

POWER GRID EXTENSION IN PAKISTAN
SELTA for telecontrol and service telecommunications



NEED

National electricity authority in Pakistan, NTDC (National Transmission & Dispatch Company), has decided to extend its network including areas not yet served. Power grid expansion project needs a remote control system and a service telecommunications system able to manage it. Another important element is the SCADA platform, provided with a local interface, able to display the alarms coming from the peripheral devices.

SOLUTION

SELTA has been able to respond to customer's needs thanks to its complete portfolio for automation and telecommunications. Regarding **service telecommunications**, SELTA's systems have provided:

- a stable and fast transmission line
- the possibility to create a ringed network, capable to solve traffic addressing problems by selecting different routes and to enable network redundancy, also using different transmission media
- advanced diagnostic tools: real time fault and graphical history of faults and amount of data transmitted

Regarding the **remote control system**, it's possible:

- to transmit all the information via standard protocol to remote and local control centers or to remote operations for maintenance
- to check operations independently from control center through software and hardware interlocking
- to have a local device able to manage all data, in particular: recording, storing and printing; transmission to the control center; displaying for local operator in order to evaluate the scenario of a passed fault

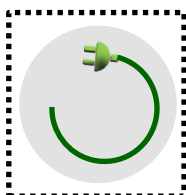
BENEFITS

National electricity authority in Pakistan, NTDC, has been able to extend its power grid bringing electricity in areas not yet served through a solution of high **efficiency** and **reliability**. SELTA has implemented on the field an high **quality** solutions bringing **better life** conditions for people living in the country. SELTA's role has been of **supplier-partner**, granting availability and services also during post implementation phases.

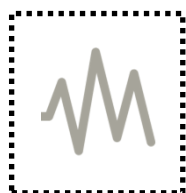
This project, called ADB81, is managed by the national electricity authority NTDC (National Transmission & Dispatch Company), which has chosen SELTA for the design and implementation of a telecommunications and remote control solutions, for an overall value of 5 million \$.

SELTA's telecommunications and remote control systems have been chosen to extend and manage the power grid in Pakistan, in order to provide electricity to a larger number of people, supporting the socio-economic development in the country. SELTA owned the design, manufacturing, supply, installation and commissioning of telecommunications and telecontrol systems for 21 electrical substations (220 KV and 500 KV).

The Islamic Republic of Pakistan has received a loan from the Asian Development Bank (ADB) in support of the investment for Power and Transmission Enhancement Programme.



The project is made up of telecommunications systems on HV line (Digital Power Line Carrier - **STED** - and Coupling device - **SBSN, SCA**), able to transmit voice and data between two substations. The system is completed with teleprotection terminals - SELTA **TPS-NU** - able to protect the electrical line by over current and / or short circuit.



On some substations, SELTA supplied the **SDH (STM 1 / 4)** terminal equipped with voice, data and teleprotection interface, in order to protect electrical line with a redundant configuration: via DPLC and SDH link.



SELTA supplied also **6 PABX** in some of the main substations to interface local subscribers, remote subscribers and PTT line via DPLC and SDH.



In the main substation, Remote Terminal Units with local **SCADA** are installed; the RTUs manage all the signals, measurements and commands involved in 220 kV and 500 kV section. All the information received from the RTU are displayed and managed on the SCADA, in which video pages show the electrical scheme of the plant.



For several substations, SELTA supply includes **batteries chargers** and **battery banks**, in order to guarantee the power supply of all the equipment for many hours, as requested by NTDC.

