

POWER DELIVERY

Protective Relaying

SYSTEM PROTECTION

- > Transmission lines and substations
- > Distribution lines and substations
- > Traditional and renewable generation plants
- > Switchyards
- > Industrial facilities
- > Event analysis
- > Evaluation of existing systems
- > Arc flash hazard analysis
- > Distributed energy resources, microgrids

SCADA

- > Integration
- > Master stations
- > RTUs and PLCs
- > Networking
- > Web-enabled solutions
- > Human-machine interfaces
- > Communication design
- > IEC 61850 migration

COMPLIANCE

- > System analysis
- > Cybersecurity
- > Modeling
- > Simulation
- > NERC CIP and PRC



Meet your unique goals

We will help you take advantage of today's rapid advances in protection and control technology to improve protection performance and ultimately save you time and money.

We will carefully study fault conditions and thoughtfully apply and coordinate protective relays and their elements to isolate faults and eliminate unnecessary trips.

POWER combines expertise in historic, present-day and emerging technologies with knowledge of the design and operation of power systems. You gain engineering solutions that meet your unique operational goals, using the best sensitivity, selectivity, control and security features of today's devices.

We can perform coordination reviews that identify practical, economical and

proven ways to bring your system up to your standards for safety and dependability. Our independence allows us to recommend solutions tailored to your needs using best-in-class products from a variety of vendors.

We understand the sequence of events and oscillographic and reporting capabilities of today's relays. We deliver configurations that allow you to quickly identify the cause of relay actions.

You gain reliability

We provide automation, data collection and communication services that can turn your needs into seamless protection, substation integration and SCADA solutions. You gain a safe, highly reliable power system.

POWER DELIVERY

Protective Relaying

SOFTWARE

- > ASPEN OneLiner
- > ASPEN DistriView
- > ASPEN Relay Database
- > Electrocon CAPE
- > Synergi Electric
- > Power*Tools for Windows
- > ETAP

RELAY SETTING SOFTWARE

- > SEL-5010
- > SEL AcSELerator
- > EnerVista
- > IPScorn
- > MiCOM
- > DIGSI
- > ABB support software
- > ProView

AUTOMATION SOFTWARE

- > Wonderware
- > Survalent
- > ClearView

HARDWARE

- > SEL relays and communication processors
- > ABB relays
- > Beckwith relays and controls
- > GE relays and communication devices
- > NovaTech communication devices
- > AREVA relays
- > Cooper recloser controls
- > Siemens relays

Project Highlights

Eversource Energy

Provided protective relay settings and SCADA design for transformer additions at the 345 kV and 115 kV Scobie Pond substations. Using the latest microprocessor relays, provided transformer, bus, line and breaker failure protection. Also provided SCADA and automation system design, installation and commissioning support.

EDP Renewables North America

For multiple projects, calculated and documented protective relay settings based on EDPR's relay coordination study. Programmed support for substation control and data acquisition according to the Horizon Wind Energy standard enterprise SCADA data map, PPA or QSE data map, and local HMI data map. Provided protective relays for 34.5 kV switchgear, 345/34.5 kV transformer, 345 kV line and a 34.5 kV capacitor bank.

Northern California Power Agency

Conducted a comprehensive protective relay coordination study involving a 65 MW geothermal power plant and its associated 21 kV distribution line and plant auxiliary systems. The work included design for the upgrade of plant protection to microprocessor relays.

Enbridge Energy

Conducted arc flash studies at 52 crude oil pumping stations in 10 states to minimize fault clearing times and reduce the risk of arc flash hazards. Also recommended system changes and provided options for implementation. Developed a strategy for performing

data acquisition, site visits, arc flash and coordination studies.

Tesoro

Executed a complex design to reduce electrical disruption and bolster reliability at a century-old Salt Lake City refinery. Successfully designed and implemented a new protection and relaying system that used five IEC 61850 GOOSE messaging schemes. This reduced wiring, enabled easier programming fixes and reduced long-term-costs at the refinery. This same architecture also supports a complex load preservation system that POWER implemented during a later project.



POWER called on its deep team of talent for reliability improvements at Tesoro's Salt Lake City Refinery. This included experts in power delivery, generation and facilities.