

Sycamore-Penasquitos 230 kV Line Description and Functional Specifications Eligible for Competitive Solicitation

Sycamore-Penasquitos 230 kV Line Description and Functional Specifications

1. Background

The ISO identified, in the 2012-2013 Transmission Plan, the Sycamore-Penasquitos 230 kV Line as a reliability-driven project eligible for competitive solicitation because of its additional policy benefits. The ISO Board of Governors approved the 2012-2013 Transmission Plan during the March 20-21, 2013 board meeting. Following the approval of the transmission plan, the bid window, where project sponsors can submit proposals to finance, construct, and own the Sycamore-Penasquitos 230 kV Line is open from April 1, 2013 through June 3, 2013. Below is the description and functional specifications for this project. The project sponsor application can be found on the ISO website at:

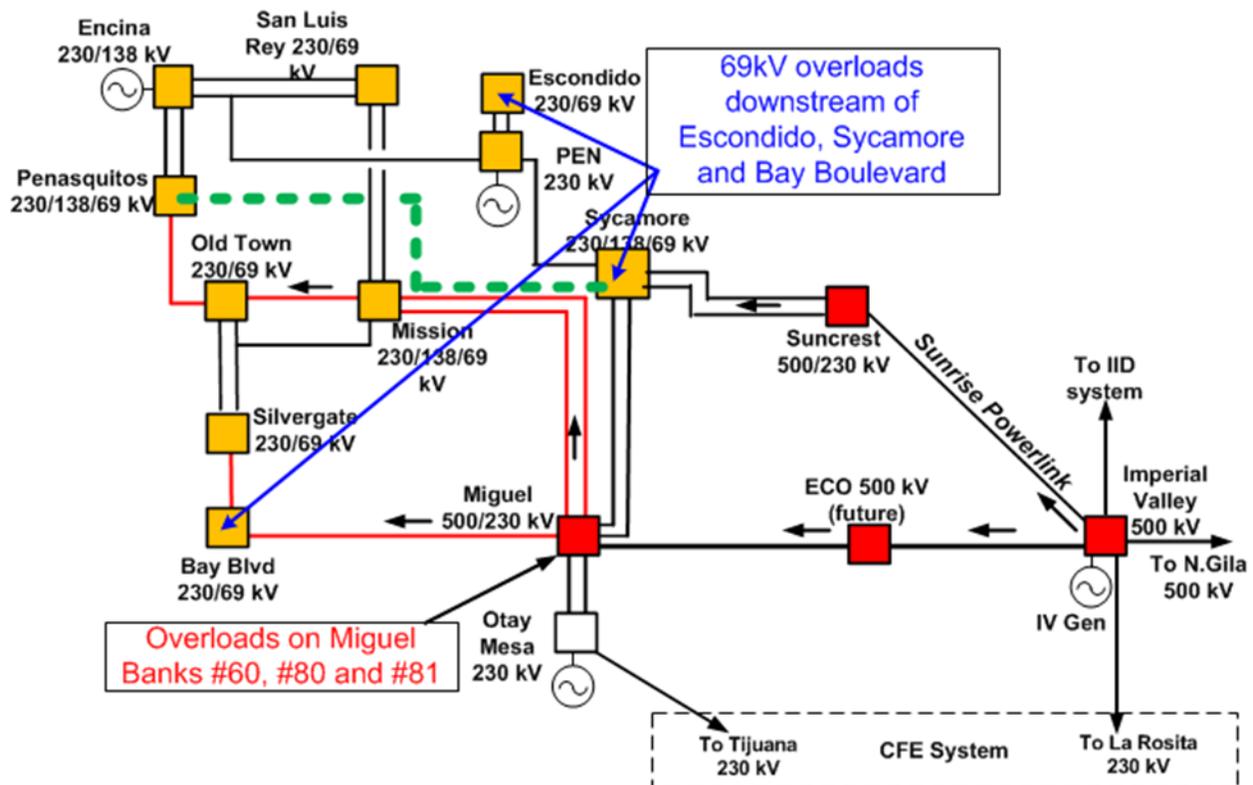
<http://www.caiso.com/Documents/Transmission%20planning%20forms>.

More information on Phase 3 of the TPP can be found in the Transmission Planning Process BPM on the Business Practice Manual Change Management webpage at

<http://www.caiso.com/rules/Pages/BusinessPracticeManuals/Default.aspx>. The current Transmission Planning Process BPM and proposed changes through the BPM Change Management process can be found at this location.

2. Description

In the 2012-2013 Transmission Plan, the ISO identified a policy driven need for a 230 kV transmission line between SDG&E owned Sycamore and Penasquitos 230 kV substations, as depicted below:



The ISO estimates that the cost of the 230 kV line will be between \$111 and \$221 million. This proposed transmission configuration will provide a means by which renewable generation MW in the ISO interconnection queue can quickly and efficiently be delivered to the existing ISO grid, while minimizing environmental impacts in the IID service territory.

3. Functional Specifications¹

Line Terminus 1: SDG&E Sycamore Canyon 230 kV Bus

Line Terminus 2: SDG&E Penasquitos 230 kV Bus

Nominal Phase to Phase Voltage: 230 kV

Approximate Line Impedance (Ohms): (0.0005 to 0.001) + j(0.005 to 0.01) pu 100 MVA base.

Approximate Line Length: 11 miles

Latest In Service Date: May, 2017

Transmission Line Minimum BIL: 1,050 kV (900 kV for solidly grounded systems)

Minimum ROW Width: Per applicable codes.

Governing Design and Construction Standards: (GO 95, GO 128, NESC Code, applicable municipal codes).

Overhead Line Construction

Minimum Continuous Ampacity - Summer: 2,290 Amps (~912 MVA)

Minimum Continuous Ampacity – Winter: 2,290 Amps (~912 MVA)

Minimum 4 Hour Emergency Ampacity – Summer: 2,950 Amps (~1175 MVA)

Minimum 4 Hour Emergency Ampacity – Winter: 2,950 Amps (~1175 MVA)

Approximate Series Compensation Level: N/A

Support Structures: Single circuit structures or underground.

¹ The ISO has identified the need for the specified AC transmission line with at least 1175 MVA of capacity. However, it is expected that a DC transmission line from Sycamore to Penasquitos with at least 1175 MVA of capacity would also meet the identified need.

Shield Wire Required: Optical ground wire (minimum 6 pairs of fibers)

Failure Containment Loading Mitigation (anti-cascade structures, etc.): Per applicable codes.

Shield Wire Ground Fault Withstand Ampacity: Coordinate with interconnecting PTOs.

Aeolian Vibration Control (Conductor and Shield Wire): Vibration dampers must be installed on all overhead conductors and shield wires, with the exception of slack spans.

Underground Construction (if required)

Minimum Ampacity – Summer and Winter: Must meet the minimum continuous and emergency Ampacity of the overhead portion.

Spare Conduit: A spare conduit to be installed, if conduit/manhole construction is used.

Insulation type: If conduit/manhole construction is used, then solid dielectric is preferred.