

PGCIL, New Delhi 400/220 kV GIS Substation with automation

State of the art sub station facilitating power supply up to 1000 MW to the city of Delhi from the Northern and Eastern grids.

Customer Benefits

- Compact substation ensuring 65% space saving compared to conventional substations
- Reduction in T&D losses due to proximity of substation to load centres
- Remote controlled operation for 400kV system from PGCIL Ballabgarh control centre
- Maintenance free Gas Insulated Switchgear
- Substation automation system with IEC 61850 compliance
 - High system availability with redundancy
 - Guaranteed system openness for future expansion and integration

ABB Solution

- Turnkey 400 kV/ 220 kV greenfield Substation with 5 bays at 400 kV and 7 bays at 220 kV with 2 nos. 315 MVA, 400/220/33 kV three phase Auto Transformers
- Gas Insulated Switchgear ELK type at 400 kV and 220 kV from ABB Switzerland
- Substation automation with IEC 61850 system; critical 1000 hours guaranteed availability test executed
- Insulation coordination studies
- Complete civil work including 400kV and 220kV GIS buildings, control room building and foundation of switchyard equipment. The foundations were constructed over piles as site is located close to river bed
- Substation commissioned in 2007



Substation Control Centre, Maharani Bagh, New Delhi



400kV Gas Insulated Switchgear



IEC 61850 Substation Automation System



400/220/33kV Three Phase Auto Transformers

IEC 61850 Substation Automation Solution



Benefits

- Fully interoperable system with IED 670 for protection and control
- Cost-efficient solution through full exploitation of IEDs' functional capability including GOOSE-based functionality
- High system availability with fully redundant operator workstations and independent gateways
- Guaranteed system openness for future hardware and functional extensions through high-quality engineering

SF6 Gas Insulated Switchgear 400 kV and 220 kV

Benefits

- The combined disconnecter and earthing switch assembly guarantees maximum operational safety
- All live parts are enclosed and effectively protected against negative external influences
- The ELK-14 and ELK-3 range require 40% less space than ABB's previous GIS systems
- Prefabrication of sub-assemblies and stringent quality control at ABB's own factory, simplifies final installation and commissioning



ABB's Substation Offerings

ABB offers substation solutions for power transmission, distribution and substation automation and protection by:

- Delivery of turnkey AIS and GIS substations for utility and industrial applications
- Service, rehabilitation and upgradation of existing substations
- Substation automation systems; bay control, unit protection, power system monitoring and wide area system solutions



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