

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

DATA REQUEST SET A1503003 ED-SCE-02 Follow-Up

To: ENERGY DIVISION
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Dated: 08/06/2015

Question 01.C (04-01):

Remedial Actions to Address N-1-1 Scenario

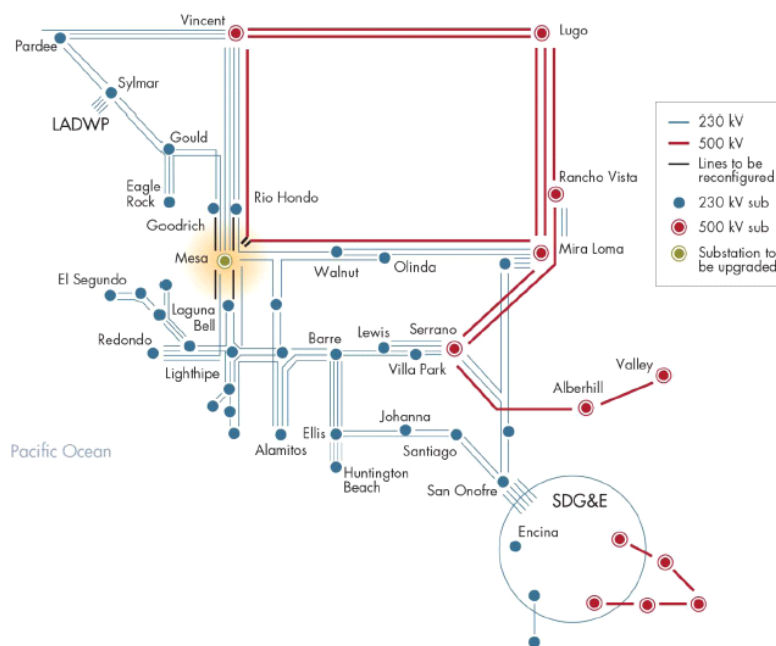
Please provide the following information regarding remedial actions taken for the second outage in the N-1-1 contingency studied for the Mesa Substation:

C. State where voltage issues arise in SCE's system in the N-1-1 contingency that SCE states necessitates the proposed project.

Response to Question 01.C (04-01):

By 2021, in compliance with State Water Resource Control Board requirements, nearly 6,100 MW of Once Through Cooling generation will be retired. Without this generation, under periods of peak load, both the Western LA Basin and SDG&E service area rely on the transmission system to import a significant amount of power from outside the local area to serve load. The power would flow into these areas from the east and north. The diagram below from the CAISO 2013/2014 Transmission Plan depicts the transmission system encompassing the Western LA Basin as well as San Diego.

Figure 2.6.3: Diagram of the Mesa 500 kV Loop-in Project



NERC, WECC, and CAISO transmission planning standards require that SCE study a loss of two major transmission lines. The most critical regional contingency is a loss of the two 500 kV lines that feed SDG&E from the East; Eco – Miguel 500 kV and Ocotillo – Suncrest 500 kV. These lines are shown in the figure above as the two red lines entering the circle representing SDG&E’s load area. When these two lines are lost, SDG&E is completely cut off from the East and power to serve their load must flow through the SCE 230 kV system as well as the single remaining 230 kV tie into Mexico. This re-routed power flows through lines in the Western LA Basin and causes thermal overloads and voltage violations which were identified in CAISO’s 2013/2014 Transmission Planning Process (TPP). The voltage issues identified for this regional N-1-1 contingency (loss of the two major 500 kV lines which serve SDG&E) are located at substations spread throughout the Western LA Basin.

In order to address these violations, the Commission authorized procurement of generation to replace a portion of the power lost from OTC units. Consistent with this procurement authorization, SCE is currently seeking approval at the CPUC for contracts in the Western LA Basin totaling 1,882 MW. In addition, in the 2013/2014 TPP, CAISO performed an analysis to determine the transmission solutions necessary to maintain reliability in Southern California considering the loss of SONGS and the expected loss of OTC generation. In March 2014, the CAISO Board of Governors approved the Proposed Project as part of a group of projects necessary to maintain reliability. This group, referred to by the CAISO as “Group 1” consisted of the Proposed Project as well as installation of an additional 450-700 MVAR of dynamic reactive support at or near the SONGS Mesa (for a total installation of 2,100 MVAR of reactive support spread throughout the Western LA Basin and SDG&E), phase shifting transformers (2x400MVA) at Imperial Valley to regulate power flow from Mexico, and installation of reactive support at Huntington Beach.

In addition to the proposed replacement generation and transmission projects, the complete mitigation also assumes that all preferred resources and energy efficiency fully appear in the forecasted locations. All of these components were modeled in the SCE's power flow basecases provided in response to Data Request Set 1, Question 1.