PQSys/REGSys - Amprion GmbH

Customer

Amprion GmbH with headquarter in Dortmund (Germany) is a German TSO. With 11.000 km grid-length on 220 and 380kV level, Amprion is the second largest TSO in Germany. In Dortmund, at the control center site in Brauweiler and at over 30 other regional operating sites, Amprion GmbH employs more than 2000 people.

Applications

Power Quality System (**PQSys**) comprising of several 19“-rack systems with PQI-D, REG-PE (cs), star-coupling communication devices. The following applications are in operation in primary substations:

1) Digital Fault Recorder in all primary substations (e.g. phase shifting transformers, STATCOM, etc.)
2) CMDT/Optisek (Central Measurement Data Transmission)
3) PF-Control (Power-Frequency-Control)
4) Monitoring of MSCDN-equipment

Regulation System (**REGSys** incl. REG-D, REG-PE(cs)) Transformer voltage control incl. OLTC and SCADA communication, also for transformer-banks.

Technical Solution A. Eberle

PQSys devices transfer fault recording data to the central control center but also regional centers (clients) via **WinPQ** (visualisation and reporting software).

Several **PQI-D** devices are connected via a star-coupling communication device based on IEC IEC607870-5-103, which is distributing the PQI-D measuring data over two IEC607870-5-101 interfaces as source for Amprion internal applications CMDT, Optisek und PF-control. Fault recording data is used in the control centers for grid operation and planning of switching operations.

MSCDN-equipment monitoring is another important application. MSCDN-equipment are switchable capacitors on HV-level for voltage increase/control in the grid. By reducing the reactive currents, the maximal active power capacity can be enlarged/maximized.

Customer Feedback

Smooth and stable operation of all applications meeting all necessary cybersecurity requirements in Germany (BDEW Whitepaper).
New generation devices - **PQI-DA smart** und **PQI-DE** incl. direct IEC61850 communication - are being analysed and planned for new substations incl. upgrading of former generation devices.

Installations:	**180 primary substations**
Customer:	**TSO**
Country:	**Germany**
Date:	07/2022