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<b>Project Title:</b>	Abengoa Mojave Compliance
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<b>Document Title:</b>	Mojave Solar Project Staff Analysis and Recommendation
<b>Description:</b>	STAFF ANALYSIS OF POST CERTIFICATION PETITION AND STAFF RECOMMENDATION
<b>Filer:</b>	susan fleming
<b>Organization:</b>	California Energy Commission
<b>Submitter Role:</b>	Commission Staff
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**CALIFORNIA  
ENERGY COMMISSION**



**CALIFORNIA  
natural  
resources  
AGENCY**

**DATE:** June 8, 2022

**TO:** Interested Parties

**FROM:** Keith Winstead, Compliance Project Manager

**SUBJECT: MOJAVE SOLAR PROJECT (09-AFC-05C)**

## **STAFF ANALYSIS OF POST CERTIFICATION PETITION AND STAFF RECOMMENDATION**

### **MOJAVE SOLAR PROJECT (09-AFC-05C)**

On January 13, 2022, the Mojave Solar LLC (project owner), filed a petition for a post certification change (TN#241162) with the California Energy Commission (CEC) for the Mojave Solar Project (MSP).

The 250-megawatt (MW) MSP solar thermal generation project was certified by the CEC on September 8, 2010, and began commercial operation in December 2014. The facility is located between Barstow and Kramer Junction, approximately nine miles northwest of Hinkley, in San Bernardino County.

#### **DESCRIPTION OF PROPOSED CHANGE**

The project owner seeks approval for a petition that would allow the project owner to install at MSP a hydrogen generation system, including an electrolyzer that uses electricity from MSP to decompose demineralized water into hydrogen and oxygen. The unit is proposed to be installed in the same location as the MSP's existing hydrogen storage bottles.

The petition is available on the [CEC's project webpage](https://www.energy.ca.gov/powerplant/solar-thermal/mojave-solar-project-abengoa) at <https://www.energy.ca.gov/powerplant/solar-thermal/mojave-solar-project-abengoa>, which has a link to the petition and the Staff Analysis on the right side of the webpage in the box labeled "Compliance Proceeding." Click on the "[Docket Log \(09-AFC-05C\)](#)" option.

If approved, the CEC's Order approving this petition also will be available from the same webpage.

## **CEC STAFF REVIEW AND CONCLUSIONS**

The CEC staff has reviewed the petition pursuant to California Code of Regulations, title 20, section 1769(a)(3)(D) (Changes in Project Design, Operation, or Performance) in which staff may submit to the commission, for consideration and a decision, a proposed change that could otherwise be approved by staff under section 1769(a)(3)(A) or (B).

The CEC staff filed its review of the petition and concluded that approving the petition is consistent with California Code of Regulations, title 20, sections 1769(a)(3)(D) and 1769(a)(4)(A) because the proposed change will (1) not have a significant effect on the environment or is exempt from CEQA; (2) not cause the project to fail to comply with any applicable laws, ordinances, regulations, and standards (LORS); and (3) not require a change to or deletion of a condition of certification adopted by the CEC in the final decision or subsequent amendments.

Lastly, staff concluded the proposed change does not meet the criteria requiring the production of subsequent or supplemental review consistent with California Code of Regulations, title 14, section 15162(a).

In addition, the project change would not impact any population, including the environmental justice population as shown in **Environmental Justice Figure 1, Figure 2, and Table 1**. Staff intends to recommend approval of the petition at the June 8, 2022, Business Meeting of the CEC.

The petition is available on the [CEC's project webpage](https://www.energy.ca.gov/powerplant/solar-thermal/mojave-solar-project-abengoa) at <https://www.energy.ca.gov/powerplant/solar-thermal/mojave-solar-project-abengoa>, which has a link to the petition and the Staff Analysis on the right side of the webpage in the box labeled "Compliance Proceeding." Click on the "[Docket Log \(01-AFC-2C\)](#)" option. If approved, the CEC's Order approving this petition also will be available from the same webpage.

This letter has been mailed to the CEC's list of interested parties and property owners of all parcels within 500 feet of any affected project linears and 1,000 feet of the project site. It has also been emailed to the Mojave Solar Project. The list serve is an automated CEC email system by which information about this facility is emailed to parties who have subscribed. To subscribe, go to the [CEC's project webpage](https://www.energy.ca.gov/powerplant/solar-thermal/mojave-solar-project-abengoa) for this facility, cited above, scroll down the right side of the project's webpage to the box labeled "Subscribe," and provide the requested contact information.

Any person may comment on the Staff Analysis. Those who wish to comment on the analysis are asked to submit their comments. Comments also will be accepted during the scheduled business meeting. To use the CEC's electronic commenting feature, go to the [CEC's project webpage](#) and click on either the "Comment on this Proceeding," or "[Submit e-Comment](#)" link. When your comments are filed, you will receive an email with a link to them.

Written comments may also be mailed to:

California Energy Commission  
Docket Unit, MS-4  
Docket No. 09-AFC-05C  
715 P Street  
Sacramento, CA 95814

All comments and materials filed with the Docket Unit will be added to the facility Docket Log and be publicly accessible on the CEC's project webpage.

If you have questions about this statement, please contact Keith Winstead, Compliance Project Manager, Office of Compliance, Monitoring, and Enforcement at (916) 208-3849, or via email at [Keith.Winstead@energy.ca.gov](mailto:Keith.Winstead@energy.ca.gov) or [Elizabeth.Huber@energy.ca.gov](mailto:Elizabeth.Huber@energy.ca.gov).

For information on public participation, please contact the CEC's Public Advisor, Energy Equity, and Tribal Affairs at (916) 957-7910 or by email at [publicadvisor@energy.ca.gov](mailto:publicadvisor@energy.ca.gov).

News media inquiries should be directed to the Media Office at (916) 654-4989 or by email to [mediaoffice@energy.ca.gov](mailto:mediaoffice@energy.ca.gov).

Listserve: Mojave Solar Project

## **STAFF ANALYSIS OF POST CERTIFICATION AND STAFF RECOMMENDATION MOJAVE SOLAR PROJECT (09-AFC-05C)**

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### **DESCRIPTION OF PROPOSED CHANGE**

The project owner seeks approval for a petition that would allow the project owner to install at MSP a hydrogen generation system, including an electrolyzer that uses electricity from the MSP to decompose demineralized water into hydrogen and oxygen. The unit is proposed to be installed in the same location as the MSP's existing hydrogen storage bottles.

The petition is available on the [CEC's project webpage](https://www.energy.ca.gov/powerplant/solar-thermal/mojave-solar-project-abengoa) at <https://www.energy.ca.gov/powerplant/solar-thermal/mojave-solar-project-abengoa>, which has a link to the petition and the Staff Analysis on the right side of the webpage in the box labeled "Compliance Proceeding." Click on the "[Docket Log \(09-AFC-05C\)](#)" option. If approved, the CEC's Order approving this petition also will be available from the same webpage.

### **CEC STAFF REVIEW AND CONCLUSIONS**

CEC staff has reviewed the petition pursuant to California Code of Regulations, title 20, section 1769(a)(3)(D) (Changes in Project Design, Operation, or Performance) in which staff may submit to the commission, for consideration and a decision, a proposed change that could otherwise be approved by staff under section 1769(a)(3)(A) or (B).

Staff filed its review of the petition and concluded that approving the petition is consistent with California Code of Regulations, title 20, sections 1769(a)(3)(D) and 1769(a)(4)(A) because the proposed change will (1) not have a significant effect on the environment or is exempt from CEQA; (2) not cause the project to fail to comply with any applicable laws, ordinances, regulations, and standards (LORS); and (3) not require a change to or deletion of a condition of certification adopted by the CEC in the final decision or subsequent

amendments. Additionally, staff determined the findings required to be made by the CEC pursuant to California Code of Regulations, title 20, section 1769(a)(4)(A), and as specified in California Code of Regulations, title 20, section 1748(b), do not apply.

Lastly, staff concluded the proposed change does not meet the criteria requiring the production of subsequent or supplemental review consistent with California Code of Regulations, title 14, section 15162(a).

In addition, the project change would not impact any population, including the environmental justice population as shown in **Environmental Justice Figure 1, Figure 2, and Table 1.**

Staff’s conclusions for all technical and environmental areas are summarized in Table 1. The bases for each of staff’s conclusions are provided below the table.

**Table 1  
 Summary of Conclusions for Each Technical Area**

Technical Areas Reviewed	CEQA				Conforms with applicable LORS
	Potentially Significant Impact	Less Than Significant Impact with Mitigation (with Revised or New COCs)	Less Than Significant Impact (with or without Existing COCs)	No Impact	
Air Quality			X		X
Biological Resources				X	X
Cultural Resources			X		X
Efficiency				X	
Facility Design					X
Geological and Paleontological Resources				X	X
Hazardous Materials Management			X		X
Land Use				X	X
Noise and Vibration			X		X
Public Health			X		X
Reliability				X	
Socioeconomics			X		
Soil and Water Resources				X	X

Traffic and Transportation				X	X
Transmission Line Safety and Nuisance				X	X
Transmission System Engineering					X
Visual Resources				X	X
Waste Management				X	X
Worker Safety and Fire Protection			X		X

Areas shown in gray are not subject to CEQA consideration or have no applicable LORS the project must comply with.

### Environmental Setting

Staff reviewed CalEnviroScreen 4.0 data to determine whether the United States census tract where the MSP is located (6071011600) is identified as a disadvantaged community. This science-based mapping tool is used by the California Environmental Protection Agency (CalEPA) to identify disadvantaged communities based on geographic, socioeconomic, public health, and environmental hazard criteria pursuant to Health and Safety Code section 39711 as enacted by Senate Bill 535 (De León, Chapter 830, Statutes of 2012). The CalEnviroScreen 4.0 overall percentile score for this census tract is 57 and, thus, is not identified as a disadvantaged community<sup>1</sup>.

### AIR QUALITY

The proposal includes the installation of the hydrogen production system, including an electrolyzer that uses electricity from the plant to decompose demineralized water into hydrogen and oxygen. The construction would not involve large equipment and would be of small size and short duration. Staff expects the air quality impacts of the proposed hydrogen project construction would be less than significant.

Since hydrogen is not a regulated pollutant, no direct increases of criteria air pollutant and greenhouse gas (GHG) emissions are expected from the operation of the proposed new hydrogen generation system. The proposed changes would have no impact on air quality or GHG emissions, and the proposed changes would continue to conform with the applicable LORS related to air quality and GHGs.

### BIOLOGICAL RESOURCES

The construction of the proposed changes would be within the existing MSP property. Installation would take one month and would use the existing workforce at the plant.

<sup>1</sup> Source: CalEPA Proposed SB 535 Disadvantaged Communities: October 2021  
<https://calepa.ca.gov/envjustice/ghginvest/>



Installation activities would not occur near any biologically sensitive areas and would be entirely within the existing desert tortoise fencing. Therefore, the proposed changes would have no significant impacts on biological resources and would not result in changes to any biological resources condition of certification for the MSP. The MSP would remain in compliance with all applicable LORS related to biological resources.

### **CULTURAL RESOURCES**

The construction of the proposed changes would be within the existing MSP property footprint in a previously disturbed and leveled area. If cultural resources are encountered during the construction and installation of the onsite hydrogen generators, implementation of Conditions of Certification **CUL-1** through **CUL-7** would mitigate any potentially significant impacts to less than significant. The proposed changes would not result in changes to any cultural resources condition of certification for the MSP, and the MSP would remain in compliance with all applicable LORS related to cultural resources. Conditions of Certification **CUL-1** through **CUL-7**, applicable to this proposed change, were developed to ensure that, if cultural resources are encountered during construction, adequate measures are in place to mitigate any project-level impacts to less than significant.

### **EFFICIENCY**

The installation of the hydrogen generation system would not affect the steam turbines' heat rate, and the MSP's thermal efficiency would remain unchanged.

### **FACILITY DESIGN**

The on-site hydrogen generation system, which includes an electrolyzer that uses electricity, would be used for cooling the electric generators at the Alpha and Beta plants on the MSP site. The installation must be in accordance with the 2019 edition of the California Building Standards Code. Implementation of the existing facility design conditions of certification adopted in the Commission Decision in addition to construction compliance oversight by the CEC's delegate chief building official would ensure this compliance.

### **GEOLOGICAL AND PALEONTOLOGICAL RESOURCES**

The proposed change would not result in the disturbance of soil outside the MSP's footprint that has not been previously disturbed. Therefore, there is no possibility that previously undisturbed pre-Holocene soils would be disturbed, and, thus, there would be no impact to geological and paleontological resources.

### **HAZARDOUS MATERIALS MANAGEMENT**

During the installation of the proposed new hydrogen generation system, continued compliance with existing Condition of Certification **WORKER SAFETY-1** ensures the MSP would not have a significant impact on the offsite public or the environment and would continue to comply with all applicable LORS.



## **LAND USE**

The hydrogen generation systems would be installed on disturbed land within the MSP plant property boundary in the same locations as the existing hydrogen storage bottle racks. The use of hydrogen for generator cooling is an existing feature of the facility. The MSP would continue to meet all applicable conditions of certification and LORS. The proposed change would not physically divide an established community or cause a significant environmental impact due to a conflict with LORS adopted for the purpose of avoiding or mitigating an environmental effect. Further, the change would not result in the conversion of farmland or forest land. Therefore, no impact to land use would occur.

## **NOISE AND VIBRATION**

The construction associated with this petition would be temporary and would occur during daytime hours, which are consistent with local requirements, San Bernardino County Noise Ordinance, section 83.01.080 (g)(3). Any noise generated during these activities would result in a less-than-significant impact with the implementation of the existing noise conditions of certification in the Commission Decision.

The hydrogen generation unit would generate a noise level of only 70 dBA in its vicinity. At the nearest residences, located approximately 2,400 feet away, the MSP's overall operational noise level would not increase when this equipment is operating. The MSP would continue to meet operational noise requirements established in the Commission Decision. Therefore, the changes proposed in this petition would create a less-than-significant operational noise impact.

## **PUBLIC HEALTH**

The proposal to implement hydrogen generation at MSP's Alpha and Beta plants includes the installation of the hydrogen production system, including an electrolyzer that uses electricity from the plant to decompose demineralized water into hydrogen and oxygen. The construction would not involve large equipment and would be of small size and short duration. Staff expects the public health impacts of the proposed hydrogen project construction would be less than significant.

The operation of the proposed hydrogen system would have no impact on public health as there would be no emissions. The MSP would continue to conform with the applicable LORS related to public health.

## **RELIABILITY**

The addition of the hydrogen generation unit to the MSP would not impact the MSP's reliability.

## **SOCIOECONOMICS**

The proposed installation of the hydrogen generation systems would take approximately one month to complete and require approximately two workers. The modification would not require any changes in the operations workforce. There are no socioeconomics related LORS or conditions of certification applicable to the change, and there would be less than significant workforce-related impacts on population, housing, and public services.

## **SOIL AND WATER**

The proposed hydrogen generation components would be installed in a previously disturbed area that is already level and, hence, the modification would not include ground disturbance. The water tank would not be connected to the potable system, nor would it generate any wastewater. Therefore, the modification would not have a significant impact on soil and water resources.

## **TRAFFIC AND TRANSPORTATION**

The installation of the hydrogen generation systems would require approximately two truck trips. The unit and its enclosure would arrive on separate trucks during installation. All other parts would be delivered by normal mail carriers, such as FedEx or UPS. The units would be installed in the same locations as the existing hydrogen storage bottle racks. The proposed change would eliminate five or more existing truck trip deliveries per year to the facility since hydrogen would now be produced on-site. The modification would not require any changes in the operations workforce. The proposed change would generate a negligible amount of temporary vehicle trips and would comply with all applicable LORS. There are no transportation conditions of certification in the Commission Decision applicable to the change. The proposed change would not conflict with LORS addressing the circulation system, substantially increase hazards, or result in inadequate emergency access. Therefore, the installation of the hydrogen generation systems would have a less than significant impact to transportation.

## **TRANSMISSION LINE SAFETY AND NUISANCE**

The request to implement a hydrogen generation system at MSP's Alpha and Beta plants would have no impact as there would be no changes to the transmission system. The proposed changes would continue to conform with the applicable LORS.

## **TRANSMISSION SYSTEM ENGINEERING**

The proposed installation of a hydrogen generation system does not include activities with the transmission lines and would not impact the transmission grid. Therefore, there would be no impacts to transmission system engineering. In addition, the proposed changes would comply with applicable LORS and would not require a change to any of the conditions of certification.

## **VISUAL RESOURCES**

The proposed hydrogen generation systems would be installed on disturbed land within the MSP plant boundary in the same location as the existing hydrogen storage bottle racks. Each unit would be enclosed in an approximately 20-foot-long, 8.5-foot-tall, and 8-foot-wide storage container and the change would not be perceptible from the public views of the site. There are no visual resources conditions of certification in the Commission Decision applicable to the change. The MSP would remain in compliance with LORS pertaining to visual resources. The requested change would not have a substantial adverse effect on a scenic vista, scenic resources, or the existing visual character or quality of public views of the MSP site and its surroundings and would not create a new source of substantial light or glare adversely affecting day or nighttime views in the area. Therefore, the installation of the hydrogen generation systems would have no impact to visual resources.

## **WASTE MANAGEMENT**

The proposed change would not result in the creation of any new solid waste streams, and the current quantities of solid waste generated at the facility would not fluctuate outside the requirements currently outlined in the existing conditions of certification.

## **WORKER SAFETY AND FIRE PROTECTION**

During the installation of the proposed new hydrogen generation system, continued compliance with existing Condition of Certification **WORKER SAFETY-1** ensures the proposal would not have a significant impact on worker health and safety and would comply with all applicable LORS.

## **Environmental Justice**

**Environmental Justice – Figure 1** shows 2020 census blocks in the six-mile radius of the MSP with a minority population greater than or equal to 50 percent. The population in these census blocks represents an environmental justice (EJ) population based on race and ethnicity as defined in the United States Environmental Protection Agency's *Guidance on Considering Environmental Justice During the Development of Regulatory Actions*. Staff conservatively obtains demographic data within a six-mile radius around a project site based on the parameters for dispersion modeling used in staff's air quality analysis. Air quality impacts are generally the type of project impacts that extend the farthest from a project site. Beyond a six-mile radius, air emissions have either settled out of the air column or mixed with surrounding air to the extent the potential impacts are less than significant. The area of potential impacts would not extend this far from the project site for most other technical areas included in staff's EJ analysis.

Based on California Department of Education data in the **Environmental Justice – Table 1**, staff concluded that the percentage of those living in the Barstow Unified School District (in a six-mile radius of the MSP site) and enrolled in the free or reduced-price meal

program is larger than those in the reference geography. Thus, the population in the school district is considered an EJ population based on low income as defined in *Guidance on Considering Environmental Justice During the Development of Regulatory Actions*.

**Environmental Justice – Figure 2** shows where the boundaries of the school district are in relation to the six-mile radius around the MSP site.

**Environmental Justice – Table 1  
 Low Income Data within the MSP Area**

SCHOOL DISTRICTS IN SIX-MILE RADIUS	Enrollment Used for Meals	Free or Reduced-Price Meals	
Barstow Unified	6,129	4,813	78.5%
REFERENCE GEOGRAPHY			
San Bernardino County	399,356	283,253	70.9%
<small><b>Source:</b> CDE 2021. California Department of Education, DataQuest, Free or Reduced-Price Meals, District level data for the year 2020-2021, &lt;<a href="http://dq.cde.ca.gov/dataquest/">http://dq.cde.ca.gov/dataquest/</a>&gt;.</small>			

The following technical areas (if affected) consider impacts to EJ populations: Air Quality, Cultural Resources (indigenous people), Hazardous Materials Management, Land Use, Noise and Vibration, Public Health, Socioeconomics, Soil and Water Resources, Traffic and Transportation, Transmission Line Safety and Nuisance, Visual Resources, Waste Management, and Worker Safety and Fire Protection.

**Environmental Justice Conclusions**

For this petition, the following technical areas consider impacts to EJ populations: Cultural Resources (indigenous people), Hazardous Materials Management, Noise and Vibration, Socioeconomics, and Worker Safety and Fire Protection. For these technical areas, staff concludes that impacts would be less than significant, and, thus, would be less than significant on the EJ population represented in **Environmental Justice – Figure 1, Figure 2, and Table 1**.

Figure 1

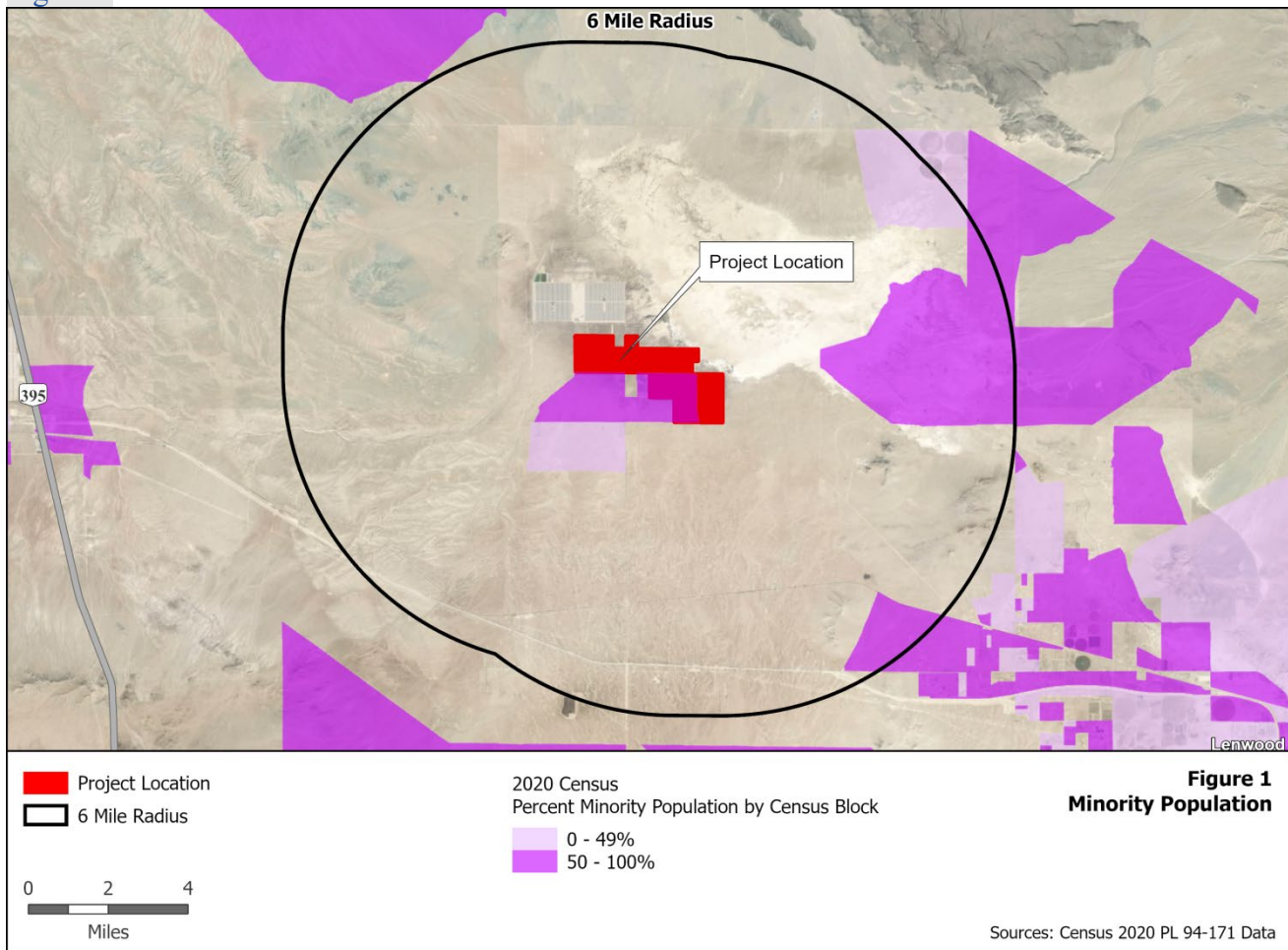
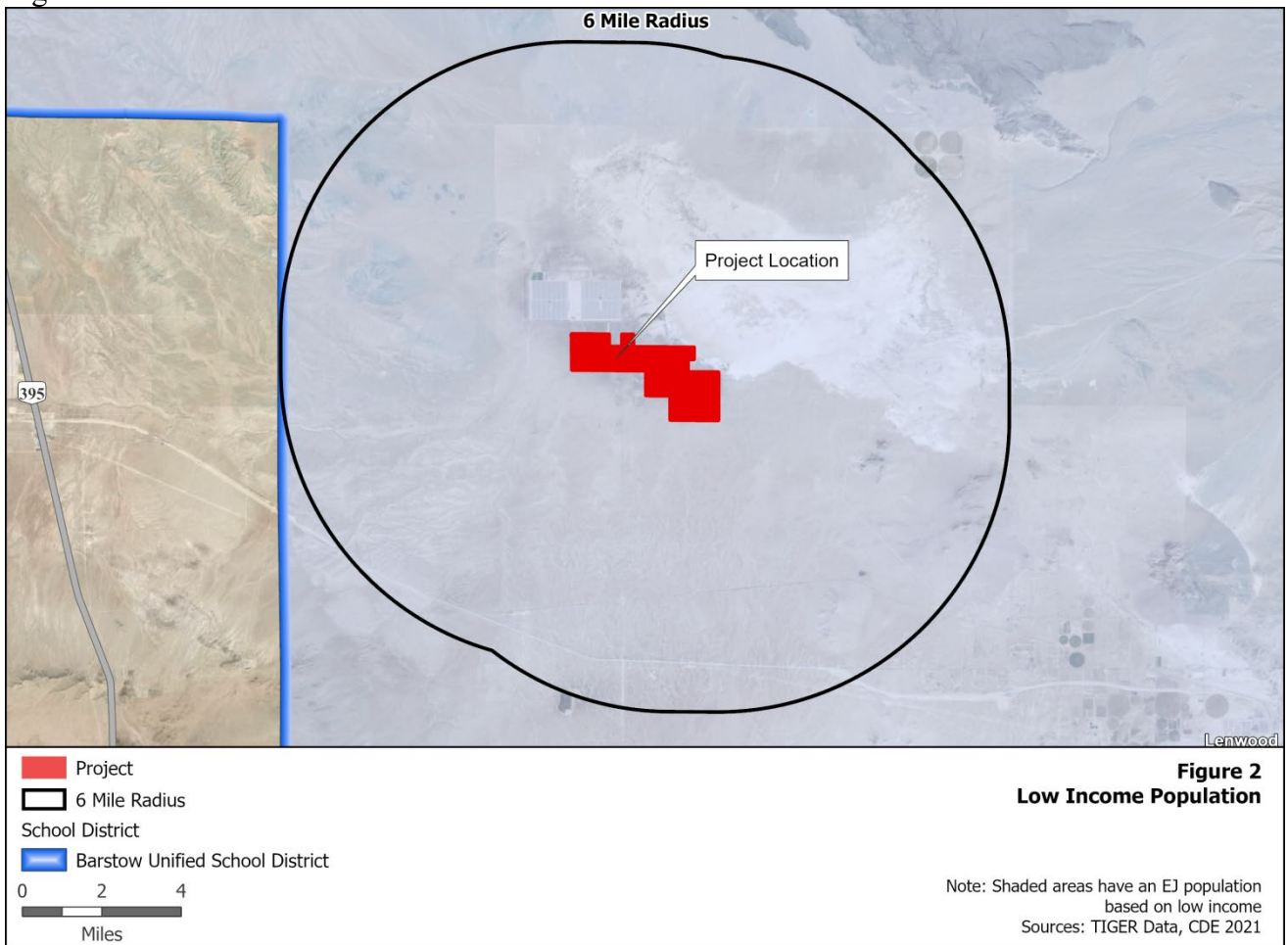




Figure 2



## **CEC STAFF RECOMMENDATIONS AND CONCLUSIONS**

CEC staff has reviewed the petition pursuant to California Code of Regulations, title 20, section 1769(a)(3)(D) (Changes in Project Design, Operation, or Performance) in which staff may submit to the commission, for consideration and a decision, a proposed change that could otherwise be approved by staff under section 1769(a)(3)(A), which states, "Staff shall approve the change where staff determines:

- i. that there is no possibility that the change may have a significant impact on the environment, or the change is exempt from the California Environmental Quality Act;
- ii. that the change would not cause the project to fail to comply with any applicable laws, ordinances, regulations, or standards; and
- iii. that the change will not require a change to, or deletion of, a condition of certification adopted by the [C]ommission in the final decision or subsequent amendments."

The CEC staff has determined that the proposed project change would result in no impacts or less than significant impacts on the environment and the project would remain in compliance with applicable LORS. Therefore, staff recommends that the CEC approves the petition.

Staff has determined the findings required pursuant to California Code of Regulations, title 20, section 1748(b) do not apply to this petition.

The CEC staff concludes that the proposed changes do not meet the criteria requiring the production of subsequent or supplemental review as specified in California Code of Regulations, title 14, section 15162(a).

## **REFERENCES**

The tn: 00000 in a reference below indicates the transaction number under which the item is catalogued in the CEC's Docket Unit. The transaction number allows for quicker location and retrieval of individual items docketed for a case or used for ease of reference and retrieval of exhibits cited in briefs and used at Evidentiary Hearings.

Master References: Petition and to the original Commission Decision.

PTA

<https://efiling.energy.ca.gov/GetDocument.aspx?tn=241162&DocumentContentId=75007>

Commission Decision

<https://efiling.energy.ca.gov/GetDocument.aspx?tn=58496&DocumentContentId=55657>