

## Power System Engineering - Put Your Skills to Work



While many people believe that power engineers only concern themselves with keeping the lights on, power system engineers at San Diego Gas & Electric® perform a vast array of activities that test their skills on a daily basis.

From green energy to energy efficiency, transmission system planning to substation construction, electromechanical relays to microprocessor based meters, your electrical engineering skills will be put to the test.

### Green Energy Initiatives

California is a leader in renewable energy initiatives, with a mandate for utilities to supply 20% of their served energy from renewable resources by 2010.

This drive for green energy has led to a large number of generation developers proposing renewable resource projects connecting to the SDG&E transmission system.

In order to accommodate all of these projects, engineers study and propose new transmission lines, such as the 500 kV Sunrise Powerlink, a 150 mile, \$1.6 Billion project that will bring solar and wind power from the Imperial Valley to San Diego.

Over the next few decades, renewable energy will transform the way transmission planners view the world, and the way they plan the system.



### Energy Efficiency Programs



SDG&E® continually strives to help customers reduce their costs, and at the same time ease the burden on the power system. Engineers evaluate a customer's equipment to determine what improvements or replacements can be made to reduce demand. The engineer then makes recommendations based on the evaluation in an effort to match the customer's budget with the best improvements available.

### System Planning

Transmission and distribution planners analyze the power system to determine the reliability needs for 10 years or more into the future.

Using tools such as power flow analysis, transient stability analysis, and economic modeling, transmission planners determine the most cost effective upgrades to ensure the transmission system can deliver power to the load centers.

Distribution planners put their skills to work on statistical reliability analysis and thermal modeling of equipment, making sure the end customer sees uninterrupted service. Planners are the engineers that propose the large projects that keep the system stable and reliable.



## Construction

New lines and substations don't just appear. They require many man hours both in the office and field to bring them from design to operation. Engineers involved in construction projects perform a wide array of functions.

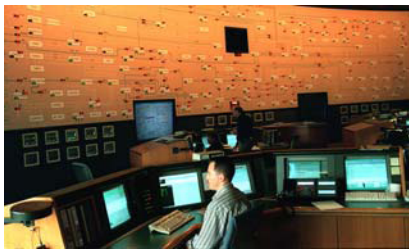
Engineers monitor projects to ensure quality control and that design specifications are being met. In addition, the engineer will manage the budget and workflow of the project until completion, making sure the project is completed on time and on budget.



## Operations

The engineers that work in operations are the ones 'keeping the lights on'. Everyday they deal with technical issues that require problem solving skills and engineering expertise.

At the regional district offices, engineers address voltage, power quality, and reliability issues on a daily basis, including direct contact with the end use customer to ensure resolution.



Engineers at Grid Operations and Distribution Operations handle the everyday operation and switching of the transmission and distribution systems. These are the engineers who determine the impacts of outages, and when maintenance can be performed on the system.

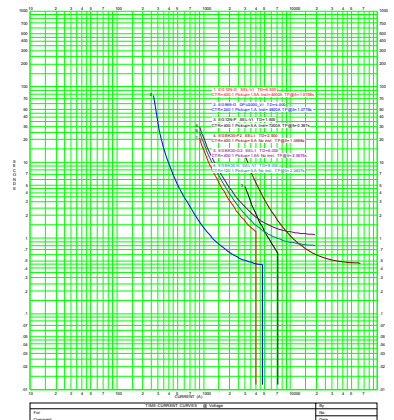
Without operations engineers, the power system would not function at its highest level.

## Communications and Protection

Engineers who work on protection and communication systems work on some of the most advanced technology in the power industry. They monitor and protect the system from abnormal events, and help keep the power system whole.

Protection engineers will also set up controller settings for line equipment to ensure proper operation of the system. Communication engineers set up and operate our microwave, fiber, and line communication systems.

As you can see, power system engineers do more than keep the lights on, they apply their knowledge to real world problems. At San Diego Gas & Electric, you'll apply what you're learning right now to the power system on a daily basis. Once here, all you need to do is determine where your interests lie, and make your impact!



For more information, go to [www.sdge.com](http://www.sdge.com)