

Data Request #2 Gates 500 kV Dynamic Reactive Substation Project

PG&E Interconnection and Gates Substation Upgrades

(The CPUC's data requests below are shown in italics, with PG&E's responses in blue.)

1. In response to a previous Data Request CPUC submitted on December 4, 2020, to PG&E regarding the PG&E interconnection to the Project and the proposed Gates Substation upgrades, PG&E provided two separate responses, one dated December 18, 2020, and one dated March 24, 2021. Please revisit those responses considering the revisions to PEA Section 3.3.5, Other Potentially Required Facilities, PG&E Interconnection Upgrades, and update the responses where necessary, including the additional construction assumptions detail for Response Item No. 3 with information about which phases would be expected to occur concurrently, and which phases would be constructed sequentially.

High Level Scope:

- Install two 500 kV high-voltage circuit breakers (HVCBs) at Bays 1 & 2's breaker-and-a-half (BAAH) positions by opening up Bay 2's position for one 500 kV circuit to Orchard Substation.
 - Relocate 500/230 kV Transformer Bank 12's Bay 2 BAAH connection to the other side of Bay 2. This will require replacing the existing overhead connection to Bay 2 with a 500 kV Gas-Insulated Bus (GIB).
- Install two 500 kV overhead/underground transmission line circuits from Gates Substation's BAAH Bus, Bays 1 and 2, to Orchard Substation
 - A portion of the 500 kV transmission lines will consist of underground XLPE cables to avoid impacting a corridor of overhead transmission lines (one 70 kV and two 230 kV)
 - Likely two transmission line transition stations will be required to connect underground and overhead line spans
 - Each transition station will have above-ground line disconnect switches to allow clearance isolation
 - From the underground-to-overhead transition station, install two 500 kV overhead circuits to Orchard Substation's dead-end structure (change of ownership location)
- Install redundant underground fiberoptic cable paths (in separate trenches) between Orchard & Gates substations
- Install line protective relaying and automation devices and telecommunications equipment within the existing 500 kV control building

High Level Preliminary Schedule:

- Detailed Scope Approved: September 2021
- Detailed Design: October 2021-October 2022
- Procurement: February 2022-March 2023
- Civil Construction Start: January 2023
- Electrical Construction: February 2023-June 2024
- In Service Date: April 2024
- Final grade & yard repairs: June 2024-October 2024

The information provided in this response remains preliminary and subject to change.

2. Provide an aerial image base map figure (and associated GIS data files) that shows the revised conceptual layout for PG&E's interconnection and the other Gates Substation upgrades, including

where the new 500 kV circuits would be installed underground, where the installation would be above ground, and the location of new gas-insulated bus (GIB).

Please see the attached Conceptual Drawing.

3. Provide a line drawing figure that shows PG&E's revised proposed interconnection and Gates Substation upgrades.

Please see the attached Line Drawing.

4. Provide a text narrative that describes the facilities shown in the conceptual layout and line drawing requested in Items 2 and 3, above.

For the interconnection of LS Power's Dynamic Series Reactor to PG&E's 500 kV system, PG&E will install two 500 kV high-voltage circuit breakers (HVCBs) in breaker-and-a-half (BAAH) positions within Gates Substation. This will require PG&E to reassign transformer bank 12's 500 kV BAAH breaker connection using a Gas-Insulated Bus (GIB).

PG&E will also install two 500 kV transmission line circuits from Gates Substation to Orchard Substation. The circuits will likely transition within Gates Substation from overhead to underground XLPE cables to avoid impacting other overhead transmission lines (one 70 kV and two 230 kV lines) and then transition back to overhead circuits extending from the substation property to Orchard Substation's dead-end structure (the change of ownership location). The transition stations will have disconnect switches for each circuit. PG&E will also install redundant underground fiberoptic cable paths in separate trenches between Orchard and Gates substations, and new line protective relaying, automation, and telecommunications equipment inside the 500 kV control building.

All details described above are preliminary and subject to change pending final engineering, regulatory requirements and other factors.

5. The revisions indicate PG&E would relocate Bank 12's Bay 2 position using a GIB. What would be the sulfur hexafluoride (SF₆) capacity of the GIB in terms of pounds, and what would be the anticipated annual GIB leak rate?

PG&E's requirement for the GIS SF₆ leak rate is a maximum of 0.1%/year and all equipment is subject to a sniff and bag test at commissioning. Both Siemens and MEPPi meet this requirement for their new GIS equipment. We would use the same SF₆ leak rate requirements for GIL/GIB equipment for Gates. We do not yet have the specific details on the amount of SF₆ for 500kV GIS/GIB, as this information will be acquired at a later date.