

Southern California Edison
MESA PTC A.15-03-003

DATA REQUEST SET A1503003 ED-SCE-02

To: ENERGY DIVISION
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Title: Project Engineer
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Question 07 C, D, & E:

- C. Describe the remaining operational life of the current Mesa Substation.
- D. If the current substation was left operating, what actions, if any, would SCE take to extend its operational life?
- E. Describe how long one transformer bank would meet reliability needs under the relevant reliability standards.

Response to Question 07 C, D, & E:

The Proposed Project was ultimately selected because it would address reliability concerns resulting from the recent retirement of SONGS and the Once Through Cooling (OTC) shutdowns expected by the end of 2020. Additionally, it is technically feasible, would not require condemnation of any existing properties, and would result in the fewest potential environmental impacts while still meeting the project objectives, including the timeline when the Project is needed.

Establishing the Project at the existing Mesa Substations meets the following fundamental objectives: (1) Provide safe and reliable electrical service; (2) Address reliability concerns resulting from the recent retirement of the San Onofre Nuclear Generation Station (SONGS) and from the OTC shutdowns expected by December 31, 2020; (3) Allow greater flexibility in the siting of future generation projects to meet local reliability needs in the Western Los Angeles Basin, while reducing the total amount of new generation required by providing additional transmission import capability; (4) Maintain or improve system reliability within the Electrical Needs Area; (5) Comply with all applicable reliability planning criteria required by North American Electric Reliability Corporation (NERC), Western Electricity Coordinating Council (WECC), and CAISO; (6) Meet Proposed Project needs while minimizing environmental impacts; and (7) Design and construct the Proposed Project in conformance with SCE's approved engineering, design, and construction standards for substation, transmission, subtransmission, distribution, and telecommunications system projects. With that said, SCE has answered the questions above, but reiterates that retaining the existing substation and associated equipment as-is or in a reduced project configuration would not allow SCE to meet the goals for the Project.

C. The remaining operational life of the current Mesa Substation is indefinite. There are no identified needs within the 10-year system planning horizon to increase the capacity of either the existing 840 MVA (3 x 280 MVA) 220/66 kV transformer banks or the existing 56 MVA (2 x 28 MVA) 66/16 kV transformer banks. There is an identified need for one additional 16 kV circuit to be added in approximately 2023.

D. In order to extend the operational life of the existing Mesa Substation, SCE would simply continue to perform applicable equipment inspections and preventative maintenance, including any as-needed, condition-based equipment replacement.

Although a majority of the existing circuit breakers at all voltage levels are in very good condition, a small number (e.g., four 16 kV circuit breakers and one 66 kV circuit breaker) are in poor condition based on contact resistance condition, number of interrupting operations, oil condition (where applicable), and gassing events and would likely be replaced as a part of SCE's normal infrastructure replacement program within the next few years, though a specific schedule has not been determined for these specific pieces of equipment as of the date of this response.

The average age of the circuit breakers are as follows:

220 kV circuit breakers: 12.7 years

66 kV circuit breakers: 13.6 years

16 kV circuit breakers: 29.9 years

The health condition of the transformer banks range from fair to very good. The transformers that are in fair condition are primarily impacted by age and poor oil quality. SCE's normal infrastructure replacement program had previously identified a schedule to replace two of the three 280 MVA 220/66 kV transformers in the 2018-2019 time frame, if the Mesa Upgrade Project did not occur.

The average age of the transformers are as follows:

220/66 kV transformers (3 x 280 MVA each): two units approximately 46 years (both scheduled for replacement in 2018-2019), one unit approximately 15 years

66/16 kV transformers (2 x 28 MVA each): each approximately 14 years

E. As described in more detail in SCE's response to Question #7.B, installing only one 1120 MVA 500/220 kV transformer bank would not meet reliability needs under the relevant reliability standards.