

Rockwood Unit 1 and Unit 2 Controls Upgrade (Project No. 20016)

Project Description

Rockwood Generating Station is part of the Imperial Irrigation District's fossil fuel power generation system with 50 Megawatts of installed capacity. The Rockwood gas turbine plant consists of two Pratt & Whitney FT4C-3F gas turbine Unit 1 and Unit 2 generating units.

The RGS Unit 1 and Unit 2 are industrial aero-derivative type turbines originally designed by United Technologies rated at 25,000 KW and since its commissioning in 1978; neither unit has undergone a major controls upgrade. The existing protection and controls devices are over 42 years old, obsolete, and in some cases impossible to calibrate and/or repair/replace the existing inventory of electromechanical relays and vintage controllers. Additionally, the control circuit boards are not supported by the original equipment manufacturers and instead must be sent out refurbishment.

The project consists of the design, procurement, assembly, removal of the existing turbine control devices and their replacement with a new non-proprietary technology microprocessor required to run all the control functions currently performed by the existing system with the addition of new features that will enhance the reliability, availability and maintainability of RGS gas turbines Units 1 and 2. The new control system is an open platform to allow the IID to maintain all licenses needed to perform changes to the code to facilitate additions to the system or any normal maintenance needed during the operation of the plant. The control system includes an appropriate Human Machine Interface. Critical functions, such as emergency over speed, generator temperature alarm and trip, vibration alarm and trip, auxiliary equipment alarm, fuel high/low pressure alarm, exhaust over-temperature protection; and emergency shutdown will be provided. Blackstart capability will be maintained for Unit 1 and Unit 2 by using air assist starter to start up with either natural gas or diesel.

The new control system shall adhere to the North American Electric Reliability's Critical Infrastructure Protection Standards; CIP-013-1 Cyber Security - Supply Chain Risk Management, CIP-003-8 Cyber Security - Security Management Controls and IID's Cybersecurity Policy standards. A cyber security plan to mitigate cyber security risks to the reliable operation of the Bulk Electric System will be implemented with security controls for supply chain risk management and specifics consistent with sustainable security management controls that establish responsibility and accountability to protect the BES cyber systems against compromise that could lead to misoperation or instability in the BES.