ABB’s IEC 61850-compliant solutions around the globe

Teck Cominco’s Waneta 230/63 kV S/S, Canada
Hybrid solution with an IEC 61850 ring and a LON star
- RXe670 for control and protection
- RX600 and RF542+ controllers
- Integration of third party IEDs
- Redundant station level
Reliable power supply for the world’s largest fully integrated lead and zinc smelters

EDP Distribuição Energia’s six HV/MV stations, Portugal
Migration of important nodes to IEC 61860 SA systems
- Standardized high-quality operator interfaces, functions and system layouts for optimal operation and maintenance
- Control and protection IEDs of RXe670 and 54x series
- Comprehensive GOOSE-based, distributed functionality for enhanced operational safety and reduced wiring cost
Efficient project implementation

Senelec’s Hann 90/30 kV S/S, Senegal
Refurbishment of Senelec’s most important substation
- IEC 61850-compliant control and protection
- Redundant station level system
- Integration with NCC and Dispatching Centers
Future-proof solution for existing 90kV AIS as well as new 30kV GIS

ENELVEN’s and ENELCO’s Soler & Médanos S/S, Venezuela
IEC 61850 is key to the utilities’ strategy for SA throughout their grids
- Uniform system architecture with redundant station level for high availability
- Control & protection IEDs of RXe670 and 54x series
- High-quality operator interface with proven applications for control and monitoring of the entire 138/24/34 kV system
Enhanced efficiency with harmonized SA systems for new and retrofit substations

EletroSul’s three 230/69 kV S/S, Brazil
New Atlântida S/S and expansion of Oeiras and Gravatá S/S S/S
- 115x RXe670 for control and protection
- Redundant station HMIs and gateways to NCC
- Dynamic information objects mapped to SAGE system & NCC
Successful integration of SA with 3rd party supervisory system

EGL Laufenburg 380 kV Substation, Switzerland
The world’s first HV substation with IEC 61850-compliant SA and multi-vendor integration
1st step: Stepwise retrofit of eleven out of 17 bays: New IEC 61850 - compliant control and redundant protection
- Gateway to existing 3rd party station HMI
- Integration of 3rd party Main 2 IEDs via IEC 61850
2nd step: Replacement of old 3rd party station level system: Implementation of new IEC 61850 station HMI
- Full reuse of engineering data from original SCD file
Sustainable concept for stepwise migration

DEWA Frame contract, Dubai
Supply of 125 IEC 61850-based SA systems
State-of-the-art systems for new 132/11kV & 132/22kV S/Ses:
- Short lead times realized by highly qualified project team
- Redundancy concept, independent key components and physically separated communication networks
- Proven technology and functionality
Safeguarded investment into interoperable systems for any make of switchgear

Federal Grid Company’s Ochakovo 500/220/110 kV S/S, Russia
SA system for station upgraded to GIS technology
- Integration of more than 500 IEDs
- 396 IEDs integrated via IEC 61850
- 219 cubicles with RXe670 for control and protection
- 75 protection cubicles for opposite line ends
Largest SA project worldwide with RXe670 series IEDs

NTC’s six new 161/22.9 kV S/S, Taiwan
Demanding industrial application
- SA systems with more than 300 IEDs integrated
- 279 protection and control IEDs of RXe670 and 54x series
- Integration of 3rd party metering, RTUs, D-UPS, DC charger, mimic controllers and PLC via Modbus/RP570
- Fully redundant hot standby station HMIs and servers
Enhanced monitoring and control of six substations including station ancillary equipment

Six new HV substations for PGCIL, India
400/220 kV GIS S/S at Bharatpur, Fatehpur, Raigarh and Rajagarh, 400 kV AIS S/S at Bina
PGCIL's new substations will be controlled and monitored by IEC 61850-based SA systems featuring:
- Redundant Station HMI using MicroSCADA Pro
- One product family, RXe670, for control and protection
- RXe670 bay control unit for all voltage levels
- RXe6000 bay controller protection system with IEC 61850 communication interface
- Integration of 3rd party Main 2 IEDs on IEC 61850 platform
- Redundant gateways for integration with Network Control and Dispatching Centers
The customer’s philosophy as well as requirements for functionality and availability are being met

SA for PT PLM’s five retrofit 150 kV S/S, Indonesia
- RTU 560 independent gateway to NCC and station HMI
- RXe670 for decentralized control, protection and monitoring
Optimal life cycle management through future-proof retrofit concept

EWA’s Financial Harbour, Sitra & Buqueirah S/S, Bahrain
The three 220/66/11 kV GIS substations strengthen the grid and increase the reliability of the power supply
- Redundant Station HMIs with redundant, independent gateways
- One product family, RXe670, for control and protection
- Bay/Section control unit RE6070 for all three voltage levels
- RE8500 busbar and breaker failure protection (220 kV)
- Integration of 3rd party protection IEDs via IEC-103/61850 converter
IEC 61850 introduced in ABB’s first substations for EWA Bahrain

Transco and ADWEA power mega-projects in Abu Dhabi
Supply of 18 IEC 61850-compliant SA and protection systems for new 11–400kV GIS S/Ses, e.g., Reef Island, Saadiyat Island and Raha Beach
- Uniform system architecture with fully redundant station HMIs and integrated gateways to LDC
- RE670 bay control unit for transmission level
- REF 545 bay control unit for distribution stations
- REB 500 numerical busbar and breaker failure protection with IEC 61850 communication interface
- Integration of 3rd party Main 2 IEDs using IEC 61850
Optimized systems help secure reliable power supply for prestigious mega-projects in Abu Dhabi

Rio Tinto/Hamersley Iron’s 220kV Juna Downs S/S, Australia
- RXe670 series IEDs for control and redundant protection
- RTU 560 with DNP 3.0 and MicroSCADA Pro HMI with terminal service feature provide access for telecontrol, relay interrogation and setting
Robust SA system design ensures continuous local and remote data and command access