

ABB Power Systems



Substations References



Jingzhou, China



Customer's need

- Connection of power from the 3-Gorges-Project to Guangdong province (940km away)
- HVDC Transmission station, Filter banks and GIS
- Extremely short installation and commissioning time for the GIS portion (10 months)

ABB's response

- One of the world's largest outdoor 500kV GIS substations with 90 breakers and around 860 m of 3-phase bus bar and duct length
- 10 teams working in parallel
 - 18. Jan 2003 Start installation works
 - 16. July 2003 Start commissioning
 - 04. Nov 2003 Connection to grid

Customer's benefits

- Project completed on time in spite of very tight schedule and unpredictably adverse conditions (SARS, weather)



Copacabana & Leblon, Brazil, Rio Light



Customer's need

- Rio Light had two old AIS Substations operating in very expensive locations (m² prices!). They either wanted to maintain the existing S/S or to build new S/S

ABB's response

- ABB offered two 138/13,8 kV turnkey GIS Substations, with 12 HV GIS Bays and 88 MV GIS bays
- ABB optimized the space requirements for the S/S, enabling the saved area to be sold

Customer's benefits

- Rio Light received two new S/S and the costs were covered by the sales revenues of the additional area



Mahadiya, Sudan, National Electricity Corporation, NEC



Customer's need

- NEC required a new 110 kV AIS SS and wanted to execute the civil work themselves

ABB's response

- 110 kV Switchgear, 5 bays
- 33 kV GIS, type ZX2, indoor
- 11 kV AIS, type ZS1, indoor
- 2 x 35 MVA Transformers, 110/33/11 kV
- Control & Protection equipment
- Auxiliary equipment

Customer's benefits

- Due to the use of a high-rise application, NEC received a space saving Double Bus Bar application



Zapote, Philippines, MERALCO



Customer's need

- MERALCO required a highly reliable GIS 115 kV Substation from a European contractor

ABB's response

- 115 kV GIS ELK-04 including:
 - 3 incoming, 5 outgoing, 3 transformer, 1 sectionalizer, 1 metering bay
- Cable connection 115kV from GIS to transformer
- Control & Protection

Customer's benefits

- GIS SS with a compact Design
- Outdoor application along seacoast area

E8, Abu Dhabi - ADWEA



Customer's need

- ADWEA needed a reliable partner to supply a cost effective 132 kV substation on a space constrained site

ABB's response

- 8 bays 132 kV SF6 GIS ELK-04
- 51 panels 11 kV ZV2 (SF6)
- 4 transformers 40 MVA 132/11 kV
- Auxiliary equipment
- Substation Automation

Customer's benefits

- Optimized arrangement in a small building in the center of the city
- Environmentally friendly, low noise
- Aesthetic view



Kobba, Cairo – Egyptian Electricity Transmission Co.



Customer's need

- A reliable partner to supply a cost effective 66 kV substation building designed to fit in existing road arrangement

ABB's response

- 7 bays 66 kV SF6 GIS ELK-04
- 17 panels 11 kV switchgear
- 2 transformers 25 MVA 66/11 kV
- Auxiliary equipment, control & protection
- Civil works

Customer's benefits

- Full turnkey installation
- MV, LV, control & protection panels assembled in a local ABB factory



Cabreúva, Brazil - CTEEP



Customer's need

- Increasing the installed capacity of Cabreúva Substation to feed an important industrial consumer within 12 months

ABB's response

- Managing the short delivery time utilizing the programmed outages of the existing installation
- Turn-key delivery, 2 bays 440 kV and 6 bays 230kV including a 750MVA autotransformer

Customer's benefits

- CTEEP managed to enter into a partnership with the industrial customer - a Brazilian Aluminium Company - securing future revenues based on fast track delivery of reliable ABB systems and products

Thornton, United Kingdom - NGC



Customer's need

- Establish a new 400 kV Switching station in order to transmit and distribute the growing demand for power in the Northeast part of England

ABB's response

- Turnkey delivery of a 400 kV AIS S/S
 - 12 bays 400 kV Switchgear with 3 busbars
 - R&C and communications
 - Civil works, erection and commissioning

Customer's benefits

- A new substation with the latest primary & secondary equipment technology that secures safe power transmission



Caruachi, Venezuela - EDELCA



Customer's need

- Due to energy deficiency in Venezuela, EDELCA needed the 1st phase of the substation in 12 months & the 2nd phase in 24 months, in accordance with the customers specific standards.

ABB's response

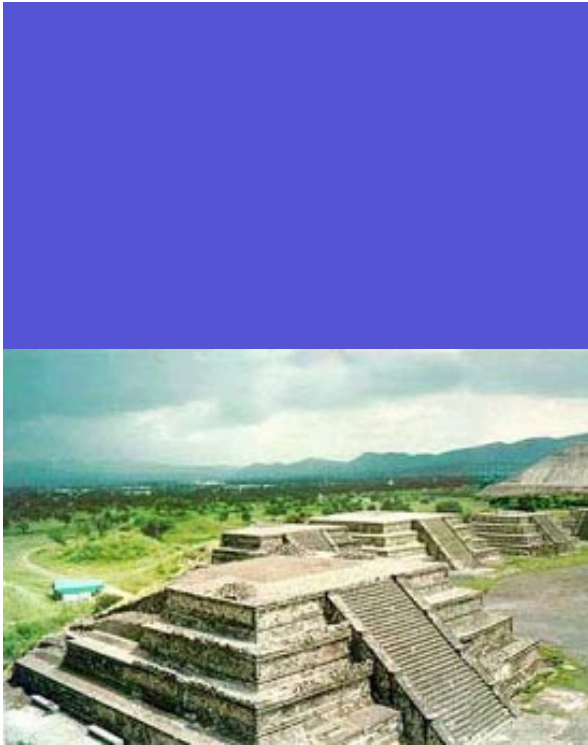
- A turnkey substation 400 kV in three phases
- Close co-operation with EDELCA with many engineering reviews that resulted in a faster engineering approval

Customer's benefits

- ABB's flexibility made it possible to divide the 1st phase & deliver the first bay in record time, enabling EDELCA's first generator to enter commercial use before scheduled



Pidiregas 409, Mexico – CFE



Customer's need

- Establish a new 400 kV substation in order to satisfy Mexico's high power demand

ABB's response

- Turnkey delivery of 400kV AIS S/S
 - Reactors, 2x75 MVar
 - 400 kV Switchgear
 - R&C and communication systems
 - Civil works, erection and commissioning

Customer's benefits

- ABB provided a high quality substation that met a crucial power demand with increased security



Slatina, Romania - Transelectrica



Customer's need

- Safe supply of Power to:
 - Bucharest from Power Station at Iron Gates
 - ALRO aluminium plant (largest electricity consumer in Romania)

ABB's response

- Turnkey delivery of 400/220 kV AIS S/S
- Innovative AIS using Combined and Compact Switchgear Modules.

Customer's benefits

- Small footprint made it possible to have both 400 kV and 220 kV new switchgear on the old 220 kV site
- Higher availability than solution with conventional Circuit Breakers and Disconnectors





Customer's need

- Rehabilitation of a more than 40 year old 220/110kV AIS substation
- First turn-key project on transmission level
- The power transfer Russia - Europe requires the re-enforcement of the 400kV grid with a maximum degree of availability and economy

ABB's response

- Turnkey 220kV GIS and 110kV PASS substation expandable to 400kV
- State of the Art equipment fulfilling all specified requirements and beyond!

Customer's benefits

- One competent partner until completion
- Rehabilitation without interruption of power!





Customer's need

- Very high load growth in Al Ain area required urgent 220/33kV grid system re-enforcement
- The link to the Omani 220kV network required maximum degree of reliability and economy

ABB's response

- Turnkey 220/33kV GIS substations
- State of the Art equipment fulfilling all specified requirements and beyond!

Customer's benefits

- One competent partner until completion
- Maintenance free and easy to operate!

400 kV S/S Hemsjö, Sweden - Svenska Kraftnät



Customer's need

- Retrofit with minimum outage
- New S/S with maximum reliability for HVDC cable to Poland and OH-lines towards nuclear power plants Oskarshamn and Barsebäck

ABB's response

- 400 kV double breaker substation using Disconnecting Circuit-Breaker (Combined)
- Computerized Relay and Control

Customer's benefits

- S/S with all primary contacts enclosed in SF6
- Retrofit with S/S in service, 2*36 h outage only
- Higher availability, lower maintenance cost and minimum Life Cycle Cost



500/220/115/22 kV S/S Ratchaburi, Thailand - EGAT



Customer's need

- Secure reliable infeed of power to 500 kV and 230 kV grids from new thermal power station with total power of 5200 MW
- Aux. power (115 and 22 kV) for power station

ABB's response

- 500 kV(15 CB's), 230 kV(16 CB's) 1 ½- breaker and 115 kV(7 CB's) main and transfer scheme
- Digital relay and control equipment

Customer's benefits

- Turnkey supply of switchgear and relay and control equipment including civil works
- EGAT first decentralized digital control system





A global leader
in power and automation technologies
that enable utility and industry customers
to improve their performance
while lowering environmental impact