW (nominal) facility.

As an alternative, the Project may develop groundwater wells for each plant individually. The resultant total would be seven 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 a third well in the common area to serve common area needs. While the number of wells increases from three to seven, 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 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)*

Trucking water to the project site from the surrounding area is both a short-term water supply alternative and an emergency back-up option for supplying water to the Project. It is not anticipated that this alternative will be viable for long-term Project operation. To continuously haul water to the project site

during the lifetime of the Project will not only be costly, but will increase the potential for environmental impacts (e.g., increase the volume of traffic and air quality emissions related to the truck trips).

The following water supply alternatives are considered potentially viable water supply alternatives to be considered for the Project. A brief discussion of each is included below.

6.7.4 Agricultural Supply or Return Water

Agricultural supply and return/backwash water is considered a potential supply source due to the agricultural activity in the vicinity of the project site in the PVID. These uses may be allowed assuming adequate supplies are available.

Freshwater agricultural supply for the Project will likely not be a favorable option with the CEC. The CEC generally favors use of the poorest quality water for the solar projects that it has approved. However, use of agricultural return/backwash water may be allowed assuming an adequate supply source is available near the project site. Agricultural wastewater discharges include storm water runoff from irrigated lands. Irrigation return water includes surface discharges and subsurface discharges known as "tile water" in tiled areas, and groundwater or "seepage."

Agricultural return water quality is generally slightly less than that of groundwater. Use of agricultural supply or return water would require conveyance to the site from the Palo Verde Valley Groundwater Basin via pipeline. Construction of a pipeline would increase infrastructure costs and environmental impacts compared to use of an on-site water supply. Moreover, use of agricultural supply or return water may require additional treatment before conveyance to the project site, which would increase costs and add time to the Project schedule relative to use of on-site groundwater. It would be anticipated that the CEC would require some type of offsets similar to those appearing in the Blythe Solar CEC Decision to reduce the effect of this water use on the overall basin water budget.

6.7.5 Water from a Secondary Service Provider

Obtaining water from a water service provider in the area other than PVID, such as the City of Blythe domestic water supply, is also a potentially viable alternative. However, this alternative would require the construction of more than 12 miles of pipeline that will cross numerous land parcels with dozens of separate owners. Achieving project objectives to construct a cost effective facility with a commercial on-line date of 2015 would be made difficult by the need to secure the necessary ROWs, easements, and financing for this water pipeline.

6.7.6 Reclaimed Water from the City of Blythe

Reclaimed water options were evaluated as part of this analysis. The City of Blythe (City) owns a sewage collection, treatment and disposal system that provides sewage services to the City. The City of Blythe Regional Wastewater Treatment Plant (WWTP) is a Class III Facility and the treatment process is Activated Sludge (secondary level treatment), and currently operates under the California RWQCB, Colorado River Basin Order R7-2005-0103. The WWTP is located approximately 10 miles northeast of the project site. Treated wastewater from Blythe infiltrates into the Colorado River Aquifer and is accounted for as Colorado River Water under allocations to the PVID. Water from the Colorado River is

fully allocated. Under an average, dry-weather flow, the facility treats 1.3 million gallons per day (mgd) (1,460 afy). The facility is permitted to discharge up to 2.4 mgd of treated wastewater from the Blythe Regional Wastewater Reclamation Facilities to percolation evaporated ponds.

The City WWTP operator indicated that the City currently does not have intention to upgrade the facility to a tertiary treatment, which would be required if wastewater were to be used for the Project to comply with CCR Title 22. An upgrade to tertiary treatment will require substantial costs and permitting requirements. In addition, a pipeline of considerable length would be required to transport treated wastewater from Blythe to the Project, resulting in substantial cost to the Project, ground disturbance and associated environmental impacts, and increased utility electrical demand due to pumping electrical loads. Therefore, this possible water source is not considered favorable or feasible without upgrading the facility to tertiary treatment.

6.8 BRADSHAW TRAIL RE-ROUTE ALTERNATIVES

Bradshaw Trail is the only route that 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

Stand-by power and back-up power will be provided for all auxiliary components for which failures would cause an electrical or steam production shut down at the project site. The backup power components will be installed and kept in a ready status, in case of failure, and will be available for immediate service. One station service transformer will be required at each plant for backup power purposes.

Project construction and emergency backup power to the Project will be provided from one of two alternatives. The first alternative is to receive 33 kV of power from SCE, sourced at an existing substation in the Blythe area and routed over SCE's existing electric distribution system to a point east of the Project on Bradshaw Trail (30th Avenue) where new power poles and distribution cable would be installed to serve the construction loads, common facility loads, and subsequently the emergency backup needs of the completed Project.

A second alternative is for SCE to source the power from an existing WAPA's 161 kV transmission line that bisects the site. Under this alternative, WAPA would contract with SCE to supply wholesale power to a new substation that SCE would construct on the project site in or near the common area. SCE would then supply power at 33 kV to the Project owner entities as retail customers. Alternative two is likely the lowest cost option and least impactful means to supply power, but it relies on WAPA and SCE to enter into a voluntary "fringe agreement" in order to execute the installation.

6.10 TELECOMMUNICATIONS

Rio Mesa Solar, LLC intends to utilize millimeter wave wireless technology for internet and telephone service to the project site during construction and operations. This technology provides the speed and security of a physical fiber optic system, but mitigates the requirement for disturbance off site to connect into an existing fiber optic cable system operated by one of the commercial carriers. The wireless signal "shot" would be a single millimeter wave signal of approximately 50 MB of bandwidth from the common area of the project site to an existing fiber optic access location at the Blythe airport approximately 9 miles to the north. According to Quantum Wireless Technologies, the millimeter wave service supplier, there will be no new ground disturbance resulting from the installation of a radio and receiver/transmitter equipment at the Blythe airport location. From the Blythe Airport location, the telecommunications traffic from the Project will access a commercial carrier's existing fiber optic cable system. At this point, Rio Mesa Solar LLC has not selected a specific carrier (e.g. AT&T, Sprint).

6.11 REFERENCES

Bureau of Land Management (BLM). 2011. http://www.blm.gov/ca/st/en/fo/palmsprings/bradshaw.html.

BLM. 2002. Northern and Eastern Colorado Desert Coordinated Management Plan.

California Energy Commission (CEC). 2003. *Glossary.* http://www.energy.ca.gov/glossary/glossary-p.html.

California Geological Survey, (CGS). 2010. Alquist-Priolo Earthquake Fault Zone Maps. http://www.quake.ca.gov/gmaps/ap/ap_maps.htm.

Council on Environmental Quality (CEQ), 1981. *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations. Question 2a: Alternatives Outside the Capability of Applicant or Jurisdiction of Agency.* http://ceq.hss.doe.gov/nepa/regs/40/1-10.HTM#2. Accessed September 19, 2011.

Imperial County. 2008. County of Imperial Codified Ordinances, Title 9, Land Use Code.

Nielson, Innis, Pollock, Rhoads-Weaver, Shutak and Northwest Sustainable Energy for Economic Development. 2006. *Renewable Energy Atlas of the West.*

Ninyo & Moore, 2011. Preliminary Geotechnical Evaluation, Rio Mesa Solar Facility, Bradshaw Trail and West Avenue, Inyo County, California, June 8.

URS Corporation (URS). 2011. *Fatal Flaws Analysis for BrightSource Energy, Inc., Palo Verde Mesa Project, Riverside County, California, Project No. 27651002.20001.* January 18.

This Page Intentionally Left Blank

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date 9/26/2011

Technical Area: **Alternatives** Project: Rio Mesa Solar Electric Generating Facility Technical Staff: Andrew Martin

Project Manager: Angela Leiba Docket: Technical Senior:

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (b)(1)(D)	A description of how the site and related facilities were selected and the consideration given to engineering constraints, site geology, environmental impacts, water, waste and fuel constraints, electric transmission constraints, and any other factors considered by the applicant.	**Section 6, Alternatives,** describes existing site conditions and environmental impacts of the No Project Alternative in Section 6.2 (**pp. 6-6 to 6-17**). Section 6.3 analyzes three on-site alternatives in detail, including the Preferred Alternative (the Project). The potential environmental impacts of each are evaluated. Engineering and site geology constraints relative to each on-site alternative also are discussed (**pp. 6-17 to 6-50**). Major project features distinguishing the on-site alternatives are identified in Table 6.3-1 (**p. 6-18)**. Section 6.4 identifies the screening criteria used to evaluate the feasibility of nine off-site alternatives and the Project for solar power development (**pp. 6-51 to 6-81**). Table 6.4-1 compares the nine off-site alternatives and the Project with the screening criteria (**pp. 6-54 to 6-56**). Two of the off-site alternatives are carried forward for detailed analysis (**pp. 6-66 to 6-82**). Technology alternatives are described and evaluated in Section 6.5 (**pp. 6-82 to 6-85**). Alternative access routes are described and evaluated in Section 6.6 (**pp. 6-86 to 6-87**). Alternative water supply options are described and evaluated in Section 6.7 (**pp. 6-87 to 6-90**). Re-route alternatives for Bradshaw Trail are described and evaluated in Section 6.8 (**pp. 6-90 to 6-91**). Construction and Backup Power and Telecommunications are described in Sections 6.9 and 6.10, respectively (**pp. 6-91**).		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date 9/26/2011

Technical Area: **Alternatives** Project: Rio Mesa Solar Electric Generating Facility Technical Staff: Andrew Martin

Project Manager: Angela Leiba Docket: Technical Senior:

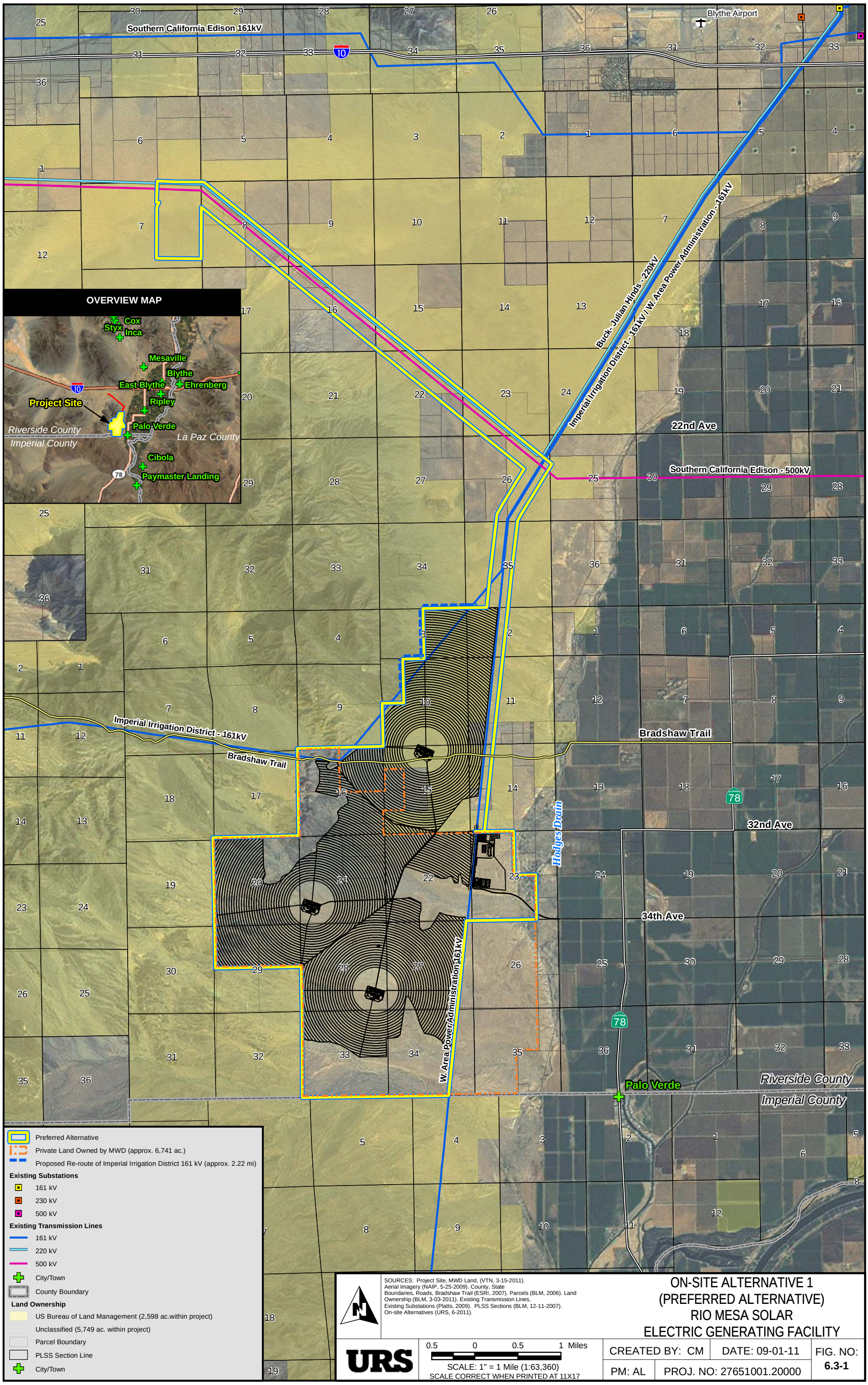
SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (f)(1)	A discussion of the range of reasonable alternatives to the project, or to the location of the project, including the no project alternative, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and an evaluation of the comparative merits of the alternatives. In accordance with Public Resources Code section 25540.6(b), a discussion of the applicant's site selection criteria, any alternative sites considered for the project, and the reasons why the applicant chose the proposed site.	**Section 6, Alternatives,** evaluates a range of reasonable alternatives for compliance with most of the project objectives and ability to avoid or substantially lessen any of the significant effects of the Project (i.e., Preferred Alternative). The potential environmental impacts of each alternative are compared with the Preferred Alternative in the following sections: • The No Project Alternative (**pp. 6-5 to 6-17**); • Three On-Site Alternatives, including the Preferred Alternative (**pp. 6-17 to 6-51**); and • Two Off-Site Alternatives (**pp. 6-67 to 6-83**). Major project features distinguishing the on-site alternatives are identified in Table 6.3-1 (**p. 6-18)**. The project objectives are listed in Section 6.1.3 (**pp. 6-3 to 6-5**). The No Project Alternative will not meet any of the project objectives. On- and off-site alternatives are evaluated for compliance with the project objectives in the following tables: • Table 6.3-2, On-Site Alternative 1 – Preferred Alternative (**pp. 6-20 to 6-33**); • Table 6.3-3, On-Site Alternative 2 – 750-MW MWD-Only Alternative (**pp. 6-33 to 6-41**); • Table 6.3-4, On-Site Alternative 3 – 500-MW MWD-Only Alternative (**pp. 6-42 to 6-44**); • Table 6.4-2, Off-Site Alternative A – MWD Property East of the Project Site (**pp. 6-68 to 6-74**); and • Table 6.4-3, On-Site Alternative G – Sonoran West Site (**pp. 6-74 to 6-83**). Section 6.4 identifies the screening criteria used to evaluate the feasibility of nine off-site alternatives considered and the Project for solar power development (**pp. 6-51 to 6-82**). Table 6.4-1 compares the nine off-site alternatives and the Project with the screening criteria (**pp. 6-54 to 6-57**).		

Adequacy Issue: Adequate ____ Inadequate ____ **DATA ADEQUACY WORKSHEET** Revision No. 0 Date 9/26/2011

Technical Area: **Alternatives** Project: Rio Mesa Solar Electric Generating Facility Technical Staff: Andrew Martin

Project Manager: Angela Leiba Docket: Technical Senior:

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (f)(2)	An evaluation of the comparative engineering, economic, and environmental merits of the alternatives discussed in subsection (f)(1).	Each alternative examined in detail is compared with the Project (i.e., Preferred Alternative). Environmental, economic, and engineering factors for each alternative are compared with the Preferred Alternative in the following sections: • The No Project Alternative (**pp. 6-5 to 6-17**); • Three On-Site Alternatives, including the Preferred Alternative (**pp. 6-17 to 6-51**); and • Two Off-Site Alternatives (**pp. 6-67 to 6-83**). Major project features distinguishing the on-site alternatives, including engineering factors, are identified in Table 6.3-1 (**p. 6-18**). The economic viability of the on-site alternatives is not specifically addressed, but it is implied that the on-site alternatives carried forward for analysis are economically viable. Section 6.4 identifies the screening criteria used to evaluate the feasibility of nine off-site alternatives and the Project for solar power development, including engineering factors, economic viability, and environmental sensitivity (**pp. 6-51 to 6-82**). Table 6.4-1 compares the nine off-site alternatives and the Project with the screening criteria (**pp. 6-54 to 6-57**). Two of the off-site alternatives are carried forward for detailed analysis based in part on their economic feasibility (**pp. 6-68 to 6-83**).		

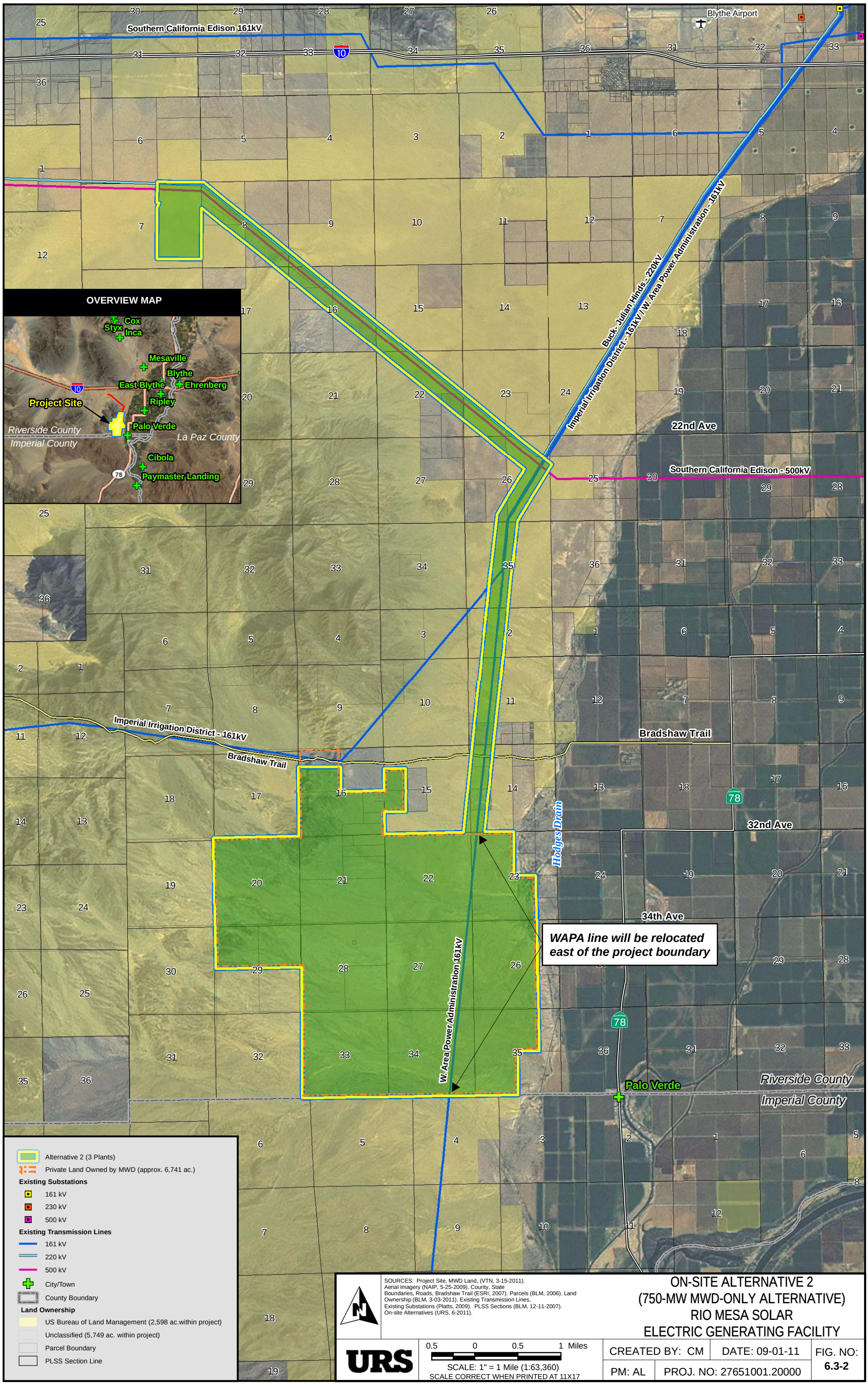


ON-SITE ALTERNATIVE 1 (PREFERRED ALTERNATIVE) RIO MESA SOLAR ELECTRIC GENERATING FACILITY

URS

CREATED BY: CM	DATE: 09-01-11	FIG. NO: 6.3-1
PM: AL	PROJ. NO: 27651001.20000	

Path: G:\gis\projects\15772765100\2\map_docs\mxd\AFC\Alternatives\Preferred_Alt_OnSite.mxd, Colin_Mattison, 9/2/2011, 6:03:30 PM

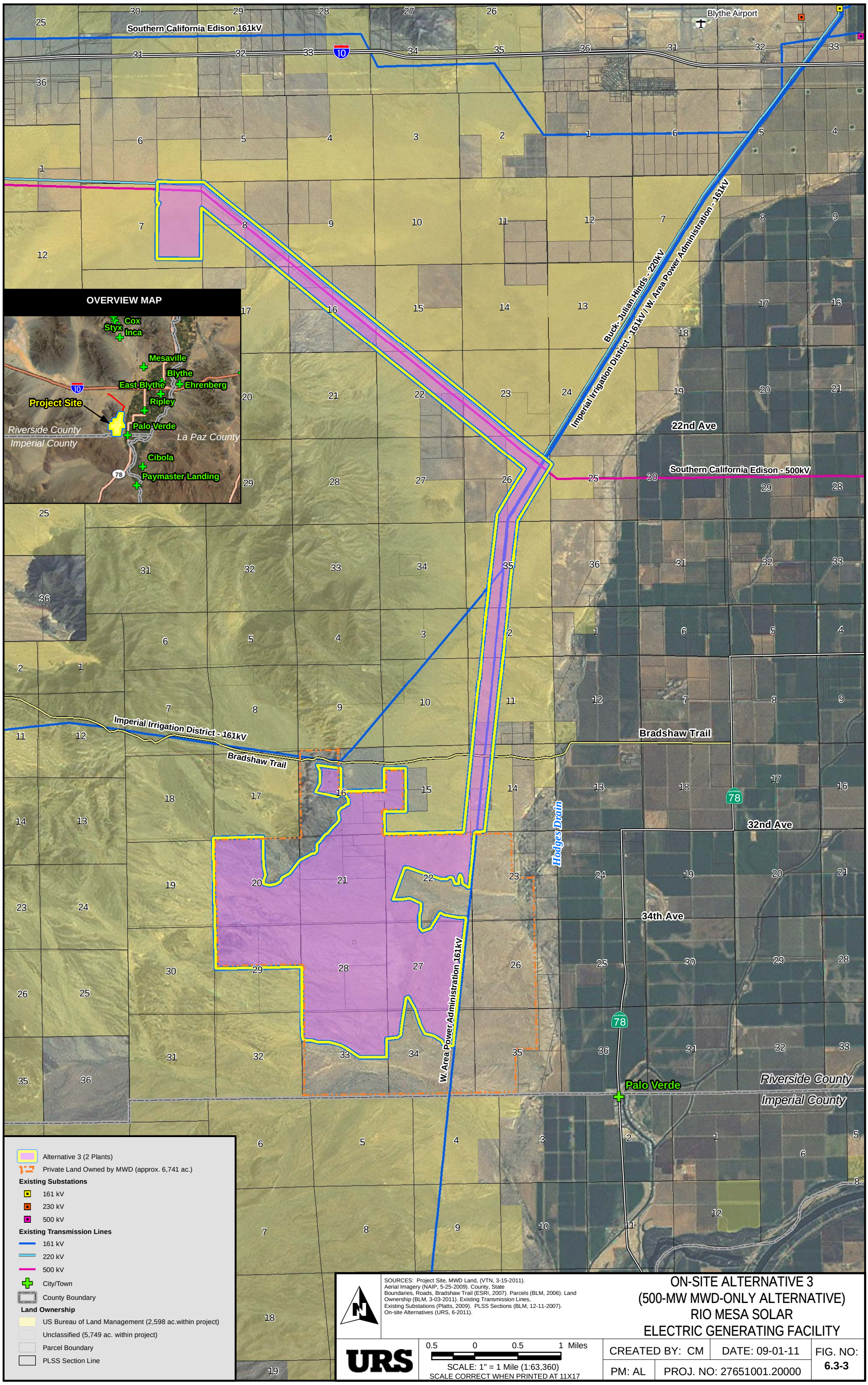


ON-SITE ALTERNATIVE 2
(750-MW MWD-ONLY ALTERNATIVE)
RIO MESA SOLAR
ELECTRIC GENERATING FACILITY

URS

CREATED BY: CM	DATE: 09-01-11	FIG. NO: 6.3-2
PM: AL	PROJ. NO: 27651001.20000	

Path: G:\gis\projects\15772765100 2\map_docs\mxd\AFC\Alternatives\Alt_2_OnSite.mxd, Colin_Mattison, 9/2/2011, 5:58:41 PM



SOURCES: Project Site, MWD Land, (VTN, 3-15-2011). 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). On-site Alternatives (URS, 6-2011).

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

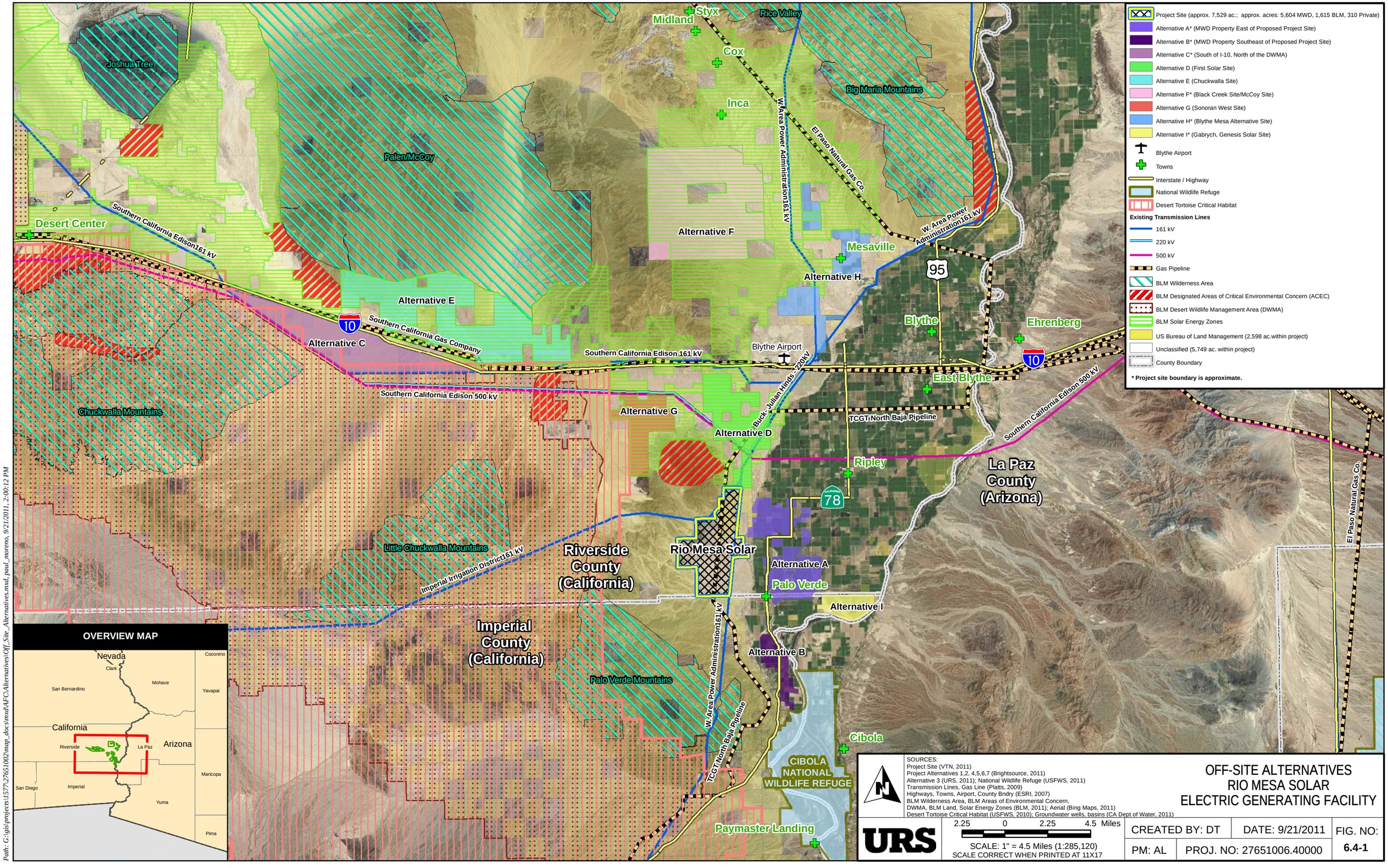
URS

0.5 0 0.5 1 Miles

SCALE: 1" = 1 Mile (1:63,360)
SCALE CORRECT WHEN PRINTED AT 11X17

CREATED BY: CM	DATE: 09-01-11	FIG. NO: 6.3-3
PM: AL	PROJ. NO: 27651001.20000	

Path: G:\gis\projects\15772\27651002\map_docs\mxd\AFC\Alternatives\Alt_3_OnSite.mxd, Colin_Mattison, 9/2/2011, 6:17:55 PM



Path: G:\gis\projects\1577\27651002\map_docs\mxd\AFC\Alternatives\Off_Site_Alternatives.mxd, paul_moreno, 9/21/2011, 2:00:12 PM

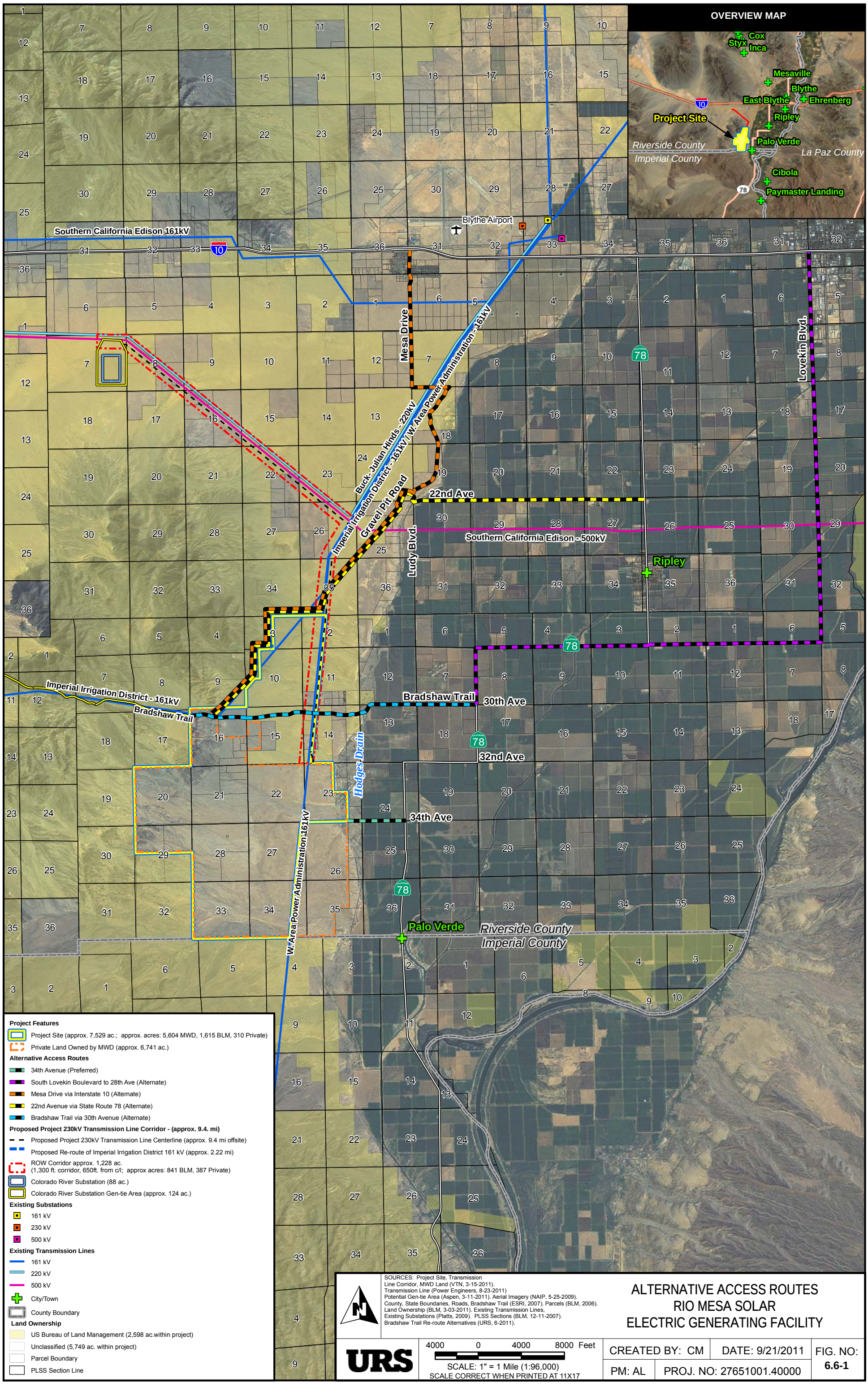
SOURCES:
Project Site (VTN, 2011)
Project Alternatives 1,2, 4,5,6,7 (Brightsource, 2011)
Alternative 3 (URS, 2011); National Wildlife Refuge (USFWS, 2011)
Transmission Lines, Gas Line (Platts, 2009)
Highways, Towns, Airport, County Bndry (ESRI, 2007)
BLM Wilderness Area, BLM Areas of Environmental Concern,
DWMA, BLM Land, Solar Energy Zones (BLM, 2011); Aerial (Bing Maps, 2011)
Desert Tortoise Critical Habitat (USFWS, 2010); Groundwater wells, basins (CA Dept of Water, 2011)

OFF-SITE ALTERNATIVES
RIO MESA SOLAR
ELECTRIC GENERATING FACILITY

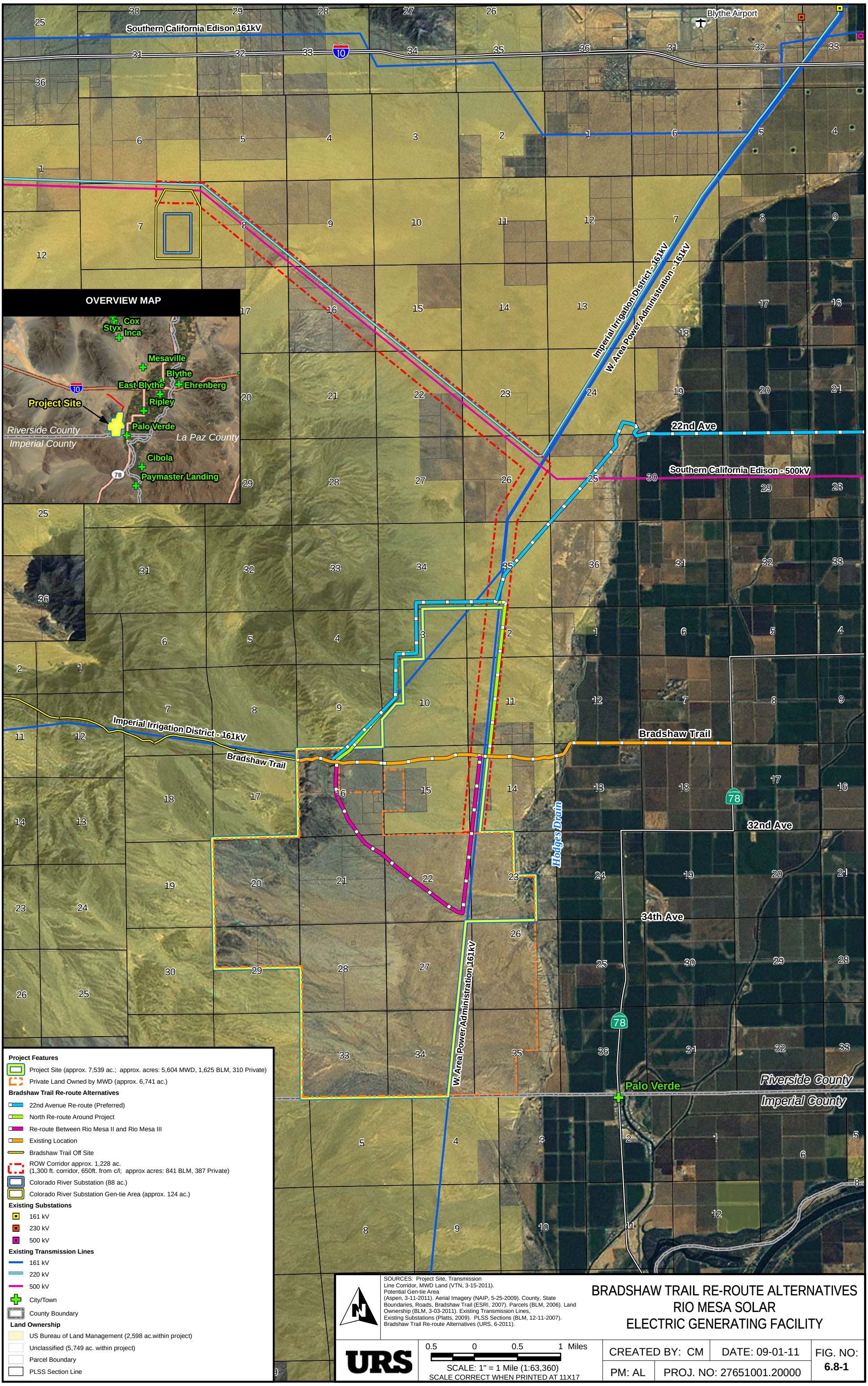
URS

2.25 0 2.25 4.5 Miles
SCALE: 1" = 4.5 Miles (1:285,120)
SCALE CORRECT WHEN PRINTED AT 11X17

CREATED BY: DT	DATE: 9/21/2011	FIG. NO:
PM: AL	PROJ. NO: 27651006.40000	6.4-1



Path: G:\gis\projects\27727651002\map_docs\mxd\AFC\Alternatives\Alternative_Access_Routes2.mxd, paul_moreno, 9/21/2011, 2:36:19 PM



BRADSHAW TRAIL RE-ROUTE ALTERNATIVES
RIO MESA SOLAR
ELECTRIC GENERATING FACILITY

URS

CREATED BY: CM	DATE: 09-01-11	FIG. NO: 6.8-1
PM: AL	PROJ. NO: 27651001.20000	

Path: G:\gis\projects\15772765100\2\map_docs\mxd\AFC\Alternatives\Bradshaw_Trail_Reroute_Alts.mxd, Colin_Mattison, 9/2/2011, 7:12:20 PM