1.0 Executive Summary

1.1 Project Overview

Beacon Solar, LLC, a Delaware limited liability company and wholly owned subsidiary of FPL Energy, LLC, submits this Application for Certification (AFC) to construct, own and operate the Beacon Solar Energy Project (referred to as the BSEP or the Project). The Project is a concentrated solar electric generating facility proposed on an approximately 2,012-acre site in eastern Kern County, California (see Figure 1-1 at the end of this AFC section). The Project will use well-established parabolic trough solar thermal technology to produce electrical power using a steam turbine generator fed from a solar steam generator. The solar steam generator receives heated heat transfer fluid from solar thermal equipment comprised of arrays of parabolic mirrors that collect energy from the sun.

Beacon Solar's primary objective for the proposed Project is to construct, operate and maintain an efficient, economic, reliable, safe and environmentally-sound solar powered generating facility. This facility will help meet the State of California objectives mandated by SB 1078 (California Renewable Portfolio Standard Program); AB 32 (California Global Warming Solutions Act of 2006); and other local mandates adopted by the State's municipal electric utilities for the long term wholesale purchase of renewable electric energy for distribution to their customers. This site was selected for the Project due to its location in Southern California where there is an excellent solar resource. The site has been previously disturbed by intensive farming and is in close proximity to transmission infrastructure, making it an ideal site in terms of minimizing environmental impacts. Furthermore, the site has available water resources to allow wet cooling in order to optimize power generation efficiency and reduce Project cost. Beacon Solar plans to use concentrated solar parabolic trough mirror technology as the most proven, reliable and efficient approach to bring new renewable power generation online.

The Project will have a nominal electrical output of 250 megawatts (MW). The solar thermal technology will provide 100 percent of the power generated by the plant; no supplementary energy source (e.g., natural gas combustion to generate electricity) is proposed. The Project will utilize two auxiliary boilers fueled by natural gas to reduce startup time and to keep the temperature of the heat transfer fluid above its relatively high freezing point (54 degrees Fahrenheit (°F)). In order to fuel the boilers, a new 17.6-mile, eight-inch gas pipeline will be constructed (entirely within already-disturbed rights of way) to connect the Project to an existing Southern California Gas Company pipeline west of California City.

Beacon Solar has filed an electrical interconnection request for the Project with the Los Angeles Department of Water and Power (LADWP). LADWP's 230 kilovolt (kV) Barren Ridge Switching Station is located across California State Route 14 (SR-14) approximately 1.5 miles southwest of the Project site. Beacon Solar is seeking approval of the following two similar options for interconnecting the Project to LADWP's transmission system, only one of which would eventually be built (see Figure 1-2):

Option 1: Construction of a new, approximately 3.5-mile 230 kV transmission line (approximately 1.6 miles within the 2,012-acre plant site boundary), that would run west from the power block across SR-14 and south across private property to the Barren Ridge Switching Station.

Option 2: Construction of a new, approximately 2.3-mile 230 kV transmission line (approximately 1.6 miles within the plant site boundary), that would run west across SR-14 to a new Project switching station to be constructed at the location where the Project's transmission line first meets LADWP's existing transmission right-of-way (ROW). A second, 230 kV transmission line slightly over one mile long would then be constructed east of and adjacent to the existing Los Angeles Department of Water and Power ROW from the new Project switching station down to the Barren Ridge Switching Station.

Both options are being pursued at this time because a final route cannot be selected until the System Impact Study and Facilities Study are completed by LADWP, a more a detailed design is completed, and the associated transmission line route easements are secured for the option selected.

The Los Angeles Department of Water and Power is currently preparing a System Impact Study to evaluate the potential need for any downstream regional transmission system upgrades that would be required as a result of interconnecting the Project. LADWP is in the process of developing a major transmission upgrade project explicitly designed to bring power to their customers from renewable energy projects in the general vicinity of the Project site. Accordingly, it is not expected that any physical downstream upgrades will be required solely as a result of interconnecting the proposed Project to the LADWP transmission system.

The Project will use a wet cooling tower for power plant cooling. Water for cooling tower makeup, process water makeup, and other industrial uses such as mirror washing, will be supplied from onsite groundwater wells, which also will be used to supply water for employee use (e.g., drinking, showers, sinks, and toilets). Existing onsite wells can supply the needed quantities of water without significant effects on other users or on the groundwater basin. A package water treatment system will be used to treat the groundwater to meet potable standards for employee use and a septic system and onsite leach field will be used to dispose of sanitary wastewater.

Project cooling water blowdown will be piped to double-lined and monitored onsite evaporation ponds; no liquid waste will be discharged offsite. Pond residue eventually will be disposed at an appropriate offsite landfill as non-hazardous waste. No offsite backup cooling water supply is planned at this time; the use of multiple onsite water supply wells and redundancy in the well equipment will provide an inherent backup in the event of outages affecting one of the onsite supply wells.

1.2 Project Location and Description

The Project is located in eastern Kern County at the western edge of the Mojave Desert, just east of the extreme southern end of the Sierra Nevada Mountains. The Project is located along the California SR-14 corridor, approximately four miles north-northwest of California City's northern boundary, approximately 15 miles north of the Town of Mojave, and approximately 24 miles northeast of the City of Tehachapi (See Figure 1-1). Koehn Lake (usually dry) is located approximately five miles to the east-northeast, and Red Rock Canyon State Park is located approximately four miles to the north.

The BSEP power block and solar arrays will occupy approximately 1,240 acres, with a rerouted drainage channel, evaporation ponds, roadways, administration buildings and other support facilities occupying the remainder of the 2,012-acre plant site. The entire plant site, except the access road that is to connect the site to SR-14, will be located east of the highway and an existing Union Pacific rail line that extends roughly north-south. The small unincorporated community of Cantil is located to the northeast of the site; the Honda Proving Center, an automotive test track, is situated immediately to the east; and SR-14 runs approximately southwest-northeast to the west of the railroad tracks. Most of the land surface surrounding the site is vacant (See Figure 1-2).

The Project site is almost completely vacant and significantly disturbed from past agricultural activities that occurred up to the mid-1980s. There are several abandoned structures in a small area just east of SR-14 and west of the plant site boundary. The site is relatively flat, with elevations ranging from approximately 2,025 to 2,220 feet above mean sea level. Pine Tree Creek, a dry desert wash that will be rerouted around the periphery of the solar facility, trends north-northeast to south-southwest through the center of the plant site. There are mapped, State-designated Alquist-Priolo Earthquake Fault Zones on the site. Sensitive Project facilities (power block, administrative/warehouse facilities, and evaporation ponds) are located outside the mapped Alquist-Priolo zones to minimize seismic risks. The entire facility will be designed to the stringent standards of Seismic Zone 4, the zone of highest seismicity.

Project construction is expected to begin in the third quarter of 2009 and take approximately 25 months for Project completion. Commercial operation is expected to commence during the third quarter of 2011. At commencement of commercial operation, the power generation facilities and generation tie line between the plant facilities and the Los Angeles Department of Water and Power's transmission system are to be owned and operated by Beacon Solar. The new natural gas pipeline will be owned and operated by the Southern California Gas Company.

1.3 Project Alternatives

Beacon Solar evaluated a range of potential alternatives to the proposed Project in terms of location, linear facility routes, and design. The "No Project" alternative was considered and rejected because it would not fulfill the Project's objectives of helping to meet the renewable electrical power needs of California associated with the State's Renewable Portfolio Standards, California Global Warming Solutions Act and applicable municipal utility renewable energy procurement goals.

Seven candidate site locations (including the proposed site) were considered, however the proposed site was far superior to any of the six other sites in terms of potential environmental impacts for several reasons including: 1) the proposed site is almost completely disturbed as a result of previous agricultural activities (which minimizes potential impacts on special-status species habitat and cultural resources), 2) the new transmission line required to interconnect the Project with the regional grid would be less than two miles long from the plant site boundary (almost all of the alternative sites would require longer transmission lines), 3) ample groundwater is available onsite, and 4) the site is within reasonable proximity of an existing natural gas pipeline west of California City such that a new pipeline to serve the Project could be installed entirely within already-disturbed roadways and rights of way.

Beacon Solar considered several alternative routes for a new gas pipeline. However, all of the alternative routes would involve greater potential for adverse environmental impacts (primarily to biological resources) than the proposed gas route and were dropped from further consideration.

Alternatives were considered for several aspects of power plant design including alternative heat rejection (cooling) technologies, alternative approaches for disposing of non-sanitary wastewater and alternative water supply sources. Two alternative cooling technology approaches were considered: dry cooling and wet-dry hybrid cooling. While both dry cooling and wet-dry hybrid cooling would use less water than the proposed wet cooling approach, both dry cooling and wet-dry hybrid cooling systems have higher capital costs than wet cooling and are less efficient in terms of facility electrical power output, particularly in the hot arid environment typical of the Project vicinity. Because dry and wet-dry hybrid cooling would create a significant cost disadvantage compared to the proposed wet cooling, these alternatives were rejected as being economically unsound.

As an alternative to using evaporation ponds for disposal of cooling tower blowdown, Beacon Solar considered a mechanical zero liquid discharge system consisting of a reverse osmosis system and/or brine concentrator and a crystallizer, and supporting water treatment equipment (pumps, tanks, filters, piping, control system, etc.). No significant environmental issues were identified with employing either the evaporation ponds or the mechanical zero liquid discharge system, however, the zero liquid discharge system would concentrate the blowdown stream to produce a wet solid waste product that would require regular offsite truck transport to an appropriately permitted disposal facility, resulting in ongoing air emissions that would not occur with the proposed evaporation ponds. The mechanical zero liquid discharge system also requires additional auxiliary power or steam which will significantly reduce the facility's annual power generation. Additionally, the zero liquid discharge system would require supplemental water treatment equipment beyond that required by the evaporation pond approach. The proposed evaporation ponds involve both substantially lower annual operating costs and capital costs.

Beacon Solar attempted to identify potentially viable alternative sources of supplemental water supply for the Project. Inquiries were made to municipal entities operating wastewater treatment facilities within a reasonable distance of the Project site requesting information about the availability of reclaimed water for the Project. None of the entities considered were found to have feasible existing sources of reclaimed water for a variety of reasons including remoteness from the Project site (length of required pipeline); unacceptable water quality (the wastewater facility produces water that does not meet the tertiary treatment level needed for power plant cooling); or availability (the available wastewater was already contracted to others).

California City, the closest of the entities contacted, is planning a project to expand its reclaimed water production capacity by 2012. However, this source of potential reclaimed water is presently not considered a feasible alternative because the expansion project is not yet under construction and the planned completion date is expected to occur later than Beacon Solar's schedule for commencing commercial operation. Nevertheless, Beacon Solar intends to monitor the development of the California City project as a possible future supplemental water supply source if the City's tertiary treatment project is developed as currently planned and meets the solar power plant's economic, environmental and operational requirements.

Various solar power generation technologies were also considered for the Project. Parabolic solar trough mirror technology was selected because it is the most proven solar technology available based on its use for over 20 years at the nearby Solar Electric Generating System (SEGS) facilities in the Mojave Desert, which are partially owned and operated by affiliated subsidiaries of Beacon Solar's parent company.

1.4 Environmental Information

This AFC has been prepared in accordance with current CEC power plant siting regulations and addresses each of 17 specified environmental topical areas. The following paragraphs briefly summarize, in alphabetical order, the information contained in Section 5.0 of the AFC for each area.

1.4.1 Air Quality

The Project will be a source of criteria pollutants (NOx, SOx, VOC, PM10 and CO) associated with the operation of two auxiliary boilers, an emergency fire water pump engine, a wet cooling tower and the HTF expansion tanks. Controlled emissions from these sources will not exceed major source thresholds for any pollutant, and do not exceed the threshold above which emission offsets would be required for the Project.

Kern County Air Pollution Control District (KCAPCD) rules require that Best Available Control Technology (BACT) be applied to any new or modified source that results in an emission increase of NOx, SOx, PM10, or VOC. Beacon Solar has proposed ultra-low-NOx burners with natural gas fuel as BACT for the Project boilers, a Tier 3-compliant engine with ultra-low sulfur diesel fuel as BACT for the fire water pump, a high efficiency drift eliminator as BACT for the cooling tower, and carbon adsorption as BACT for the heat transfer fluid expansion tank vent.

Project construction emissions were modeled to determine impacts during the construction phase and Project impacts (without background) showed no exceedances of the California Ambient Air Quality Standards (CAAQS). The Project's estimated emissions during the commercial operations phase were also modeled to determine air quality impacts. Modeled concentrations, when added to background concentrations, are projected to be below the Federal and State standards for all criteria pollutants with the exception of 24-hour and annual PM10. The daily and annual PM10 exceedances are projected to occur because the monitored background concentrations, by themselves, are reported to be greater than the standards even though the modeled 24-hour and annual PM10 impacts for the Project are less than one percent of the applicable CAAQS.

Although new PM10 emissions are estimated to result from the Project, the Project will likely actually reduce overall PM10 emissions in this region. Discussions with personnel at the Honda Proving Center facility located immediately to the east of the Project site indicate that the exposed open fields on the Project site are currently a large source of wind blown dust. By its nature, a solar energy project must keep dust to a minimum through the use of dust control measures because a film on the mirrors will reduce their efficiency for power production. Experience at the existing SEGS facilities at Kramer Junction and Harper Lake has been that PM10 emissions from driving in the solar field are necessarily negligible. Dust control is achieved by a combination of soil stabilizers, water from the mirror washing, and compaction of the driving surface over time; these mitigation measures will be utilized by the proposed Project.

1.4.2 Biological Resources

The biological resources evaluation of the Project area involved literature researches, comprehensive field surveys and site visits and discussions with representatives from the CEC, U.S. Fish and Wildlife Service and the California Department of Fish and Game. Field/habitat surveys covered general vegetation, special status plants and wildlife including the federally and State-listed Mojave desert tortoise, the State-listed Mohave ground squirrel and the special-status western burrowing owl.

The area within the plant site boundary is heavily disturbed by previous agricultural activities and is dominated by Fallow Agricultural-Disturbed Atriplex Scrub and Fallow Agricultural-Disturbed Atriplex Scrub with small areas of Mojave Desert Wash Scrub. Although desert tortoises were observed at the plant site boundary and in surrounding native habitat, due to its disturbed nature, the area within the plant site boundary has been determined not to be suitable habitat for desert tortoise or Mohave ground squirrel. Three western burrowing owls were found within the plant site boundary; however proposed mitigation would ensure that impacts to this species are less than significant.

Two dry desert washes occur within the plant site boundary. The U.S. Army Corps of Engineers has determined that they are not subject to federal permitting (i.e., they are non-jurisdictional), however the washes are considered State jurisdictional waters subject to California Department of Fish and Game jurisdiction. The Project's impact on approximately 13.7 acres of dry wash would be mitigated to less than significant levels by the creation of a new wash rerouted around the plant facilities and revegetated with native vegetation.

The area within which the transmission line would be constructed (west of SR-14) is dominated by Mojave creosote bush scrub and is considered suitable habitat for DT, MGS, and WBO; and DT were observed in this area. Installation of the transmission option with the larger of the two option's footprint would result in approximately 5.8 acres of habitat disturbance. Proposed mitigation would ensure that impacts are reduced to less than significant levels. Because construction of the Project's gas pipeline would occur entirely with existing disturbed roads/right of ways, impacts to biological resources would be negligible.

No sensitive vegetation community types occurred in the Project area. Although no special status plant species were detected in the 2007 surveys undertaken for the Project, it was a drought year and survey results cannot be considered definitive. Therefore, the area is being resurveyed in the spring of 2008.

1.4.3 Cultural Resources

Archival research, consultation with local historical societies and interested parties, and systematic pedestrian surveys were performed for the Project. Based on these investigations, two previously recorded archaeological sites, 58 newly identified archaeological sites, and 15 built resources were inventoried for the Project. Potentially significant impacts are considered possible at five archaeological sites where surface evidence indicates possibly significant resources. However, with implementation of mitigation measures, including testing and data recovery where sites cannot be avoided during construction, potential impacts on cultural resources would be less than significant. If unanticipated archaeological and/or historical resources are discovered during construction, Project construction activities will be halted in the immediate vicinity so that the significance of these resources can be evaluated and appropriate mitigation measures implemented, if deemed necessary.

1.4.4 Geologic Resources and Hazards

The Beacon Solar Energy Project will not have significant adverse impacts on geologic hazards or resources. No major unique geologic or physical features have been identified in the Project area. The Project site is located in Seismic Zone 4, the zone with the highest seismicity and two State-designated Alquist-Priolo Earthquake Fault Zones are present within the Project boundaries. All Project structures will be designed to meet the strict seismic design standards established for Seismic Zone 4. While portions of the solar array field will be installed within an Alquist-Priolo zone, critical Project elements such as the power

generation facilities, evaporation ponds, and administration building and warehouse will be located outside the Alquist-Priolo zones.

Evidence of ground subsidence (e.g., fractures possibly caused by historic groundwater extraction), has been noted at the Project site and presents a potential for localized soil collapse. However, adherence to the recommendations of Project geotechnical investigations would mitigate these hazards to less-than-significant.

1.4.5 Hazardous Materials Handling

The Beacon Solar Energy Project will be designed, constructed, operated, and maintained to ensure the safe use and storage of hazardous materials. Accident prevention and mitigation measures will be implemented, including risk management plans, hazards assessments, process management systems, release prevention and emergency response programs, employee training, and adherence to sound professional design standards and operating procedures.

Compared to typical fossil-fueled power plants, solar thermal plants use relatively less hazardous materials. Hazardous materials that will be used onsite during Project operations include the heat transfer fluid used in the solar component of the Project, activated carbon, various water treatment and cleaning chemicals, and hydrogen for generator cooling. A combination of methods will be employed to detect any heat transfer fluid leaks and ensure they are addresses promptly.

1.4.6 Land Use

The majority of the 2,012-acre Project plant site is designated for Resource uses under the Kern County General Plan and the entire plant site is zoned either Exclusive Agriculture or Limited Agriculture. The Project would be consistent with the Resource designation goals which include encouraging development of alternative sources of energy and solar generating facilities are allowed as conditional uses in both of the applicable zoning designations.

The northern portion of the plant site, located within the Cantil Rural Community Plan Area, has a residential land use designation; however, residential uses have not been found to be suitable for new development in the Project area. Despite parcelization into numerous potential home sites in Cantil and the surrounding areas, very little viable residential development has occurred due apparently to factors such as the lack of a public water supply, occasional flooding, and the harsh climate. Agricultural use of the plant site was discontinued in the 1980's, and the construction of the Project would not encroach on important agricultural resources (land under Williamson Act contract or land designated as Prime Farmland, Farmland of Statewide Importance or Unique Farmland). The Department of Defense's R-2508 Complex Sustainability Office concluded that the proposed Project as configured is compatible with military branch operations and is subject to mitigation measures applicable to the use of military-approved Project communications equipment.

1.4.7 Noise

During operations, the Project steam turbine generator, solar steam generator, and cooling tower will create noise. The nearest noise-sensitive land use (residence, school, church, hospital, etc.) in the vicinity of the Project site are residences approximately 0.3 to 0.6 mile from the plant site boundary. The noise generating

equipment are located in the power block in the center of the 2,012-acre site. The modeled noise level (Ldn) at four of the closest residential receptors around the plant site showed an indistinguishable change in noise levels over ambient levels. Thus, Project noise impacts will be less than significant.

1.4.8 Paleontological Resources

A comprehensive paleontological records search and literature review indicated that no fossil localities have been previously recorded in the Project area. No fossils were observed on the surface during the paleontological field survey that was conducted for the Project. Geologic units underlying the plant site and linear facilities include areas of both high and low sensitivity. Implementation of the planned mitigation (e.g., monitoring and appropriate data recovery of fossil materials encountered, if any), would ensure that impacts to paleontological resources would be less than significant.

1.4.9 Public Health

A human health risk assessment was conducted to determine the potential impacts from Project emissions of toxic air contaminants. The health risk assessment method considered the emission rate of the pollutant, its potency, and receptor proximity to calculate facility risk and assumed no dispersion or dilution. The nearest residential receptor is located 0.3 mile from the plant site. Using the accepted facility prioritization method, analysis determined the facility prioritization score for carcinogenic effects to be 0.23, and for non-carcinogenic effects to be 0.10. Using this same method, the total facility score for the Project is determined to be the higher of the two scores (0.23). Because the total facility score is less than a value of 1.0, the BSEP can be characterized as a low priority facility with minimum receptor impacts. Based on the results of the HRA, the Project poses an insignificant incremental cancer and non-cancer health risk.

1.4.10 Socioeconomics

Project construction is anticipated to create a positive impact on the local economic base and fiscal resources. Construction and operations employment wages and salaries would provide additional income to the area, as would local expenditures for construction materials and services. Project construction and operation will not cause significant adverse socioeconomic impacts. It is anticipated that the vast majority of the construction workforce over the 25-month construction phase will commute to the Project site rather than relocate. Thus, impacts to local population growth are expected to be minimal, and the Project would not induce substantial local growth. Additionally, the Project is located in a remote area and will not displace existing residents. Project construction labor demand would not significantly affect the availability of construction labor in the region. No significant impacts are expected on local public services or utility demands during construction. The Project's operations work force (66 workers) will not cause significant population growth that could adversely affect local services.

The Project is not expected to have adverse environmental justice impacts. Disproportionate impacts on minority or low-income populations are not expected because the Project is located in an undeveloped area away from residential areas and population centers and would likely affect very few, if any, nearby residents, regardless of ethnic or financial standing.

1.4.11 Soils

The Project site soils will be subject to wind and water erosion during facility construction and operation activities. Only two soils types will be affected by grading and excavation activities -- Cajon loamy sand and Rosamond clay loam. Construction activities will be in conformance with applicable regulatory requirements and sound construction practices. The soils on the Project site have a moderate to high hazard for wind erosion. Systematic watering of active grading areas during construction at least twice daily is expected to significantly reduce wind-borne dust. With implementation of the required Storm Water Pollution Prevention Plans (SWPPP) and a CEC-required Drainage Erosion Sediment Control Plan (DESCP) during and after construction, soil erosion impacts are expected to be less than significant.

1.4.12 Traffic and Transportation

Peak construction will involve a work force of approximately 836 workers whose commuting vehicles will increase traffic volumes on SR-14, the primary access to the site vicinity. All roadways are forecast to continue operating at their existing traffic flow conditions with no Project impacts on Level of Service during peak BSEP construction activity. Because of the moderate size work force of 66 people associated with plant operation around the clock, traffic impacts will be minimal during commercial operations.

During construction, improvements are expected to be implemented at and near the site access/SR-14 intersection. The outbound left turn maneuver from the plant site onto the SR-14 southbound lanes in the afternoon is forecast to operate at Level of Service F, with an extended backup queue of vehicles leaving the site area during peak construction. Subject to a Caltrans encroachment permit, acceptable access-related improvements and traffic management measures will be designed and implemented. The planned improvements are expected to include a southbound center refuge/acceleration area for vehicles turning left out of the site onto SR-14 and a northbound deceleration lane on SR-14 to allow traffic entering the site in the morning a safe place out of the through lanes to slow and turn into the site.

1.4.13 Transmission System Safety and Nuisance

Analyses performed for the BSEP indicate that neither Project construction nor operation is expected to result in significant increases in EMF levels or audible noise. Because the Project transmission system will conform to applicable California Public Utilities Commission (CPUC) and other regulatory requirements, induced current and voltage are unlikely to lead to hazardous electrical shocks during construction or operations. Corona caused by power lines can cause interference with radio and television reception. Because the Project will be connected at 230 kV, it is expected that no corona-related design issues will be encountered. Due to the remoteness of the Project electric transmission facilities, no adverse effects to local communication networks are anticipated. Project design and construction will adhere to standards and procedures that minimize the likelihood of interference with aircraft communications or avionics.

1.4.14 Visual Resources

The Project is expected to have less than significant impacts on visual resources. The neutral color and non-reflective surface of Project structures, stacks and transmission line structures will reduce their visual contrast with their surroundings and help them be absorbed into the overall viewscape. From elevated locations at certain times of the day (e.g., viewed from the west in the afternoon hours of a sunny day with

the sun behind the viewer), the facility would contrast substantially with the surrounding environment. At such times, the solar mirrors would be facing the viewer and the solar field visually would resemble a body of water (not necessarily an unpleasant view), because the mirrors would reflect the blue sky. At other times (e.g., when the backs of the mirrors are toward the viewer, such as during morning hours when looking from the west, or on cloudier days), the facility's visual contrast would be much less.

Because of the design of the solar arrays that focus the sun's energy on the collectors, no significant glare would be expected. Also, the presence of the Honda automotive test track to the east of the Project site and the disturbed nature of the site from previous agricultural activities represent preexisting modifications of the natural landscape, and the Honda test track provides a contrasting geometric shape (oval) with the rows of solar collectors; these factors diminish the potential for impact of the BSEP facilities. Finally, viewers may find visually interesting this facility that will contribute to important societal goals (providing renewable energy and reducing greenhouse gases).

1.4.15 Waste Management

BSEP construction and operation will generate non-hazardous solid (e.g., heat transfer fluid-contaminated soils) and liquid wastes (e.g., sanitary wastewater, residual solids from treatment of cooling water blowdown), and small quantities of hazardous waste (e.g., used hydraulic fluids, oils and grease). Where practicable, waste materials will be recycled. Project procedures and personnel training will ensure that waste generation is minimized, and that wastes generated are managed appropriately in order to prevent significant adverse impacts. Disposal of Project wastes will not significantly affect the capacity of available non-hazardous or hazardous waste disposal facilities. Any heat transfer fluid-contaminated soil will be managed in onsite waste management units permitted by the Lahontan Regional Water Quality Control Board.

1.4.16 Water Resources

The Project would not have significant impacts on groundwater quantity or quality. The Project site is located in the Koehn Sub-basin of the Fremont Valley Groundwater Basin within the South Lahontan Hydrologic Region. In the Koehn Sub-basin, significant groundwater pumping occurred during a period of heavy agricultural activities that ended in the mid-1980s. In the vicinity of the Project site, groundwater levels during that time dropped 200 to 250 feet from earlier levels measured in the 1970's. As agricultural operations have substantially decreased, groundwater levels have recovered by 100 to 130 feet in wells located within the Project vicinity.

The Project will use groundwater from onsite wells during construction (primarily during grading) primarily and for operations phase process water needs, including plant cooling. Numerical groundwater modeling revealed that pumping from Project construction and operations would not significantly impact offsite water supply wells within a one-mile radius of the plant site.

The Project proposes to use a wet cooling tower for power plant cooling. Water for cooling tower makeup, process water makeup, other industrial uses such as mirror washing, and for domestic uses by employees will be supplied from several existing onsite groundwater wells. It is estimated that the Project will use approximately 1,600 acre feet per year of groundwater. Pumping test data show that the groundwater supply wells on the plant site have sufficient capacity (at least 2,000 gallons per minute) to meet the

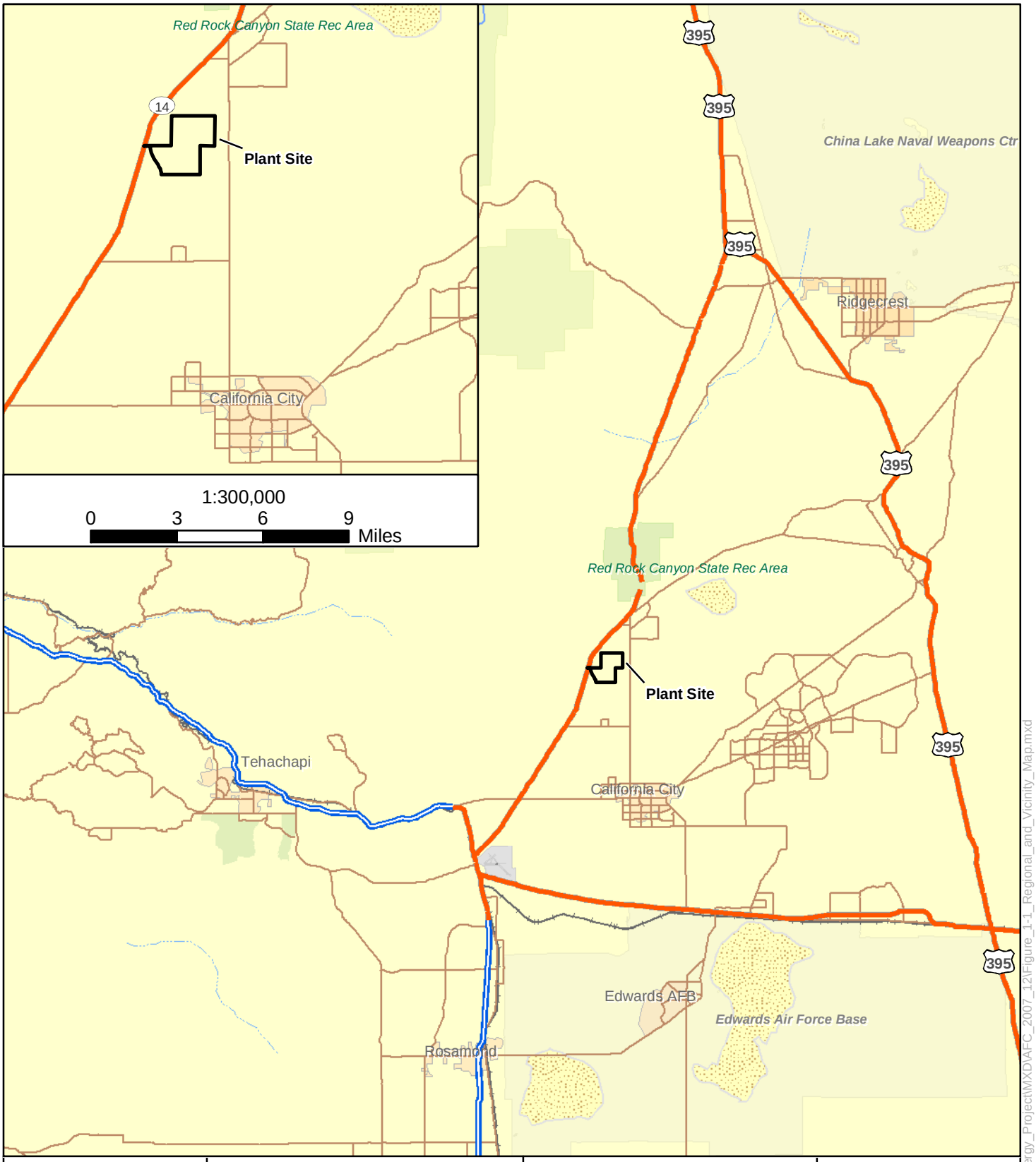
Project's water supply requirements. The Project will not significantly affect groundwater recharge. Rather, Project groundwater usage will merely slow down somewhat (by less than 20 percent) the substantial rate of groundwater level recovery in the area over recent years that has resulted from the cessation of agricultural activities on and around the Project site. Project withdrawals will not significantly degrade groundwater quality.

Beacon Solar has determined that groundwater is the only available and feasible source of cooling water for the Project. However, the potential availability of reclaimed water has been thoroughly reviewed and there exists the possibility that reclaimed water may become available from a California City wastewater treatment plant expansion project during the early years of the Project's commercial operation.

Impacts to an existing dry wash that runs through the Project site will be mitigated by rerouting the wash around the Project facilities. No significant impacts are expected related to drainage, water quality or storm water runoff. Best Management Practices will be implemented to prevent significant impacts to surface waters during Project construction and operations.

1.4.17 Worker Safety

Project construction and operations may expose workers to physical and chemical hazards. Worker exposure to such hazards will be minimized by adherence to appropriate engineering design standards and to sound construction, operations, and maintenance practices. During both construction and operations, the Project will implement appropriate safety and administrative procedures, safety training, use of personal protective equipment, and compliance with applicable health and safety-related regulations. Injury and Illness Prevention Plans will be central to reducing worker hazards during both construction and operation. Site-specific Fire Protection and Prevention and Emergency Action Plans also will be implemented during both construction and operations. With implementation of the planned worker safety programs, no significant worker safety impacts are expected.



Map Location

N W E S

Beacon Solar Energy Project

Figure 1-1
Regional and Vicinity Map

1:600,000
0 5 10 15 Miles

Beacon Solar

ENSR | AECOM

Project: 10056-014
Date: March 2008

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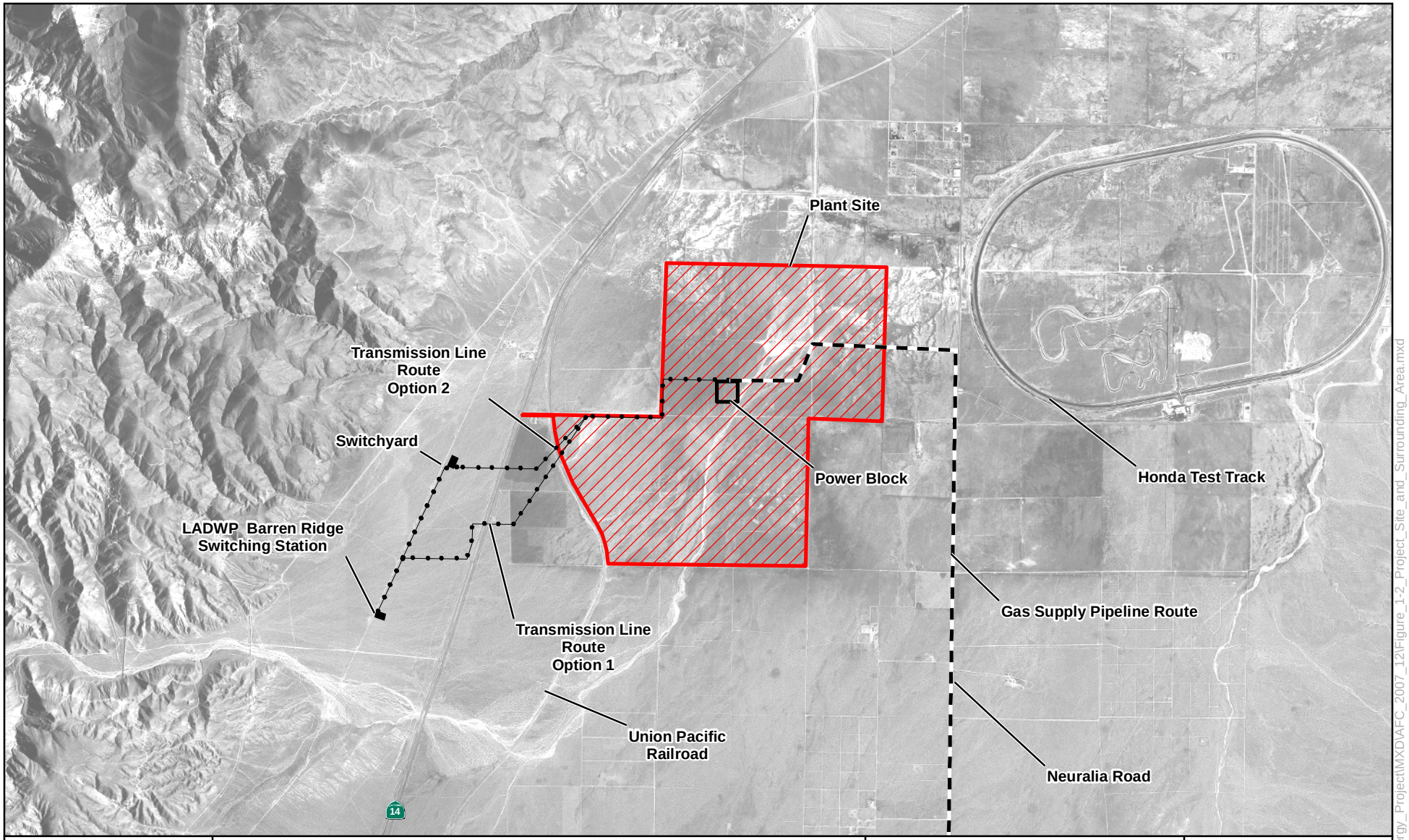

Map Location

Legend

- Plant Site
- Power Block
- Transmission Lines
- Gas Supply Pipeline

1:60,000

0 0.5 1 1.5 2 Miles

N W E S

Beacon Solar Energy Project

Figure 1-2
Project Site and Surrounding Area

Source:NAIP 2005;
WorleyParsons 2007;

Beacon Solar

ENSR | AECOM

Project: 10056-014
Date: March 2008

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