

San Diego Gas & Electric Company
FERC Order 717 Transmission Function Employee
Job Descriptions
August 4, 2015

Electric Grid Operations

Director – Electric Grid Operations: Responsible for overall transmission system operations and reliability functions. Oversees operational relationship between SDG&E and California ISO. Reports to Vice President – Electric Transmission & Distribution.

Grid Control Manager: Responsible for overall management of grid control activities, including real time operations, technical support, and training. Also provides managerial interface with California ISO, other transmission operators, and regulatory agencies; provides oversight for NERC compliance activities for the department. Reports to Director – Electric Grid Operations.

Grid Operations Services Manager: Responsible for developing and maintaining operating procedures that convey the conclusions of the various engineering analysis. Interacts with the CAISO and neighboring utilities. Reports to Director – Electric Grid Operations.

Grid Technical Support Manager: Responsible for overseeing training activities involving dispatch training simulator; provides technical support of Grid Control activities; updates and issues revised operating procedures; provides back-up support to Grid Control Manager Chief Operations Manager. Currently reports to Grid Control Manager.

Grid Business Process Manager: Responsible for activities of the Grid Contract Services Section, including development and administration of grid contracts, settlements, invoicing and day-ahead Scheduling Coordinator activities as they relate to existing transmission contracts. Reports to Director – Electric Grid Operations.

Engineer II: Responsible for providing technical and analytical support for functions of RTU communication, test procedures and NERC CIP compliance. Reports to EMS Field Engineering Manager.

Sr. Engineer: Conducts, oversees, and coordinates engineering operational studies. Conducts complex engineering studies which require advanced knowledge within the assigned discipline. Provides coordination, monitor progress, interpret results and ensure timely completion of assignments. Identifies actual or potential problem areas and develops corrective actions to be taken. Responsible for technical content of selected operational procedures. Supports real-time operations. Coordinates

operational studies with the CAISO, neighbors and other sections of the company Assists with training of operators and new engineers. Performs other related duties as assigned. Reports to Grid Operations Services Manager.

Engineering Analyst II: Serves as the ISO certified Scheduling Coordinator for day-ahead scheduling of SDG&E's existing Transmission Contracts and handles processing of ISO invoices. Reports to Grid Business Process Manager.

Principal Engineer: Provides technical and analytical support to Grid Control. Performs long term outage coordination. Responsible for providing procedures for new and existing electrical facilities. Provides technical advice to Control Room personnel and field personnel on electrical facilities and operational scenarios. Responds to fire and other natural disasters when operation of bulk electric system can potentially be (or is) compromised. Assists in investigating events on the electric system. Interacts with the CAISO on various operational issues and procedures. Reports to Grid Operations Services Manager.

Document Coordinator: Manages and coordinates documents used by Grid Operations Services to meet NERC and WECC reliability standards. Reports to Grid Operation Services Manager.

Scheduling Coordinator: Serves as the ISO certified Scheduling Coordinator for day-ahead scheduling of SDG&E's existing Transmission Contracts and handles processing of ISO invoices. Reports to Grid Business Process Manager.

Sr. EMS Programmer Analyst: Supports 24x7 mission critical business operations and EMS SCADA real-time control system. Responsible for EMS systems administration, database updates that accurately model the SDG&E power system, application programming. Responds to customer requests and offers solutions. Reports to Grid Operations Services Manager.

Senior Energy Administrator: Responsible for complex settlement issues and development of related policy. Reports to Grid Business Process Manager.

EMS Operations Manager: Responsible for overall operation and maintenance of SDG&E's mission critical Energy Management/SCADA system, including real-time data exchange with California ISO Energy Management System. Also responsible for overall computer engineering support, maintenance and upgrades to SDG&E's EMS/SCADA hardware, local and wide area network infrastructure. Reports to Director – Electric Grid Operations.

Associate Contracting Agent Construction Services: Supports completion of sourcing projects by preparing certain documents for contracts. Assists contracting agent and principal contracting agent with various sourcing activities. Oversees the contract execution, contract management and contract closeout for clients. Reports to the EMS Operations Manager.

Control System Specialist: Responsible for installation and 24x7 maintenance of mission critical EMS computer equipment, office automation equipment, networking electronics and various control center subsystems. Reports to the EMS Operations Manager.

EMS Field Engineering Manager: Supervises Electronic Control Technicians working in substations and other field locations that install and maintain field equipment (several different types of Remote Terminal Units) and associated systems, AV rate equipment and backup telemetering equipment) for the transmission EMS and Distribution SCADA systems. Reports to the EMS Operations Manager.

Electronic Control Tech – Power Delivery: Responsible for the installation, testing, calibration and maintenance for SCADA (supervisory, control and data acquisition) equipment. Reports to the Electronic Control Systems Supervisor.

Sr. EMS Hardware Analyst: Supports 24X7 mission critical business operations & EMS SCADA real-time control system. Maintains, enhances, configures, and troubleshoots EMS SCADA hardware equipment which includes: Front End Processors, Power System Mapboards, Workstations, Networks, Local and Wide Area Networks and associated support equipment. Performs systems maintenance and testing of emergency generators and UPS systems. Reports to the EMS Operations Manager.

Sr. Transmission Compliance Advisor: Manages plans and coordinates department compliance activities to meet NERC and WECC reliability standards. Currently reports to EMS Operations Manager.

Transmission Document Control Advisor: Controls and manages the review and creation of Standard Operating Procedures to support real-time operating and compliance activities. Reports to the EMS Operations Manager.

EMS Software Supervisor: Supervises Energy Management System Operations software staff. Oversees, plans, specifies, develops, maintains and coordinates SDG&E's real-time EMS (Energy Management System), including system upgrades, integration, databases, software and applications support. Monitors and controls SDG&E's Bulk Power electric transmission system. Supervises EMSO software staff to provide 7/24 real-time control system integrity, operational reliability. And system availability. Oversees daily system monitoring, real-time control system tuning, coordination of after-hours on-call software support. Ensures real-time control system integrity, availability and performance. Coordinates EMS and related systems development and implementation of modifications requested by real-time control system users in a timely manner. Coordinates software release upgrades, system integration, database maintenance and upgrades. Reports to EMS Operations Manager.

Associate EMS Database Administrator: Supports 24x7 mission critical business operations and EMS SCADA real-time control system. Prepare and implements SCADA EMS database updates for field devices. Maintains EMS dynamic mapboard database, data integrity and accuracy of the distributed EMS database. Reports to the EMS Software Supervisor.

Sr. EMS Program Analyst: Supports 24x7 mission critical business operations & EMS SCADA real time control system. Responsible for EMS systems administration, database updates that accurately model the SDG&E power system, application programming. Responds to customer requests and offers solutions. Reports to the EMS Software Supervisor.

EMS Program Analyst: To plan, develop, and maintain EMS (Energy Management System), including system upgrades, integration, databases, software and applications support. Responsible for monitoring and controlling Bulk Power transmission system. Reports to the EMS Software Supervisor.

Operations Shift Supervisor: Responsible for receiving and processing outage requests for Transmission Grid facilities with electric engineering, field personnel and the CAISO. Schedules qualified personnel to perform required switching activities. Provides support to the Operations Shift Supervisor – Energy Control Bulk Power and may at times fill that position. Currently reports to Grid Control Manager.

Outage Coordination Advisor: Responsible for receiving and processing outage requests for Transmission Grid facilities with electric engineering, field personnel and the CAISO. Schedules qualified personnel to perform required switching activities. Provides support to the Operations Shift Supervisor. Reports to Operations Shift Supervisor.

Sr. Outage Coordination Advisor: Responsible for receiving and processing outage requests for Transmission Grid facilities with electric engineering, field personnel and the CAISO. Schedules qualified personnel to perform required switching activities. Provides support to the Operations Shift Supervisor. Reports to Operations Shift Supervisor.

Operations Shift Supervisor – Energy Control Bulk Power: Responsible for supervising real-time grid monitoring and switching activities, emergency response, system restoration, real-time Existing Transmission Contract schedule changes, and interface with ISO real-time dispatch desk. Currently reports to Grid Control Manager.

Transmission System Operator: Assumes responsibility and authority to implement real-time actions to ensure the safe and reliable operation of the SDG&E Electric Transmission Grid and associated interconnections and ensures compliance with FERC mandatory reliability standards. Maintains electric transmission system to assure continuity of service. Prepares, checks, and directs orders for electric transmission system switching operation. Operates electric supervisory control devices including adjusting system voltage. Performs emergency limited substation switching. Directs

restoration of transmission facilities. Maintains records and operating diagrams. Prepares reports and performs other related duties as assigned or required. Reports to the Operations Shift Supervisor – Energy Control Bulk Power.

Outage Coordination Advisor: Responsible for receiving and processing outage requests for Transmission Grid facilities with electric engineering, field personnel and the CAISO. Schedules qualified personnel to perform required switching activities. Provides support to the Operations Shift Supervisor. Reports to the Operations Shift Supervisor – Energy Control Bulk Power.

Team Lead – Training Team: Responsible for Grid Control training activities, monitoring and tracking individual training progress. Responsible for ensuring those system operators are trained on NERC, WECC, CAISO and SDG&E procedures and polices. Coordinates with Distribution Operations to provide training for field and system operators. Researches and develops training programs for new equipment deployed on the system and provides training to appropriate personnel. Currently reports to Grid Control Manger.

Training Coordinator: To develop, coordinate and monitor training programs and databases for NERC certified system operators who operate the Real-Time Bulk Electric System. Accurately document all required courses in an appropriate format to meet NERC compliance and audit requirements. Review and verify that the system operating personnel training conforms to the training program curriculum. Create and maintain Grid Control Real Time Personnel shift schedule. Reports to the Team Lead – Training Team.

Operations Shift Supervisor – Training Team: Supports the Grid Control training activities by assisting with program development and coordinating and delivering training. Serves as back-up to the Operations Shift Supervisor – Energy Control Bulk Power position. Reports to the Grid Technical Support Manager.

NERC Sys Opr Trainer: Responsible for Grid Control training activities, monitoring and tracking individual training progress. Responsible for ensuring those system operators are trained on NERC, WECC, CAISO and SDG&E procedures and polices. Coordinates with Distribution Operations to provide training for field and system operators. Researches and develops training programs for new equipment deployed on the system and provides training to appropriate personnel. Reports to the Grid Technical Support Manager.

EMS Project Coordinator: Responsible for coordinating EMS activities to ensure all projects, displays, and data are accurate and reliable when released to Grid Control. Troubleshoots and resolves issues regarding EMS operations. Develops EMS displays. Maintains the Dispatcher Training Simulator and supports related training activities. Reports to the Grid Technical Support Manager.

Sr. Business Systems Analyst: Provides informational requirements to various organizations from multiple data systems in support of projects, data requests, and filings. Provides analysis, develops specifications, and implements business computer systems. Applies structured systems development methodology to ensure benefit from computer automation. Conducts audits pertaining to the design, implementation and operation of computer systems and enhancements. Analyzes, evaluates and reports on audit findings. Performs systems acceptance testing and contract administration duties. Reports to the Grid Technical Support Manager.

Sr. Technical Support Advisor: Manages essential functions as a Central Point of Contact (CPOC) for the operation of the Electric Transmission Grid in a safe, reliable and economic manner. Manages critical support of real-time system operations and mandatory NERC/WECC reliability standards. Manages communication between SDG&E, the California Independent System Operator (CAISO), Western Electricity Coordinating Council (WECC) and all related utility Transmission System Operators with respect to system issues and outages. Reports to the Grid Technical Support Manager.

Technical Support Advisor: Provides essential support as a Central Point of Contact (CPOC) for the operation of the Electric Transmission Grid in a safe, reliable and economic manner. Supports real-time system operations and mandatory NERC/WECC reliability standards. Has an understanding of the Outage Coordination (OC) scheduling system, SDG&E Electric Transmission Grid, transmission operations activities, Supervisory Control and Data Acquisition (SCADA) system that uses the Energy Management System (EMS) and field Remote Terminal Units (RTU). Ensures open lines of communication exist between SDG&E, the California Independent System Operator (CAISO), Western Electricity Coordinating Council (WECC) and all related Transmission System Operators. Supports the development and maintenance of electric substation Control and Protection Notes (C&P Notes), Substation Operating Diagrams (SOD) and other related technical documentation. Reports to the Grid Technical Support Manager.

Sr. Transmission Compliance Advisor: Manages plans and coordinates department compliance activities to meet NERC and WECC reliability standards. Currently reports to Grid Control Manager.

Transmission Document Control Advisor: Controls and manages the review and creation of Standard Operating Procedures to support real-time operating and compliance activities. Reports to the Grid Technical Support Manager.

Sr. Transmission Documentation Control Advisor: Leads the Transmission Documentation Control Advisors in the control and management of the review and development of Standard Operating Procedures to support real-time operating or compliance activities. Reports to the Grid Technical Support Manager.

EMS Hardware Supervisor: Manages and coordinates activities related to any purchases, improvements, maintenance, and upgrades on the EMS relating to hardware, networking, and physical / cyber security. Manages 24x7 on-call EMS hardware support activities to ensure maximum system reliability. Directs and prioritizes work of technical computer support personnel on systems based in two San Diego locations. Reports to the EMS Operations Manager.

Project Manager- Grid Control: Responsible for training transmission operators to obtain NERC certification, the coordination of Start Programs, and overall coordination of outages, operations projects, and remedial action schemes. Reports to Director – Electric Grid Operations

Principal EMS Analyst: Responsible for managing and maintaining the SDG&E EMS/SCADA computer software. Ensures the system's compliance with NERC CIP requirements. Makes continuous improvement on the EMS/SCADA systems and its applications to ensure the SDG&E grid control center has the necessary tools to sufficiently and efficiently operate the SDG&E transmission grid. Leads sub-teams of EMS software engineers to develop new, enhanced and improved applications and monitoring software to improve the reliability and availability of the SDG&E transmission grid operation.

Compliance Program Manager: Responsible for the critical function of coordinating and ensuring compliance with the multiple FERC, NERC, WECC and State mandatory standards that apply to Electric Grid Operation. Responsible for preparing and supporting Regulatory Affairs in responding to data requests related to compliance or system disturbances. Responsible for participating in the development of new standards, or modifications to existing ones, that applies or will apply to Electric Grid Operations. Responsible for supporting Grid's 24x7 Operation and assuming the lead in filing any required Federal, Regional and State reporting required to be filed within specific time frames after an event ranging from 1 to 24 hours depending upon magnitude. Responsible for coordinating compliance responsibilities with the CAISO with regard to the NERC requirements applicable to Electric Grid Operations.