

## **POSTING REQUIREMENTS FOR FERC STANDARDS OF CONDUCT**

### **PACIFIC GAS AND ELECTRIC COMPANY**

**FERC Standards of Conduct, Section 358.7(f)(1): A transmission provider must post on its Internet website the job titles and job descriptions of its transmission function employees.**

#### **Electric Operations**

##### **Director, Electric Operations**

Responsible for the safe, reliable, and efficient operation of Pacific Gas and Electric Company's transmission and distribution system. This is accomplished through leadership and direction of the following groups reporting to the Electric Operations Director.

Transmission Operations Center (TOC) - 24-hour, single point of contact for Pacific Gas and Electric Company's electric transmission operations with the California Independent System Operator (CAISO). The TOC manages real-time transmission operations, transmission outage coordination, and transmission outage planning.

Transmission Control Centers - 24-hour centers for Pacific Gas and Electric Company's local transmission operations including monitoring the status of local transmission facilities, switch writing and providing switching orders to field personnel.

Distribution Control Centers – 24-hour centers for Pacific Gas and Electric Company's local distribution operations including monitoring the status of local distribution facilities, switch writing and providing switching orders to field personnel.

Performance Improvement - Provides training support, technical support, and responsibility for standards, guidelines, and work procedures for transmission and distribution operations.

Emergency Preparedness - Provides training support, technical support, and responsibility for standards, guidelines, and work procedures for transmission and distribution emergency preparedness activities.

##### **Manager, Transmission Operations Center**

Manages the Transmission Operations Center (TOC) that consists of three groups: Real Time Operations, Outage Coordination, and Dispatch Support:

Real Time Operations group is the single point of contact for Pacific Gas and Electric Company's electric transmission and distribution operations with the California Independent System Operator (CAISO). They also monitor the real time operations within Pacific Gas and Electric Company's electric transmission system.

Outage Coordination group manages and coordinates all transmission equipment outages for scheduled maintenance, construction and modification or testing of all transmission equipment on 60, 70, 115, 230 and 500 kV systems. It coordinates their activities with BPA, WAPA, MID, DCWR, SMUD, SCE, Sierra Pacific, PP&L, BART, TID, CCSF, NCPA, SVP and other agencies and ECCO. It also provides a single point of contact for outage coordination with the CAISO.

Transmission Control Centers are responsible for monitoring and directing transmission operations in their geographic regions. These centers coordinate switching for planned and emergency events and work closely with the Real Time Operations.

**Manager, Emergency Preparedness and Electric Operations Performance Improvement**  
Manages Energy Delivery and Engineering and Operations Emergency Preparedness activities. Activities include electric distribution system exercise development and facilitation and training development and delivery. The team facilitates continuous improvement efforts related to electric emergency recovery. The Emergency Preparedness group works with the Outage Information System (OIS) business and IT team to improve the Outage Management Tool (OMT) and associated training environment for ease of use. The team updates roles and responsibilities and reference materials.

Manages Performance Improvement in Electric Operations through four groups: Transmission Development, Human Performance (including standards, staffing and distribution development), Electric Emergency Operations and Senior Operations Specialists.

Transmission Development group provides support to the System Dispatcher and Transmission System Operator through training, advice, guidance, process and tool development and exercises.

Human Performance group provides support to the Distribution System Operator through training, advice, guidance, process and tool development and exercises. In addition, this group looks at human performance initiatives, staffing levels and standards maintenance and development.

Electric Emergency Operations coordinates the Electric Emergency Plan (EEP) and other transmission emergency plans, including development training, exercises, implementation and documentation.

Senior Operations Specialist is the subject matter expert on the tools utilized by the System Dispatcher and Transmission System Operator, providing direction to vendors for upgrades, developing training and providing guidance to the users.

### **Real Time Operations Supervisor**

Supervises the Senior System Dispatchers in monitoring and directing operations of the integrated PG&E transmission system to ensure the grid is operated in a safe and reliable manner while minimizing costs to customers. Responsible for the coordination and communication of planned equipment outages, system status, notification of forced outages, unusual events and coordination of system restoration following major disturbances. Works with the field Control Centers, Operating Engineering and the CAISO to identify system stress and ensure no single contingency will result in overloads.

### **Supervising System Dispatcher**

Leads a team in monitoring and directing operations of the integrated PG&E transmission system to ensure the grid is operated in a safe and reliable manner while minimizing costs to customers. Responsible for the coordination and communication of planned equipment outages, system status, notification of forced outages, unusual events and coordination of system restoration following major disturbances. Works with the field Control Centers, Operations Engineering and the CAISO to identify system stress and ensure no single contingency will result in overloads. Acts as the single point of contact between PG&E, the transmission owner, and the CAISO.

### **System Dispatcher**

Monitors and directs operations of the integrated PG&E transmission system to ensure the grid is operated in a safe and reliable manner while minimizing costs to customers. Responsible for the coordination and communication of planned equipment outages, system status, notification of forced outages, unusual events and coordination of system restoration following major disturbances. Works with the field Control Centers, Operations Engineering and the CAISO to identify system stress and ensure no single contingency will result in overloads.

### **Outage Coordination Supervisor**

This individual leads a team that is responsible for PG&E review and approval of maintenance outages/testing schedules, coordinating, scheduling and consolidating clearance requests on the integrated PG&E transmission system to ensure the grid is operated in a safe and reliable manner while minimizing costs to customers. This includes equipment from PG&E Switching Centers, Telecommunications, system protection devices and other agencies. Review and approve annual transmission overhaul plan. Prepare and submit to ISO for approval requests for daily/weekly/ and monthly/equipment maintenance outages and testing.

Work with the PG&E Switching Centers, Grid Maintenance and Construction, and the ISO to ensure no single contingency occurring during scheduled work will result in equipment overloads that cannot be decreased to normal loads within an expected time frame.

Directly supervises 3 Outage Coordinators and 3 Transmission Outage Planners.

### **Outage Coordinator**

Responsible for PG&E review and approval of maintenance outages/testing schedules, coordinating, scheduling and consolidating clearance requests on the integrated PG&E transmission system to ensure the grid is operated in a safe and reliable manner while minimizing costs to customers. This includes equipment from PG&E Switching Centers, Telecommunications, system protection devices and other agencies. Review and approve annual transmission overhaul plan. Prepare and submit to ISO for approval requests for daily/weekly/ and monthly/equipment maintenance outages and testing. Work with the PG&E Switching Centers, Grid Maintenance and Construction, and the ISO to ensure no single contingency occurring during scheduled work will result in equipment overloads that cannot be decreased to normal loads within an expected time frame.

### **Transmission Outage Planner**

Responsible for developing and coordinating transmission substation and line maintenance, transmission line and substation construction and a telecommunication outage/testing schedule to ensure the grid is operated in a safe and reliable manner while minimizing cost to the company

and customers. Work with Transmission Maintenance and Construction, Line Construction, local Control Centers, Operations Engineering, Protection Engineering and the ISO to develop a long range outage plan that will ensure no single contingency occurring during scheduled work will result in equipment overloads that cannot be decreased to normal loads within an expected time frame, and to identify stressed systems and ensure no single contingency will result in system overloads or outages. Prepare and submit a transmission outage plan to the ISO. Attend walk-downs, job “kick-off” and planning meetings (as needed). Work with maintenance planners and project managers to prioritize jobs and adjust schedules.

### **Transmission Control Center Supervisor**

Responsible for the overall operation of the electric transmission grid (e.g, 500kv to 60kv) within the assigned areas of control of their control centers. Supervises the system operators, and apprentice system operators that monitor, analyze, direct and control the lines and equipment within their assigned areas of control in a safe, efficient and cost effective manner. Responsible for the coordination and notification of planned work, identified by departments that submit “Applications for Work”; develop written programs that reconfigure the grid, or protection, to provide a safe working condition for personnel and crews to perform the requested work.

Also responsible for assessing system conditions, reconfiguring the grid, and forcing lines or equipment out of service that impact system integrity. During unplanned outages, (including unusual events and system restoration after major disturbances), the operators are responsible for evaluating alarms and targets, notification to the TOC and affected transmission and distribution control centers, assessing the impacts, dispatching 1<sup>st</sup> responders, making conditions safe, isolating lines and equipment as needed, reconfiguring the grid, and restoring customers in an efficient manner.

Supervises the Electric Operators in monitoring and directing operations of the PG&E transmission system in the Humboldt jurisdiction in the northern section of Area 7 to ensure the facilities are operated in a safe and reliable manner while minimizing costs to customers. Responsible for the coordination, communication and switching for planned equipment outages, monitoring system status and unusual events, and coordination of analysis, making safe and system restoration following major disturbances. Works with the field workers, Operating Engineering and the Transmission Operations Center (TOC) to identify facilities at risk and stress.

During planned work and unplanned events, work with adjacent transmission and distribution control centers, Operating and Protection Engineers, Transmission Operations Center, Wire Chief, TSM&C, Power Generation, interconnected utilities and outside agencies.

The operators are responsible for documenting reports, filing and updating diagrams, records, and other reference tools.

### **Lead System Operator**

Coordinates the activities of other control center operators in executing the work requirements at the control center. As an assistant to the Operating Supervisor, serves as a single point of contact with other department. Generally, this interaction will involve requests for work or outages

situations. Receives and reviews all applications for work. Provides final approval of schedules and work scope. Distributes work to the planned desk and/or the switch writing desk.

### **System Operator**

The System Operator is under the authority of the System Dispatcher from the Transmission Operations Center (TOC) and as delegated, is responsible to monitor and operate the transmission system in the local jurisdiction. The System Operator is engaged in submitting and receiving approval for clearances, issuing clearances, shifting of loads, prompt restoration of service when trouble occurs and notification to the TOC. The System Operator prepares and performs switching programs, operates equipment, maintains records and operating diagrams and receives and dispatches calls by telephone and radio. The System Operator also directs and trains other operating employees.

### **MBA Associate**

Process Improvement and Human Performance (HP) Analysis for Work Procedure Errors – Analyze past events for HP patterns. Work with Operations to identify patterns and/or process improvements to dramatically reduce error rate. Analyze process and work environment to identify latent conditions. Work with Cross-Functional Teams to modify and update standards and procedures to provide clarity, modernize and ease implementation and compliance confirmation. Assist with the implementation of the new ERR process. Identify areas of needed intra-departmental improvements to improved communications and efficiencies.

## **Emergency Preparedness and Performance Improvement**

### **Supervisor, Emergency Preparedness**

Provides supervision for Energy Delivery and Engineering and Operations Emergency Preparedness activities. Activities include electric distribution system exercise development and facilitation and training development and delivery. The team facilitates continuous improvement efforts related to electric emergency recovery. The Emergency Preparedness group works with the Outage Information System (OIS) business and IT team to improve the Outage Management Tool (OMT) and associated training environment for ease of use. The team updates roles and responsibilities and reference materials.

### **Emergency Preparedness Specialist**

Facilitates Energy Delivery and Engineering and Operations Emergency Preparedness activities. Activities include electric distribution system exercise development and facilitation and training development and delivery. The team facilitates continuous improvement efforts related to electric emergency recovery. The Emergency Preparedness group works with the Outage Information System (OIS) business and IT team to improve the Outage Management Tool (OMT) and associated training environment for ease of use. The team updates roles and responsibilities and reference materials.

### **Senior Operation Specialist**

Assist with designing, testing and implementing power system model changes to the TOC Energy Management System (EMS), including power flow, state estimation, contingency analysis, generation, SCADA, communications and supporting applications. Provide training simulation support to meet the needs of the TOC Dispatchers. Provide support and guidance to System Operators in the completion of the Electric Operation's mission. Specific focus will be on implementing the Human Performance program within Electric Operations, providing training support and guidance for the Distribution System Operators, providing technical support (e.g., quality verification, procedural or standard development or revisions) with relation to the Electric Operations standards and implementing the Electric Operations Staffing Strategy.

Assume the lead role in designing, developing and implementing scenario-based training and simulation for the System Dispatchers in the operation of the integrated PG&E transmission system to ensure the grid is operated in a safe and reliable manner while minimizing costs to customers and the company. Responsible and familiar with the AREVA operating systems and a second database that runs off of **e-terrahabitat** or **e-terracontrol** SCADA. Additionally, support for system restoration exercises is a key area of focus. Provide training support and guidance to System Dispatchers and Transmission System Operators in the completion of the Electric Operation's mission.

### **Electric Emergency Operations Coordinator**

The Electric Emergency Operations Coordinator will be responsible for coordinating the development, implementation, and documentation of the Electric Operations Electric Emergency Plan emergency training. This individual will be responsible for managing the transmission system Electrical Emergency Program and the semi-annual drills and auditing the transmission system communications and developing improvements as applicable.

### **Transmission Development Supervisor**

Directs and supervises employees responsible for providing technical support for the operations of the Electric System. Specific focus will be on providing guidance and direction to the System Dispatcher and Transmission System Operator Training Support team and overseeing the system restoration exercises. This position also represents PG&E within the industry focused on training-related matters.

### **Senior Operation Specialist, Training and Development**

Deliver technical (knowledge-based and skill based) training to System Operators and System Dispatchers in the completion of the Electric Operations mission. Effectively work with people at various levels of knowledge and experience and present course material to operators either one-on-one or in team environments. Apply their knowledge of electrical and mechanical theory of an interconnected electrical system, operating criteria's and problem solving techniques to developing training material for the System Operators and System Dispatchers.

### **Senior Operation Specialist**

Provide training support and guidance to System Dispatchers and Transmission System Operators in the completion of the Electric Operation's mission. Assume the lead role in designing, developing and implementing scenario-based training and simulation for the System Dispatchers in the operation of the integrated PG&E transmission system to ensure the grid is operated in a safe and reliable manner while minimizing costs to customers and the company. Prepare the Dispatch Training Simulator and associated tools to provide realistic scenarios to train and evaluate System Dispatchers and System Operators. Oversee the usage of the Company's computer-based simulator (CBS-BRICK) and the AREVA *e-terrasimulator* dispatcher training simulator (DTS) for the Transmission System Operators and the System Dispatchers. Additionally, support for system restoration exercises is a key area of focus.

### **Operations Specialist**

Provide training support and guidance to System Dispatchers and Transmission System Operators in the completion of the Electric Operation's mission. Additionally, support for system restoration exercises is a key area of focus. Responsible for assisting in curriculum development training for the System Operators and System Dispatchers.

### **Human Performance Program Supervisor**

Electric Operations Standards, Staffing Strategy and Distribution Development.

Directs and supervises employees responsible for providing technical support for the operations of the Electric System. Specific focus will be on facilitating the implementation of the Human Performance program within Electric Operations, providing guidance and direction for Distribution Operator Training Support, overseeing the Electric Operations standards and quality work effort, and overseeing the Electric Operations Staffing Strategy.

### **Senior Operating Specialists**

Provide support and guidance to System Operators in the completion of the Electric Operation's mission. Specific focus will be on implementing the Human Performance program within Electric Operations, providing training support and guidance for the Distribution System Operators, providing technical support (e.g., quality verification, procedural or standard development or revisions) with relation to the Electric Operations standards and implementing the Electric Operations Staffing Strategy.

**Training Coordinator**

Provide support and guidance to the Apprentice System Operators in the completion of their apprenticeships. Performs initial orientation activities for incoming Apprentice System Operators. Coordinates safety and mandatory training for Apprentice System Operators. Coordinates and delivers initial apprenticeship training modules. Acts as a liaison between the Electric Operations department and the Power Systems Operations School. Interacts with the Apprentice System Operators to ensure their timely progression through the apprenticeship. Ensures key training materials (e. g., Job Performance Measures).

## **Transmission Operations Engineering**

### **Supervising Power System Engineers**

Provide direction to the various engineering levels within Operations Engineering for the assigned area of responsibility. Represents PG&E on operational issues with CAISO/CPUC/WECC/FERC. Responsible for the development of transmission operational standards/guidelines/policies/procedures for PG&E.

### **Management Trainee / Entry Engineer**

A Management Trainee / Entry Engineer will participate in a nine to twelve month training and development program. This program includes rotations, classroom training courses, business learning/field trips, networking events and job shadowing. These rotations are designed to introduce a new engineer to the Transmission and Distribution organization's primary areas of business. Rotations are designed to provide the new engineer the background and experience needed to perform their job upon completion of the training program. Technical training requirements have been customized for entry level engineers in Electric Distribution Planning, Substation Engineering, Electric Systems Operations, Transmission Planning, Gas Distribution, Service Planning, Project Services, and Field Engineering (General Construction).

### **Associate Power System Engineer**

Support the OE Power System Engineers in the technical and training support for the Transmission Operations Center (TOC) and the transmission control centers. Assist in conducting power flow analysis for transmission equipment clearances and unplanned events. Support the development of operating procedures and plans. Provide operational input on proposed changes to PG&E's transmission system such as capacity increase and reliability projects and equipment additions. Support the analysis tools used by the TOC and Operations Engineering. Provide emergency support during system emergencies.

### **Power System Engineer**

Technical & training support for the Transmission Operations Center (TOC) and the transmission control centers. Conduct power flow analysis for transmission equipment clearances and unplanned events. Support the development of operating procedures and plans. Provide operational input on proposed changes to PG&E's transmission system such as capacity increase & reliability projects and equipment additions. Support the analysis tools used by the TOC and Operations Engineering. Provide emergency support during system emergencies.

### **Senior Power System Engineers**

This position performs the same functions as a Power System Engineer but primarily supports the transmission control centers. This position helps support the training and development of the Engineering Associates and Power System Engineers. This position also participates on the transmission project teams to represent transmission operations.

### **Senior Consulting Engineers**

These positions perform the same functions as a Senior Power System Engineer. These positions are considered transmission system experts for the assigned location. These positions promote the development of transmission reliability and operational projects. Represent PG&E with agencies and other non-PG&E entities in regards to the operation of the PG&E transmission system. Consulting certification required.

**Senior Advising Engineer**

This position performs the same function as a Senior Power System Engineer. This position is considered transmission system experts for the assigned location. This position promotes the development of transmission reliability and operational projects. Represent PG&E with agencies and other non-PG&E entities in regards to the operation of the PG&E transmission system.

## **Generation Interconnection Services**

### **Manager, Generation Interconnection Services**

Work with internal organizations to assure timely generator interconnections. Manage the electric interconnection process. Respond to customer issues in areas within Generation Interconnection Services control and facilitate resolution of issues emerging from other interconnection partners' efforts. Monitor and report progress on interconnection projects with input from affected departments. Provide counsel to staff in negotiating changes required for contracts relating to wholesale generator interconnections. Oversee wholesale and retail generator interconnection procedures and contracts. Support regulatory and legislative efforts to assure that company business interests are adequately considered in generation-related proceedings at the state and federal level. Resolve difficult customer interconnection issues.

### **Business Analyst**

Database management and data entry for Wholesale and Retail generation projects. Ensure generation projects are interconnected with established tariff guidelines and compliant with CPUC and FERC. Ensure accurate input of project information into Wholesale and Retail Customer Departing Load (CDL) database(s) and perform OA/OC of CDL data entry and input with an emphasis on accuracy, efficiency and quality. Continuous process improvement and innovation is required. Interconnection Cost Tracking and Analyses"—Manage the cost tracking of Application Review, Engineering, Transmission Planning, Field Metering Services, pre-parallel inspection and GIS work for all interconnections to support workload and budget forecasts, future rate design, CPUC and FERC rate cases, and budget compliance. Support Project Managers in providing accurate cost true-ups, settlements, and project SAP support. Provide analyses and assessments of project charges associated with retail and wholesale generation projects, when required. Perform all aspects of generation interconnection cost tracking and support CPUC required reporting. Ensure compliance to CPUC reporting mandates including monthly Rule 21 Project Status Reports, California Code of Regulations Title 20 Division 2 Chapter 3 Section 304b bi-annual generation interconnections, Rule 21 mapping reports, net generation output meter and telemetry requirements. Reporting in valuable with respect to future tariff and rate design, process improvement tracking, budget management, General Rate Case and Transmission Owner submittals, etc. Support the Department in managing, tracking, and developing orders, expense budget, and PCC with a particular emphasis on the Net Energy Metering Memorandum Account (NEMMA), FERC Transmission Owner (TO), and CPUC General Rule Case (GRC) requirements, data requests, etc. Responsible for wholesale system impact study and facility study billing, SAP order management/tracking/investigation/issue resolution, 2005 Renewable Solicitation Request for Offer, reclose blocking process, customer departing load database, external communications, and the GIS Calendar.

### **Business Analyst**

Analyze interconnection processes for both Retail CPUC Distributed Generation and FERC wholesale work and create and maintain process model. Understand FERC and CPUC Tariffs as well as compliance issues. Develop metrics for various interconnection processes. Provide data analysis by developing and producing Management, Regulatory and performance reports. Support department perspective by further development of process tools and maintenance of on-going functionality. Represent department regarding technical issues with various stakeholders.

### **Supervising Project Manager**

Responsible for supervision of Project Managers and Business Analysts charged with relationship management and completion of all associated agreements relating to retail and wholesale generation interconnection. Provide technical direction on interconnection processes and interpret FERC tariff issues when needed. Ensure quality control on projects/activities, agreements and ensure compliance to required timelines. Ensure training on retail and wholesale interconnection policy, application process, and contract issues. Represent PG&E or GIS in regulatory proceedings, settlements, work shops and other external forums. Work with internal organizations to assure timely gas & electric interconnections for retail and wholesale generation projects. Coordinate the dispatch of incoming inquiries to assigned project managers. Ensure management of retail and wholesale interconnection processes from receipt of the interconnection inquiry through the in-service date of the new facility. Develop positive relationships with retail and wholesale generation customers and developers. Resolve customer disputes effectively, efficiently, and diplomatically by knowing the key tariffs, policies, and stakeholders to resolve the issue.

### **Senior Project Manager**

Manage the electric interconnection process for customer-driven interconnection projects, from receipt of the interconnection inquiry through the in-service date of the new facility. Work with internal organizations to assure timely interconnection of assigned wholesale and retail generation development projects. Participate in ISO, FERC, and/or CPUC proceedings to ensure that customer/generator issues are adequately taken into consideration. Lead negotiations for any changes required for any contracts relating to assigned wholesale and retail generator interconnections. Facilitate resolution of policy issues and potential delays relating to new generation. Develop strong relationships with assigned generation developers. Resolve disputes effectively, efficiently and diplomatically by knowing the key tariffs, policies, and stakeholders to resolve the issue.

### **Senior Program Manager**

This position is accountable to help facilitate the ongoing interconnection of Net Energy Metering (NEM) customers. The Senior Program Manager provides outreach to internal NEM partners to facilitate and improve business practices related to NEM projects. Internal partners include, but are not limited to, Service Planning, Distribution Planning, Billing, and CA Solar Initiative. Assist in the management of NEM Customer Interconnections and provide technical assistance to the NEM Admin Team. Assist in communication outreach to solar contractors. Responsible for Process Improvement for the NEM.

### **Account Representative**

Manage Net Energy Metering (NEM) customer and internal partner communications that facilitate the successful implementation of the NEM Program. Provide diagnostic analysis and gather needed information to complete solar interconnections with the specified timelines. Manage customer interconnection application process that enables PG&E to connect the customer within the specified time periods. Organize, coordinate, and prioritize the administrative files and customer applications for NEM and Expanded NEM interconnection requests. Coordinate GIS/NEM application for customers, contractors, and fellow employees. Maintain up-to-date PG&E files for all interconnections requests.

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