

3.2 TRANSMISSION SYSTEM ENGINEERING

The CAISO is responsible for developing standards to achieve system reliability and ensuring overall reliability of the transmission system in the State. The CAISO has reviewed and issued a preliminary approval of the System Impact Study (SIS) and Facility Study for the Project, which was prepared by SCE. The conditions outlined in the System Impact Study and Facility Study would be unchanged under the Modified Project.

The Commission examined whether the Approved Project's transmission interconnection would conform to all applicable LORS required for safe and reliable electric power transmission. In its review, the Commission Decision concluded that:

with implementation of the required facilities and the Conditions, the requirements and standards of all applicable engineering LORS would be met;

the SIS demonstrated that the addition of the Project would cause new normal (N-0) and single contingency (N-1) overloads on the Lugo No. 1 & No. 2 500/230 kV transformer banks and the Lugo-Pisgah 230 kV lines during heavy summer peak and light spring conditions; however, with all pre-project upgrades and project-related upgrades, the base overloads were eliminated;

the SIS also evaluated transient and post transient scenarios; the study concluded that the system remained stable with the implementation of pre-project and proposed project-related system upgrades; and

the Project would meet the requirements and standards of all applicable LORS upon compliance with the recommended Conditions (Commission Decision, pages TSE 6 and 7, 2010).

Under the Modified Project, the location of the Project phases and generation technology would require a change to the location of the on-site substation, but would not change the size or nature of the interconnection with the existing transmission system at the Pisgah Substation or the reliability of the California's electricity system.

3.2.1 Engineering Baseline

In evaluating the Project during the certification proceeding, the Commission considered the proposed transmission interconnection facilities, the impacts on SCE's transmission system, and cumulative impacts on the transmission system considering other foreseeable generation projects (Commission Decision, pages TSE 1 to 5). Under the Modified Project, the description of the on-site electrical collection system would be changed from the description in the Commission Decision because of the differences

between the SunCatcher and PV technologies. Those changes are discussed in the Project Description section of this Amendment.

The on-site substation under the Modified Project would remain substantially as described in the Commission Decision, except for its location. The substation would be relocated south of the railroad on the eastern side of the Project site, adjacent to the SCE Pisgah Substation. This change would provide several advantages including: (1) minimizing access issues for Phase 1, (2) reducing the length of the transmission line from the 2 miles originally specified, to approximately 500 feet, and (3) reducing the number of transmission towers from 15 to no more than 3. A one-line diagram for the Modified Project will be submitted under separate cover.

The expansion and eventual upgrading of the Pisgah Substation and upgrade of the Lugo to Pisgah transmission line would still be required to accommodate the Modified Project and other generation facilities proposed in the region. However, the Modified Project would not impact these activities.

As noted in the Commission Decision, SCE has prepared the SISs required to identify and evaluate impacts of the Approved Project on the transmission system. These studies include power flows, sensitivity analyses, short circuit studies, and transient and post-transient analyses for the 275 MW Phase 1 of the Project and the initially proposed 575 MW Phase 2. Based on the conclusions of these studies and conditions established, the Commission concluded that "...the outlet lines and termination of Phases 1 and 2 of the proposed Calico Solar Project are acceptable and would comply with all applicable LORS" (Commission Decision, page TSE 4). The Modified Project would not alter the interconnection, and CAISO has previously determined that the conversion from SunCatcher to PV would not be a material change to the existing LGIA.

In terms of the impacts of the Project and other existing and foreseeable power plants proposed to interconnect to the SCE transmission system, the Commission concluded that "The existing transmission system in the Project area lacks additional capacity and would require upgrades for any projects not currently interconnected to the grid." The Commission also concluded that "The impacts identified in the SIS would be mitigated with the identified recommended measures and conditions of certification, which would minimize the Project's contribution to cumulative impacts" (Commission Decision, page TSE 5). The Modified Project would not require a change to this conclusion.

3.2.2 Consistency with LORS

In its Commission Decision, the Commission concluded that, with the implementation of the Conditions, the Approved Project would comply with all applicable LORS. As with the Approved Project, the Modified Project would comply with all applicable LORS, and no new or additional LORS have been identified.

3.2.3 Conditions of Certification

The conforming changes to the Conditions for the Modified Project related to Transmission System Engineering are:

TSE-5 The project owner shall ensure that the design, construction, and operation of the proposed transmission facilities conform to all applicable LORS, including the requirements listed below. The project owner shall submit the required number of copies of the design drawings and calculations as determined by the CBO.

1. The Calico Solar Project shall be interconnected to the SCE grid via a segment of 230kV, 1590 kcmil-ACSR, approximately 500 foot ~~2-mile~~ long single circuit extending from the new substation on the project site to the Pisgah SCE Substation.