

POWER DELIVERY

Utility Automation

DESIGN, CONFIGURATION AND COMMISSIONING

- > Substation automation and integration
- > Distribution automation
- > Communication network design
- > Energy management and control
- > Communication design and integration
- > Human-machine interfaces (HMI)
- > Automated volt/var control
- > Island detection
- > Load shedding
- > Load preservation
- > Metering allocation and loss evaluation
- > Startup, testing and commissioning
- > Automated event collection
- > Sequence of events gathering
- > Field engineering support

HARDWARE AND SOFTWARE EXPERIENCE

ABB	ACS
Allen-Bradley	Bitronics
Basler	Citect
Cisco	Cutler-Hammer
Cooper	Freewave
DAQ Electronics	GE
Foxboro	ICONICS
Honeywell	Modicon
MDS	Opto 22
NEC	PowerMonitor
OSIsoft	Pulsar
PML	Rockwell
RFL	Siemens-
SEL	RUGGEDCOM
Survalent	Telegyr
Telvent	NovaTech
Wonderware	Eaton



Automation's benefits

Utility automation offers the promise of a more efficient and reliable power system. POWER Engineers will help you to fully utilize the capabilities of modern SCADA devices and high-speed networks to incorporate automation and programming to meet your utility system needs.

Automation delivers its greatest benefits when designed and operated in an integrated fashion. You can call on us for a complete package of design, protection and automation services. We also deliver unbiased equipment assessments and specifications, custom interfaces, and integration.

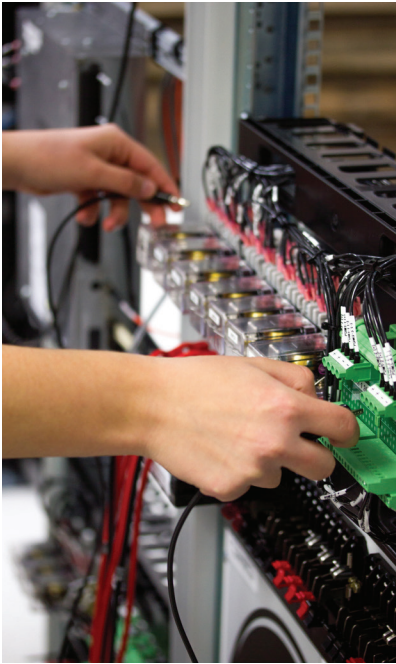
We'll work with you to gain a clear understanding of your needs and challenges before offering solutions. We draw on a thorough knowledge of

historic, current and emerging technologies to design appropriate solutions.

We know one size doesn't fit all and have the independence to select equipment and designs to meet your needs. Our experience spans from cost effective systems, providing basic control and data acquisition, through complex enterprise-wide systems. You gain solutions that satisfy your requirements and reduce long-term costs.

Info for smart decisions

Our expertise includes both substation SCADA and system protection engineering. POWER's capabilities and knowledge of your applications provide you with automated protection and control systems that effectively protect your power system and deliver the information you need to make smart operating decisions.



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Project Highlights

Andeavor

Designed, configured and commissioned island detection schemes at multiple refineries. Upon islanding detection, the scheme communicates to on-site generation. When generation and load are not balanced, the scheme sheds load within seven cycles. Because of the large number of contingencies (48 breakers), load shed testing was automated using IEC 61850 communication between a three-phase test set, protective relays and RTUs.

Boeing Company

Provided system integration to install a site-wide energy management system to enhance Boeing's ability to manage energy usage. The facility consists of more than 25 buildings covering more than 6 million square feet of manufacturing area spread over 1.25 square miles.

Sulphur Springs Valley Electric Cooperative

Designed and implemented SCADA systems for 18 substations. Collected all station I/O using intelligent relays and meters with the data concentrated in a RTU, then served up to a master station by way of spread spectrum radio and fiber. Also provided equipment specification, system configuration, automation development, testing, and commissioning. Provided CAP Automation, advanced Lua logic, and RTU capability testing.

EDP Renewables North America

Designed and commissioned voltage and power factor regulation schemes for more than 30 locations for EDP Renewables and others to meet interconnection contracts using existing reactive assets. This included developing the control algorithms and a custom human-machine interface. This system was programmed using object-oriented techniques to allow for easy expansion if new assets are added.

Montana Alberta Tie Line

Designed, programmed and commissioned fully redundant automation scheme for an orderly shutdown system spanning more than 200 miles of 230 kV transmission line and four substations. System included automation for ISO set point compensation and anti-hunting for phase-shifting transformer. Requirements included opening all breakers within 10 ms.

Seattle City Light

Designed and commissioned two automation schemes for Seattle City Light's Denny substation, the utility's first new electrical power substation in 30 years. The first design was a master/follower transformer paralleling scheme with three (future growth to four) transformers. The second design was a subnet control scheme. This scheme gives SCL the ability to switch in or out an entire distribution subnet by operating multiple 13.8 kV breakers concurrently.