## OPERATIONAL TECHNOLOGIES

## Distribution System Operational Training

The U.S. bulk power system depends on highly skilled Distribution Operators (DSOs) to control and manage the dissemination of power from high voltage transmission systems down to the lower voltage levels necessary to support local electricity consumers. Even as the modern grid is rapidly changing to take advantage of new technologies and more renewable and distributed generation, the goal of the DSO hasn't changed: to maintain continuity of electric service in a safe, reliable and economical manner.

At PSC, we make a concentrated effort to understand the evolving utility landscape, especially the distribution utilities' operational requirements. We believe in an 'ever-learning' approach for ourselves and our control room clients to be as prepared as possible, with the ability to problem-solve and adapt to the ever-changing operational situation. We bring our global experience from delivering multiple projects over the last 25+ years to every new project we take on. Several of our North American staff have real-world experience as control room operators. This experience makes us qualified to help train DSO operators to be equipped with the knowledge and skills necessary to maintain the continuity of electrical service.

Through our Distribution System Operator Training, we provide current and future DSOs with a working knowledge of how electric power systems are configured and how they function. We endeavor to develop our students' knowledge of electrical fundamentals and skills in the use of tools and applications designed to assist with the control of the electric system. We help DSOs better understand today's modern distribution system by providing students with a basic understanding of distribution system design, applicable equipment and common industry applications. Instruction includes covering the concepts of blocking and tagging, electrical safety, and the basics of system protection and distribution operations. In addition, PSC is well versed in the use of Operator Training Simulators and is able to provide complex scenarios and event occurrences for use in training activities.

CAPABILITY STATEMENT

## Key capabilities

Our goal is to help train DSOs to best achieve their goal of maintaining safe, reliable and economical electricity for their customers.

**SAFE:** Human safety is paramount for those working on the distribution electrical equipment and the public who depend on a steady supply of power. Equipment safety is maintained by ensuring the operating limits of the electrical equipment are correctly monitored during blue sky days as well as during abnormal or emergency operating conditions.

**RELIABLE:** Having a reliable supply of electricity is more than an expectation. It's a necessity that we all depend on. Utilities do this by providing electric service to end use customers within industry standards using 'Good Utility Practices.'

**ECONOMICAL:** Utilities use techniques and practices to minimize and control the cost of service and energy to the end use customer while providing high level reliability and safety.

## Typical DSO classroom topics covered

- 1. Explain and define the Electric System from the End User back to the Generation
- 2. Describe the various tools available to the distribution system operator
  - a. Outage Manage Systems (OMS) What they are and how they work
  - b. Distribution Automation Distribution SCADA control
- 3. Government and/or Electric Reliability Council requirements (as necessary)
- 4. Substation and distribution system equipment
- 5. Communications Radio, phone, written
- 6. Documentation Record keeping
- 7. Safety Human and Equipment
- 8. Blocking and Tagging
- 9. System Restoration (Blackout) and Storm/Major Disturbance Restoration
- 10. Operator development using a training simulator with scenarios and situations

PSC can offer training sessions either at a central training location or at appropriate field centers located around the utility's area of operation.

Multiple instructors with many years of experience in the industry are available on request. Classroom material is provided and can be customized for specific company situations.

PSC is vendor-neutral and has expertise and experience with a range of products from many vendors, including:

- GE
- Siemens
- ABB
- OSI
- SNC-Lavalin
- OSI Soft
- Schneider
- Harris





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