

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

DATA REQUEST SET A1503003 ED-SCE-06

To: ENERGY DIVISION
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Question 03.a:

Alternatives: Load Shedding and Reconductoring

CPUC is evaluating an alternative that would involve load shedding in Mission Viejo and reconductoring the Serrano – Villa Park #1 and Serrano – Villa Park #2 transmission lines to increase their capacity. Reconductoring would utilize three 1500-ampere conductors per phase. The intent of load shedding in Mission Viejo would be to address the voltage issues following the 500-kV N-1-1 contingency. The intent of reconductoring the Serrano–Villa Park #1 and Serrano–Villa Park #2 transmission lines would be to increase their capacities to prevent overload on either line following the 230-kV contingency. Preliminary analysis indicates this alternative could address the 230-kV contingency and 500-kV contingency.

Provide the following information regarding this potential alternative to allow for full analysis:

- A. State whether SCE concurs that the load shedding and reconductoring alternative would meet the objectives of the proposed project (i.e., addressing overloads following the 230-kV N-1-1 contingency and voltage issues following the 500-kV N-1-1 contingency).

Response to Question 03.a:

SCE does not concur that the load shedding and reconductoring alternative as described in the question would meet the objectives of the proposed project. The first component of the proposed alternative is load shedding at Mission Viejo. From a grid reliability perspective, load shedding is less robust in resolving contingencies relative to transmission. Once installed, transmission facilities provide continuous capacity to enable power to safely re-route not only for studied contingencies, but also for other contingencies. These contingencies includes both extreme events (as defined in NERC TPL 001-4) as well as contingencies not anticipated in planning assessments. In contrast, any reliability benefits from load shedding plans are fixed to a predetermined set of contingencies and conditions.

A violation caused by an N-1-1 contingency can later be caused by an N-1 contingency as the area load increases. If what is currently an N-1-1 overload issue evolves into an N-1 overload issue, load shedding is generally no longer acceptable under NERC Reliability Standards and mitigation options may be very limited.

The other component of this proposed alternative, reconductoring, also does not meet project

objectives. Without the Proposed Project, there is increased base case flow through the Serrano Corridor. Reconductoring the two Serrano – Villa Park 230 kV lines shifts the problem downstream and results in overloads on the Barre – Lewis and Barre – Villa Park 230 kV transmission lines. The proposed alternative does not maintain compliance with the NERC reliability criteria. Therefore, this alternative does not meet the project objectives.

Though the specific conductor type was not provided, based on the ampacity specified and the number of bundles, additional impacts are discussed below. The Serrano - Villa Park lines currently consist of two bundled conductors per phase. The proposed alternative of three bundles per phase would likely require new towers capable of handling either the increased weight and/or the alternate configuration caused by the extra bundle. This would increase environmental impacts and require additional environmental evaluation and licensing efforts, making it unlikely that the project would be able to meet the regulatory mandated need date. Furthermore, the extra bundle would likely reduce the line impedance between Serrano and Villa Park substations, leading to increased short circuit duty throughout the electrical system. Because this area is already constrained in this manner, any incremental increase in short circuit duty may trigger the need for substantial substation upgrades in the surrounding area, which would also create additional unforeseen impacts.