

# SVERDRUP ENGINEERING SERVICES

## PROJECT EXPERIENCE



### SKIC 20MVA Substation and 35KV Power Line

Fresno, CA

Algonquin hired Sverdrup Engineering Services for Civil, Electrical, and Structural design on a fast track 20MVA substation and 1.5 miles of 34.5kV distribution line to support solar PV facility in PG&E territory. Design started in December and ended in February with equipment specifications and ordering during the process for Algonquin to successfully meet PG&E connection window. Held weekly progress meetings with client and utility (PG&E).

Civil design included grading site, controlling storm water runoff/erosion, and 7' fence with 3 strands of barb wire. Structural design included steel support structures, foundations, pads, and 1.5 miles of wood and steel poles to the solar farm connection location. Electrical design included grounding, lighting, lightning, cable ampacity, voltage drop, conduit fill, conduit pull, short circuit analysis, and arc flash study, and protection devices settings.

Equipment included ABB 72PM31 dead tank circuit breaker, 70kV to 34.5kV 13.44/22.4MVA Virginia transformer, utility metering CT/PT combination unit ABB type KA-72, control building, 125VDC battery system, high/low disconnect switches, 50KVA SST, fiber, redundant SEL 351/700G/387E relays, GE T60 relay, and arrestors. Drawings include one/three-line, grounding, lighting, panel schedules, control building, relay/control schematics, power pole, material list, civil, and structural.

**Owner:** Algonquin Power Company

**Design:** February 2014

**Inservice:** February 2016