Department of Energy
Washington, DC 20585

DOE/EA-1796

# FINDING OF NO SIGNIFICANT IMPACT
# DEPARTMENT OF ENERGY LOAN GUARANTEE TO SEMPRA GENERATION FOR THE MESQUITE SOLAR ENERGY FACILITY NEAR GILLESPIE, ARIZONA

**AGENCY:** U.S. Department of Energy, Loan Programs Office

**ACTION:** Finding of No Significant Impact

**SUMMARY:** The U.S. Department of Energy (DOE) has conducted an environmental assessment (EA) that analyzed the reasonably foreseeable environmental impacts associated with the nominal 400 megawatt (MW) photovoltaic solar power project and associated interconnection transmission line proposed by Sempra Generation (Sempra) for the Mesquite Solar Energy Facility (Mesquite) in Maricopa County, Arizona. DOE, through its Loan Programs Office (LPO), proposes to provide a Federal loan guarantee pursuant to Title XVII of the Energy Policy Act of 2005 (EPAct 2005) to Sempra to support the construction and startup of the proposed Mesquite project.[1] The purpose and need for agency action is to comply with DOE's mandate under EPAct 2005 by selecting eligible projects that meet the goals of the Act. DOE is using the NEPA process to assist in determining whether to issue a loan guarantee to Sempra to support the proposed project.

The proposed project would utilize a photovoltaic (PV) technology using photovoltaic solar panels that convert sunlight into direct current (DC). Inverters convert the DC power to alternating current (AC) power, and the AC power then flows to transformers located in the solar field and at the project substation where it is stepped up and the power is delivered to the grid. The project would occupy approximately 2,510 acres of a 3,760 acre private property that is currently fallow agricultural land.

The Mesquite project would interconnect to the regional transmission grid via a proposed gen-tie power line. The proposed 230-kilovolt gen-tie line would originate at the project site and terminate at the Mesquite Generating Station switchyard, an existing natural gas-fired generation facility owned and operated by Sempra and located approximately two miles east of the proposed project site. The gen-tie line length would be 4.5 miles long. The gen-tie line would consist of two circuits on common structures. The monopole tubular steel transmission structures would be 150 feet high with span lengths between the structures of 500 to 1,000 feet.

All discussion and analysis related to the potential impacts of construction and operation of the proposed Mesquite project is contained in the Final EA (DOE/EA-1796), which is incorporated here by reference. DOE examined potential impacts on the following resources and found none to be significant: land use; visual resources; air quality; noise; geology and soils; water resources, including floodplains; biological resources; cultural resources; socioeconomics and environmental justice; public health and safety, including impacts related to intentional destructive acts; transportation; and cumulative effects, including global climate change.

In compliance with Executive Order 11988, Floodplain Management and DOE's implementing regulations found in the Code of Federal Regulations Title 10 Part 1022, a notice of floodplain action was published in the *West Valley View* on January 4, 2011, and a floodplain assessment was

[1] The amount requested for the loan guarantee is not being disclosed at this time because it is business sensitive. Moreover, should DOE approve a loan guarantee, the amount may differ from the original request.

conducted for the proposed project and incorporated into the EA. The floodplain statement of findings is attached, and its availability will be announced in the *West Valley View*.

In accordance with applicable regulations and policies, DOE sent a notification letter regarding the Department's determination to prepare an EA to the Arizona Department of Environmental Quality on June 18, 2010. The letter described the proposed action and stated that a draft EA would be sent to the state for review. On December 30, 2010, DOE sent the draft EA and solicited comments from the Arizona Department of Environmental Quality. The draft EA was also posted on the Loan Programs Office website and a notice of availability was published in the *West Valley View*. No comments were received on the draft EA.

**DETERMINATION:** On the basis of the final EA, DOE has determined that providing a Federal loan guarantee to Sempra for construction and startup of the 400-MW photovoltaic solar power project and its associated transmission line in Maricopa County, Arizona, will not have a significant effect on the human environment. The preparation of an environmental impact statement is therefore not required, and DOE is issuing this Finding of No Significant Impact.

Copies of the Final EA are available at the DOE Loan Programs Office website at http://www.lgprogram.energy.gov/NEPA_EA.html or from

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Additional information on the DOE NEPA process is available from:

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Issued in Washington, DC on the 17 day of Feb. in the year 2011.

Jonathan M. Silver
Executive Director, Office of Loan Programs

**ATTACHMENT**
**FLOODPLAIN STATEMENT OF FINDINGS**
**FOR DEPARTMENT OF ENERGY LOAN GUARANTEE TO SEMPRA GENERATION**
**FOR THE MESQUITE SOLAR ENERGY FACILITY NEAR GILLESPIE, ARIZONA**

The U.S. Department of Energy (DOE) has conducted an environmental assessment (EA) that analyzed the reasonably foreseeable environmental impacts associated with the nominal 400 megawatt (MW) photovoltaic solar power project and associated interconnection transmission line proposed by Sempra Generation (Sempra) for the Mesquite Solar Energy Facility (Mesquite) in Maricopa County, Arizona. The proposed project would utilize a photovoltaic (PV) solar panel technology that converts sunlight into direct current (DC) electricity. Inverters convert the DC power to alternating current (AC) power, and the AC power then flows to transformers located in the solar field and at the project substation where it is stepped up and the power is delivered to the grid. As seen in Figure 1, the project would occupy approximately 2,510 acres of a 3,760 private property that is currently fallow of agricultural land. The Mesquite project would interconnect to the regional transmission grid via a proposed gen-tie power line. The proposed 230-kilovolt gen-tie line would originate at the project site and terminate at the Mesquite Generating Station switchyard, an existing natural gas-fired generation facility owned and operated by Sempra and located approximately two miles east of the proposed project site.

The majority of the land that would be used for Mesquite was originally purchased by Sempra for water rights, specifically to provide cooling water for the nearby natural gas-fired electrical generating plant called the Mesquite Generating Station. Because Sempra owns or controls the proposed action lands, and given the proximity of these lands to Sempra‘s existing Mesquite Generating Station, no alternative sites were considered for developing the Mesquite Solar Energy project.

As seen in Figure 2, no construction would occur in the Federal Emergency Management Agency (FEMA)-designated floodway or flood fringe of Centennial Wash. DOE has determined that the proposed action would have no impact on FEMA-designated floodplains.

As seen in Figure 2, approximately 378 acres of Part 1 of the project site would be located within the county-designated 100-year floodplain. A system of new drainage channels and retention basins would be developed to mitigate the effects of removing this area from the county floodplain. Perimeter channels along the north, east, and west boundaries of the site would divert off-site flows around the site, into the Centennial Wash floodplain. Numerous small channels (running east-west along each lateral driveway) would intercept flows generated on-site and divert these flows to adjacent retention basins to prevent flows from accumulating across the entire site. The perimeter and interior channels would be sized for 100-year peak runoff flows, and the retention basins would be sized to ensure that there is no increase in the 100-year runoff flows exiting the site.

Portions of the gen-tie power line route would cross county-designated floodplains. The route would cross approximately 1.25 miles of county-designated floodplains. With a spacing of 500 to 1,000 feet between poles, between 6 and 13 poles would be located in the county-designated floodplain under the route. Each pole would require approximately a 7-foot by 7-foot clearing,

and between 325 and 650 square feet would be disturbed under the route. Development of between 6 and 13 transmission poles would not effect flood flows during flood events or cause a measurable difference compared with existing conditions. Therefore, development of the gen-tie line would have a de minimis impact related to county-designated 100-year floodplains.

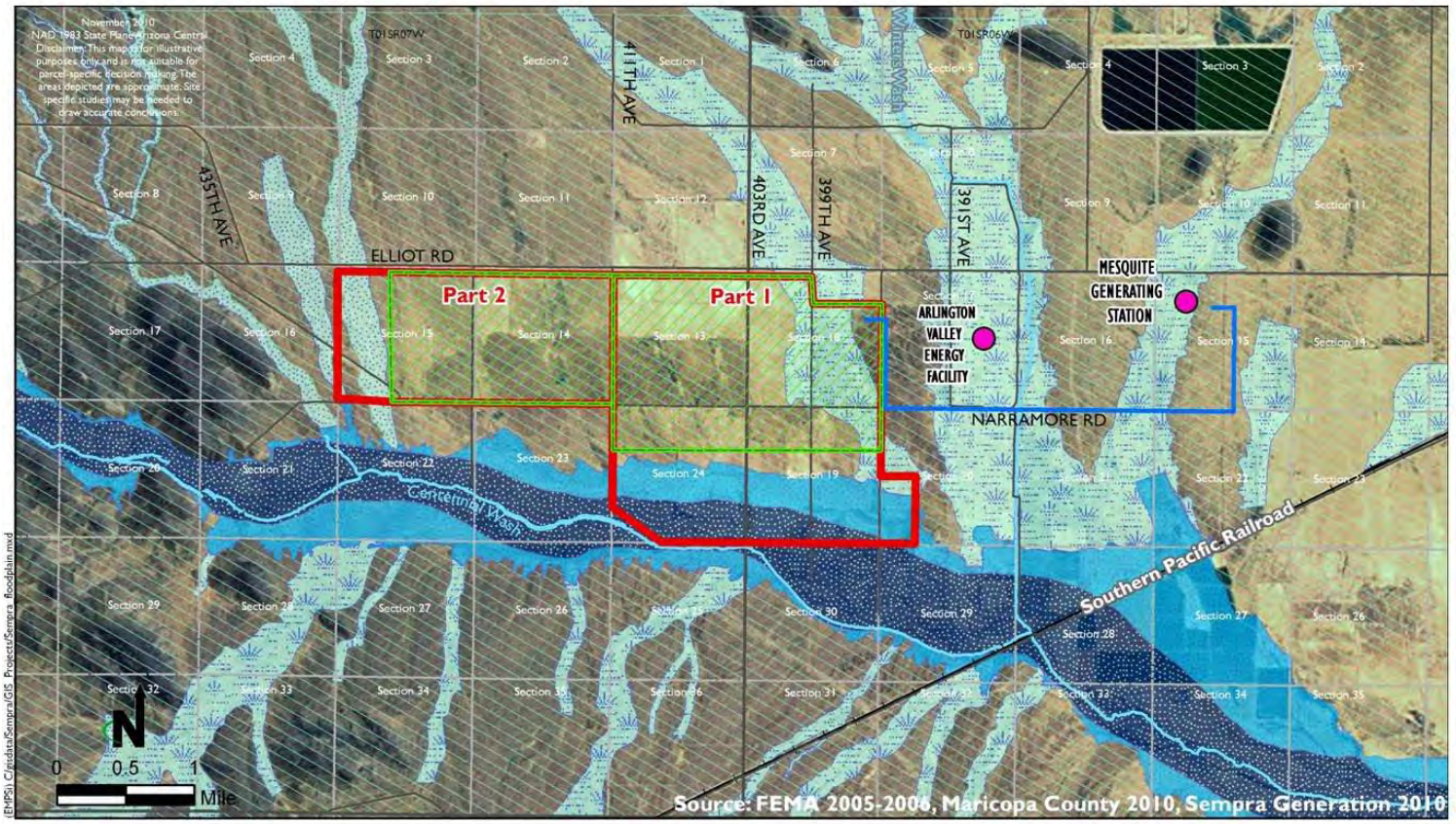
DOE has determined that the proposed action would not adversely affect the county-designated 100-year floodplain and that the proposed action conforms to applicable floodplain protection standards. DOE/EA-1796 Section 3.7.1 contains the floodplain assessment which is incorporated here by reference. Also, the Maricopa County Flood Control District has approved a Floodplain Use Permit for the project to develop in the county-designated floodplain. This permit requires that all equipment within the flood zone would be water (flood) resistant (as the panel support structures are) or elevated one foot above the base elevation of the county-designated 100-year floodplain.


*The project site is in western Maricopa County, approximately 50 miles west of downtown Phoenix.*

LEGEND:

- Project Site Boundary
- Project Development Boundary
- Gen-Tie Route

## Figure 1 - Project Location Map




Federal Emergency Management Agency Floodplain Zone

- Areas of 100-year flood (Floodway)
- Areas of 100-year flood; base flood elevations and flood hazard factors determined
- Areas of 100-year flood; base flood elevations and flood hazard factors not determined
- Areas between limits of the 100-year flood and 500-year flood

Maricopa County Flood Control District Floodplain Zone

- Areas of 100-year flood; base flood elevations and flood hazard factors not determined

- Gen-Tie Route
- Project Development Boundary
- Project Site Boundary
- Generating Facility

## Figure 2 - Project Floodplain Areas