OMEXOM

SUBSTATION DIGITALIZATION

Delivering Sweden's next-generation fully digital transmission infrastructure

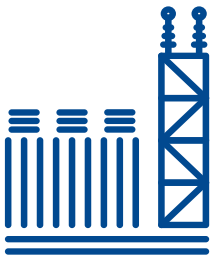
420 kV
TRANSMISSION SUBSTATION

FULL DIGITAL
SECONDARY SYSTEMS

IEC 61850
DIGITAL COMMUNICATION

REDUNDANT ARCHITECTURE
HIGH AVAILABILITY

END-TO-END DELIVERY
EPC EXECUTION



SUBSTATIONS SOLUTION

CT30 ÅKER is a flagship digital substation project for the Swedish TSO, replacing an existing 420 kV substation with a new, fully digital IEC 61850-based one. Delivered by Omexom, it pairs conventional primary equipment with a fully digital secondary system to enhance reliability, interoperability, and operational efficiency, demonstrating how transmission operators can modernize critical infrastructure through digitalization.

THE CHALLENGE

- Transmission infrastructure must be modernized without compromising reliability
- Utilities are seeking greater digitalization, interoperability, and visibility
- Transmission assets require secure, resilient communication
- Digital substations must unify protection, control, and remote operation

KEY BENEFITS

- Enables the transition from a conventional to a fully digital substation
- Improves monitoring, control and data availability across critical assets
- Supports high availability through redundant communication
- Reduces copper wiring via digital process/station bus
- Integrates protection, automation, and SCADA. Enables secure remote control

THE OMEXOM APPROACH

Design → Integrate → Test → Operate

Full Digital Architecture

Integrated digital systems including merging units, protection relays, bay controllers, SCADA and communication gateways.

IEC 61850-based Communication

Station and process bus architecture using SV, GOOSE and MMS for reliable data exchange.

High Availability Design

Redundant timing, PRP communication network and backup control systems ensure resilient operation.

Comprehensive Validation

Extensive testing from FAT to SAT verifies performance before commissioning.

TYPICAL USE CASE: Greenfield and brownfield digital substations | Transmission network modernization projects | IEC 61850 process bus and station bus deployments | Digital protection, control and automation upgrades

OMEXOM

For any questions regarding this solution, please contact:

Magnus KRISTIANSSON
magnus.kristiansson@omexom.com

Download the digital one-pager by scanning the QR code.

Omexom is the energy infrastructure brand of VINCI Energies.