

Underground Alternative A:

Construction Methods:

The methods outlined for the southern shore duct bank and cable installation are also planned for this alternative. As illustrated in Attachment B's GIS, this underground section would be constructed from the shore using two underground duct banks until reaching riser structures. These riser structures would be designed to match the ones proposed near PG&E's existing Pittsburgh Substation.

Excavation Dimensions

Proposed Feature	Typical Excavation Dimensions
Transition Vault	46 feet long, 16 feet wide, 12 feet deep
Duct Bank	3 to 6 feet deep, 7 to 10 feet wide

The duct bank installation will require approximately 3,700 cubic yards of excavation, while the transition vaults need around 1,400 cubic yards.

Construction Equipment

Equipment Name	Engine output	Anticipated fuel type	Quantity	Daily Use	Days
Underground Segment - Substation Getaways					
Pickup: ½ ton	395	Gasoline	4	2	30
Pickup: 1-ton	410	Diesel	4	2	30
Welding truck	395	Diesel	2	2	30
Generator: 25 kW	36	Diesel	2	8	30
Crane: 35-ton (manlift)	250	Diesel	2	5	30
Forklift: 10,000-reach	130	Diesel	2	4	30
Forklift: 15,000-pound	130	Diesel	1	4	30
Loader: 4-5 yard	74	Diesel	2	5	30
Wire trailer/tensioner	175	Diesel	1	5	30
Wire puller	175	Diesel	1	5	30
Skid steer loader	74	Diesel	2	8	30
Backhoe: 2x4	68	Diesel	2	6	30
Transition approach construction					
Onshore Crane	180	Diesel	1	8	138
Onshore Excavator	600	Diesel	1	8	138

Onshore End Loader	250	Diesel	1	8	138
Onshore vibratory hammer	30	Diesel	1	8	138
Air compressor	50	Diesel	1	8	138
Truck: Dump, 10-12 yard	415	Diesel	4	6	138
Onshore dewatering equipment	50	Diesel	2	8	138
Onshore Trucks	300	Diesel	4	8	138

Construction Timing:

The underground segment of the substation get aways will occur between May and June 2027. The transition work will begin prior to the installation of the submarine cables and be completed once the submarine cables have been pulled in and spliced to the underground cable. Trenching into the river for the transition work would only occur within the in-river work window.

Underground Alternative B:

The construction equipment, size of duct banks and transition vaults, and timing would remain the same as Underground Alternative A. However, because of the increased distance the anticipated excavation for the duct banks would be approximately 4,000 cubic yards.

As shown in Attachment C, this alternative outlines the underground alternative to both Alternative 1 and Alternative 2 substations. The GIS shows that both options would include the same underground segment, which would be installed from the shoreline via two underground duct banks for roughly 0.6 miles to a riser structure. This riser structure would match the one currently proposed at the northern shoreline. From there, the route would proceed overhead, connecting with the current alternative overhead routes of Alternative 1 and Alternative 2.