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Docket Number:	09-AFC-07C
Project Title:	Palen Solar Power Project - Compliance
TN #:	202877
Document Title:	Modifications to TRANS-7 Heliostat Positioning and Monitoring Plan
Description:	Modifications made to the version of TRANS-7 in the December 2013 PMPD.
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Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	8/4/2014 9:51:34 AM
Docketed Date:	8/4/2014

TRANS-7 HelioStat Positioning and Monitoring Plan

To reduce glint and glare from the project, the project owner shall prepare a HelioStat Positioning and Monitoring Plan (HPMP) that includes the following information (the HPMP shall be implemented during installation of the heliostats and during project operation):

1. Identify the heliostat movements and positions (including during normal operations, daytime mirror-washing, removal of solar flux due to high winds, and all non-normal known operational scenarios and possible malfunctions) that could result in potential exposure of observers at various locations, including pilots, motorists, pedestrians, and hikers in nearby wilderness areas, and the Riverside County PSEC Project Tower, to direct solar reflections from the heliostats (DSRH);
2. Describe within the HPMP how programmed heliostat operation would address potential human health and safety hazards from DSRH (DSRH Events) at locations of observers, and how it would maximally limit or avoid potential exposures. This shall include heliostat positioning and transition algorithm exclusion zones that maximally avoid ground-based DSRH events on the ground and in the air;
3. **Describe within the HPMP how disabling glare to pilots from heliostats in the standby position would be reduced through methods such as limiting the number of mirrors in the standby position, changing the geometry of the standby ring to disperse reflections, improving calibration and positioning algorithms of the heliostats, providing a "light dump" or receiver for heliostat standby reflections, or use of any other method that would effectively mitigate glare**;
3. **4.** Describe how the mirrored surfaces of the heliostats would either be covered or oriented to minimize DSRH events on I-10 and at the Riverside County PSEC Project Tower during construction until calibration activities whereby the heliostats are properly seated, oriented, and under computer control to avoid exclusion zones;
4. **5.** Implement a set of baseline heliostat positioning and control algorithms to minimize DSRH events as soon as realistically possible after heliostat installation. The baseline control algorithms shall initially minimize ground-based DSRH events during site set-up, testing and calibration prior to power generation operations. If this does not work to minimize ground-based DSRH events on I-10, the project owner shall modify the perimeter fencing along I-10 to minimize motorists from experiencing DSRH events experienced by motorists on I-10;

- 5- **6.** Prepare a monitoring plan to quantify the frequency and locations of DSRH events and validate that the DSRH events are minimized by HPMP implementation. **The monitoring plan shall ensure that the project owner continues to try different methods of reducing glare impacts so that there is not a DSRH Event that is a Health and Safety Issue.**

To monitor DSRH events on the ground, This may be implemented with a staring camera system along a known line of sight to ground-based observation points (e.g., I-10) **could be used. DSRH events experienced by pilots could be monitored by flying over and photographing or videotaping the PSEGS, and by seeking out pilot reports of glare from sources such as the NASA Aviation Safety Reporting System (ASRS) and nearby airports and aviation agencies.**

The monitoring plan shall be made available to interested parties, including the DoD, Caltrans, CHP, FAA, Riverside County Economic Development Agency Department of Aviation, the Riverside County ALUC, and the Riverside County Transportation and Land Management Agency. The monitoring plan shall be updated on an annual basis **during project construction and** for the first 5 years **of project operation. The monitoring plan shall be updated** and at 2-year intervals thereafter for the life of the project, **unless the project owner is released from this requirement as discussed in Section 8 of this condition;**

- 6- **7.** Obtain field measurements in candela per meters squared and watts per meter squared to validate that the HPMP avoids the potential for human health and safety hazards consistent with the methodologies detailed in the 2010 Sandia Lab document presented by Clifford Ho, et al., including those studies and materials related to ocular damage referenced within;
- 7- **8.** Provide requirements and procedures to document, investigate and resolve legitimate complaints regarding glint and glare events. This includes establishing a toll-free number for the public to report complaints related to glint and glare and posting this number in the same location as that required in Condition of Certification COMPLIANCE-911;

If no legitimate complaints are received and/or if a legitimate complaint is received and the project owner has resolved the source of the complaint(s) to the satisfaction of the CPM within the first 5 years of project operation, the project owner can request that the CPM release the project owner from the obligations under section 6 of this condition after the 5th year of project operations;

- 8- **9.** The HPMP shall include a communication protocol for Riverside County with specific contact information whereby Riverside County can speak to a representative at the PSEGS site 24 hours a day/seven days a week to respond to requests from the Riverside County PSEC Project to investigate potential interference with operation of the PSEC microwave tower; and

~~The project owner shall notify the CPM within 3 days of receiving a glint or glare complaint. As soon as the complaint has been resolved or within 10 days of the complaint, the project owner shall submit to the CPM a report in which the complaint(s) as well as the actions taken to resolve the complaint are documented. The report shall include: (a) a complaint summary including the name and address of the complainant; (b) a discussion of the steps taken to investigate the complaint; (c) the reasons supporting a determination of whether or not the complaint is legitimate; and (d) the steps taken to address the complaint and the final results of these efforts. This information shall be included in the Monthly Compliance Reports.~~

Verification: Sixty (60) days prior to the start of construction, the project owner shall prepare and submit to the CPM for review and approval a plan for baseline heliostat positioning and control algorithms **and other methods** to minimize DSRH Events after heliostat installation and during site set-up, testing, and calibration. Ninety (90) days prior to the start of operation of any unit, the project owner shall submit the remainder of the HPMP describing how the above measures will be implemented to reduce glint and glare during project operation, and how monitoring will occur.

If the project owner receives a complaint regarding glint or glare, the owner shall conduct an investigation to determine whether the complaint is legitimate and if the project is the source of such glint or glare. If it is determined that the complaint is legitimate and the project is the source of such glint or glare, the project owner shall take all feasible measures to eliminate or reduce the glint or glare. Such measures may include localized screening.

The project owner shall notify the CPM within 3 days of receiving a glint or glare complaint. **The complaint shall be** ~~As soon as the complaint has been resolved or within 10 days~~ **or at another time agreed to by the CPM, at which time** ~~of the complaint~~ the project owner shall submit to the CPM a report in which the complaint(s) as well as the actions taken to resolve the complaint(s) are documented. The report shall include: (a) a complaint summary, including the name and address of the complainant; (b) a discussion of the steps taken to investigate the complaint; (c) the reasons supporting a determination of whether or not the complaint is legitimate; and (d) the steps taken to address the complaint and the final results of these efforts. This information shall be included in the **Annual** ~~Monthly~~ Compliance Reports.

If no legitimate complaints are received and/or if a legitimate complaint is received and the project owner has resolved the source of the complaint(s) **to the satisfaction of the CPM** within the first **5-12 years** ~~months~~ of project operation, the project owner can request that the CPM release the project owner from the obligations under section ~~s~~ 5 and 6 of this condition after the **5th year** ~~12th month~~ of project operations.