Case Study

Remote Monitoring and Control of RMU Stations

Background

Customer:
Reliance Energy Limited

Industry:
Distribution Utility

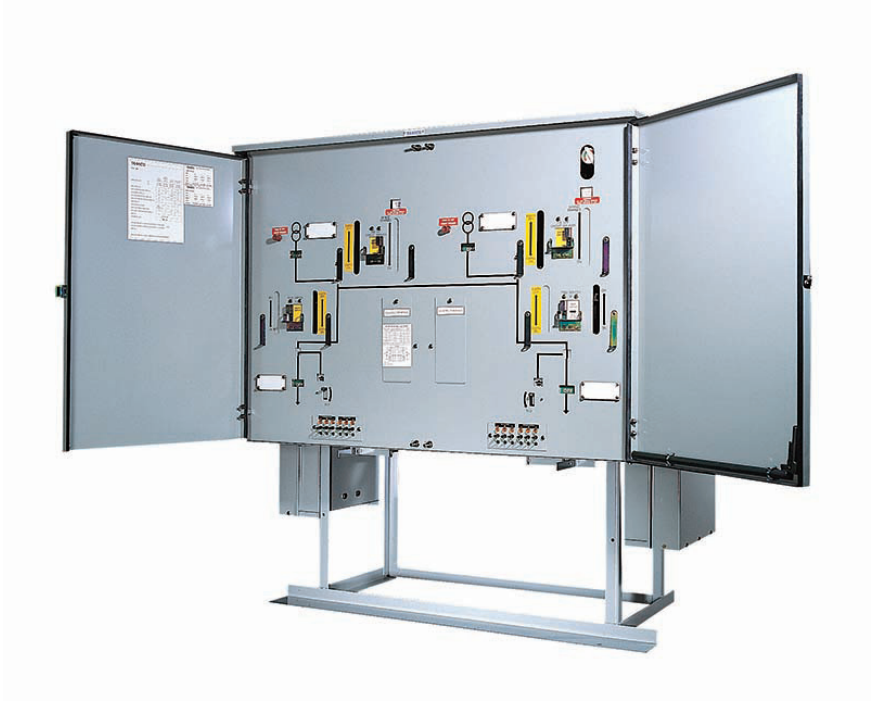
Region:
India

Solutions

- SYNC 2111 RTU

Challenge

The utility wanted to rollout out a robust automation infrastructure for effective remote monitoring of its distribution substations and needed compact RTUs to fit into RMU panels where space was limited.



Business Need

Reliance Energy Limited, a major private utility based in West/North India with a deep and intricate distribution network, was contracted to supply electrical power to homes and industrial consumers in Mumbai City.

Reliance Energy set a very ambitious System Average Interruption Duration Index (SAIDI) to meet the high service quality expectations from consumers. The utility identified early on that meeting SAIDI targets could only be achieved by investing heavily in automating Ring Man Units (RMUs).

Solution

Reliance Energy proceeded to make the investment in automated RMUs and in parallel, set up a world class SCADA system which included a main center and a redundant backup center.

A key component to complete the automation infrastructure was Remote Terminal Units (RTUs) which needed to be intelligent so the grid would be ready for the eventual roll out of a self-healing network infrastructure.

The Kalkitech SYNC 2111 RTU, which includes standard protocols and an integrated communication platform with real time I/O monitoring and control, plus embedded IEC 61131 logic engine was selected. The compact form factor of the SYNC 2111 was ideal for retrofitting into RMU panels where space was limited.

SYNC RTUs incorporate an IEC 60870-5104 slave with a broad spectrum of available Application Service Data Units (ADSU), ensuring full compatibility with the Reliance Dispatch Centre's SCADA system.

In addition to a serial RS232 port with full modem signals, SYNC 2111 RTU's have an additional RS232/485 port and two RS485 ports, which are used to get data from MFMs and protection devices, or FPIs over Modbus or IEC 60870-103 relays.

Results

Today, Reliance Energy operates as a critical and reliable utility in India providing services in Mumbai and Delhi. They have met the Quality of Service (QoS) obligations and by remote monitoring of the distribution stations, improved their on roll staff per wattage index.

The automation system helped Reliance be more responsive to addressing of fault conditions in the grid and enabled placement of maintenance units at strategic points in the city to allow mobilization to a fault location in minimal time.

As part of its best practices, thefts and energy accounting were monitored, collected, analyzed and points of unauthorized power-tappings were traced, enabling the utility to reduce its losses.

The integrated HMI provides enhanced local viewing and real-time decision making for the on-site maintenance team.

The modular design of the SYNC 2111 provides Reliance Energy with the flexibility to add or reduce inputs and outputs as local configuration requirements change. The utility liked the flexibility to fit the same RTU for its two-way, three-way and four-way RMUs by increasing or decreasing add-on cards as needed.

The PLC logic engine compliant to IEC 61131 offers software interlocks for the RMU for an additional layer of fail-safe security. In addition, interlocks were created to ensure energy feed through the load break switches were allowed only after certain conditions were met.

Reliance has recovered their capital investments and at the same time ensured customer centric delivery; the SYNC 2111 RTU is a key component of their success.