Section 2.0
Project Description

PROJECT OVERVIEW AND LOCATION

The project site is flat and is generally bounded by the town of Daggett approximately 0.5 miles to the west; the Mojave River, Yermo, and Interstate 15 to the north; Barstow-Daggett Airport, Route 66, and Interstate 40 to the south; and Newberry Springs and Mojave Valley to the east in San Bernardino County (**Exhibit 2.0-1, Project Location**).

The project area is in proximity to existing high voltage electrical infrastructure, existing energy generation facilities, and other industrial uses. These include the existing non-operating Coolwater Generating Station, a 626 MW natural gas–fired power plant, the 44 MW photovoltaic Sunray Solar Project, several high-voltage substations and transmission lines owned by Southern California Edison (SCE), the Los Angeles Department of Water and Power (LADWP) high-voltage transmission corridor of approximately 1,000 feet in width, major highway and railroad infrastructure, and Barstow-Daggett Airport.

The proposed project would construct and operate a utility-scale, solar photovoltaic (PV) electricity generation and energy storage facility that would produce up to 650 megawatt (MW) of power and include up to 450 MW of battery storage capacity on approximately 3,500 acres of land (**Exhibit 2.0-2, Project Site**). The project would use existing electrical transmission infrastructure adjacent to the Coolwater Generating Station, a recently retired natural gas-fired power plant, to deliver renewable energy to the electric grid.

The applicant selected the project site based on its proximity to existing electrical transmission infrastructure in order to repurpose former fossil fuel–based electricity generation capacity with renewable energy. The project is being designed in accordance with San Bernardino County's Solar Ordinance (an ordinance amending Development Code Chapter 84.29, Renewable Energy Generation Facilities) and the General Plan Renewable Energy and Conservation Element (RECE), which strives to preserve the character of the project area and surrounding communities.

The County Board of Supervisors adopted an amendment to the Renewable Energy Conservation Element (RECE) on February 28, 2019 prohibiting utility-scale renewable energy development on lands designated as Rural Living or on lands located within the boundary of an existing community plan, unless an application for development of a renewable energy project has been accepted as complete in compliance with California Government Code Section 65943 before the effective date of the resolution. Therefore, the proposed project is not subject to this new policy because it was deemed complete on March 22, 2018.

The project is anticipated to be constructed in three phases and is seeking six separate CUPs to facilitate project phasing and financing. The phases would share certain facilities, such as the on-site project substations and generation tie (gen-tie) line. Development would occur on privately owned land.

PROJECT OBJECTIVES

California Environmental Quality Act (CEQA) Guidelines Section 15124(b) requires the project description to contain a statement of objectives that includes the underlying purpose of the proposed project. The project objectives are identified below.

1. Assist the State of California in achieving or exceeding its Renewables Portfolio Standard (RPS) and greenhouse gas (GHG) emissions reduction objectives by developing and constructing new California RPS-qualified solar power generation facilities producing approximately 650 MWs.
2. Produce and transmit electricity at a competitive cost.
3. Provide a new source of energy storage that assists the state in achieving or exceeding its energy storage mandates.
4. Use the existing interconnection at the Coolwater Substation that provides approximately 650 MW of capacity.
5. Utilize existing energy infrastructure to the extent possible by locating solar power generation facilities in close proximity to existing infrastructure, such as electrical transmission facilities.
6. Site solar power generation facilities in areas of San Bernardino County by 2020 that have the best solar resource to maximize energy production and the efficient use of land.
7. Develop a solar power generation facility in San Bernardino County, which would support the economy by investing in the local community, creating local construction jobs, and increasing tax and fee revenue to the County.

REGIONAL SETTING

In addition to the existing Coolwater Generating Station, the surrounding area includes transportation infrastructure, agricultural lands, undeveloped land, the Sunray Solar Project (built in 2016), and Barstow-Daggett Airport, a County-owned general aviation airport, located directly south of the project site. Route 66, the National Trails Highway, is to the south of the project site and Interstate 15 is to the north. Route 66 is located between Interstate 40 and the project site. The BNSF (Burlington Northern Santa Fe) railroad tracks are to the south of the project site, and the Union Pacific tracks are to the north. An approximately 1,000-foot-wide LADWP high-voltage transmission corridor traverses the project site. In addition, many existing 60-foot high-voltage transmission structures and electrical substations are located in the project area. Private lands near the central and eastern portions of the project site consist of agricultural lands that produce primarily alfalfa and pistachios, sparsely spaced rural residential dwellings, previously disturbed and now fallow farmland, and some undeveloped desert land. **Exhibit 2.0-1, Project Location,** shows these and more distant land uses surrounding the project site. Figures C1 through C6 of the Visual Impact Assessment (see **Appendix B-1**) and Figure 2 of the Administrative Draft Addendum to Visual Impact Analysis - Key Observation Point 6 (see **Appendix B-2**) include existing site photos and post-development simulations from key observation points in the vicinity of the project site.

NATURAL FEATURES

The project site is in the Desert Planning Region of San Bernardino County. The Desert Planning Region consists of mountain ranges interspersed with long, broad valleys that often contain dry lakes. The elevation changes from near sea level, to desert valleys between 1,000 and 4,000 feet above mean sea level (amsl), to mountain ridges above 8,000 feet amsl. The dominant habitat is desert scrub. The Mojave River floodway is directly to the north of the project site.

The applicable Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) for the project site are map numbers 06071C3975H, 06071C4000H, 06071C4600H, and 06071C4625H (effective date 8/28/2008). Based on the National Flood Insurance Program (NFIP) FIRMs, the entire project site is in Zone D, which indicates flooding hazards for the site have not been determined. However, the Mojave River, north of the project site, has an overlay designation of Area of Inundation (Dam Inundation) in the County General Plan Land Use Plan's Hazard Overlay Maps. A detailed FEMA study of a portion of the Mojave River approximately 4.5 miles east classifies the Mojave River Area of Inundation as a 100-year flood zone. The detailed FEMA study also identifies an approximately 3,500-foot-wide strip on either side of the 100-year flood zone that is classified as a 500-year flood zone.

The northern boundary of the Bureau of Land Management's (BLM) Newberry Mountain Wilderness is approximately 1.2 miles south of the project site and on the south side of Interstate 40. The Mojave National Preserve is over 70 miles from the nearest project site boundary.

ROADS, HIGHWAYS, AND RAILROADS

Major transportation routes in the region include Interstate 15 and Interstate 40, which intersect to the west of the project site in Barstow. Interstate 15 runs generally southwest–northeast, connecting the Los Angeles area and Victorville to Barstow, and continuing to the Arizona border and to Las Vegas. Interstate 40 starts in Barstow and runs generally east, continuing to the Arizona border at Needles. In the project area, both interstates are eligible for state scenic highway designation.

Route 66 runs east–west, just south of the project site. Route 66 is also known as the National Trails Highway, and it is one of the oldest cross-country highways, stretching from Los Angeles to Chicago. Route 66 is a historic highway constructed in 1926 and was part of one of the country's first transcontinental highways—the National Old Trails Road. The route is a designated scenic highway with a long history of serving families traveling west to California during the Great Depression, moving troops and supplies during World War II, and providing a scenic experience for travelers. Route 66 is located in between the project site and Interstate 40.

Amtrak has a passenger rail station in Barstow for routes between Los Angeles and Chicago. Additionally, there are two Class I freight railroads in the area: Burlington Northern Santa Fe (BNSF) and Union Pacific (UP). Both railroads move the majority of freight that passes through the Ports of Los Angeles and Long Beach, as well as through the Alameda Corridor in Los Angeles County, and into San Bernardino County to access states to the east.

Most roadways in the area are unimproved or paved without curb or sidewalk improvements. Minneola Road, which passes through the project site going north–south, is paved and without curb or sidewalk improvements. Minneola Road provides access to Interstate 15 to the north and Route 66 to the south, past the BNSF at-grade crossing.

Valley Center Road and Silver Valley Road are also paved and without curb or sidewalk improvements. Both roadways approach the project site from the east and intersect with Minneola Road, where they turn into unimproved roads running through the project site. Hidden Springs Road is paved, without curb or sidewalk improvements, and approaches the southern boundary of the project site. It then is an unimproved road near and within the project site.

Hidden Springs Road connects the project site to Route 66 and Interstate 40, both to the south, past a BNSF at-grade crossing. Sunray Lane crosses the southeastern project site from Santa Fe Street and provides access to the Sunray Solar Project facility adjacent to the project site on the east side. Santa Fe Street parallels and traverses the southern boundary of the project site and parallels the BNSF tracks. Both Sunray Lane and Santa Fe Street are paved, without curb or sidewalk improvements.

Airport and Military Facilities

Barstow-Daggett Airport, a County-owned, public use, general aviation airport, is directly south of the project site. The Airport Comprehensive Land Use Plan for the airport was developed in 1992, when there were 45 fixed-wing aircraft and 25 military and California Highway Patrol helicopters based at the airport. The airport is registered with the Federal Aviation Administration (FAA). Facilities within the FAA's jurisdiction near the airport may be required to obtain a Determination of No Hazard (Form 7460) to verify that their height and location would not create a hazard for airport operations.

The Barstow Marine Corps Logistics Base (MCLB Barstow) is approximately 8 miles to the west of the project site and is presently the second largest employer in the Barstow area. The base was established as the Marine Corps Depot of Supplies at its present location in 1942, when the United States Navy turned it over to the Marine Corps as a storage site for supplies and equipment needed for Fleet Marine Forces in the Pacific theater during World War II. MCLB Barstow supports Marine forces west of the Mississippi and in the Far East and Asia. The base encompasses over 6,000 acres and includes headquarters and administration buildings, storage, recreational activities, shopping, housing, and rifle and pistol ranges.

Agriculture

California's Farmland Mapping and Monitoring Program has mapped the important farmlands in the project area. The area includes Prime Farmlands, Farmlands of Statewide Importance, Unique Farmlands and Grazing Lands.

According to data from the California Department of Conservation's Farmland Mapping and Monitoring Program, the project site includes lands in the following Important Farmland categories: Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. Additionally, lands are categorized as Grazing and Other Land (such as low-density rural, dense forested, mined, or government restricted), which are not important farmland categories. The acres of each type are shown in **Table 2.0-1**. The project site is not covered by Williamson Act or Farmland Security Zone contracts.

Table 2.0-1:
Farmland Categories for Project Site

Farmland Category	Gross Acres	Zoning District	Zoning Category Description	Gross Acres
Prime Farmland	~ 549	AG	Agriculture	~ 287
Farmland of Statewide Importance	~ 1,116	RC	Resource Conservation	~ 2,455
Unique Farmland	~ 294	IR	Regional Industrial	~ 284
Grazing	~ 110	RL	Rural Living	~ 367
Other Land (i.e., forested, mined, restricted)	~ 1,324			
Total	**± 3,393**[1]			**± 3,393**

Source: HDR Engineering 2018

1. Although the total gross acreage of project parcels is ±3,393 acres, the full project is described as ±3,500 acres, which would include any easements, the gen-tie line, potentially temporary construction impacts, and any other miscellaneous project features. Where gen-tie routes are outside of existing rights-of-way, they traverse the same zoning districts identified above.

General Plan and Development Code

The County's General Plan (2013) designates the project site with the following land uses: General Industrial, Residential, Open/Non-Developed, and Agricultural. San Bernardino County's zoning districts for the project site are listed in **Table 2.0-1** and illustrated in **Exhibit 2.0-3, Land Use Zoning Districts**.

On April 8, 2017, the San Bernardino County Board of Supervisors adopted the General Plan Renewable Energy and Conservation Element (RECE). The policies in this element, along with the County's Solar Ordinance (amending Development Code Chapter 84.29, Renewable Energy Generation Facilities), comprise specific goals, policies, and standards for renewable and specifically solar projects.

As stated previously, the County Board of Supervisors adopted an amendment to the RECE on February 28, 2019 prohibiting utility-scale renewable energy development on lands designated as Rural Living or on lands located within the boundary of an existing community plan, unless an application for development of a renewable energy project has been accepted as complete in compliance with California Government Code Section 65943 before the effective date of the resolution. Therefore, the proposed project is not subject to this new policy because it's application was deemed complete on March 22, 2018.

Facilities and Design

The proposed project would consist of solar PV panels mounted on a single-axis tracking system that follows the sun throughout the day. The tracking system would be supported by steel piles, with the panels arranged into long narrow rows, grouped into regions, referred to as solar arrays or blocks. The proposed design also includes inverters and transformers mounted on small concrete pads or steel foundations, distributed across the site. Inverter equipment pads may be accompanied with distributed Battery Energy Storage System (BESS) equipment. Electricity produced by the solar arrays would be collected and routed to an on-site substation where voltage would be increased to the interconnection voltage.

Each phase would have its own on-site substation, which may also include a Battery Energy Storage System. From the on-site substations, each phase would include a segment of the overhead gen-tie line, which would connect the project to the existing SCE-owned 115-kilovolt (kV) and 230-kV Coolwater substations, which are adjacent to the retired Coolwater Generating Station. The project would also include security fencing for all phases, a Supervisory Control and Data Acquisition system (SCADA), telecommunications equipment and an operations and maintenance (O&M) building to be constructed with the first phase.

Solar Array

Solar panels would be mounted on a tracking system that would be supported, when practical, by driven piers (piles) directly embedded into the ground. Panels would be organized in rows in a uniform grid pattern, with each row separated by approximately 10-20 feet (from post to post). A fixed-tilt racking system, which does not track the sun, may also be used if deemed suitable. Panels are proposed to be a maximum of 20 feet in height.

The specific equipment chosen for the proposed project would be determined prior to final design and construction. However, at this time, the solar panels are expected to be either crystalline silicon or thin-film cadmium telluride.

Inverters and Switchgear

Individual PV panels would be electrically connected in series to create a “string” to carry direct current (DC) electricity. Strings of DC electricity would be routed to inverters, which would take the DC output and convert it to alternating current (AC) electricity.

The system may use either centralized or string inverters. Centralized inverters and transformers would be supported on small concrete or steel equipment pads, on a foundation of either a concrete footing approximately 10 feet by 50 feet in size or foundational piers. The inverters and transformers would be approximately 10 feet in height. Small string inverters would be mounted throughout the solar array and attached to each of the tracker rows. The power from inverters in each phase would be collected and transported to a new project substation. Power from each of the new project substations would be transported via a new gen-tie line to the two existing SCE-owned Coolwater substations, where power would then flow into the utility-owned electric system.

The Battery Energy Storage System (BESS) would be either AC or DC coupled, meaning the battery would be electrically connected either between the DC panels and the inverter input (in the case of a DC coupled system) or further downstream, after the output of the inverters (in the case of an AC coupled system). In a DC-coupled configuration, the BESS would be distributed through the solar array, collocated adjacent to the inverter equipment pads. In an AC-coupled configuration, the BESS would most likely be consolidated, located adjacent to the project substations.

Project Substations

One new substation would be constructed as a part of each of the three project phases for a total of three project substations. The substations (which contain high-voltage equipment) would be unenclosed, occupy an area of approximately 300 feet by 300 feet each, and be protected with security fences. The electrical equipment inside the substation fence would be approximately 70 feet tall at its highest points. A small one-story, rectangular control building, housing the communication and supervisory control and data acquisition (SCADA) equipment would also be located in the substation footprint. From the new project substations, a gen-tie line would be constructed to connect the solar facility to its point of interconnection, which are the two existing substations (115 kV and 230 kV) owned and operated by SCE and adjacent to the retired Coolwater Generating Station. The work SCE will perform to connect the gen-tie line to these substations will occur primarily inside the existing substations; therefore, no expansion of the existing substations' footprints is anticipated.

SCE would conduct a limited scope of work within and surrounding the existing Coolwater substations to facilitate connection of the solar project to the SCE system, including extending the gen-tie from the last pole structure into the substation and installing underground telecom facilities both inside and outside the existing substation fence line. **Exhibit 2.0-4, Representative Project Components**, illustrates the typical appearance of a substation.

Battery Storage

The project is anticipated to include up to 450 MW of battery storage to be constructed in three phases corresponding to the phased construction of the solar arrays. The battery storage system is expected to be either located adjacent to each of the substations or distributed throughout the solar array at the inverter equipment pads or tracker rows. Up to 16 acres may be utilized for the battery energy storage system throughout the project site at full buildout. The key components of the battery storage system are described below.

- Batteries. Individual lithium ion cells form the core of the battery storage system. Cells are assembled either in series or parallel connection, in sealed battery modules. The battery modules would be installed in self-supporting racks electrically connected either in series or parallel to each other. The operating rack-level DC voltage currently ranges between 700 and 1,500 volts. The individual battery racks are connected in series or a parallel configuration to deliver the battery storage system energy and power rating.

- Battery Storage System Enclosure and Controller. The battery storage system enclosure would house the batteries described above, as well as the battery storage system controller. The battery storage system controller is a multilevel control system designed to provide a hierarchical system of controls for the battery modules, power conversion system (PCS), medium voltage system, and up to the point of connection with the electrical grid. The controllers ensure that the battery storage system effectively mimics conventional turbine generators when responding to grid emergency conditions. The battery storage system enclosure would also house required heating, ventilation, and air conditioning (HVAC) and fire protection systems.

- DC/DC Converter. In a DC-coupled system, the DC/DC converter allows the connection of the battery storage system to the DC side of the photovoltaic inverter. The DC/DC converter manages the battery and PV bus voltage and provides appropriate protections for the PV inverter.

- Power Conversion System (PCS) - Inverter. The PCS consists of an inverter, protection equipment, circuit breakers, air filter equipment, equipment terminals, and cabling. Electricity is transferred from the PV array (or power grid) to the project batteries during a battery charging cycle and from the project batteries to the power grid during a battery discharge cycle. The inverter is bi-directional, with the ability to convert power from AC to DC when the energy is transferred from the grid to the battery and from DC to AC when the energy is transferred from the battery to the grid. The inverter DC operating voltage would be between 700 and 1,500 volts, with a typical power rating of approximately 3,000 kW. The inverter AC operating voltage may be approximately 630 volts AC nominal. Voltage is increased to medium voltage levels (typically approximately 13–34.5 kV) when combined with an MV transformer. Voltage and power ratings are specific to the equipment manufacturer and product model. The installed equipment would be selected at a later date and therefore is subject to change.

- Medium Voltage (MV) Transformer. A separate medium voltage transformer may be present if not integrated into the inverter skid. This would be a pad-mounted transformer used to increase voltage on the AC side of the inverter from low to medium voltage. MV transformers are used to increase the efficiency of power transmission, associated with reduced resistive power losses higher voltage.

If batteries were located adjacent to the substations, they would be contained within either steel enclosures similar to a shipping container or a freestanding building, approximately 10 feet in height. The color of the metal enclosure has not yet been determined; it typically varies by manufacturer. If distributed throughout the solar array, the battery system would likely be contained within metal housings and electrically connected to the inverters at each of the equipment pads. **Exhibit 2.0-4, Representative Project Components**, illustrates a battery storage system.

The battery storage system would likely use one of several available lithium ion technologies, though alternatives may be considered (such as flow batteries) given continuing rapid technological change in the battery industry. In general, a lithium ion battery is a rechargeable battery consisting of three major functional components: a positive electrode made from metal oxide, a negative electrode made from carbon, and an electrolyte made from lithium salt. Lithium ions move from negative to positive electrodes during discharging and in the opposite direction when charging. Five major lithium ion battery sub-chemistries are commercially available:

- Lithium nickel cobalt aluminum (NCA)
- Lithium nickel manganese cobalt (NMC)
- Lithium manganese oxide (LMO)
- Lithium titanate oxide (LTO)
- Lithium iron phosphate (LFP)

Selection of the lithium ion sub-chemistry for the project would take into consideration various technical factors, including safety, life span, energy performance, and cost.

The proposed battery storage system would be designed, constructed, operated, and maintained in accordance with applicable industry best practices and regulatory requirements, including fire safety standards. Current best practices for fire safety use chemical agent suppressant–based systems to detect and suppress fires. The configuration of the safety system would be determined based on site-specific environmental factors and associated fire response strategy. The safety system would include a fire detection and suppression control system that would be triggered automatically when the system senses imminent fire danger. A fire suppression control system would be provided within each on-site battery enclosure. Components of the system would include a fire panel, aspirating hazard detection system, smoke/heat detectors, strobes/sirens, and suppression tanks. The safety system would operate in three phases: Pre-alarm, Stage 1, and Stage 2. If the safety system detects a potential issue, the Pre-alarm phase would be initiated and would shut down the heating, ventilation and air conditioning (HVAC) units and fans to help contain the potential fire. The control system would then wait approximately 5 minutes to determine if the initiation of Stage 1, which would shut down the HVAC and fans indefinitely, is warranted. If reached, Stage 2 would then result in the fire panel discharging the suppression agent onto the fire. The safety system would either use a waterless evaporating fluid, sustainable clean agent (not a hydrofluorocarbon clean agent), or an alternative suppression agent, such as an inert gas.

Gen-Tie Line

The project is expected to be constructed in three phases. Each phase would include a new substation and segment of aboveground gen-tie transmission line. From each substation, a segment of gen-tie line would be constructed to connect the solar facility's output to the electrical grid at the existing SCE-owned 115-kV and 230-kV substations adjacent to the Coolwater Generating Station. The gen-tie poles are expected to be gray metal structures up to 120 feet in height and would be capable of accommodating both 115-kV and 230-kV electrical circuits. Each phase and its associated CUP(s) would share the substations and gen-tie facilities. The first segment of gen-tie line would be constructed with Phase 1. The second segment would be constructed with Phase 2, connecting it to Phase 1. The third segment of gen-tie line would be constructed with Phase 3, connecting it to Phase 2 such that at full build out, the gen-tie line would be one transmission line serving all phases of the project.

Three primary routes are being considered for the project gen-tie lines, as shown in **Exhibit 2.0-2**. These routes traverse the project site from east to west and would be primarily along Silver Valley Road. The route options deviate on Powerline Road, with one option turning east at approximately the location of Santa Fe Street and the second option turning east using an existing roadway alignment to SCE's Coolwater substations.

While the gen-tie line poles would generally be up to 120 feet in height to accommodate engineering and safety clearance requirements, some poles may need to be up to 159 feet in height at locations where the lines would cross over the existing 60-foot high-voltage transmission lines in the area, while other poles may be considerably shorter than 120 feet. Additionally, some sections of the gen-tie line may be placed underground where necessary, particularly in the areas of the Barstow-Daggett Airport and the LADWP right-of-way, thereby eliminating the need for poles in those sections. The final gen-tie alignments and associated pole locations and heights will not be known until the proposed project's final engineering stage.

The gen-tie line would be capable of accommodating both 115-kV and 230-kV electrical circuits. The gen-tie line would be built out in sequences to match the phases of the solar project. The gen-tie right-of-way may also include above- and belowground communications lines and a dirt road for accessing gen-tie structures where there is no existing access.

Access Roads

On-site access routes, with a minimum width of 20 feet, may be constructed along the project's fence line. All interior access roads would also be a minimum of 20 feet wide. Maximum width of all on-site roads would be 26 feet. All roads within the site would consist of compacted native soil per San Bernardino County Fire Department requirements. All roads would be stabilized with soil stabilization material, if necessary. Off-site access to the six CUP sites will be via existing or proposed right-of-way dedications of varying widths (as required by the County). Improvements to off-site access roads, including potential paving and widening, will be completed as required per County standards and in consultation with the County.

Perimeter Fencing

Fencing is proposed along the perimeter of the project site or set back a minimum of 15 feet from the existing/proposed right-of-way, as required by the County Development Code. Fencing will be at least 7 feet tall, in compliance with National Electrical Code (NEC). Chain-link fencing is likely to be used, potentially topped with 1 foot of barbed wire. In consultation with the County, slats or mesh may be added to the chain-link fence, as appropriate and in areas where needed, to manage windblown sand. Access gates would be installed at each site entry point. Substation sites and/or battery storage sites may be separately fenced.

Lighting and Signage

Manual, timed, and motion sensor lights may be installed at access gates, equipment pads and substations for maintenance and security purposes. Lighting would be shielded and aimed downward to the ground. In addition, remote-controlled cameras and other security measures would be installed. No other lighting is planned. Signage is proposed in compliance with all County's regulations.

Stormwater Facilities

Site drainage is designed to follow natural drainage patterns. None of the on-site facilities, including fences and panel posts, are expected to prevent stormwater flow. Therefore, the applicant anticipates that the project would have limited impact to on-site drainage. Long shallow strip retention basins are proposed to capture the anticipated 100-year, 24-hour increase in runoff volume resulting from clearing of vegetation, compacting of soil, and any limited impervious (paved or structural) improvements.

Other Infrastructure

An Operations and Maintenance building would be constructed on approximately 1.5 acres within the project footprint during the first phase of the project. The building would serve to store spare parts and vehicles and to accommodate full- and part-time staff associated with the project. Water would come from on-site wells.

Telecommunications equipment, such as a fiber optic line, a SCADA system, and auxiliary power, would be installed throughout the project site at each inverter equipment pad, substation, and security system. Telecommunications equipment would be brought to the project from existing telecommunications infrastructure in the project vicinity and may be co-located on aboveground structures such as transmission lines. Trenching could be required to install some of this telecommunications equipment. Fire protection would also be included per applicable requirements.

CONSTRUCTION

Site Preparation and Grading

Site preparation would consist of clearing, grubbing, scarifying, recompacting, and grading to level the site and remove any mounds or holes that remain from the previous land use. Though grading is expected to occur throughout the site, the site's cut and fill would balance and no importing or exporting of materials would be necessary.

The following is a general estimate of the project's required grading by phase: Phase 1: 1,753,000 cubic yards; Phase 2: 1,888,000 cubic yards; Phase 3: 1,726,000 cubic yards; and gen-tie: 533,000 cubic yards. After grading, temporary fences would be placed around the project site, which would allow materials and equipment to be securely stored on the site.

Per Mojave Desert Air Quality Management District (MDAQMD) requirements, the project applicant will develop a dust control plan that describes all applicable dust control measures to address construction-related dust. Components of the plan are likely to include water trucks to spread water as well as road stabilization with chemicals, gravel, or asphaltic pavement to mitigate visible fugitive dust from vehicular travel and wind erosion.

Construction Access Routes and Laydown Areas

Construction vehicles would access the project site from Interstates 40 and 15. Primary access points are discussed further in Section 3.12, Transportation and Traffic, and include Santa Fe Street, Hidden Springs Road, Minneola Road, Valley Center Road, and Silver Valley Road. During construction, materials would be placed within the project boundaries adjacent to the then-current phase of construction. To prevent theft and vandalism, materials would be secured within fenced areas at all times. Storage containers might be used to house tools and other construction equipment. In addition, security guards would regularly monitor the site.

Construction Activities and Equipment

Construction of the project would be accomplished in three phases. While construction of each phase could occur separately, this EIR conservatively assumes that construction of two phases would overlap. The applicant anticipates that construction would occur over a 27-month period for Phases 1 and 2 (together a 400 MW facility) and a 19-month period for Phase 3 (250 MW facility).

An average of 300 workers would be on-site during each phase of construction, depending on the activities. The peak number of workers on the project site at any one time is anticipated to be 500. The workforce would consist of laborers, craftspeople, supervisory personnel, and support personnel.

On average, it is anticipated that each worker would generate one round trip to the project site per workday. Most workers would commute to the site from nearby communities such as Barstow, with some traveling from more distant areas such as Victorville, Hesperia, and San Bernardino. Construction would generally occur during daylight hours, though exceptions may arise due to the need for nighttime work. Workers would reach the site using existing roads.

Portable toilet facilities would be installed for use by construction workers. Waste disposal would occur in a permitted off-site facility. Domestic water for use by employees would be provided by the construction contractor through deliveries to the site or from on-site wells.

Project construction for each phase is expected to consist of two major stages. The first stage would include site preparation, grading, and preparation of staging areas and on-site access routes. The second stage would involve installation of the racking system, foundations, solar panels, equipment pads, electrical components, transmission lines, and all other balance of systems equipment.

Placement of solar panels would require driving piles approximately 6 to 10 feet into the ground. In areas where geotechnical analysis has determined that piles might not be feasible or cost effective, conventional foundations (such as isolated spread foundations, continuous footings, ballasted racking which uses concrete or other heavy material to stabilize the feature) may be used, but this is not anticipated. Alternatively, piles may need to be driven deeper based on further geotechnical analysis.

OPERATIONS

The project would generate solar electricity from the PV system during daylight hours and may discharge power from batteries at various times. The site would include an O&M building and would be staffed with full- and part-time employees such as a plant manager, maintenance manager, solar technicians, and environmental specialists. In addition, the operations would be monitored remotely via the SCADA system.

Operations and maintenance vehicles would include light-duty trucks (e.g., flatbed pickup) and other light equipment for maintenance and PV module washing. Heavy equipment would not be used during normal operation. Large or heavy equipment may be brought to the facility infrequently for equipment repair or replacement or for vegetation control.

Water would be required for panel washing activities and general maintenance. The frequency of panel washing would be determined based on soiling of the PV panels and expected benefit from cleaning. Should cleaning be necessary, water would be sprayed on the PV panels to remove dust. An estimated 25 acre-feet per year of water would be necessary for panel washing (for all phases of the project or full 650 MW buildout). This water would be obtained from on-site wells.

Sanitary facilities for operations would be provided at the O&M building, located on approximately 1.5 acres within the project footprint.

DECOMMISSIONING

If operations at the site were permanently terminated, the facility would be decommissioned. Most components of the proposed system are recyclable or can be resold for scrap value. Panels typically consist primarily of silicon, glass, and an aluminum frame. Tracking systems typically consist of steel and concrete, in addition to motors and control systems. All of these materials can be recycled.

Numerous recyclers, for the various materials to be used on the project site, operate in San Bernardino and Riverside counties. Metal, scrap equipment, and parts that do not have free-flowing oil can be sent for salvage. Equipment containing any free-flowing oil would be managed as waste and would require evaluation. Oil and lubricants removed from equipment would be managed as used oil, which is a hazardous waste in California. Decommissioning would comply with federal, state and local standards and all regulations that exist when the project is decommissioned, including the requirements of San Bernardino County Development Code Section 84.29.060.

INTENDED USES OF THE EIR

This EIR is an informational document intended to inform public agency decision-makers and the public of significant environmental effects of the proposed project described above, identify ways to minimize the significant effects, and describe and evaluate a reasonable range of alternatives to the project.

The County of San Bernardino is the lead agency for the project, as it is the agency with primary authority over the project's discretionary approvals. Several other agencies, identified as responsible and trustee agencies, will also use the EIR for their consideration of approvals or permits under their respective authorities.

For the purpose of CEQA, the term "trustee agency" means a state agency having jurisdiction by law over natural resources affected by a project, which are held in trust for the people of the state of California. The term "responsible agency" includes all public agencies other than a lead agency that may have discretionary actions associated with the implementation of the proposed project or an aspect of subsequent implementation of the project. Accordingly, **Table 2.0-2** identifies a list of approvals that could be required from the lead agency, trustee agencies and responsible agencies.

Table 2.0-2:
Matrix of Potential Approvals Required

Permit/Action Required	Approving Agency	Lead/Trustee/Responsible Agency Designation
Lot Line Adjustment, Lot Merger, or Subdivision Map	County	Lead Agency
Environmental Impact Report Certification	County	Lead Agency
Conditional Use Permits	County	Lead Agency
Variance for Height of Gen-Tie Poles	County	Lead Agency
Road Vacations	County	Lead Agency
Encroachment Permits	County	Lead Agency
Clearance to cross high-voltage transmission lines, if required	LADWP	Responsible Agency
General Order 173 Public Utilities Code Section 851	California Public Utilities Commission	Responsible Agency
Air Quality Construction Management Plan	Mojave Desert Air Quality Management District (MDAQMD)	Responsible Agency
Waste Discharge Permit, if required	Lahontan Regional Water Quality Control Board (RWQCB)	Responsible Agency

Table 2.0-2, continued

Permit/Action Required	Approving Agency	Lead/Trustee/Responsible Agency Designation
General Construction Stormwater Permit	Lahontan RWQCB	Responsible Agency
Streambed Alteration Agreement, if required (Section 1603)	California Department of Fish and Wildlife (CDFW)	Trustee Agency
Incidental Take Permit, if required (Section 2081)	CDFW	Trustee Agency
Clean Water Act Permit, if required (Section 404)	US Army Corps of Engineers (USACE)	Responsible Agency
Incidental Take Permit, if required (Section 10(a))	US Fish and Wildlife Service	Responsible Agency
Clean Water Act Permit, if required (Section 401)	Lahontan RWQCB	Responsible Agency
Grading and Building Permit(s)	County	Lead Agency
Determination of No Hazard	Federal Aviation Administration	Responsible Agency

SUBDIVISION AND ROAD VACATIONS

The Daggett Solar Power Facility consists of 51 assessor parcels totaling approximately 3,393 acres. The project proposes to subdivide and/or merge 47 of these 51 parcels into 14 new parcels. After the recordation of all phases of the Final Map, the site would consist of these 14 new parcels. The smallest legal parcel would be 5 acres and the largest would be 635 acres. All of the newly created parcels will have both physical and legal access to a public road. Lot mergers and/or lot line adjustments may be used in lieu of a tentative map on some project areas.

Subdivision Map(s)

It is anticipated that the applicant would seek a lot line adjustment or file a tentative map to create the new parcels followed by the phased recordation of 5 final maps. A number of dedications will be required by the County as part of the mapping process to help establish proper access (ingress/egress) based on County requirements.

Road/ROW Vacations

It is anticipated that the County Public Works Department may require one or more road or ROW vacations including Assessor Parcels 0515-111-14, -15 & -16 and 0515-051-16 & -17. Many of the dirt roads surrounding the site have offers of dedication that have not been accepted by the County. It is possible that the County may require a vacation on one or more of these roads if a solar array is planned to be constructed across any of these roads.

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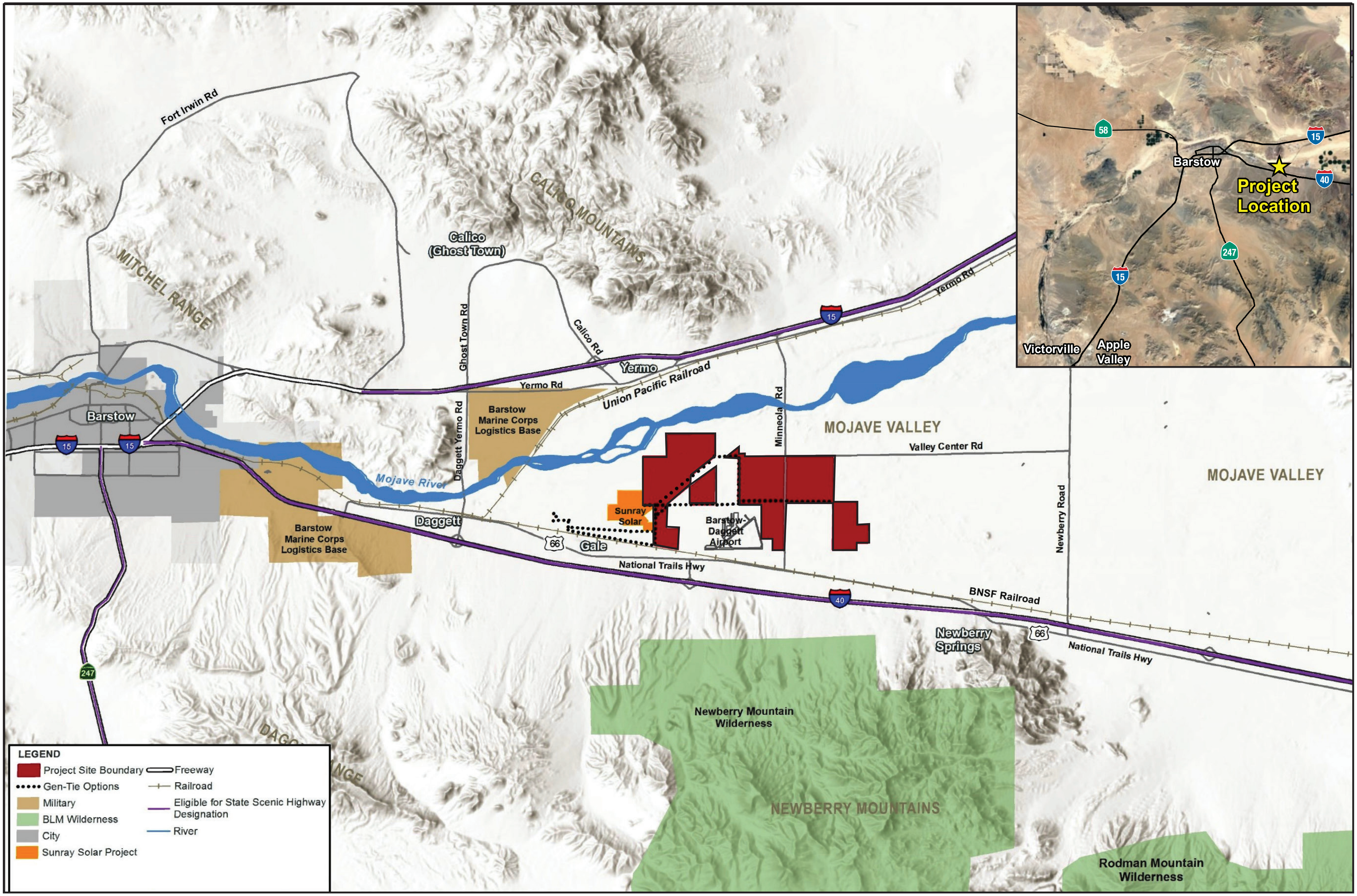

Michael Baker INTERNATIONAL

166360NOA.indd

Source: HDR

DAGGETT SOLAR POWER FACILITY
ENVIRONMENTAL IMPACT REPORT

Project Location

Exhibit 2.0-1

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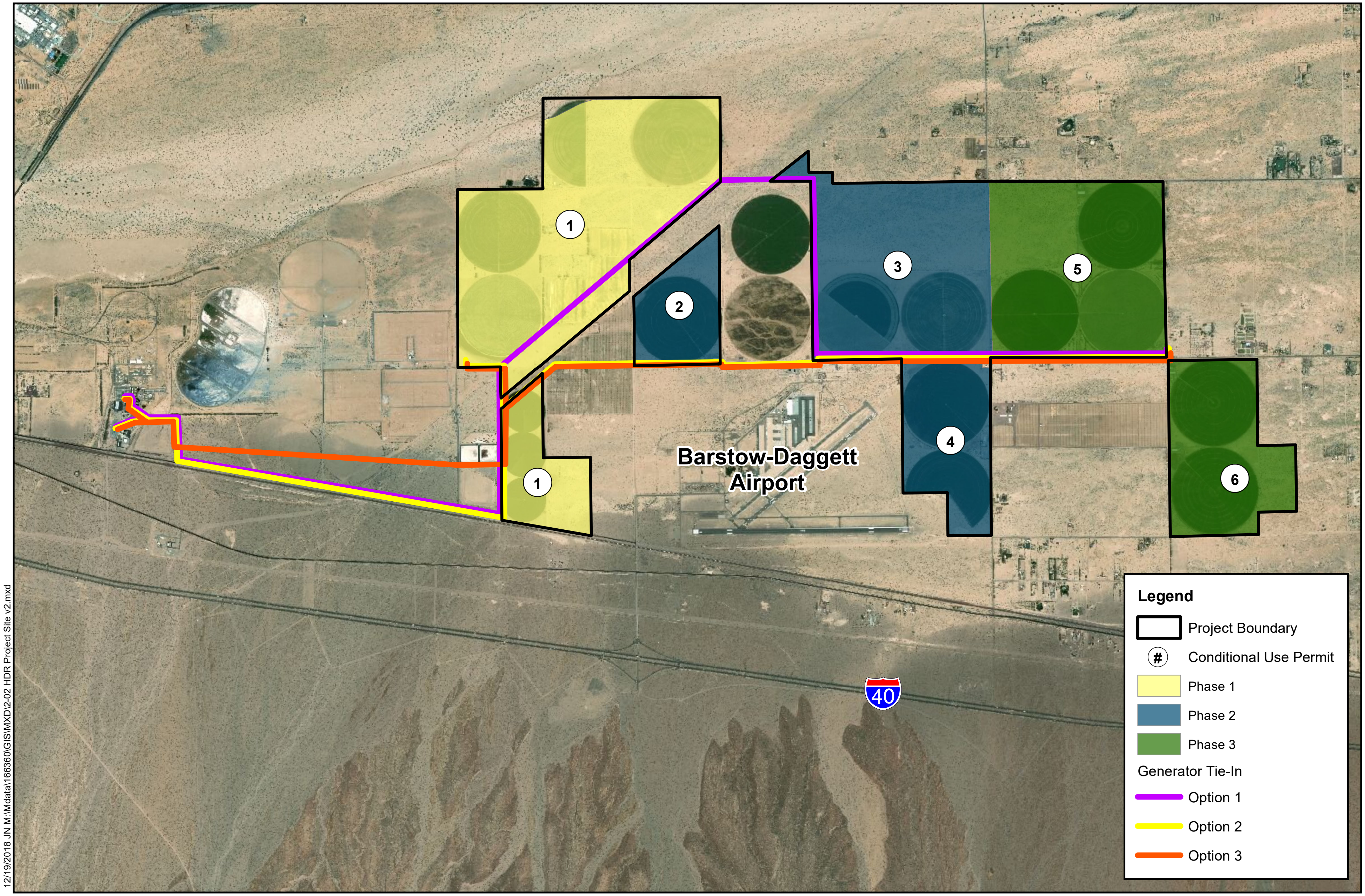

Michael Baker INTERNATIONAL

Source: HDR

DAGGETT SOLAR POWER FACILITY
ENVIRONMENTAL IMPACT REPORT

Project Site

Exhibit 2.0-2

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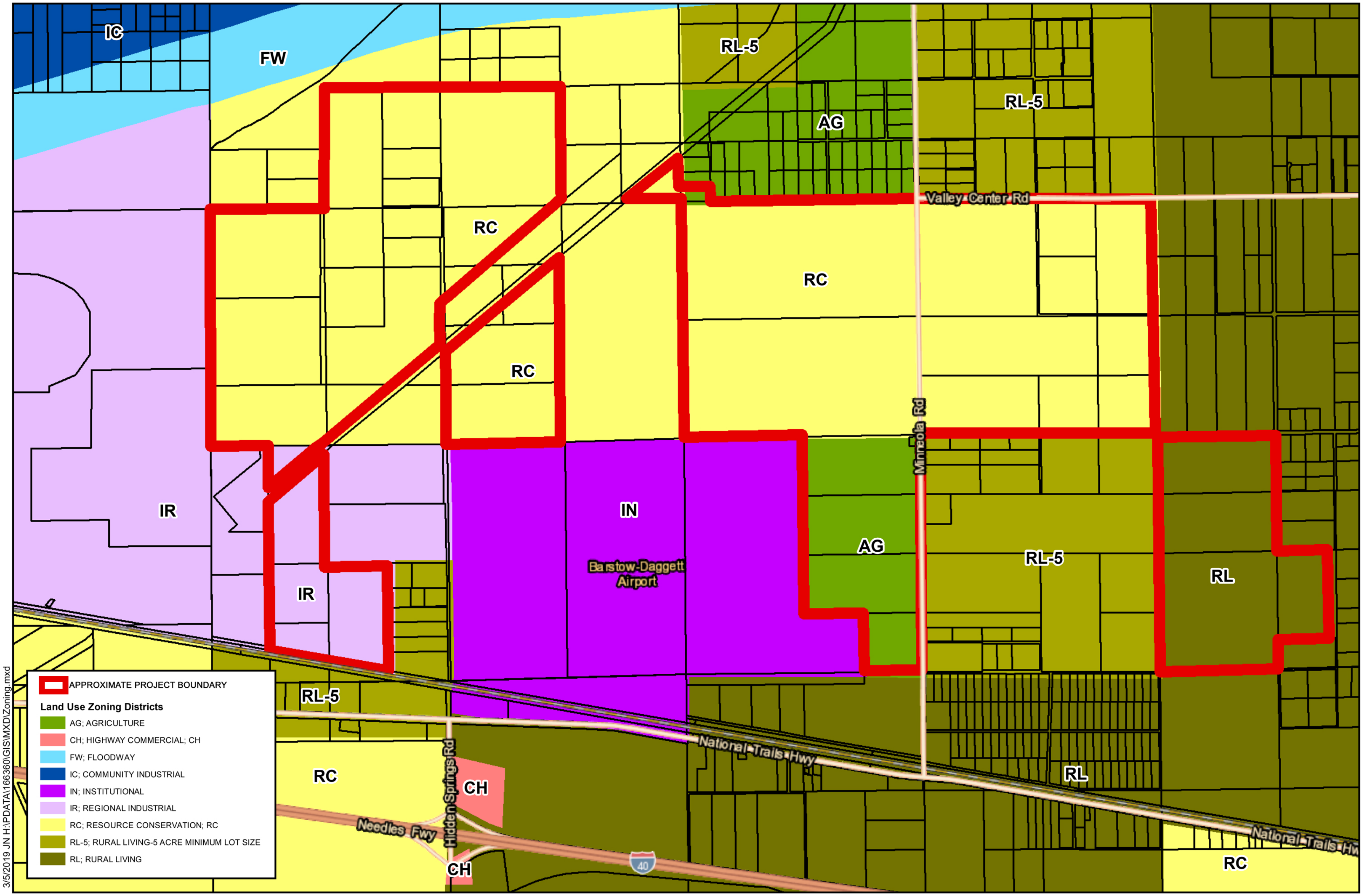

Michael Baker INTERNATIONAL

Source: San Bernardino County, General Plan 2008

DAGGETT SOLAR POWER FACILITY
ENVIRONMENTAL IMPACT REPORT

Land Use Zoning Districts

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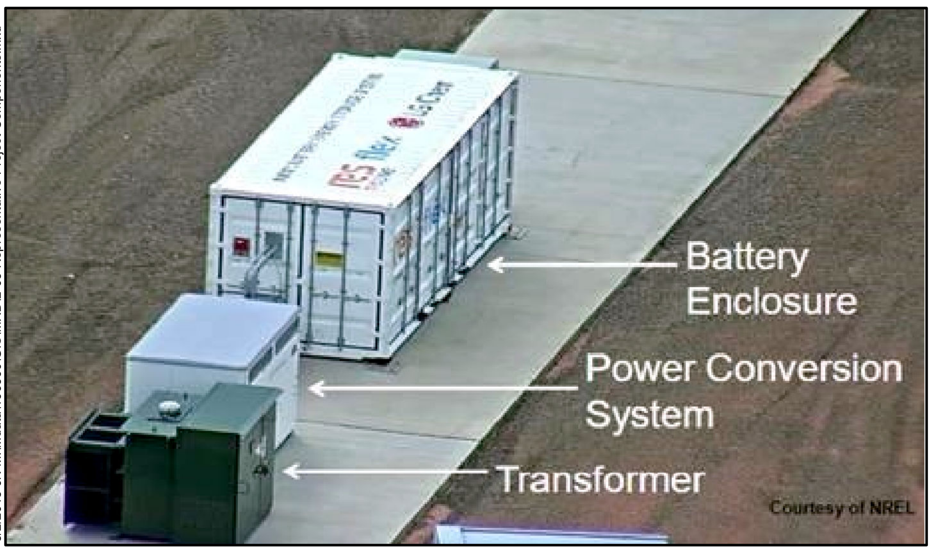
Typical Substation


Typical Solar Array Layout



Battery Storage


Typical Tracker Panel Configuration

8/2/2018 JN M:\Mdata\166360\GIS\MXD\2-03 Representative Project Components.mxd

DAGGETT SOLAR POWER FACILITY
ENVIRONMENTAL IMPACT REPORT

Representative Project Components

Michael Baker INTERNATIONAL

Source: HDR, NREL

Exhibit 2.0-4

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