

Gates-Gregg 230 kV Description and Functional Specifications for Competitive Solicitation

Gates-Gregg 230 kV Line Description and Functional Specifications

1. Background

The ISO identified, in the 2012-2013 Transmission Plan, the Gates-Gregg 230 kV Line as a reliability-driven project eligible for competitive solicitation because of its additional policy and economic 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 Gates-Gregg 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>.

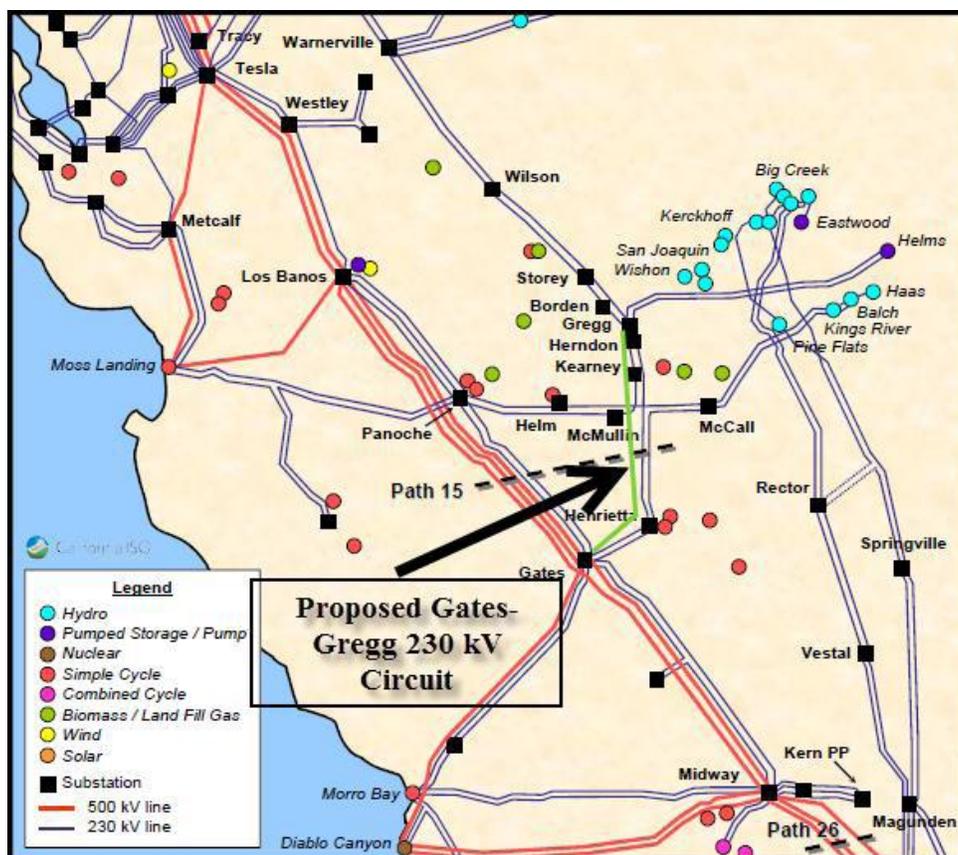
More information on Phase 3 of the TPP can be found in the Transmission Planning Process BPM on the Business Practice Manual Change Management webpage at

<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 reliability project with additional policy and economic benefits for a 230 kV transmission line between the PG&E owned Gates and Gregg 230 kV substations, as depicted below:



The Gates-Gregg 230 kV Line is to be constructed as a double circuit 230 kV line with one side strung. This will facilitate future development requirements to supply load or integrate renewable generation in the area while minimizing the future right of way requirements compared to single circuit development. In addition, it would be preferable to route the Gates-Gregg 230 kV line in the vicinity of the area identified as Raison City junction. This will provide for long-term planning of the area to allow for the potential future development of a switching station to interconnect this line with the existing 230 kV lines in the area.

The ISO estimates that the cost of the 230 kV line will be between \$115 and \$145 million. The analysis identified the need for the Gates-Gregg 230 kV line in the 2022 timeframe as indicated in the transmission plan. The ISO notes that an earlier in-service date can be rationalized due to the benefits the project provides and this can be explored in more detail in the competitive solicitation process.

3. Functional Specifications

Overhead Line Construction

Line Terminus 1: PG&E Gates 230 kV Bus

Line Terminus 2: PG&E Gregg 230 kV Bus

Nominal Phase to Phase Voltage: 230 kV

Minimum Continuous Ampacity - Summer: 1,893 Amps (~754 MVA)

Minimum Continuous Ampacity – Winter: 2,069 Amps (~824 MVA)

Minimum 4 Hour Emergency Ampacity – Summer: 1,893 Amps (~754 MVA)

Minimum 4 Hour Emergency Ampacity – Winter: 2,069 Amps (~824 MVA)

Approximate Line Impedance (Ohms): $(0.01) + j(0.08)$ pu 100 MVA base

Approximate Series Compensation Level: N/A

Approximate Line Length: 59 miles

Latest In Service Date: May, 2022

Support Structures: Double circuit structures – strung one side (one circuit).

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.

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

Minimum ROW Width: Per applicable codes; ROW should be close to Raison City Junction.

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