

## CALIFORNIA ENERGY COMMISSION

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California Energy Commission

**DOCKETED**  
**09-AFC-8C**

TN # 66040

JUN 29 2012

**DATE:** June 29, 2012

**TO:** Interested Parties

**FROM:** Eric W. Veerkamp, Compliance Project Manager

**SUBJECT: Genesis Solar Energy Project (09-AFC-8C)  
Staff Analysis of Proposed Modifications**

On April 7, 2012, the California Energy Commission (Energy Commission) received an amendment petition from Genesis Solar, LLC (NextEra Energy) to modify the Energy Commission's Final Decision for the Genesis Solar Energy Project (GSEP), 09-AFC-8C. Staff prepared an analysis of the proposed changes, and a copy is enclosed for your information and review.

The 250-MW project was certified by the Energy Commission on September 29, 2010; the project is currently under construction and is approximately 15 percent complete. The applicant has petitioned the Commission to amend the final decision for a relocated gen-tie line and natural gas line, due to third-party agency changes outside the owner's control. The GSEP is located at 11995 Wileys Well Road, on the north side of Interstate 10, approximately 22 miles west of Blythe, California in Riverside County.

The modifications proposed in the petition are based on changes brought about by circumstances that were unforeseen at the time the project was licensed. One of the unanticipated revisions is the way in which the power generated by the Genesis Project needs to tie in to the Colorado River Substation (CRSS), due to a relocated CRSS, and a new Large Generator Interconnect Agreement, which also triggered a reconfiguration of the CRSS. Also, the Southern California Gas Company (SoCalGas) is requiring the GSEP to tie into the SoCalGas natural gas line at a different location.

Finally, Authority to Construct (ATC) Permits issued by the Mojave Desert Air Quality Management District on November 4, 2011, while containing no new conditions, do contain more detailed equipment descriptions. NextEra has also applied for new ATC permits to provide equipment for cooling towers not originally included in the project.

The proposed modifications include:

1. Option A and Option B for linear electricity transmission routes. Option A is a modified transmission route predominately the same as the route originally approved by the Commission. Option A contains a slight modification to the proposed right-of-way at the point where the proposed 230 kV GSEP transmission line passes under the existing Eagle Mountain transmission line, and another slight modification to the proposed right-of-way in the section of the

proposed GSEP transmission line that parallels (east to west) the existing gas pipeline right-of-way that is south of I-10. Option B differs from Option A in that the proposed 230kV GSEP transmission line jogs slightly north and to the east as it leaves the project site, running behind the Wiley's Well rest area for approximately one mile instead of turning south before the rest area. East of the rest area, the transmission line in Option B turns south in a straight line to the point at which the transmission line is co-located with the Blythe Energy Transmission Line (BETL). The points at which both Option A and Option B begin co-location with the BETL are very nearly the same, and both proceed easterly to the CRSS in an identical fashion. The applicant has requested review and approval of both Option A and Option B.

2. Option A and Option B for natural gas pipeline routes. SoCalGas is requiring the GSEP to tie in to an existing gas reducer valve located south of I-10 and east of Wiley's Well Road. Under Option A, the gas line will proceed west from the gas reducer valve under Wiley's Well Road and follow the alignment of the gen-tie line, until connecting with the GSEP gas metering station approximately 1,700 feet north of I-10 in the current project linear footprint. Under Option B, the natural gas line proceeds west from the existing gas reducer valve to the point at which it follows the Option B gen-tie alignment, to the north of and behind the Wiley's Well rest area, until connecting with the GSEP gas metering station. The applicant has requested review and approval of both Option A and Option B.
3. Under the terms of the new Large Generation Interconnection Agreement (LGIA), the Colorado River Sub-Station (CRSS) will no longer accommodate the metering and protection equipment required for the GSEP. Therefore, the applicant will be constructing a new substation outside the perimeter of the CRSS to contain the metering and protection equipment as well as a new ring bus.
4. Authority to Construct permits issued by the Mojave Desert Air Quality Management District did not take into account modifications necessary due to the use of Air Cooled Condensers (ACC's). The applicant has filed an application to modify the permits to account for changes that are directly related to three items; 1) updated equipment descriptions and emissions information for equipment actually purchased, 2) slight changes to emissions from some of the engines based on manufacturer specifications and, 3) the change from two large wet, mechanical draft cooling towers, to two large Air Cooled Condensers (ACC's) and two small package type wet cooling systems.

Energy Commission staff reviewed the petition and assessed the impacts of this proposal on environmental quality, public health and safety, and proposes new Conditions of Certification for Air Quality and a modified Condition of Certification for Biological Resources. It is staff's opinion that, with the implementation of new and revised conditions, the project will remain in compliance with applicable laws, ordinances, regulations, and standards and that the proposed modifications will not result in a significant adverse direct or cumulative impact to the environment (Title 20, California Code of Regulations, Section 1769).

The amendment petition and staff's analysis have been posted on the Energy Commission's webpage at [http://www.energy.ca.gov/sitingcases/genesis\\_solar/index.html](http://www.energy.ca.gov/sitingcases/genesis_solar/index.html). The Energy Commission's Order will also be posted on the webpage if the petition to amend is approved. Energy Commission staff intends to recommend approval of the petition at the August 8, 2012, Business Meeting of the Energy Commission. If you have comments on the proposed modifications, please submit them to me at the address below prior to Monday, July 30, 2012.

Eric Veerkamp, Compliance Project Manager  
California Energy Commission  
1516 9<sup>th</sup> Street, MS-2000  
Sacramento, CA 95814

Comments may be submitted by fax to (916) 654-3882, or by e-mail to [eric.veerkamp@energy.ca.gov](mailto:eric.veerkamp@energy.ca.gov). If you have any questions, please contact me at (916) 654-4611.

For further information on how to participate in this proceeding, please contact the Energy Commission Public Advisor's Office, at (916) 654-4489, or toll free in California at (800) 822-6228, or by e-mail at [publicadvisor@energy.ca.gov](mailto:publicadvisor@energy.ca.gov). News media inquiries should be directed to the Energy Commission Media Office at (916) 654-4989, or by e-mail at [Mediaoffice@energy.ca.gov](mailto:Mediaoffice@energy.ca.gov).

Enclosure

Mail list: 7378

# **GENESIS SOLAR ENERGY PROJECT (09-AFC-8C)**

## **Petition to Amend Commission Decision**

### **EXECUTIVE SUMMARY**

Eric W. Veerkamp

## **INTRODUCTION**

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On April 7, 2012, Tetra Tech, Inc, on behalf of Genesis Solar, LLC (NextEra Energy), filed a petition with the California Energy Commission requesting to modify the Energy Commission's Final Decision for the Genesis Solar Energy Project (GSEP). The 250-MW project was certified by the Commission on September 29, 2010. The GSEP is located at 11995 Wileys Well Road, on the north side of Interstate 10, approximately 22 miles west of Blythe, California in Riverside County.

The purpose of the Energy Commission's review process is to assess any impacts the proposed modifications would have on environmental quality and public health and safety. The process includes an evaluation of the consistency of the proposed changes with the Energy Commission's Final Decision (Decision), and if the project, as modified, will remain in compliance with applicable laws, ordinances, regulations, and standards (LORS) (Title 20, Calif. Code of Regulations, section 1769).

This Staff Analysis contains the Energy Commission staff's evaluation of the affected technical areas including Air Quality, Cultural, Biological, Transmission System Engineering, and Land Use.

## **DESCRIPTION OF PROPOSED MODIFICATIONS**

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The proposed modifications are primarily the result of circumstances that were unforeseen at the time the project was licensed. In addition, the applicant/owner is proposing revisions in response to those factors under the control of other agencies/entities.

The proposed modifications are as follows:

- 1) Modifications to the Gen-tie linear route (w/ Options A and B) (see Figures 1 and 2)
- 2) Modifications to the natural gas pipeline linear route due to a new point of interconnect with the Southern California Gas Company (SoCalGas) natural gas supply (w/ Options A and B) (see Figure 1)
- 3) Implementation of the Large Generator Interconnect Agreement (LGIA) and the resulting redesign/reconfiguration of the connecting substation that will be required to deliver power to the CRSS (see Figure 3)
- 4) Changes to Air Quality conditions related to changes in the permit issued by the Mojave Desert Air Quality Management District (MDAQMD)

## NECESSITY FOR THE PROPOSED MODIFICATIONS

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The primary purpose and need for this amendment is due to changes brought about by the way in which the power generated by the Genesis Project needs to tie in to the new Southern California Edison Colorado River Substation (CRSS) which was permitted by the California Public Utilities Commission and the U.S. Bureau of Land Management after the Genesis project and its gen-tie line were permitted by the Energy Commission. The CRSS was relocated post certification slightly to the south and west, necessitating a slight adjustment of the gen-tie route approaching the substation. In addition, as per the new Large Generator Interconnect Agreement, NextEra Energy is no longer allowed to build required metering and protection equipment within the perimeter of the CRSS; therefore, a new substation to contain the equipment including a new ring bus is being built just to the north of the relocated CRSS. Further, recent discussions with SoCalGas have resulted in a change to the point of interconnect where the Genesis Project will need to tie into the SoCalGas natural gas line. Finally, Authority to Construct (ATC) Permits issued by the Mojave Desert Air Quality Management District on November 4, 2011, while containing no new conditions, do contain more detailed equipment descriptions. NextEra Energy has also applied for new ATC permits to provide equipment for cooling towers not originally included in the project.

## STAFF'S ASSESSMENT OF THE PROPOSED PROJECT CHANGES

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Staff recommends changes to the existing Genesis Solar Energy Project (GSEP) Final Decision and Conditions of Certification. Staff believes that by requiring the proposed changes to the existing conditions, the potential impacts of the proposed changes would be reduced to less than significant levels. A summary of staff's conclusions reached in each technical area are summarized in the following table. The details of the proposed condition changes can be found under the appropriate technical headings in this Staff Analysis.

Energy Commission technical staff reviewed the petition to amend for potential environmental effects and consistency with applicable laws, ordinances, regulations and standards (LORS). Staff has determined that the technical or environmental areas of **Geological Hazards and Resources, Hazardous Materials Management, Facility Design, Public Health, Traffic and Transportation, Transmission Line Safety and Nuisance, Visual Resources, Waste Management, and Worker Safety and Fire Protection** are not affected by the proposed changes.

Staff has determined that the technical and/or environmental areas of **Cultural Resources, Land Use, Noise and Vibration, Paleontological Resources, Socioeconomics, Transmission System Engineering, and Soil and Water Resources** were reviewed for impacts and a determination was made that no revisions or new conditions of certification are needed to ensure the project remains in compliance with all applicable LORS.

Staff determined that the technical areas of **Air Quality** and **Biological Resources** would be affected by the proposed project changes, and have proposed new Conditions of Certification (and one modified Condition) in order to assure compliance with LORS and/or to reduce potential environmental impacts to a less than significant level.

**Executive Summary Table 1  
Summary of Impacts to Each Technical Area**

TECHNICAL AREAS REVIEWED	STAFF RESPONSE			New Conditions of Certification Recommended
	Technical Area Not Affected	No Significant Environmental Impact*	Process As Amendment	
Air Quality			x	x
Biological Resources			x	X (Modified)
Cultural Resources			x	
Geological Hazards & Resources	x			
Hazardous Materials Management	x			
Facility Design	x			
Land Use		x		
Noise and Vibration		x		
Paleontological Resources		x		
Public Health	x			
Socioeconomics		x		
Soil and Water Resources		x		
Traffic and Transportation	x			
Transmission Line Safety & Nuisance	x			
Transmission System Engineering			x	
Visual Resources	x			
Waste Management	x			
Worker Safety and Fire Protection	x			

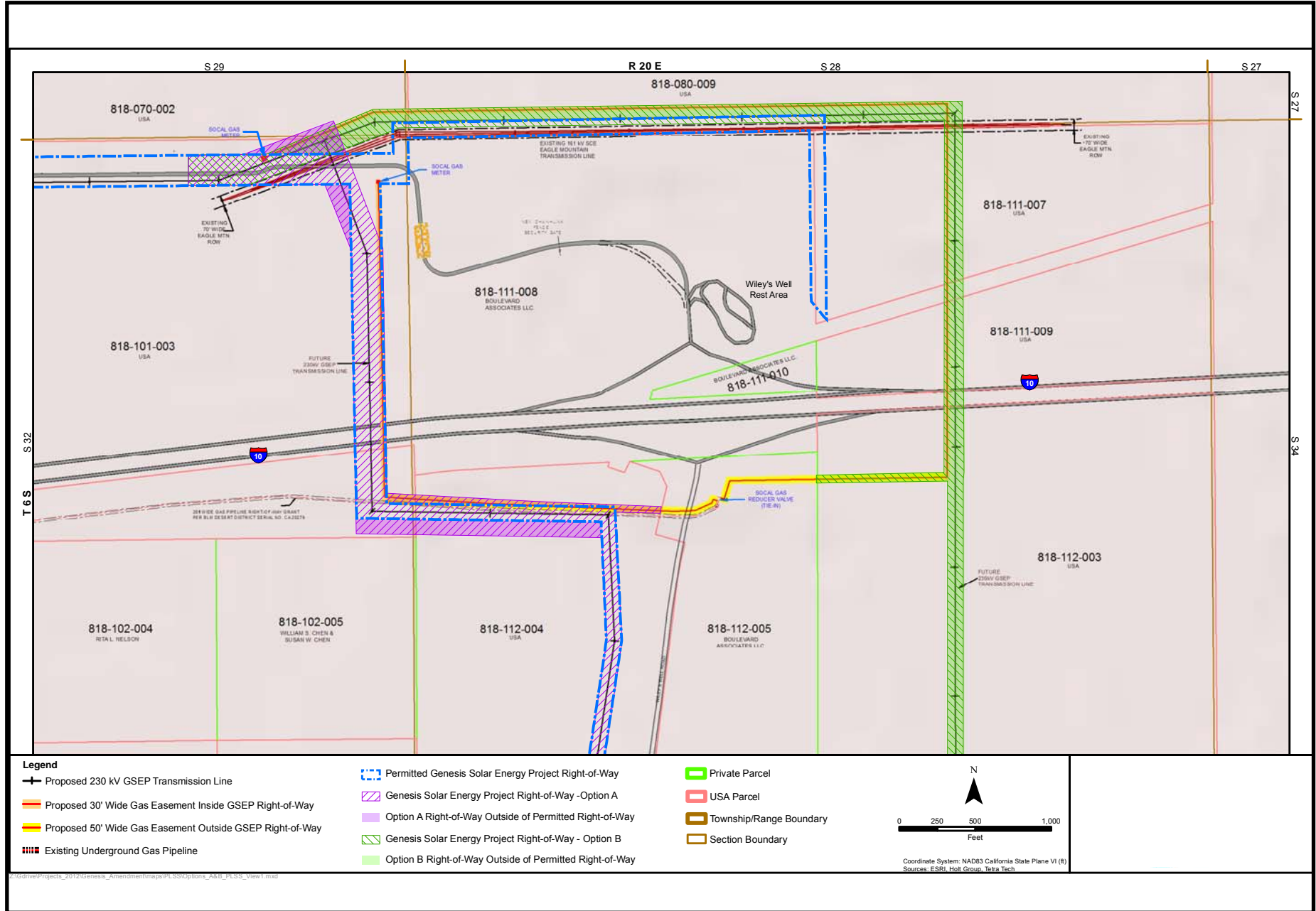
\*There is no possibility that the modifications may have a significant effect on the environment and the modification will not result in a change or deletion of a condition adopted by the commission in the final decision or make changes that would cause the project not to comply with any applicable laws, ordinances, regulations, or standards (LORS) (20 Cal. Code Regs., § 1769 (a)(2)).

## **STAFF RECOMMENDATIONS AND CONCLUSIONS**

Staff concludes that the following required findings mandated by Title 20, section 1769(a)(3) of the California Code of Regulations can be made and will recommend approval of the petition to the Energy Commission:

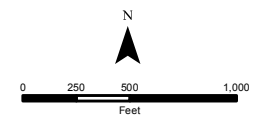
- A. There will be no new or additional unmitigated significant environmental impacts associated with the proposed changes;
- B. The facility will remain in compliance with all applicable laws, ordinances, regulations and standards;
- C. The changes will be beneficial to the project owner because it will allow them to construct the project substantially as it was approved, but allow them the flexibility to comply with the changes/revisions that are being implemented by other agencies/entities.
- D. There has been a substantial change in circumstances since the Energy Commission certification justifying the changes.

**FIGURE 1**  
Genesis Solar Energy Project - Options A & B View 1



**Legend**

- |                                                          |                                                         |                         |
|----------------------------------------------------------|---------------------------------------------------------|-------------------------|
| Proposed 230 kV GSEP Transmission Line                   | Permitted Genesis Solar Energy Project Right-of-Way     | Private Parcel          |
| Proposed 30' Wide Gas Easement Inside GSEP Right-of-Way  | Genesis Solar Energy Project Right-of-Way - Option A    | USA Parcel              |
| Proposed 50' Wide Gas Easement Outside GSEP Right-of-Way | Option A Right-of-Way Outside of Permitted Right-of-Way | Township/Range Boundary |
| Existing Underground Gas Pipeline                        | Genesis Solar Energy Project Right-of-Way - Option B    | Section Boundary        |
|                                                          | Option B Right-of-Way Outside of Permitted Right-of-Way |                         |

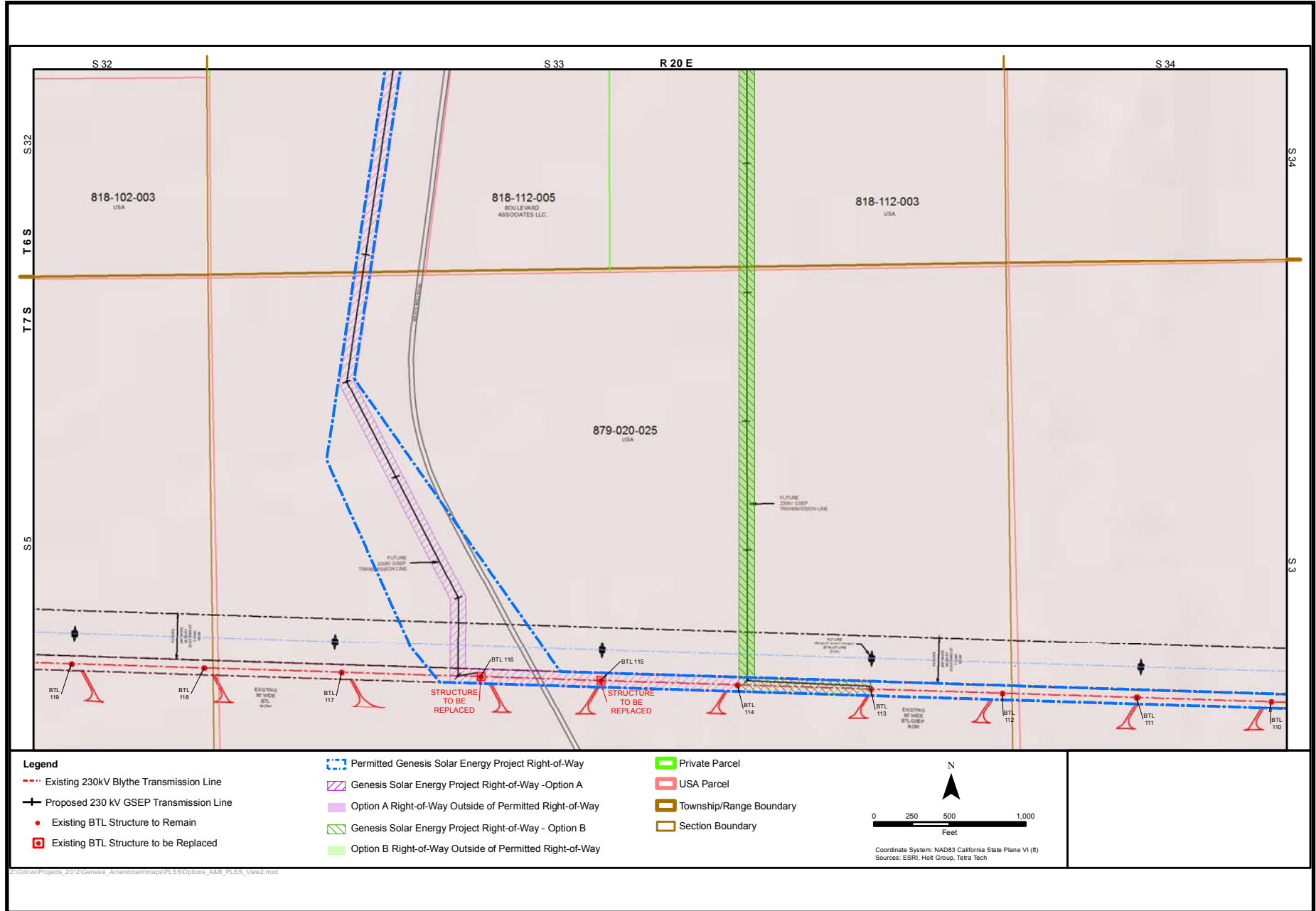


Coordinate System: NAD83 California State Plane VI (ft)  
Sources: ESRI, Holt Group, Tetra Tech

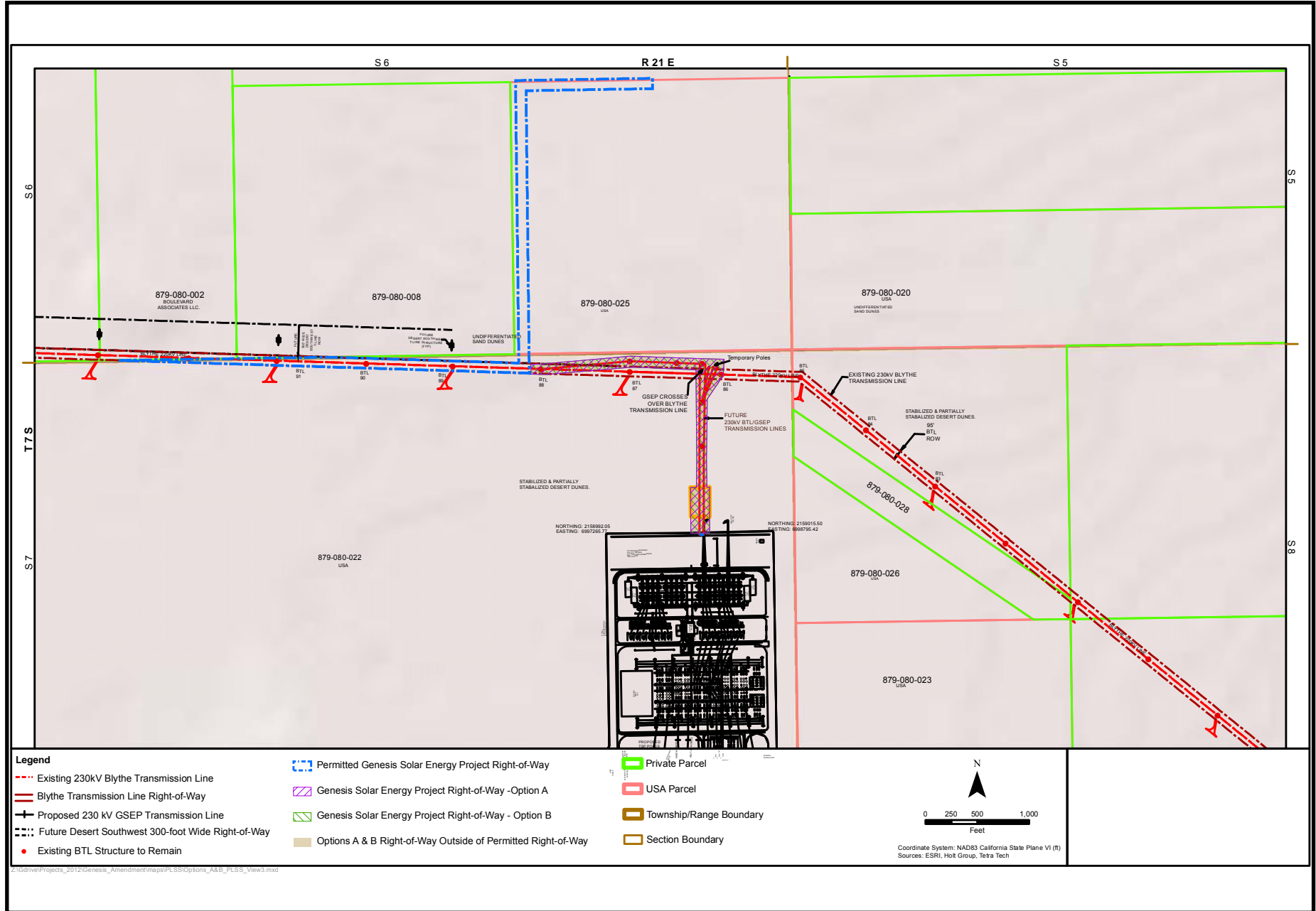
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**FIGURE 2**  
Genesis Solar Energy Project - Options A & B View 2



**FIGURE 3**  
Genesis Solar Energy Project - Options A & B View 3



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# GENESIS SOLAR ENERGY PROJECT (09-AFC-8C)

Petition to Amend – Air Quality

Joseph Hughes

June 28, 2012

## INTRODUCTION

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The Genesis Solar Energy Project (GSEP) was approved by the California Energy Commission (CEC) September 29, 2010 and is currently under construction. The project will consist of two independent concentrated solar electric generating facilities (aka power plants or units) with a nominal net electrical output of 125 megawatts (MW) each, for a total net electrical output of 250 MW. The project will use well-established parabolic trough solar thermal technology to produce electrical power using steam turbine generators (STGs) fed from solar steam generators (SSGs) that transfer energy from the solar-heated heat transfer fluid (HTF) to generate steam. Each plant will use one natural gas-fueled auxiliary boiler to reduce start-up time and provide HTF freeze protection.

On April 7, 2012, Genesis Solar LLC filed a petition to amend the Energy Commission Final Decision (GESP 2012b) to: (1) modify the proposed gen-tie line; (2) modify the location of the proposed gas line; (3) add a ring bus near the Colorado River Substation (CRSS); (4) update and modify equipment descriptions and emission information; and, (5) include the use of portable generators during commissioning activities.

GSEP originally proposed to use two 7-cell wet cooling towers for power plant cooling, but was ultimately approved late in the licensing process to install and operate air cooled condensers (ACCs) and two small 2-cell cooling towers that would significantly reduce water use and emissions of particulate matter less than 10 microns in diameter (PM10). Staff proposes to amend one condition of certification (COC), **AQ-20** to account for the reduction in water use and PM10 emissions associated with the change in cooling tower equipment, and staff proposes to add three COCs, **AQ-SC9** through **AQ-SC11**, to ensure compliance with all LORS during the commissioning period.

## LAWS, ORDINANCES, REGULATION, AND STANDARDS (LORS) - COMPLIANCE

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GSEP would be subject to all the same laws, ordinances regulations and standards (LORS) as previously analyzed in the Final Commission Decision, including the new 1-hour nitrogen dioxide (NO<sub>2</sub>) and sulfur dioxide (SO<sub>2</sub>) national ambient air quality standards. The original analysis included the new NO<sub>2</sub> standard but did not include the SO<sub>2</sub> standard, although the project's impact would have been well below this standard had it been assessed.

## SETTING

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The area designation for all criteria pollutants for the GSEP in Riverside County remains the same as analyzed in the Energy Commission's Final Decision. **Air Quality Table 1** provides the federal and state attainment status for the project site.

**Air Quality Table 1  
Federal and State Attainment Status  
Project Site Area within Riverside County**

Pollutant	Attainment Status <sup>1</sup>	
	Federal	State
Ozone	Attainment <sup>2</sup>	Moderate Nonattainment
CO	Attainment	Attainment
NO <sub>2</sub>	Attainment	Attainment
SO <sub>2</sub>	Attainment	Attainment
PM10	Attainment <sup>2</sup>	Nonattainment
PM2.5	Attainment	Attainment

Source: ARB 2012

Notes:

1. Attainment = Attainment or Unclassified, where Unclassified is treated the same as Attainment for regulatory purposes.

2. Attainment status for the site area only, not the entire MDAB.

## ANALYSIS

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Since the Energy Commission's Final Decision, according to the amendment request, several changes have occurred that require modifications to the project. The proposed modifications are primarily the result of circumstances that were unforeseen at the time the project was licensed. In addition, the applicant/owner is proposing revisions in response to those factors under the control of other agencies/entities.

The proposed modifications are as follows:

1. Modifications to the Gen-tie linear route (w/ Options A and B).
2. Modifications to the natural gas pipeline linear route due to a new point of interconnect with the Southern California Gas Company (SoCalGas) natural gas supply (w/ Options A and B).
3. Implementation of the Large Generator Interconnect Agreement (LGIA) and the resulting redesign/reconfiguration of the connecting substation that will be required to deliver power to the CRSS.
4. Changes to Air Quality conditions related to changes in the permit issued by the Mojave Desert Air Quality Management District (MDAQMD).
5. Use of portable generators during commissioning activities.

### **Modifications to the Gen-tie Linear Route**

The relocation of the gen-tie line would not have a significant impact on air quality any greater than previously analyzed and approved in the Energy Commission's Final Decision. The petition to amend describes two options (options A and B) for relocating the gen-tie line both of which have disturbance areas less than the originally permitted linear disturbance area, and therefore would have less construction related air quality impacts. The originally permitted disturbance area for the gen-tie line totaled 25.59 acres. Options A and B propose 23.48 acres and 24.27 acres respectively.

### **Modifications to the Natural Gas Pipeline Linear Route**

The relocation of the natural gas pipeline would not have a significant impact on air quality any greater than previously analyzed and approved in the Energy Commission's Final Decision. The petition to amend describes two options for relocating the gas line (options A and B) both of which have disturbance areas less than the originally permitted linear disturbance area, and therefore would have less construction related air quality impacts. The originally permitted disturbance area for the gas pipeline totaled 36.36 acres. Options A and B propose 4.84 acres and 9.70 acres respectively.

### **Implementation of Large Generator Interconnect Agreement**

Changes due to implementation of the large generator interconnect agreement (LGIA) created the need for the development of a ring bus/switchyard to be located outside of the CRSS physical area. Construction of the ring/bus switchyard would occur over 1.58 acres. Construction emissions associated with the development of the ring bus/switchyard would be offset by the reduction of construction emissions associated with the relocation of the gen-tie line and gas line and would not have an impact greater than what was originally analyzed and approved. Construction activities would be similar throughout all linear disturbance areas. The originally permitted linear disturbance areas for transmissions lines, gas lines and access roads totaled 87.51 acres. Options A and B which include the addition of the ring/bus switchyard propose a total 64.10 acres and 70.21 acres respectively.

### **Changes to Equipment Descriptions and Emissions**

During the licensing process Genesis Solar LLC provided equipment descriptions and emission estimates based on equipment that was available at the time the Application for Certification was submitted to the Energy Commission. Now that equipment has been purchased, minor updates to equipment descriptions and associated emission factors are necessary to represent the selected equipment. These changes have all been approved in the Mojave Desert Air Quality Management District's Authority to Construct Permit. The administrative changes include edits to equipment descriptions for the HTF ullage system, emergency fire pump engines, emergency generators, auxiliary boilers, and the gasoline dispensing facility.

The GSEP was approved to operate two 315 HP diesel-fueled fire pump engines, each driving a fire suppression water pump. Since the Energy Commission Final Decision, GSEP has decided to only operate one fire pump engine that would serve both power blocks (units). The fire pump engine that was purchased is 327 HP and has negligible

changes in emissions compared to the originally approved 315 HP engine and would be offset by the elimination of one of the two fire pump engines.

The GSEP was also approved to operate two 1,341 HP diesel-fueled emergency generator engines, each driving a generator. However, during the time of purchase, slightly larger (1,474 HP) emergency generators were currently on the market that best met the facility's needs. These engines would meet the same emission rates in grams per brake horsepower hour (g/bhp-hr) as previously analyzed, but due to their slightly larger size, they would emit approximately 0.07 tons/year more NO<sub>x</sub> combined. The increases in other pollutants are negligible. The slight increase in emissions would be fully offset by the reduction in approved emissions associated with the fire pump engine as noted above.

This petition to amend would also update equipment description and associated emissions for the use of air cooled condensing units and two small two-cell cooling towers in place of the two larger seven-cell wet cooling towers that were originally analyzed for the project. These changes would significantly reduce water use and PM<sub>10</sub> emissions.

#### **Use of portable generators during commissioning activities**

As noted above, Southern California Edison (SCE) has changed the location of the proposed Colorado River Substation (CRSS). The relocation of the CRSS, and the Large Generator Interconnect Agreement (LGIA), require differences in the line configuration and results in a delay of the online date for the CRSS by approximately eight months. Additionally, due to uncertainty in the ability of Genesis Solar to reach an agreement for back-feed power from the Blythe Energy Transmission Line, Genesis Solar proposes an alternate means to obtain power for plant commissioning through the use of portable generators. Portable diesel-fueled and natural gas-fueled equipment would be used only when grid power is not available during the commissioning period. Genesis Solar has proposed a variety of operating assumptions utilizing a mix of fuel types and generator sizes. These engine generators meet the California Air Resources Board requirements for Portable Equipment Registration Program.

These generators would be used to supply electrical loads for startup and commissioning activities. Power needs during this period are expected to begin in the first quarter of 2013 (0.5 megawatts) and ramp up to approximately 9.5 megawatts by July 2013. These would provide electricity to the water treatment plant, HTF freeze protection pumps, and overflow return pumps. Commissioning activities may also include dewatering, HTF pump commissioning, and steam blows. Power at a lower load will also be needed at night to maintain freeze protection and other limited activities. The generators would be located in the power block area closest to the loads requiring power. The use of portable generators would be discontinued when a back-feed source of grid-based electricity and associated downstream switchgear become available.

Commissioning activities are expected to last approximately 31 weeks, with engine operation occurring over approximately 23 weeks. Peak usage (when power generation

of up to 10 megawatts [MW] may be needed) is expected to occur over a four to eight week period. Attachment B of the *Updated Commissioning Modeling and Emergency Engine Modification for Genesis Solar Energy Project* (GSEP 2012a) provides a hypothetical operating scenario for each engine (fuel type and electrical output) over the duration of the commissioning period. **Air Quality Table 2** provides the worst case modeling scenarios by time of day and season. Generally, during evening hours to early morning hours, the air is more stable and there is less turbulence and less mixing, resulting in less air pollutant dispersion and therefore usually increased air quality impacts near any single air pollution source. Good atmospheric mixing usually occurs during daytime hours. These favorable meteorological conditions are generally extended in the summer and shortened in the winter. **Air Quality Table 2** provides two scenarios; each scenario assumes one unit (power block) is undergoing commissioning while the other unit is being constructed. Scenario A with extended hours from May to August does not exceed Ambient Air Quality Standards (AAQS) only if unit 2 undergoes commissioning first while unit 1 is still being constructed. This worst case modeling scenario was used as the basis for **AQ-SC10**.

**Air Quality Table 2  
Commissioning Modeling Scenarios**

Scenario	Daytime Peak Usage 8 am - 5 pm (7 am – 6 pm, May – August)	Remain Off Peak Usage 5 pm - 8 am (6 pm – 7 am, May – August)
A	Two 500 kW diesel engines, three 1,500 kW diesel engines, and three 1,300 kW natural gas engines (9.4 MW)	Three 1,300 kW natural gas engines (3.9 MW)
B	Three 1,500 kW diesel engines and four 1,300 kW natural gas engines (9.7 MW)	Three 1,300 kW natural gas engines (3.9 MW)

The original Energy Commission Decision analyzed ozone data from the Blythe-445 West Murphy Street monitoring station, PM10, PM2.5, NO<sub>2</sub>, and CO data from the Palm Springs-Fire Station monitoring station and SO<sub>2</sub> data from the Victorville-14306 Park Avenue monitoring station. These same stations were used to develop current background concentrations (2009-2011) for the commissioning modeling period. **Air Quality Table 3** provides staff recommended current background concentrations.

**Air Quality Table 3**  
**Staff Recommended Background Concentrations 2009 – 2011 ( $\mu\text{g}/\text{m}^3$ )**

Pollutant	Averaging Time	Previous Recommended Background	Current Recommended Background	Limiting AAQS <sup>1</sup>	Current Percent of Standard
NO <sub>2</sub>	1 hour	119	90.4	339	27
	1 hour Federal <sup>2</sup>	NA	73.3	188	39
CO	1 hour	2,645	3,450	23,000	15
	8 hour	878	744	10,000	7
PM <sub>10</sub>	24 hour	83	140	50	280
PM <sub>2.5</sub>	24 hour Federal <sup>3</sup>	20.5	14.6	35	42
SO <sub>2</sub>	1 hour	23.6	136.2	655	20.8
	1 hour Federal <sup>4</sup>	NA	28.7	196	15
	24 hour	13.1	18.4	105	18

Source: ARB 2012, U.S.EPA 2012 and Energy Commission Staff Analysis.

Notes:

1. The limiting AAQS is the most stringent of the CAAQS or NAAQS for that pollutant and averaging period.
2. NO<sub>2</sub> 1-hour data shown is 98<sup>th</sup> percentile value which is the basis of the ambient air quality standard and the basis for determination of the recommended background concentration.
3. PM<sub>2.5</sub> 24-hour data shown is 98<sup>th</sup> percentile value which is the basis of the ambient air quality standard and the basis for determination of the recommended background concentration.
4. SO<sub>2</sub> 1-hour data shown is 99<sup>th</sup> percentile value which is the basis of the ambient air quality standard and the basis for determination of the recommended background concentration.

The worst case commissioning scenarios described in **Air Quality Table 2** were used in the air quality modeling impact assessment. In addition to engine operation, the air quality modeling includes 24 hours of operation for the auxiliary boiler and 10 hours of operation for construction combustion equipment (8 am to 6 pm). The engines used would satisfy the U.S. Environmental Protection Agency (EPA) non-road engine Tier 3 and Tier 2 requirements for the 500 kW diesel and 1,500 kW diesel generators, respectively. While actual engine emission rates may be below the emission standards, the criteria pollutant emission factors used as the basis of the modeling were set at the maximum levels allowed for the specific size of engine for the diesel generators to be conservative. The hourly emission rates for the 1,300 kW natural gas generators were provided by the engine manufacturer. **Air Quality Table 4** provides the modeled emission rates by type of equipment.

**Air Quality Table 4**  
**Modeled Emission Rates – lb/hr**

Equipment	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>x</sub>	VOC
500 kW Diesel Engine <sup>1</sup>	3.840	4.430	0.220	0.220	0.008	0.443
1,500 kW Diesel Engine <sup>2</sup>	11.530	21.280	0.670	0.670	0.023	2.128
1,300 kW Natural Gas Engine <sup>3</sup>	7.170	4.750	0.280	0.280	0.009	2.980
Auxiliary Boiler <sup>4</sup>	0.563	0.330	0.150	0.150	0.008	0.088
Construction Equipment	0.880	1.784	0.101	0.101	0.002	NA

Notes:

1. Tier 3 Emission Standards for 2006 - 2010 Model Year Engines (between 600 hp and 750 hp)
2. Tier 2 Emission Standards for 2006 - 2010 Model Year Engines (greater than 750 hp)
3. CO, NO<sub>x</sub>, and VOC based on manufacturer's emissions specification sheet. PM<sub>10</sub> and SO<sub>x</sub> based on AP-42 Table 3.2-2 "Uncontrolled Emissions Factors for Engines"
4. Final Commission Decision



The U.S. EPA recommended AERMOD modeling system was used to calculate worst case project impacts. **Air Quality Table 5** presents the worst case short term modeled impacts. The modeling was conducted to determine which combination of fuels (diesel and natural gas) and equipment sizes (kW) could be used during different periods of the day and approach, but not cause, a short-term violation of a state or federal ambient air quality standard.

**Air Quality Table 5  
Short-Term AAQS Modeling Results**

Pollutant	Averaging Period	Maximum Concentration	Ambient Background	Total Concentration	AAQS	Percent of AAQS
NO <sub>2</sub>	1-hour	237.7	90.4	328.1	339	97
	1-hour Federal	107.3 <sup>1</sup>	73.3	180.6	188	96
CO	1-hour	639.6	3,450	4,089.6	23,000	18
	8-hour	117.2	744	861.2	10,000	9
SO <sub>2</sub>	1-hour	1.2	136.2	137.4	655	21
	1-hour Federal	0.38 <sup>2</sup>	28.7	29.1	196	15
	24-hour	0.1	18.4	18.5	105	18
PM10	24-hour	2.4	140	142.4	50	285
PM2.5	24-hour Federal	1.75 <sup>3</sup>	14.6	16.35	35	47

Notes:

1. 98th percentile of the 5-year average daily maximum for 1-hour NO<sub>2</sub>
2. 99th percentile of the 5-year average daily maximum for 1-hour SO<sub>2</sub>
3. high-1st-high averaged over 5 years for PM2.5

All criteria pollutants are expected to remain below their respective AAQS except 24-hour PM10. However, this is because the ambient background where the monitoring station is located already exceeds the standard. The maximum 24-hour PM10 impact caused by all sources during commissioning is only 2.4 µg/m<sup>3</sup>, or just 5% of the standard. These commissioning impacts are well below the peak construction impacts during the grading phase. As concluded in the Final Staff Assessment, with the implementation of the required mitigation measures during construction, impacts were concluded to not be significant. Since the commissioning phase PM10 impacts are substantially less than the construction grading phase, and are short term, these impacts are also concluded to not be significant.

The total commissioning emissions would be included in the projects annual operating limit and would be restricted to no more than the District's offset threshold as required by District Rule 1303.

## CONCLUSIONS AND RECOMMENDATIONS

With implementation of the recommended new and revised Conditions of Certification, staff recommends approval of the requested changes for the GSEP. All requested project modifications would continue to comply with all applicable LORS.

## **PROPOSED MODIFICATIONS TO EQUIPMENT DESCRIPTIONS AND CONDITIONS OF CERTIFICATION**

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The following language, equipment descriptions, and Conditions of Certification would be amended in the Final Commission Decision for the Genesis Solar Energy Project to ensure compliance with all LORS. ~~Strikethrough~~ is used to indicate deleted language and bold underline for new language.

The purpose of **AQ-SC9** through **AQ-SC11** is to limit emissions from the portable generators during the commission period to the limits proposed and analyzed in the petition to amend. These emission limits and associated time frames were determined by modeling to comply with all Ambient Air Quality Standards (AAQS).

**AQ-SC9 The engines used during the commissioning phase shall be registered under the ARB Portable Equipment Registration Program. They shall be fueled with natural gas rather than diesel to the degree that site conditions allow.**

**Verification: Prior to engine use, the project owner shall provide the District and the CPM documentation of the portable equipment registration from the ARB.**

**AQ-SC10 The facility is allowed to use portable engines between the hours of 8 am and 5 pm (peak operating hours) as long as the hourly emissions from all portable engines combined do not exceed the following limits:**

**NOx: 86.95 lb/hr**

**PM10: 3.29 lb/hr**

**At all other times (non-peak operating hours) emissions shall be limited to the following:**

**NOx: 14.25 lb/hr**

**PM10: 0.84 lb/hr**

**In addition, from May through August, if power block unit 2 undergoes commissioning first while unit 1 is under construction, then peak operating hours can be extended to begin at 7 am and conclude at 6 pm.**

**However, if power block unit 1 undergoes commissioning first while unit 2 is under construction, then the following maximum emission limits shall apply from May through August, between the hours of 7 am and 8 am, and 5 pm and 6 pm (between 8 am and 5pm the above mentioned limits for peak operating hours shall apply):**

**NOx: 82.84 lb/hr**  
**PM10: 3.13 lb/hr**

**Verification: The project owner shall provide engine operating logs as part of the monthly compliance report as required by AQ-SC5. The engine operating logs shall include a table that shows the hours engine operation occurred, quantity of engines operated during each hour, type of engines (fuel type, engine size and Tier rating) operated during each hour, and total calculated emissions for each hour. Running total emissions shall be provided throughout the commissioning period. In each monthly compliance report, the project owner shall certify that the facility used either grid electricity, or natural gas fueled portable generators rather than diesel fueled portable generators to the maximum degree feasible.**

**AQ-SC11 The total mass emissions of nitrogen oxides that are emitted by all engines combined during the commissioning period shall not exceed the District's offset threshold of 25 tpy (District Rule 1303).**

**Verification: In each monthly compliance report, the project owner shall provide a running total of emissions for all engines. Compliance with this limit shall be based on a rolling 12-calendar month averaging period.**

#### **EQUIPMENT DESCRIPTION:**

Two ~~72~~-cell cooling towers with drift eliminator rate of 0.0005% and water circulation rate of ~~94,6233,450~~ gpm.

**AQ-20** The drift rate shall not exceed 0.0005 percent with a maximum circulation rate of ~~94,6233,450~~ gallons per minute. The maximum hourly PM10 emission rate shall not exceed ~~2.360.043~~ pounds per hour, as calculated per the written District-approved protocol.

**Verification:** The manufacturer guarantee data for the drift eliminator, showing compliance with this condition, shall be provided to the CPM and the District 30 days prior to cooling tower operation. As part of the Annual Compliance Report the project owner shall include information on operating emission rates to demonstrate compliance with this condition.

~~**AQ-23** This equipment shall not be operated for more than 3,200 hours per rolling twelve month period and more than 15 hours per calendar day.~~

~~**Verification:** The project owner shall submit to the CPM the cooling tower operating data demonstrating compliance with this condition as part of the Annual Operation Report.~~

## EQUIPMENT DESCRIPTIONS:

Two, ~~1,341~~**1,474** HP diesel fueled emergency generator engines, each driving a generator.

~~Two~~**One**, ~~315~~**327** HP diesel fueled emergency fire pump engines, ~~each~~ driving a fire suppression water pump.

## REFERENCES

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ARB 2012. California Air Resources Board. California Ambient Air Quality Data Statistics available on ARB website. <http://www.arb.ca.gov/adam/welcome.html>. Accessed May 2012.

CEC 2010. California Energy Commission, Final Commission Decision on the Application for Certification for the Genesis Solar Energy Project (09-AFC-08). September 2010.

CEC2010a. California Energy Commission, Final Staff Analysis on the Application for Certification for the Genesis Solar Energy Project (09-AFC-08). March 2010.

GSEP 2012. Genesis Solar Energy Project Summary of Commissioning Emission Calculations and Modeling Results. April 25, 2012.

GSEP 2012a. Updated Commissioning Modeling and Emergency Engine Modification for Genesis Solar Energy Project. May 18, 2012.

GSEP 2012b. Genesis Solar Energy Project Petition to Amend, April 2012.

U.S. EPA 2012. United States Environmental Protection Agency. AirData database ambient air quality data for Victorville and Palm Springs, California. [http://www.epa.gov/aqspubl1/annual\\_summary.html](http://www.epa.gov/aqspubl1/annual_summary.html). Accessed May 2012.

**GENESIS SOLAR ENERGY PROJECT (GSEP), 09-AFC-8C**  
**BIOLOGICAL RESOURCES**  
Request to Amend Final Commission Decision  
Laura Zaninovich

**INTRODUCTION**

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This Petition to Amend the Commission’s Decision for the Genesis Solar Energy Project (GSEP), 09-AFC-8C requests modifications and an alternative (Options A and B) to the approved gen-tie line, modifications to the approved natural gas line route (also Options A and B), the addition of a ring bus near the new Colorado River Substation location, and modifications to the air quality permits issued by Mojave Desert Air Quality Management District (MDAQMD). There are no biological concerns regarding the changes to the air quality permits. This analysis addresses the proposed changes to the project’s linear facilities and potential impacts to state and federally protected species and other biological resources.

**COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND STANDARDS**

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No new state, federal, or local laws, ordinances, regulations, and standards (LORS) have been adopted since the Genesis Solar Energy Project Commission Decision that would affect this project. The proposed changes would not cause the GSEP to be out of compliance with applicable LORS.

**ANALYSIS**

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Staff reviewed the GSEP Commission Decision (CEC 2010a), the Staff Assessment/Draft Environment Impact Statement (CEC 2010d), the Revised Staff Assessment (CEC 2010c), the Revised Staff Assessment Supplement (CEC 2010b), and the GSEP Petition to Amend (GSEP 2012) to determine if the proposed new linear facility construction would have any new or different impacts than what were identified for the original project.

**MODIFICATIONS TO THE GAS LINE ROUTE DUE TO THE NEW SOCAL GAS REDUCER VALVE TIE-IN LOCATION AND NEW GEN-TIE ROUTE DUE TO THE RELOCATED COLORADO RIVER SUBSTATION**

SoCal Gas recently determined that the GSEP must receive its gas supply via a tap at a reducer station located south of Interstate-10 (I-10) and east of Wiley’s Well Road instead of at the metering station located north of I-10 and west of Wiley’s Well Road. The Petition to Amend identifies two possible routes, Option A and B, to connect the reducer valve station to the GSEP gas meter. While pipeline options were being considered, it was determined that alternative gen-tie routes need to be considered due in part to the required gas pipeline route changes and engineering consideration

regarding crossing existing transmission lines, as well as the Large Generator Interconnect Agreement (LGIA).

Biological resource surveys for the unsurveyed areas along the proposed gas pipeline/gen-tie routes for Option A and B were conducted on March 15 and 16, 2012. No federally or state-listed wildlife species were observed during the surveys. However, along Option B, desert tortoise (state and federally listed Endangered) permineralized shell fragments, Mojave fringe-toed lizards (BLM Sensitive), an inactive burrowing owl burrow (state and federal Species of Concern), and inactive desert kit fox (state Fully Protected Furbearer) natal dens were observed. Impact avoidance and mitigation measures included in the Energy Commission's Final Decision and conditions of certification and the Bureau of Land Management Right-of-Way Grant for the GSEP are still appropriate and must be implemented during construction of the new linear routes. Due to the likely presence of desert kit fox along linear route Option B, staff proposes changes to Condition of Certification **BIO-17** to address the ongoing canine distemper concerns in the GSEP region.

**Option A** is the permitted gen-tie route currently in the Commission Decision and BLM right-of-way; however, changes are needed to the right-of-way to allow the gen-tie to cross the Southern California Edison (SCE) Eagle Mountain 160 kV line, but still tie into the Blythe Energy Transmission Line (BETL) at Pole 113. SCE requires that non-SCE transmission lines cross their systems lines at a 90-degree angle. The presently approved gen-tie route does not provide sufficient room to facilitate that crossing, so two new turning structures will be required to cross the Eagle Mountain line at a perpendicular angle, but then travel south within the approved right-of-way.

SoCal Gas will need to construct the new gas pipeline from the new reducer valve station located south of Wiley's Well interchange to the west and north and under I-10 and remain within the right-of-way until it reaches the GSEP metering station and within the original gas pipeline footprint north of I-10.

The total linear disturbance acreage originally permitted for the gas pipeline and gen-tie was 87.51 acres; however, the anticipated linear impact acreage for Option A would be 64.10 acres. Habitat (acreage) impacts would be less because no construction crossover structures will be necessary, the gas pipeline construction right-of-way would be shorter and narrower, fewer spur roads will be necessary to the gen-tie poles, and the gen-tie access road would be shorter (6.5 miles vs. 5.3 miles). Since the impact acreage for Option A would be less than the permitted impact acreage for the original gen-tie and gas pipeline route, no additional compensatory mitigation would be required since the project owner has already provided compensatory mitigation for the original project and the impact acreage would be less if Option A is constructed.

**Option B** would involve a different gas pipeline route and gen-tie route. SoCal Gas would construct the pipeline from the current reducer valve south of Wiley's Well Road to the east and then north and under I-10 and cross under the Eagle Mountain transmission line before turning west to connect to the existing SoCal Gas meter station. The pipeline will parallel the existing Eagle Mountain line until reaching the metering station within the original project right-of-way.

The new gen-tie line would travel southeast from the power plant site, parallel the Eagle Mountain transmission line, and continue north and east of the Wiley's Well rest area. The new gen-tie would then travel south to the Blythe Energy Transmission Line and connect at Pole 113, same as Option A.

The total linear disturbance acreage permitted for the GSEP gas pipeline and gen-tie was originally 87.51 acres; however, 70.21 acres would be impacted if Option B were constructed. Since the impact acreage for Option B would be less than the permitted impact acreage for the original gen-tie and gas pipeline route, no additional compensatory mitigation would be required since the project owner has already provided compensatory mitigation for the original project and the impact acreage would be less if Option B is constructed.

## **GEN-TIE ROUTE MODIFICATIONS AND NEW RING BUS/SWITCHYARD ADJACENT TO THE NEW COLORADO RIVER SUBSTATION**

Following the Energy Commission's Final Decision for the GSEP, Southern California Edison (SCE) changed the location of the Colorado River Substation to one of the environmentally superior alternatives (southernmost alternative) identified in the California Public Utilities Commission staff's Final Supplemental Environmental Impact Report (FSEIR). Implementation of a Large Generator Interconnect Agreement, which occurred after the Final Decision, requires that a new ring bus/switchyard to be constructed immediately north of the Colorado River Substation. This change in the Colorado River Substation location triggers the realignment of the GSEP gen-tie line so that it will travel approximately 1,600 feet south to the Colorado River Substation and will be located on the southern edge of the sand transport corridor, which is Mojave fringe-toed lizard habitat. As with Options A and B, surveys were conducted on March 15 and 16, 2012, and no state or federally listed wildlife species were observed. However, Mojave fringe-toed lizards were seen in the area of the proposed new gen-tie route and ring bus/switchyard, however no additional or new biological resource impacts are anticipated for this proposed new gen-tie route and ring bus/switchyard.

The new ring bus/switchyard will occupy approximately 1.58 acres; however, this acreage is included within the impact acreage for the new, shorter southern gen-tie to the Colorado River Substation. Since the acreage impacts would be less than what was permitted for the original route, even including the new ring bus/switchyard, no additional habitat compensation will be required. The ring bus/switchyard would be fenced with chain link fencing, which would allow the sand to continue to blow through the ring bus/switchyard area thereby lessening the likelihood of any interruption of sand transport and potential indirect effects to nearby sand dunes and associated species such as the Mojave fringe-toed lizard.

## **CUMULATIVE IMPACTS**

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The project as amended will not contribute to cumulative biological resources impacts to a greater degree than originally analyzed in the Commission Decision

## CONCLUSIONS AND RECOMMENDATIONS

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Staff concludes that the project changes described in the Petition to Amend will result in similar or fewer impacts than those addressed in the Commission Decision, regardless of whether Option A or Option B is chosen. All biological resources conditions of certification in the Commission Decision still apply and must continue to be implemented to address the anticipated impacts associated with construction work covered by this amendment and for the entire project. Due to ongoing concerns regarding the recent canine distemper outbreak in the region's desert kit fox population and that desert kit foxes are likely to continue to be encountered during project construction and operation, staff recommends significant changes to Condition of Certification **BIO-17** to address these concerns. The proposed changes would not cause the GSEP to be out of compliance with applicable LORS.

## PROPOSED MODIFICATIONS TO CONDITION OF CERTIFICATION

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Staff recommends that the following biological resources condition of certification be modified to address the ongoing concern regarding impacts to the desert kit fox, a Fully Protected furbearer under Fish and Game Code Title 14, and the spread of canine distemper in the regional population. The recommended changes to the condition of certification are shown as ~~strikethrough~~ for deletions and **bold and underlined** for additions.

### AMERICAN BADGER AND DESERT KIT FOX IMPACT AVOIDANCE AND MINIMIZATION MEASURES **MITIGATION AND MONITORING PLAN**

**BIO-17**      **The project owner shall develop and implement an American Badger and Desert Kit Fox Mitigation and Monitoring Plan (plan). The objective of the plan shall be to avoid direct impacts to the American badger and desert kit fox as a result of construction of the power plant and linear facilities, as well as during project operation and decommissioning of the Genesis Solar Energy Project. The draft plan submitted by the project owner shall provide the basis for the final plan, subject to review and comment by Bureau of Land Management (BLM) and revision and approval by the Compliance Project Manager (CPM), in consultation with California Department of Fish and Game (CDFG). The final plan shall include, but is not limited to, the following procedures and impact avoidance measures:**

~~To avoid direct impacts to American Badgers and desert kit fox, preconstruction surveys shall be conducted for these species concurrent with the desert tortoise surveys. Surveys shall be conducted as described below:~~

1. **Complete pre-construction den surveys for any new construction activity.** Biological Monitors shall perform pre-construction surveys for badgers and kit fox dens in the Project area, including areas within 90



**100** feet of all Project facilities, utility corridors, and access roads. Surveys may be concurrent with desert tortoise surveys. If dens are detected, each den shall be classified as inactive **non-natal, inactive natal**, potentially active, or definitely active **non-natal, or active natal den**.

- a. **Inactive non-natal and inactive natal dens.** Inactive **non-natal and inactive natal** dens that would be directly impacted by construction activities shall be excavated by hand and backfilled to prevent reuse by badgers or kit fox.
  
- b. **Potentially active and definitely active non-natal dens.** Potentially and definitely active **non-natal** dens that would be directly impacted by construction activities shall be monitored by the Biological Monitor for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den shall be excavated and backfilled by hand. If tracks are observed, and especially if high or low ambient temperatures could potentially result in harm to kit fox or badger from burrow exclusion, various passive hazing methods may be used to discourage occupants from continued use. **A detailed description of the types and methods of passive hazing to be used must be included in the plan; however, approval must be granted by the CPM, in consultation with CDFG prior to implementation.** After verification that the den is unoccupied, it shall then be excavated by hand and backfilled to ensure that, no badgers or kit fox are trapped in the den.
  
- c. **Active natal dens. During denning season (American badger – March to August, and desert kit fox – February to June), any active natal dens that are detected in the pre-construction surveys shall have a buffer zone of 300 feet, pending approval from the CPM, in consultation with CDFG, to 500 feet surrounding the den and monitoring measures shall be implemented. Discovery of an active natal den that could be impacted by the project shall be reported to the CPM and CDFG within 24-hours of the discovery. A detailed description outlining the types and methods of monitoring must be included in the plan. The den location shall be mapped and submitted along with a report stating the survey results to the CPM and CDFG. The Designated Biologist shall monitor the natal den until he or she determines that the pups have dispersed. No disturbance will be allowed for any animal associated with a natal den and any activities that might disturb denning activities shall be prohibited within the buffer zone. Once the pups have**

dispersed, various passive hazing methods may be used to discourage den reuse. A detailed description of the types of passive hazing to be used must be included in the plan; however, approval must be granted by the CPM, in consultation with CDFG prior to implementation. After verification that the den is unoccupied, it shall then be excavated by hand and backfilled to ensure that, no badgers or kit fox are trapped in the den.

- d. Exception for American badger. In the event that passive relocation techniques fail for badgers, the Applicant project owner will contact the CPM and CDFG to explore other relocation options

Additional protection measures to be included in the plan and implemented. The Designated Biologist shall make certain that all pipes within the project disturbance area must be capped and/or covered every evening or when not in use to prevent desert kit fox or other animals from accessing any pipes. All water sources shall be covered when not in use to prevent drowning.

2. Notify the CPM and CDFG if injured, sick, or dead American badger and desert kit fox are found. If an injured, sick, or dead animal is detected on any area associated with the Genesis project site or associated linear facilities, the CPM and the Ontario CDFG Office shall be notified immediately by phone. Written follow-up notification via FAX or electronic communication shall be submitted to the CPM and CDFG within 24 hours of the incident and shall include the following information as appropriate:
  - a. Injured animals. If an American badger or desert kit fox is injured because of any project-related activities, the Designated Biologist or approved Biological Monitor shall immediately notify the CPM and CDFG personnel regarding the capture and transport of the animal to CDFG-approved wildlife rehabilitation and/or veterinarian clinic. Following the phone notification, the CPM and CDFG shall determine the final disposition of the injured animal, if it recovers. A written notification of the incident shall be sent to the CPM and CDFG containing, at a minimum, the date, time, location, and circumstances of the incident.
  - b. Sick animals. If an American badger or desert kit fox is found sick and incapacitated on any area associated with the Genesis project site or associated linear facilities, the Designated Biologist or approved Biological Monitor shall immediately notify the CPM and CDFG personnel for immediate capture and transport of the animal to a CDFG-

approved wildlife rehabilitation and/or veterinarian clinic. Following the phone notification, the CPM and CDFG shall determine the final disposition of the sick animal, if it recovers. If the animal dies, a necropsy shall be performed by a CDFG-approved facility to determine the cause of death. The project owner shall pay to have the animal transported and a necropsy performed. A written notification of the incident shall be sent to the CPM and CDFG and contain, at a minimum, the date, time, location, and circumstances of the incident.

- c. Fatalities. If an American badger or desert kit fox is killed because of any project-related activities during construction, operation, decommission or is found dead on the project site or along associated linear facilities, the Designated Biologist or approved Biological Monitor shall immediately refrigerate the carcass and notify the CPM and CDFG personnel within 24 hours of the discovery to receive further instructions on the handling of the animal. If the animal is suspected of dying of unknown causes, a necropsy shall be performed by a CDFG-approved facility to determine the cause of death. The project owner shall pay to have the animal transported and a necropsy performed.

The California Department of Fish and Game Veterinarian's guidance regarding impact avoidance measures and what should be done to prevent disease spread should be incorporated into the final plan and implemented.

The plan must also include measures to reduce traffic impacts to wildlife if the project owner anticipates night-time construction. The plan must also include a discussion of what information will be provided to all night-time workers, including truck drivers, to educate them about the threats to kit fox, what they need to do to avoid impacts to kit fox, and what to report if they see a live, injured, or dead kit fox.

Verification: No fewer than 30 days prior to the start of any construction-related ground disturbance activities associated with the new project related facilities, the project owner shall provide the CPM, BLM, and CDFG with a draft American Badger and Desert Kit Fox Mitigation and Monitoring Plan for review and comment.

No fewer than 10 days prior to start of any ground disturbance activities associated with the new project related facilities, the project owner shall provide an electronic copy of the CPM -approved final plan to the CPM and CDFG and implement the plan.

The Project owner shall submit a report to the CPM and CDFG within 30 days of completion of any badger and kit fox surveys. The report shall describe survey

methods, results, impact avoidance and minimization measures implemented, and the results of those measures.

**No later than 2 days following a phone notification of an injured, sick, or dead American badger or desert kit fox, the project owner shall provide to the CPM and CDFG, via FAX or electronic communication, a written report from the Designated Biologist describing the incident of sickness, injury, or death of an American badger or desert kit fox, when the incident occurred, and who else was notified.**

**Beginning with the first month after start of construction and continuing every month until construction is completed, the Designated Biologist shall include a summary of events regarding the American badger and desert kit fox in each Monthly Compliance Report.**

**No later than 45 days after initiation of project operation, the Designated Biologist shall provide the CPM a final American Badger and Desert Kit Fox Mitigation and Monitoring Plan that includes: 1) a discussion of all mitigation measures that were and currently are being implemented; 2) all information about project-related kit fox and badger injuries and/or deaths; 3) all information regarding sick kit fox and badger found within the project site and along related linear facilities; and 4) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the American badger and desert kit fox.**

## REFERENCES

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- CEC 2010a California Energy Commission, Commission Decision for Genesis Solar Energy Project (09-AFC-8), October 2010.
- CEC 2010b Revised Staff Assessment Supplement for Genesis Solar Energy Project, July 2010.
- CEC 2010c Revised Staff Assessment for Genesis Solar Energy Project, June 2010
- CEC 2010d Staff Assessment/Draft Environmental Impact Statement for Genesis Solar Energy Project, March 2010.
- GSEP 2012 Genesis Solar Energy Project's Request for Petition to Amend (09-AFC-8), April 2012.

**GENESIS SOLAR ENERGY PROJECT (GSEP-09-AFC-80)**  
**Request to amend generator tie line, and addition of a new switchyard**  
**Transmission System Engineering Staff Analysis**  
Sudath Edirisuriya and Mark Hesters

## **INTRODUCTION**

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Genesis Solar, LLC (Genesis Solar) a wholly owned subsidiary of NextEra Energy Resources, LLC is proposing to construct and operate the Genesis Solar Energy Project (GSEP) a 250 MW Solar Thermal Power Generating project near the City of Blythe, California. The Genesis Power Purchase Agreement with Pacific Gas and Electric requires measurement of the energy delivered from the project at the California ISO revenue meter at the Colorado River Substation (CRSS). Southern California Edison (SCE) is currently constructing the CRSS and has not allowed Genesis Solar to install the required metering facilities on the premises of the CRSS. Genesis Solar proposes to install the required metering and protection equipment outside of the boundaries of the CRSS. The proposed modifications include rerouting a segment of the generator tie line and the installation of a new 1.6-acre 230 kV switchyard in a three breaker ring bus arrangement. The detailed descriptions of the design facilities have been discussed in the amendment (section 2.0 to 3.0, amendment, Genesis Solar Energy Project).

The generator tie line that was certified by California Energy Commission (CEC) would travel in a southeasterly direction to a point where it would cross the existing Imperial Irrigation District's Blythe to Eagle-Mountain 161-kV transmission line. From the I-10 crossing, the generator-tie line would continue south, where it would eventually intersect with the Blythe Energy Project Transmission Line (BEPTL). From that point, the generator tie line would travel east and share a portion of the double circuit transmission poles with the BEPTL, where it would eventually terminate at the interconnection point within the proposed CRSS. The 230-kV single circuit generator tie line would be constructed with 795 kcmil, steel reinforced, aluminum conductor with a continuous ampacity rating of approximately 906 amps per conductor or 1816 Amps per bundle. Each circuit would be supported by mono-pole structures at approximately 800 feet intervals with final heights as determined during detailed design.

## **INTERCONNECTION MODIFICATION DUE TO RELOCATION OF THE COLORADO RIVER SUBSTATION**

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**The proposed generators tie line modification options are as follows;**

### **Option One:**

- SCE has moved the CRSS planned location to the south of the BEPTL, as a result changes are necessary to the ROW to allow the gen-tie to cross the SCE Eagle Mountain 160kV line and tie into the BEPTL. The presently approved Right of Way (ROW) does not provide sufficient room to facilitate that crossing. The proposed gen-tie route reflects a due-east path from the GSEP plant site to a point approximately 300 ft. west of Eagle Mountain line. To cross the Eagle Mountain line at a perpendicular angle, the GSEP line will then need to turn east-northeast, paralleling the Blythe-Eagle Mountain line for approximately 720 ft. to a point within the approved ROW. Two new turning structures will be required to cross the Eagle

Mountain line at a perpendicular angle. The GSEP line will then continue south within the approved ROW. One turning structure will be needed north of the Desert Southwest ROW to span future line and connect into BEPTL. A new pole will need to be added west of BEPTL pole number 116 to facilitate the connection of the GSEP line to BEPTL. Because BEPTL poles 116 and 115 are currently single circuit, both poles will need to be exchanged for double circuit poles. BEPTL poles 114 through 88 are already double circuit and the GSEP tie-line will continue along these structures without any additional pole replacements. The GSEP generator tie line would come off the BEPTL structures at pole 88. A new pole would need to be placed approximately 50 feet north of BEPTL pole 87. A large turning structure of concrete, steel or wood would then be placed to the north of BEPTL between poles 87 and 86. The proposed double circuit pole would be approximately 130 ft. high and would allow for a perpendicular crossing over the existing BEPTL.

**Option two:**

- From the plant site, as the GSEP gen-tie line approaches the Eagle Mountain line, the generator tie line would parallel the Eagle Mountain 161kV line and continue North and East of the Wiley's Well rest area. A self-supporting steel turning structure (130 feet high) would be needed to turn the GSEP gen-tie due south and cross over the Eagle Mountain line between Eagle Mountain pole numbers 124699 and 124700. The gen-tie would then travel south for 7900 feet before crossing the future Desert Southwest line at perpendicular angle. A new turning structure 130 feet high approximately 30 feet northeast of BEPTL pole number 114 would be needed to facilitate connecting the gen-tie line to BEPTL Pole 113 which is doubled circuited and ready to accept the GSEP circuit.

The proposed 230-kV single circuit generator tie line options would be constructed with 795 kcmil, steel reinforced, aluminum conductor with a continuous ampacity rating of approximately 906 amps per conductor or 1816 amps per bundle. The proposed single-circuit would be adequate to withstand the full load output of the project. Conditions of Certification TSE-1 through TSE-8 require that the transmission facilities be designed and built in accordance with applicable Laws, Rules, Ordinances and Standards. Additionally, SCE would construct a new distribution power line from north of I-10 south to the CRSS to serve distribution power to the CRSS. The GSEP would need to run a short tap to the distribution line from the West to serve the power to the ring bus switchyard. The applicant has proposed up to six wood distribution poles to be installed to accommodate this tap line.

**The proposed modification due to addition of the switch yard as follows;**

- The proposed 230kV three breaker ring bus switchyard would contain metering and protection equipments required under the LGIA, and it would provide back feed power to facilitate plant commissioning activities that are necessary due to the delay in the CRSS schedule.
- The switchyard consists of 230kV breakers; disconnect switches, Remote Terminal Units (RTU) and telecommunication paths for Special Protection Systems (SPS).

- The ring bus breaker arrangement of the switchyard would facilitate the full interconnection requirements necessitated by the LGIA and would allow GSEP to operate continually without interruption.
- The three breaker ring bus switchyard would facilitate the delivery of the essential temporary 230kV back feed power to the plant from the existing BEPTL. The switchyard would measure 260 ft. long and 180ft wide and cover the area of 46,800 square feet. The switchyard would be designed and built in accordance with the LORS proposed by the final decision.

### **LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE**

- There are no new or changed LORS applicable to the changes proposed in this amendment.

### **CONCLUSION AND RECOMMENDATIONS**

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Staff recommends approval of the requested changes;

- The proposed single circuit would be adequate to withstand the full load output of the project and should be designed and built in accordance to the LORS proposed by the CEC final decision.
- The proposed 230kV three breaker ring bus would contain metering and protection equipments required under LGIA and it would improve the reliability and operational standards of the California ISO's electric transmission facilities.
- The ring bus breaker arrangement of the switchyard would accommodate the full interconnection requirements necessitated by the LGIA and it would allow GSEP to operate continually without any interruption and will improve the reliability and operational standards.
- The proposed interconnection would not affect the GSEP ability to comply with all applicable Laws, Ordinances, Regulations and Standards (LORS). Therefore; Staff proposed COC's would remain unchanged in the final decision of the GSEP project.

### **REFERENCES**

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Genesis Solar Energy Project Eastern Riverside County, California; amendment submitted to the California Energy Commission

**GENESIS SOLAR ENERGY PROJECT (GSEP), 09-AFC-8C**  
**Cultural Resources**  
**Request to Amend Final Commission Decision**  
**Beverly E. Bastian**

## **INTRODUCTION**

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The Genesis Solar Energy Project (GSEP) is a nominal 250-megawatt solar thermal electrical power generating facility currently under construction in eastern Riverside County, about 20 miles east of Blythe, California. The California Energy Commission (Energy Commission) certified the project on September 29, 2010.

Unforeseen and changed circumstances have affected the GSEP's:

- Energy Commission-permitted connection to the electrical grid via the Colorado River Substation;
- Energy Commission-permitted connection to a natural gas supply;
- Large Generator Interconnect Agreement (LGIA) with the California Independent System Operator (CAISO) and Southern California Edison (SCE); and
- Air quality permits from the Mojave Desert Air Quality Management District (MDAQMD) (Genesis Solar, 2012, p. 1).

As explained in the petition received by the Energy Commission on April 13, 2012, these changes caused the project owner, Genesis Solar, LLC (Genesis Solar), to ask the Energy Commission to approve project description changes necessitated by the circumstances listed above.

These changes include:

- Re-routing the project's generator tie-in transmission line (gen-tie line) to connect into the Colorado River Substation in its new location and to cross SCE's Eagle Mountain 160-kV transmission line at a perpendicular angle, as required by SCE;
- Re-routing the project's secondary transmission telecommunication line;
- Re-routing the project's natural gas connection pipeline to a different valve location, as required by the Southern California Gas Company (SoCal Gas);
- Adding a ring bus/switchyard near the Colorado River Substation, into which the GSEP gen-tie line connects, as required by the LGIA; and
- Obtaining updated permits from the MDAQMD that describe the equipment and emissions of the equipment actually purchased for the project (Genesis Solar, 2012, pp. 1, 3–4).

In its petition, Genesis Solar identified, two reconfigured routes for the gen-tie line (Options A and B), two reconfigured routes for the natural gas pipeline (largely coincident with gen-tie line Options A and B), and a new ring bus/switchyard, to be located north of the Colorado River Substation. Option A differs very little from the Energy Commission-permitted route for the gen-tie line and the secondary transmission telecommunication line, while Option B is entirely different from the permitted route until the gen-tie line and the secondary transmission telecommunication line reach the Blythe Energy Transmission Line (Field 2012). The Option A and Option B natural gas pipeline routes both differ from the permitted route (Genesis Solar, 2012, pp. 8–11, figs. 2, 3, 4). These changes have the potential to physically affect cultural resources, whereas



updating the MDAQMD permits does not. Therefore, in its analysis below, cultural resources staff assesses only the potential impacts of the gen-tie routes, the secondary transmission telecommunication routes, the gas pipeline routes, and the ring bus/switchyard.

In connection with its analysis, staff provides an overview of the environmental setting and history of the area where the project is located and an inventory of the cultural resources identified in the area affected by the amended gen-tie line, secondary transmission telecommunication line, and gas pipeline routes, and the new ring bus/switchyard. Staff's analysis entails two evaluations: 1) determining if any of the identified cultural resources that may be impacted by the proposed project changes are historically significant under the California Environmental Quality Act (CEQA), i.e., eligible for the California Register of Historical Resources (CRHR) (Cal. Code of Regs, Title 14, Chap. 3, Sec. 15064.5 (a)); and 2) determining if the proposed GSEP actions would affect any CRHR-eligible cultural resources so adversely that their historical significance would be materially impaired. Such adverse impacts are defined under CEQA as significant impacts to the environment (Cal. Code of Regs, Title 14, Chap. 3, Sec. 15064.5 (b)), requiring either avoidance or mitigation that would reduce the impacts to a less than significant level, or to the extent feasible if impacts cannot be mitigated to a less than significant level.

## **LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS) COMPLIANCE**

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There are no new or changed LORS applicable to the actions proposed in this amendment.

## **SETTING, BACKGROUND, AND ANALYSIS**

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The GSEP is located in the Chuckwalla Valley, in the northwestern part of the Colorado Desert.<sup>1</sup> Over the past 12,000 years, the Chuckwalla Valley's harsh environment and paucity of natural water supplies have been a challenge to the exploitation of natural resources in the region, development of trans-desert routes for the movement of people and goods between more clement places, and establishment of permanent settlements. This challenge confronted both the prehistoric peoples of the region and the later historic-period travelers, miners, and settlers.

The plant site occupies part of the northern edge of Ford Dry Lake, which is a playa (ephemeral lake). But periodically in the past 12,000 years, Ford Dry Lake flooded and held water for sustained periods during which plants and animals flourished in and around it. These resources attracted Native Americans, resulting in prehistoric archaeological sites scattered around the margins of the lake. The Chuckwalla Valley has other playas and several places where the kinds of stone that prehistoric Native Americans used to make tools are concentrated, resulting in associated prehistoric archaeological sites. Other resources used by prehistoric Native Americans for food and materials were seasonally available in the Chuckwalla Valley, so archaeologists find

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<sup>1</sup> Background information below is from Bagwell and Bastian, 2010, pp. C.3-13–C.3-35.

sites in the valley representing almost the full span of prehistory in the area, from about 8,000 years ago up through about 300 years ago.

During late prehistoric and historic times, an extensive network of Native American trails criss-crossed the Colorado Desert and environs. Segments of some trails are still visible, connecting various important natural and cultural landscape elements, such as springs, toolstone sources, and villages. These trails were often marked by votive stone piles (cairns) and ceramic sherd scatters (pot drops), which were isolated scatters of sherds from a single pot, possibly associated with sacred activity. After Native Americans showed the predominant east-west-running trails to Euro-Americans, these trails were adopted by the newcomers to cross and explore the desert.

In the late prehistoric and historic periods, it is unclear which Native American group or groups occupied or used the Chuckwalla Valley, but the Chemehuevi, Serrano, Cahuilla, Mojave, Quechan, Maricopa, and Halchidhoma may all have used the area at different times. Given its east-west orientation and location, the Chuckwalla Valley may have been neutral territory that served as an east-west trade and travel corridor, monopolized by no Native American group in particular.

In its 2010 simultaneous review of the licensing applications of GSEP, Blythe Solar Power Project, and Palen Solar Power Project, Energy Commission cultural resources staff identified a regional cultural landscape (historic district) that staff assumed eligible for the CRHR and to which staff assumed most prehistoric archaeological resources found on the three large project sites were contributors. Staff defined the Prehistoric Trails Network Cultural Landscape (PTNCL) as the Halchidhoma Trail and the associated joining and diverging trails (and trail-related features such as pot drops and rock cairns), and the varied loci of importance to prehistoric Native Americans that these trails connected. These loci included springs (and the playas when they were not dry), food and materials resource areas, and ceremonial sites (geoglyphs, rock alignments, petroglyphs). Staff did not definitively establish the boundaries of the PTNCL, but at this time, staff considers the boundaries to roughly coincide with the geographic boundaries of the Chuckwalla Valley and the Palo Verde Mesa.

During the historic period, Euro-American activities in the Chuckwalla Valley have been centered on the establishment of transportation routes, mineral exploitation, and military uses. The Colorado Desert was seldom visited during the periods of Spanish and Mexican control—the seventeenth and eighteenth centuries. The first Euro-American incursion of any scale into the Chuckwalla Valley occurred in the mid-nineteenth century, when the discovery of gold in California lured thousands of gold-seekers to venture across the uncharted Chuckwalla Valley, the lucky ones traveling between Santa Fe and Los Angeles on Native American trails that connected the few reliable water sources. The building of the Southern Pacific Railroad across the desert in 1883 facilitated the arrival and sustained enterprise of the next influx of Americans into the region, who were, again, in search of minerals. The 1880s and 1890s saw the development of the mining regions of eastern Riverside County, with gold, silver, fluorite, manganese, copper, gypsum, and uranium being produced. Intermittent mining activity has occurred in the area since that time.

The entry of the United States into World War II in late 1941 set the stage for the Chuckwalla Valley's most intensive use in any time period, as a training ground, on a

massive scale, for American soldiers. The Desert Training Center/California-Arizona Maneuver Area (DTC/C-AMA), which was in operation from 1942–1944, was chosen by General George S. Patton, Jr. to prepare troops for the harsh environment and extreme combat conditions of the North Africa Campaign. With the winding down of that campaign in early 1943, the purpose of the DTC/C-AMA became generalized large-scale combat training and maneuvering. At 12,000,000 acres, the DTC/C-AMA was the largest-ever military training center, stretching from west of Pomona, California, halfway to Prescott and Phoenix in Arizona, and north into Nevada. After two years in operation and the training of more than one million troops, the DTC/C-AMA was closed in 1944 as a result of the pressing need in the Pacific theatre for the skills of the training staff. Following the closure of the DTC/C-AMA, dismantling and salvage efforts ensued, and the land was ultimately returned to private ownership and Bureau of Land Management stewardship.

Along with the PTNCL, cultural resources staff identified a second regional cultural landscape (historic district), the Desert Training Center Cultural Landscape (DTCCL), that staff also assumed eligible for the CRHR under Criterion 4 as the largest and only such military training facility in American military history. Most of the cultural resources associated with the DTCCL are archaeological resources, such as refuse deposits, tank tracks, foxholes, and emplacements, but the archaeological remains of airfields, camps, hospitals, and maneuver areas are also known. Staff assumed that all such archaeological resources found on the three project sites are contributors to the DTCCL and thus eligible under CRHR Criterion 4 for their ability to yield information important in history.

Several previous cultural resources surveys identified archaeological sites (prehistoric and historic-period), built-environment resources, and ethnographic resources on and around the Energy Commission-permitted GSEP project site and its linear facility routes (Farmer, et al 2009, Keller 2010, Vargas 2010). These surveys covered most of the area where potential impacts from the currently proposed project changes could affect cultural resources. The Option B gen-tie–gas-pipeline route, however, included 77.6 acres that had not been subject to Class III archaeological survey: specifically, “77.6 acres located on portions of Sections 28, 29, and 33 of Township 6 South Range 20 East, and Section 4 of Township 7 South Range 20 East” on the Hopkins Well 7.5” quadrangle (Tennyson, 2012, p. 1). Consequently, pursuant to submitting its amendment petition to the Energy Commission, Genesis Solar directed the GSEP cultural resources consultant, Matthew Tennyson, to survey that previously unsurveyed area for cultural resources.

This additional survey was done between March 3, and March 6, 2012. The survey covered the width of the Option B route corridor, plus 50 feet to either side, for the entire length of the Option B route, except for a short stretch on the northwest end that had been surveyed previously. The survey used a maximum transect interval of 15 meters (Tennyson, 2012, p. 11, fig. 3). As a result of the survey, four archaeological sites and eight isolated finds were recorded (Tennyson, 2012, pp. 13, 16).

The four sites included:

- GEN-JW-P-001, a scatter of some 25 prehistoric ceramic sherds, apparently from the same vessel (Tennyson, 2012, p. 13);

- GEN-JW-M-002, two adjacent circular military emplacements, 12 ration and food cans, and 5 clear glass fragments (not near either emplacement), and 1 flaked crypto-crystalline silicate (CCS) core (Tennyson, 2012, p. 14);
- GEN-JW-P-003, a single lithic reduction locus consisting of 5 flakes and 2 cores, all CCS (Tennyson, 2012, p. 15) and
- GEN-JW-M-004, a circular military emplacement, with 5 ration cans adjacent, and a scatter of 3 large prehistoric ceramic sherds, apparently from the same vessel, located some 20 meters north of the emplacement (Tennyson, 2012, p. 15).

The eight isolated finds included (Tennyson, 2012, p. 16):

- 2 food cans;
- 2 evaporated milk cans;
- 1 ration can;
- 1 food can;
- 1 greyware potsherd;
- 1 tested cobble;
- 1 CCS secondary flake; and
- 1 CCS primary flake.

Archaeological resources along gen-tie line route Option A (and natural gas pipeline route Option A) were identified and project impacts to them analyzed in staff's 2010 Revised Staff Assessment (Bagwell and Bastian 2010). Energy Commission-imposed Conditions of Certification (COCs) already provide mitigation that reduces GSEP impacts to these resources to a less than significant level, so staff will not include these resources in its analysis here.

The four sites and eight isolated finds from the March, 2012 survey comprise the inventory of newly identified cultural resources that the GSEP project changes could impact, so staff must determine whether any of the resources is historically significant, i.e., eligible for the CRHR. For a cultural resource to be eligible for the CRHR, it must qualify under one or more of the CRHR's four eligibility criteria, which are:

- Criterion 1, the resource is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
- Criterion 2, the resource is associated with the lives of persons important to local, California, or national history;
- Criterion 3, the resource embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values; and/or
- Criterion 4, the resource has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Archaeological resources would usually only qualify under Criterion 4, but isolated archaeological finds generally do not qualify under Criterion 4 since the information they yield or may yield is too limited. M. Tennyson recommended that the eight isolated finds recorded in the March survey are not eligible for the CRHR (Tennyson, 2012, p. 16), and staff agrees with that assessment.

With respect to the four archaeological sites identified in the March, 2012 survey, M. Tennyson recommended that site GEN-JW-M-002 (two military emplacements, ration and food cans and glass fragments, and CCS core); site GEN-JW-P-003 (5 CCS flakes and 2 CCS cores); and the historic part of site GEN-JW-M-004 (a military emplacement and ration cans) do not qualify for the CRHR under any of the four criteria. His rationale for recommending these three resources not eligible under any criteria was that they were not representative of the broad patterns of history (Criterion 1); they were not associated with the lives of persons important in the past (Criterion 2); they do not represent a distinct style, type, design, or method of construction, all being common in the Colorado Desert (Criterion 3); and they have little potential to yield information important to the past (Criterion 4) because the emplacements generally do not yield such information without associated artifacts, and because the CCS cores and flakes are already well represented in the archaeological record (Tennyson, 2012, pp. 14–16).

Staff disagrees with these recommendations. Staff assumes that the lithic scatter site (GEN-JW-P-003) is CRHR eligible under Criterion 4 because it is a contributor to the PTNCL, the prehistoric-era historic district that staff assumed eligible in 2010. Staff also assumes that the two archaeological sites that have military emplacements (GEN-JW-M-002 and GEN-JW-M-004) are eligible for the CRHR under Criterion 4 because they are contributors to the DTCCCL, the historic-period historic district that staff assumed eligible for the CRHR in 2010.

Tennyson also recommended that site GEN-JW-P-001 (a prehistoric ceramic sherd scatter) and the prehistoric part of site GEN-JW-M-004 (also a prehistoric ceramic sherd scatter) are not CRHR-eligible under Criteria 1–3, and are unevaluated under Criterion 4 (Tennyson, 2012, pp. 14, 16). His rationale for recommending the two sites “unevaluated” under Criteria 4 was that the sites may have the potential to yield information important to prehistory because their proximity to the Coco-Maricopa Trail suggests that these ceramic scatters could be associated with a larger resource. In his conclusion, however, Tennyson recommends the two ceramic scatters eligible for the CRHR and advises that a testing program be developed if project impacts to them cannot be avoided (Tennyson, 2012, p. 17).

Staff agrees with Tennyson’s recommendation that the two ceramic scatters—pot drops—are eligible for the CRHR due to their probable association with a prehistoric-ethnohistoric trail, which makes them contributors to the larger resource that staff identified and assumed CRHR eligible in 2010—the PTNCL.

The March 2012 survey did not identify any ethnographic resources or built-environment resources aged 50 years or more located within one mile of the two amended GSEP gen-tie line corridors, but one ethnographic resource and two built-environment resources were identified and analyzed in staff’s 2010 Revised Staff Assessment (Bagwell and Bastian 2010). The ethnographic resource was McCoy Spring National Register Archaeological District, which, although it is located more than one mile from the original and new GSEP linear facility routes, has a setting that includes a view that the project could adversely impact. The two built-environment resources were Wiley’s Well Road and the Blythe-Eagle Mountain 161-kV transmission line, both located within one mile of the original and new GSEP linear facility routes.

McCoy Spring is located in the McCoy Mountains northeast of the GSEP project site. As a reliable natural water source, it was a major focus of prehistoric activity in the region for several millennia. The McCoy Spring National Register Archaeological District has midden deposits near the spring and many petroglyphs on the rocks surrounding it. It is listed in the National Register of Historic Places (NRHP). A resource listed in the NRHP is also automatically listed in the CRHR.

In its 2010 analysis of built-environment resources, staff determined that Wiley's Well Road was associated with important historic trends in regional community and economic development and was, therefore, eligible for the CRHR under Criterion 1. Staff found, however, that only the unpaved, two-track part of the road retained integrity of setting, integrity of feeling, and integrity of association, so only that part of the road was CRHR eligible (Bagwell and Bastian 2010, p. C.3-138).

In 2010, staff concluded that the Blythe-Eagle Mountain 161-kV transmission line was not eligible for inclusion in the CRHR under any criterion because it was not associated with events that have made a significant contribution to broad patterns in our history; was not associated with any historically significant persons; did not embody a distinctive type, period, or method of construction; and was unlikely to yield information important to history (Bagwell and Bastian 2010, p. C.3-139).

In summary, staff has identified two historic districts, four archaeological resources, one ethnographic resource, and one built-environment resource that are eligible, determined eligible, or assumed eligible for the CRHR and located in or near the two GSEP amended gen-tie line and gas pipeline route options, such that they could be subject to impacts from the construction of these linear facilities.

## **DIRECT AND INDIRECT IMPACTS**

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Potential direct impacts to CRHR-eligible cultural resources from the GSEP construction of a gen-tie line, a secondary transmission telecommunication line, a natural gas pipeline, and the ring bus/switchyard could result as follows:

- The excavation of holes in the earth for equipment, building, and fence foundations; or overhead conductor support structure anchorage; or buried conductor conduit or natural gas piping installation can significantly impact the integrity of materials and the integrity of association of a surface or buried archaeological resource;
- The intrusion of groupings of overhead conductors as an incompatible element into the setting of a built-environment or an ethnographic resource can significantly impact the integrity of setting and the integrity of feeling of such resources, and additionally can impact the integrity of association of an ethnographic resource.

Potential indirect impacts to CRHR-eligible cultural resources from the GSEP construction of a gen-tie line, a secondary transmission telecommunication line, a natural gas pipeline, and the ring bus/switchyard could result from:

- The erosion caused by terrain changes that can be associated with a project can significantly impact the integrity of materials and the integrity of association of an archaeological resource located at a lower grade than a project;

- The vibration that can be associated with the excavation of trenches for natural gas piping can significantly impact the integrity of materials of a fragile built-environment resource; and
- The easier public access to an archaeological resource, or an ethnographic resource, or a built-environment resource due to the access road associated with a transmission line can significantly impact the integrity of materials and the integrity of association of any of these resources, and additionally significantly impact the integrity of feeling of an ethnographic resource and a built-environment resource, due to vandalism.

CEQA identifies avoidance as the preferred method of mitigation for significant project impacts to CRHR-eligible cultural resources. The GSEP would be able to avoid impacting any such archaeological resources located on the amended linear facility routes by placing the support structures where no known resources are present and by adjusting the trench routes to miss the known resources. If impacts to CRHR-eligible archaeological resources cannot be avoided, existing GSEP COCs **CUL-10**, **CUL-11**, and **CUL-17** would apply and provide mitigation reducing significant impacts to a less than significant level. To ensure prompt identification and appropriate treatment of potentially CRHR-eligible archaeological resources encountered during the excavation of holes or trenches, existing GSEP COC **CUL-8**, requiring the monitoring of all ground disturbance by an archaeologist and a Native American, would apply. If unanticipated archaeological resources are discovered during the excavations, existing GSEP COC **CUL-9**, specifying how archaeological discoveries shall be treated, would apply and provide mitigation reducing significant impacts to CRHR-eligible archaeological resources to a less-than-significant level.

In its 2010 GSEP project review, staff identified direct and indirect impacts from the overall GSEP on the McCoy Spring National Register Archaeological District, including intrusion of an incompatible element in the District's setting and increased susceptibility to vandalism. These impacts were assessed as substantially adversely affecting the District's integrity of setting, integrity of feeling, and integrity of location (Bagwell and Bastian 2010, p. C.3-142). The Energy Commission's certification imposed GSEP COC **CUL-16** as mitigation for these impacts. The activities proposed in the GSEP amendment are essentially the same, and would result in similar impacts on the McCoy Spring National Register Archaeological District, as those already assessed by staff. Thus the existing GSEP COC **CUL-16** would apply. But the project owner's completion of the requirements of **CUL-16**, as approved by the Energy Commission Compliance Project Manager (CPM), has already provided mitigation for the impacts of the original project to this archaeological district, and, by extension, for the analogous impacts posed by the amended alignments of the GSEP linear facilities and the new ring bus/switchyard, thereby reducing impacts from these activities to the extent feasible.

The 2010 staff assessment of GSEP impacts determined that the part of Wiley's Well Road that could be affected by the GSEP's linear facilities (the southern end) was not CRHR eligible because the integrity of setting and integrity of feeling of that part of the road were compromised by paving and by development in the area, including the rest area, the I-10 freeway, and the Chuckwalla State Prison (Bagwell and Bastian 2010, p. C.3-138). Staff determined that the CRHR-eligible part of this resource was too distant from the GSEP to be significantly impacted by the addition of the plant and its linear facilities into the road's setting. As with the McCoy Spring National Register

Archaeological District, the activities proposed in the GSEP amendment are basically the same, and would result in similar impacts on the eligible part of Wiley's Well Road, as those already assessed and found less than significant by staff; therefore, no mitigation is required.

In summary, the potential impacts of GSEP's amended linear facility routes Option A and Option B on archaeological, ethnographic, and built-environment resources would be the same as those of the original routes, mitigation for whose impacts has already been provided in COCs, and the same for both of the amended route options, when compared to each other. To reduce significant impacts to archaeological resources from either of the amended linear facility routes to a less than significant level, the project would have to adjust its placement of excavated holes along the chosen amended route option to avoid known sites. If known CRHR-eligible sites cannot be avoided along the chosen amended route option, existing COCs **CUL-10**, **CUL-11**, and **CUL-17** would apply. Additionally, per existing COC **CUL-8**, the project would have to monitor the ground disturbance associated with the chosen amended route option and with that of the ring bus/switchyard and follow the requirements of COC **CUL-9** if buried archaeological resources are discovered during these excavations. For the CRHR-eligible ethnographic resource (McCoy Spring National Register Archaeological District), the implementation of existing COC **CUL-16** has provided and would continue to provide mitigation, reducing any significant impacts to this resource from the amended routes to a less than significant level.

Staff recommends no new COCs or modifications to existing COCs.

## **CUMULATIVE IMPACTS**

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In its 2010 analysis of the GSEP's impacts to CRHR-eligible cultural resources, staff determined that this project, together with the contemporaneous Blythe Solar Power Project and Palen Solar Power Project, would have significant cumulative impacts on the two historic districts—the PTNCL and the DTCCL—that staff identified and assumed eligible for the CRHR (Bagwell and Bastian 2010, p. C.3-142). The activities proposed in the GSEP amendment are essentially the same as those of the original project and would result in equivalent cumulative impacts on the PTNCL and DTCCL, already assessed by staff. The existing GSEP COCs **CUL-1** and **CUL-2** mitigate the cumulative impacts of the proposed GSEP on the two historic districts to the greatest extent feasible, and the project owner has completed the requirements of **CUL-1** and **CUL-2**, as approved by the CPM. Therefore, no additional mitigation is required for the analogous impacts posed by the amended alignments of the GSEP linear facilities and the new ring bus/switchyard.

## **CONCLUSIONS AND RECOMMENDATIONS**

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Staff has reviewed the GSEP petition to amend two reconfigured routes for the gen-tie line (Options A and B), two reconfigured routes for the natural gas pipeline (largely coincident with gen-tie line Options A and B), and a new ring bus/switchyard for potential environmental impacts to cultural resources and for consistency with applicable LORS. Based on this review, staff has determined that the GSEP, in



choosing any of the options, would be in conformance with all applicable cultural resources LORS if it continues to comply with COCs **CUL-3** through **CUL-18**.

Staff has determined that CRHR-eligible cultural resources are present at or near the locations of the GSEP's amended linear facility routes, but either the GSEP would have no impact on these resources, or the GSEP can avoid impacts to them by linear route alignment adjustments, or GSEP impacts to them have already been mitigated to a less than significant level by Energy Commission-imposed COCs. Staff recommends that all existing COCs apply to any revised or new linear facility construction to accommodate the possibility that the GSEP cannot avoid known archaeological resources along the amended routes and to ensure that any buried archaeological resources discovered during the construction of the linear facilities are evaluated and significant project impacts to any CRHR-eligible resources are mitigated to a less than significant level.

## **PROPOSED MODIFICATIONS TO CONDITIONS OF CERTIFICATION**

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Staff proposes no new COCs and no modification to existing COCs.

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