Anaheim Solar One, LLC

Mark Foster
3334 East Coast Highway, Suite 530
Corona Del Mar, CA 92625

1. Anaheim Solar One Project Description

1.1 Introduction

The Anaheim Solar One Project (Project) is a proposed 3-megawatt solar photovoltaic (PV) facility located on a portion of a 22.67-acre property (Project Site) in the City of Anaheim, Orange County, California. The proposed Project will consist of 110 dual-axis solar trackers that will be installed on land zoned as Open Space (Project Site) where the managed production of resources is encouraged. The photovoltaic facility is considered a major utility and a conditional use within the Open Space zone. The purpose of the Project is to create a solar renewable energy facility that will meet the criteria and guidelines for participation in the City of Anaheim's (City) sustainable energy Feed-In Tariff Program (FIT), which allows qualifying projects to sell renewable energy to the City. FIT programs in California promote renewable energy development and assist California public utilities in meeting the renewable energy portfolio standards established by the Clean Energy and Pollution Act and under subsequent legislation.

1.2 Project Location

The Project Site is located east of the intersection of Cannon Street and Via Escola Drive in the Anaheim Hills within the City of Anaheim and the County of Orange. The Project Site encompasses 22.67 acres of a portion of a larger 77.20-acre parcel (County Assessor's Parcel Numbers [APNs] 363-551-01, 363-551-02, 363-551-03, and 363-551-04). Multi-family and single-family residential communities developed as part of the Anaheim Hills Planned Community Development are located north, east, and west of the Project Site; to the south is the Southern California Edison (SCE) Serrano substation and residential communities within the City of Orange.

1.3 Project Ownership

The Project Site parcels are owned by Merrimac Partners, LLC. The Project Site will be leased to Anaheim Solar One, LLC (Anaheim Solar) for the construction, maintenance and operation of a solar power generating facility and related uses on a twenty-year renewable lease.

1.4 Project Site Zoning and Land Use

The Project Site is zoned Open Space and is located within a scenic corridor overlay district. The site is immediately adjacent to Multi-Family Residential (RM-2) to the east, Single-Family Hillside Residential (RH-3) and Multi-Family Residential (RM-2) to the north, and Transitional zone (T) to the west.

The privately-owned parcel is currently undeveloped and has not been previously developed. SCE overhead electric transmission lines cross the Project Site, and an SCE utility easement crosses through the northern portion of the Project Site. Anaheim Solar is pursuing a Quitclaim Deed with SCE to vacate the northern portion of the easement within the Project Site (Deed Document #7590295734). Additionally, an Orange County open space easement encompasses a portion of the Project Site. Anaheim Solar will work with Orange County to provide any necessary permit information for approval for the proposed Project.

1.5 Existing Site Conditions

The Project Site is characterized by steep terrain, ephemeral drainages, and dense vegetation. The Site topography is unsuitable for residential or commercial development but can accommodate solar development. The Project Site falls within the boundaries of the Orange County Central Coast Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP), a multi-species and multihabitat conservation program. The Project Site supports a mixture of vegetation communities including native coastal scrub shruband ruderal/herbaceous communities; trees are limited on the Project Site and are mostly confined to the two ephemeral drainages. Areas of shrub dominated communities provide habitat for several species covered under the HCP/NCCP, including the federally protected California gnatcatcher (*Poplioptila californica californica*).

1.6 Proposed Improvements

The proposed Project facilities will consist of photovoltaic modules mounted on 110 dual-axis trackers (solar array), inverters, equipment enclosures, and a connection point to the City of Anaheim grid. The photovoltaic modules mounted on dual-axis trackers will encompass the majority of the Project Site. Once installed, the solar arrays consume no fossil fuels and produce no air emissions.

1.6.1 Solar Arrays

Each dual-axis tracker will support 90 individual photovoltaic modules. The photovoltaic modules proposed for this Project are manufactured by Canadian Solar and consist of a tempered glass and monocrystalline panel within an anodized aluminum alloy frame. The

dual-axis trackers will rotate the solar modules during the day to maximize capture of solar energy via an astronomical algorithm that follows the sun both azimuthally (around its horizontal axis) and elevationally (around its vertical axis). The trackers will be located a minimum of 85 feet apart to prevent the trackers from shading each other and to maximize solar power output. This makes for maximum solar radiation intake, even when it is cloudy, and yields up to 35% greater energy production, ensuring maximum benefit per unit of installed capacity in comparison to conventional systems.

The dual-axis trackers are manufactured by Mechatron Solar and consist mainly of galvanized steel components, hydraulic and pneumatic parts associated with the system's dual band gearless brake, electrical and electronic components, and hydraulic high-pressure lines. The trackers have no flammable or combustible parts. The tracker is comprised of two main pieces, the base and the platform. The base is comprised from the carrier, the pyramid, the two antennas and the gearless brake mechanism made from three hydraulic cylinders and one main power pack operating at 4,600 pound per square inch (psi) pressure. The platform is the flat metallic bed that hosts the solar modules on a single main arm that is hoisted on the body on two hinges and the elevation cylinder.

The height of the trackers can vary dependent on the existing grade, time of day and the level of efficiency required for the system but will typically range from 30’ to 35’ above the ground. Real time monitoring occurs through a control unit, a small box located on the tracker, capable of automated weather sensing (wind speed), data measurement and remote control of the tracking equipment to provide services such as automatic horizontal frame levelling in extreme wind conditions and during power cuts. The trackers are typically supported by a buried ballast foundation comprised of a main footing 12 feet by 12 feet and 4.5 feet deep and a vertical cylindrical 3-foot-wide and 11-foot-tall pier. The footing and pier will be made of 4,000 psi concrete and #3 rebar. The concrete footing proposed for the Project will be determined by a structural engineer at the time of final design when a Geotechnical Report is performed.

The dual-axis trackers are designed to promote constant tracking of the sun’s position on the azimuth and zenith planes, directing the solar modules mounted on the tracker platforms at a perpendicular position to constantly absorb direct irradiance. The system structure will facilitate maximum energy production while eliminating reflection or glare hazards. In addition to the continuous orientation of the panels against the sun, the solar modules are designed from material that minimizes glare, resulting in an overall zero glare environment.

1.6.2 Inverters and Energy Delivery

The solar arrays will deliver electricity through transmission wires contained in above-ground conduit to a power conversation station (PCS) that will house the solar power inverters. The inverters convert direct current (DC) power generated by the photovoltaic modules to alternating current (AC) power. The PCS encompasses the inverters and associated meteorological sensors and data acquisition equipment, which will be mounted on a concrete platform. The equipment at each PCS will be less than 16 feet in height. The power converted at the PCS will be transferred to an Anaheim Public Utilities 3-phase electrical grid via a Gen-Tie transmission line. The Gen-Tie transmission line will be contained in an above ground conduit from the PCS to the base of the hillslope adjacent to Cannon Drive, at which point the line will be located below ground to its primary point of connection to the City grid.

1.6.3 Access Roadway

Primary ingress/egress to the Project Site will be from the SCE Serrano Substation, south of the Project Site, located off the Imperial Highway in the City of Orange. The existing unimproved SCE access roads will be used as primary access for vehicular access during construction and for periodic maintenance activities. Approximately 3,830 linear feet of a 20-foot wide unpaved roadway will be constructed through the Project Site to accommodate construction equipment during Project construction. Following completion of Project construction, the access roads may be resized to 12 feet wide within the solar lease boundary area to accommodate maintenance vehicles. The road margins will be decompacted and seeded with a native vegetation mix to stabilize the road borders and facilitate re-establishment of vegetation.

1.6.4 Fencing, Signage and Lighting

The Project Site proposes a perimeter security fence in select locations to promote the safety of the community and to deter trespassing for protection of the system. The security fence will be strategically located at nearby pedestrian-access and residential areas and provide typical private property and solar equipment signage. In locations where fencing is not feasible due to existing grades and/or vegetation, additional signs may be provided to inform of the private property and solar equipment.

The fence is proposed to be made of welded wire and wood with an overhang measuring 8-feet total in height. A manual access entrance gate will be provided at the main site entry from the SCE access road. The fencing design will be designed to be "wildlife friendly' by incorporate notches to allow passage of wildlife while excluding pedestrians. The fencing will also include sections of black high-density polyethylene pipe (HDPE) to increase visibility of fencing for large birds, including raptors.

A non-descript free-standing address sign will be provided at the entrance to the Project Site. Lighting on the Project Site will be limited to the main entrance address sign to provide visibility of addressing for emergency vehicles or security personnel. A solar-powered downcast light will be installed adjacent to the access gate and will be powered by a small 12-volt solar module mounted adjacent to the light.

1.6.4 Landscape

To reduce Project related impacts on the visual landscape, native trees will be planted in select locations to enhance or provide a natural vegetation visual screen. Landscaping is proposed in areas that are temporarily disturbed during construction and within limited areas to act as a buffer and provide increased natural vegetation. The temporary disturbance areas will be reseeded with a native seed mix consisting of species typical of the region, in addition to selective planting of native shrubs to mitigate for impacts to native habitats. Because the Project Site is situated within a tier-3 fire hazard zone, only those species listed by the Orange County Fire Authority under their fuel modification and maintenance program have been selected for revegetation. The proposed landscape improvements consist of native trees that will be temporarily irrigated until establishment.

1.7 Construction Activities

1.7.1 Site Grading and Preparation

The extent of grading and the locations of trackers and access roads were determined to limit impacts on sensitive biological resources and to minimize earth moving. The construction of the Project is anticipated to occur over four months, beginning in September 2020 and ending in February 2021. The start of construction will be contingent upon approval of local and state permits and review of the Project under the California Environmental Quality Act (CEQA). All construction activities will occur Monday through Friday between the hours of 7 a.m. and 10 p.m.

During the estimated four-month construction period, activities will include the following:

- Grading of the Project Site to include construction of access roads, solar ballast platforms, power conversion station platform, and electrical room;
- Installation of solar trackers;
- Installation of photovoltaic (PV) modules;
- Installation of power conservation station;
- Installation of connection system;
- Start-up, commissioning, and testing activities;
- Installation of fencing/lighting; and
- Landscaping.

Construction ingress/egress to the Project Site will be from the SCE Serrano Substation, located to the south off Cannon Drive. Construction vehicles will access the Project Site using the existing SCE unimproved dirt access roads. Project construction will begin with grading the internal access roads and staging area, followed by grading of tracker ballast foundation areas. Prior to grading, all areas of disturbance will be cleared of vegetation, which will be removed from the site. The construction crew will follow the final construction plans to stake out the 110 tracker location areas. To limit construction related dust, disturbed surfaces and dirt access roads will be stabilized with water, which will be supplied by a water truck.

Once the internal roads are constructed and the ballast areas are cleared and graded, the concrete foundation will be poured at each of the 110 tracker locations. Each solar array ballast footing requires 11 cubic yards of concrete and each ballast pillar requires an additional three cubic yards of concrete. To provide the anticipated amount of concrete needed for all tracker locations, a total of 150-160 concrete truck trips are anticipated.

The tracker components will be delivered to the Project Site in container trucks and will be assembled onsite. A total of approximately 10 to 11 truckloads on a 53-foot container truck are anticipated to deliver all tracker components. A telescopic boom crane will be used to move the solar trackers into place for installation, which will be the heaviest equipment utilized during construction activities at approximately 150 tons (full) and 60 tons (empty).

The telescopic crane and concrete trucks can safely drive on unimproved roads with slope up to 17 degrees. All other proposed construction equipment (backhoe, forklift, trencher) are suitable to navigate the proposed access roads and the Project Site terrain.

1.7.2 Drainage and Erosion Control

Surface drainage at the Project Site occurs as sheet flow that drains toward the two natural drainages. The drainage conditions will be maintained under the proposed Project and there will be no change to drainage at the Site perimeter or onto adjacent properties. The construction access roads will be unpaved and designed to divert runoff towards the natural drainageways, and storm drainage features will be installed at appropriate locations to allow unimpeded flow. All areas of temporary disturbance will be seeded with a native seed mix and at appropriate locations (steep grades) will be covered with erosion control blanket. Following completion of Project construction, the access roadway within the solar lease boundary area will be resized (narrowed) to 12 feet to accommodate maintenance vehicles and to provide a safety shoulder. The road margins and staging area will be regraded and seeded with a suitable native seed mix to restore vegetation cover and stabilize soils.

1.8 Solar Park Operation and Maintenance

The solar arrays will generate power during daylight hours and the Project Site will typically be unmanned. Operation and Maintenance (O&M) activities will be minimal and will be limited to remote monitoring supervision via telemetry application and periodic maintenance activities, typically executed twice per year by authorized personnel.

The basic O&M activities include preventive maintenance services of the trackers' gearless mechanisms that will be executed every six months and ad-hoc service calls for repairing failing components. Both types of activities will be executed by specialized personnel using small trucks and mechanical tools. In addition to technical services, the solar modules will require washing during the summer months to maintain high efficiency and energy production. The number of washes per summer will vary depending on weather conditions and soiling, although at minimum two washes per summer is expected. The minimum amount of water required for the panels washing on the tracker platforms will be used. The cleaning process of the solar modules will utilize light trucks equipped with water tanks and high-pressure rotating brushes operated by the maintenance crew.