

# **ANNUAL PROGRESS REPORT**

Gates 500 kV Dynamic Reactive Support Project  
Orchard Substation

Submitted by:  
LS Power Grid California, LLC

February 23, 2024

---

## Gates 500 kV Dynamic Reactive Support Project

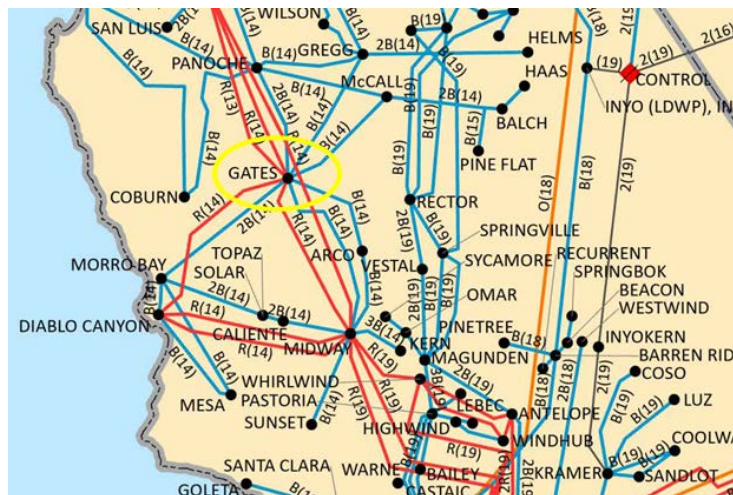
### Project Background:

During the 2018-2019 Transmission Planning Process (TPP), CAISO staff performed a comprehensive assessment of the CAISO controlled grid to ensure compliance with applicable NERC reliability standards and CAISO planning standards and tariff requirements. The assessment identified a need for +/-800 MVar Dynamic Reactive power Support (DRS) for reliability purposes at PG&E's Gates 500 kV substation. The CAISO governing board approved the Gates 500 kV DRS project (Project) on March 27, 2019<sup>1</sup>. CAISO then completed a competitive solicitation process and selected LS Power Grid California, LLC (LSPGC) as the project sponsor for the Project.

Since the Project is not a transmission path and is a new addition on which an Existing or Accepted Rating does not depend, the WECC path rating process is not applicable. However, in 2021, LSPGC initiated an Affected System Study in accordance with the WECC Project Coordination Process for the Project. On July 19, 2021, at the request of LSPGC, WECC sent an open invitation for interested parties to join the WECC Project Coordination Review Group (PCRG) and participate in the study. The study was completed and the report was submitted to the WECC Reliability Assessment Committee (RAC) and Studies Subcommittee in July 2022. The RAC confirmed that LSPGC successfully completed the WECC Project Coordination Process for the Project in August 2022.

### Project Description:

The Project consists of two  $\pm 424$  MVAR STATCOM blocks interconnecting to the 500 kV bus at the Gates substation. The geographical location of the Gates 500 kV substation in relation to the adjacent paths and other major transmission facilities is shown below in **Figure 1**. LSPGC will construct and own a new substation (Orchard) containing the STATCOMs adjacent to Gates 500 kV substation. The STATCOMs will be connected to the Gates 500 kV bus via two (2) 500/97.5 kV transformers located inside of the new Orchard substation and two (2) short (< 0.5 mi) 500 kV overhead transmission lines to be constructed and owned by PG&E. Two new Points of Interconnection will be established between LSPGC and PG&E on dead-end take-off structures at Orchard near the high-side of the 500/97.5 kV transformers.

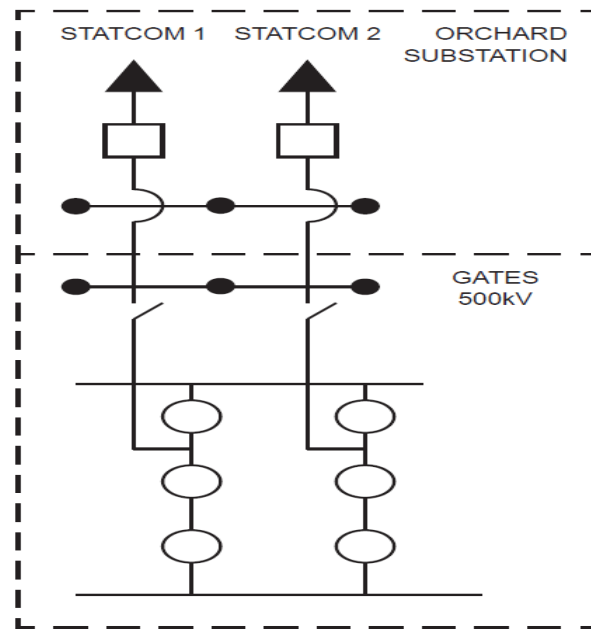


**Figure 1: Location of the Gates 500 kV Substation in WECC**  
(Source of the map: WECC Website<sup>2</sup>)

<sup>1</sup> [http://www.caiso.com/Documents/ISO\\_BoardApproved-2018-2019\\_Transmission\\_Plan.pdf](http://www.caiso.com/Documents/ISO_BoardApproved-2018-2019_Transmission_Plan.pdf)

<sup>2</sup> <https://www.wecc.org/Reliability/WECC%20Members%20or%20NDA/2020%20WECC%20Map%20of%20Principal%20Transmission%20Lines.pdf>

A simplified representation of the Project is provided in Figure 2 and a detailed one-line diagram is available under the appropriate non-disclosure agreement upon request.



**Figure 2: Simplified Representation of the Project**

#### **Modeling Data:**

Power flow and dynamic models for the Project are available in GE PSLF format. The models were made available to the PCRG members for the Affected System Study and can be made available to other interested parties under the appropriate non-disclosure agreement upon request.

#### **Project In-Service Date:**

The Gates 500 kV Dynamic Reactive Support Project is expected to be in service by February 1, 2025.

#### **Transmission Studies:**

As the selected project sponsor, LSPGC began the interconnection process and preliminary engineering design in 2020. The PG&E Facilities Study has been completed as well as detailed designs. The Affected System Study under the WECC Project Coordination Process was completed in 2022. On October 5, 2022, PG&E and LSPGC executed the Transmission Interconnection Agreement (TIA). On December 1, 2022, FERC accepted the TIA for filing effective as of October 7, 2022. Transient stability and SSR/SSCI studies were completed by PG&E in 2023. In concert with PG&E, LSPGC will complete the RTDS Study in mid 2024.

### Project Status:

On December 15, 2022, LSPGC received a Permit to Construct from the CPUC, followed by a Notice to Proceed from the CPUC on January 10, 2023. In April 2023, construction began at the Orchard site. During 2023 LSPGC received updated schedules from PG&E indicating the completion of the Gates-Orchard 500kV #1 and #2 lines will be staggered due to restrictions on clearances to support the upgrades on the critical 500 kV buses at Gates. As such, the original CAISO required in service date for Orchard of June 1, 2024 cannot be met. As a result of this schedule impact identified by PG&E, LSPGC and CAISO entered into the First Amendment to the APSA on September 10, 2023, adjusting various milestone dates including the required energization date, which is now February 1, 2025. Various key construction activities have been completed to date including site preparation and grading, grounding, foundations, STATCOM buildings, transformers, structural steel, and cooling systems.

### Key Project Milestones:

- |                                    |         |
|------------------------------------|---------|
| • Construction Complete            | Q3 2024 |
| • Functional Testing               | Q4 2024 |
| • Gates Substation Interconnection | Q4 2024 |
| • Placed In Service                | Q1 2025 |

### Project Sponsor Contact Info:

LS Power Grid California, LLC  
 Ross Hohlt  
 Director, Asset Management  
 16150 Main Circle Dr., Suite 310  
 Chesterfield, MO 63017

Phone: (636) 534-3319

Email: [RHohlt@LSPower.com](mailto:RHohlt@LSPower.com)