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<th><strong>Docket Number:</strong></th>
<th>13-AFC-01</th>
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<td><strong>Project Title:</strong></td>
<td>Alamitos Energy Center</td>
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<td>Data Responses, Set 6A</td>
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<td>Revised Responses to Data Requests 160, 161, and 163</td>
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<td><strong>Filer:</strong></td>
<td>Cindy Salazar</td>
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<td>Applicant Consultant</td>
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Alamitos Energy Center
(13-AFC-01)

Data Responses, Set 6A
(Revised Responses to Data Requests 160, 161, and 163)

Submitted to
California Energy Commission

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Attached are AES Southland Development, LLC’s (AES or the Applicant) responses to the California Energy Commission (CEC) Staff Data Request, Set 6 (numbers 83 through 168) regarding the Alamitos Energy Center (AEC) (13-AFC-01) Supplemental Application for Certification (SAFC).

The responses are grouped by individual discipline or topic area. Within each discipline area, the responses are presented in the same order as the CEC presented them and are keyed to the Data Request numbers (83 through 168).

New or revised graphics or tables are numbered in reference to the Data Request number. For example, the first table used in response to Data Request 83 would be numbered Table DR83-1. The first figure used in response to Data Request 90 would be Figure DR90-1, and so on. Figures or tables from the AEC SAFC that have been revised have “R” following the original number, indicating revision.

Additional tables, figures, or documents submitted in response to a data request (for example, supporting data, stand-alone documents such as plans, folding graphics, etc.) are found at the end of each discipline-specific section and are not sequentially page-numbered consistently with the remainder of the document, though they may have their own internal page numbering system.
Transmission System Engineering (160 to 168)

Staff needs to determine the transmission system impacts of the project and to identify the interconnection facilities, including downstream facilities, needed to support the reliable interconnection of the proposed Alamitos Energy Center (AEC) in the Southern California Edison Company (SCE) System. The proposed interconnection facilities must comply with the utility (SCE) rules for new interconnection, California Public Utilities Commission (CPUC) General Order (GO) 95 and the CPUC GO 128. The interconnection must also comply with the SCE Reliability and Planning Criteria, North American Electric Reliability Corporation (NERC) Reliability Standards, Western Electricity Coordinating Council (WECC) Regional System Performance Criteria, and the California Independent System Operator (California ISO) Planning Standards for impacts in the California ISO system. In addition, the California Environmental Quality Act (CEQA) requires the identification and description of the “Direct and indirect significant effects of the project on the environment.” For the compliance with planning and reliability standards and the identification of indirect or downstream transmission impacts, staff relies on the System Impact Study (SIS) and Facilities Study (FS) as well as review of these studies by the agencies responsible for insuring the interconnecting transmission grid meets reliability standards. The studies analyze the effect of the proposed project on the ability of the transmission network to meet reliability standards. When the studies determine that the project will cause the transmission system to violate reliability requirements, the potential mitigation or upgrades required to bring the system into compliance are identified. The mitigation measures often include modification and construction of downstream transmission facilities. The CEQA requires environmental analysis of any downstream facilities for potential indirect impacts of the proposed project.

BACKGROUND

The description of the AEC switchyard and interconnection facilities between the generators and the SCE Alamitos 230 kV switchyard, including the generators, major equipment and their ratings in the October, 2015 Supplemental Application, is incomplete (Section 3.1, Pages 3-1 to 3-2, Figures 3.1-1 & 3.1-2).

DATA REQUEST

160. Resubmit the Electrical System One-Line Diagram, Figure 3.1-1, and provide a complete and labeled electrical one-line diagram of the proposed AEC switchyard showing the generators with their respective nominal MW ratings, and all equipment for each generator’s interconnection with the switchyard. The diagram should show:

a. Each Generator’s nominal MW rating and voltage.

b. Any bus duct connectors or cables with ampere ratings from the 13.8 kV/16 kV breaker/switchgear to each new generator and to low side of each generator step-up transformer.

c. The percentage impedance of each generator step-up transformer at its base MVA rating.

d. The short overhead lines or conductors on the 230 kV side of each step-up transformer with their respective size, ampere rating, and configuration between each generator step-up transformer high side and each AEC switchyard 230 kV bus.

e. Provide ampere ratings of each AEC 230 kV switchyard bus with their configuration including generator tie lines and their respective ratings.

Response: Revised Figure 3.1-1R presents a revised electrical system one-line diagram of the proposed AEC switchyard.

161. Provide a legible physical layout drawing (plan view) of the pre and post-project AEC switchyard along with the SCE Alamitos center 230 kV switchyard showing fence lines, all major equipment, gen tie lines and transmission line outlet(s) with proper labeling.
**Response:** Revised Figure DR161-1R presents a legible plan view of the pre- and post-project AEC switchyard along with the SCE Alamitos center 230 kilovolt (kV) switchyard showing fence lines, all major equipment, gen tie lines and transmission line outlet(s) with proper labeling.

163. Refer to the Typical Transmission Tower Design Figure 3.1.2 and submit new, legible drawings of the transmission structures including dead-end and intermediate structures which will be used for construction of the two Gen Tie overhead lines.

**Response:** Revised Figures 3.1-2aR and 3.12bR presents a legible drawing of the transmission structures, including dead-end and intermediate structures which will be used for construction of the two gen tie overhead lines.
230 kV Switchyard for Main Breaker, Main disconnect switch and CAISO Metering Units to serve Block #2

230 kV Switchyard for Main Breaker, Main disconnect switch and CAISO Metering Units to serve Block #1

6-Type D Structures

230 kV transmission line to SCE Alamitos west bus for future Block #2

Structure Type D

Structure Type G

Structure Type G

Structure Type G

Structure Type B

Structure Type C

Structure Type G

Structure Type C

Structure Type F

FIGURE DR161-1R
Transmission Structure Locations
Alamitos Energy Center
Long Beach, California
January 2016
FIGURE 3.1-2a
Typical Transmission Tower
Alamitos Energy Center
Long Beach, California
January 2016

Single Circuit Horizontal Dead End
Structure Type A

Single Circuit Dead End
Structure Type B

Double Circuit Dead End
Structure Type C