

HIGHLAND SUBSTATION SA3 UPGRADE

SOUTHERN CALIFORNIA EDISON
CALIFORNIA

COMPLETION DATE: 2019

SUBSTATION RESUME



Project Description:

With increased penetration of Distributed Energy Resources (DER's), distribution system operation has become even more complex. DERs need to be considered when making utility operational decisions. This is accomplished through implementation of central and distributed control architecture capable of optimizing local grid conditions in concert with routine system operator functions. Southern California Edison's (SCE's) Substation Automation 3 initiative provides the necessary telemetry, Distribution Var and Voltage Control (DVVC) support and system status to support the required control architecture.

The Highland Substation SA3 project installed SCE's latest Substation Automation System per their latest standards. The project provides remote substation data and analog/digital status to their Energy Management System (EMS) via HMI and PLC. Ten new relay racks were installed in the existing Mechanical Electrical Equipment Room (MEER) to upgrade protective relaying and communications, and to implement the HMI/PLC substation automation system. Replacement and installation of other components necessary for implementation of SA3 were completed including new station service transformers, outdoor distribution boxes, fusing, batteries and charger, yard cabling, cable trench, monopole communication structure and equipment, and their associated steel, foundations, grounding, cable trays and conduits. Miscellaneous upgrades were implemented to bring the existing MEER up to current SCE standards, such as new lighting, exhaust fans, smoke/hydrogen sensors and auxiliary relays.

Key Facts and Highlights:

- Grid Modernization Technology
- Substation Automation
- Relay Upgrades
- Communication Upgrades
- Project Delivered EPC

ECI's wholly-owned subsidiary, EPC Services, delivered the project as design-build, and was responsible for procurement, installation, project management and construction management (PMCM) and commissioning. ECI was responsible for all substation electrical and civil design as well as quality control/assurance and management of engineering subcontractors for specialty services such as protection and automation design including testing and startup. Being a highly technical "smart grid" initiative, project management was especially critical to align, monitor, report and coordinate all project stakeholders including SCE's engineering disciplines, ECI's engineering team including subcontractors, suppliers, construction contractors, commissioners and SCE's operations and testing groups. Commissioning and energization were carefully planned well in advance to ensure minimal disturbance to customers and safety to construction personnel during startup.



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