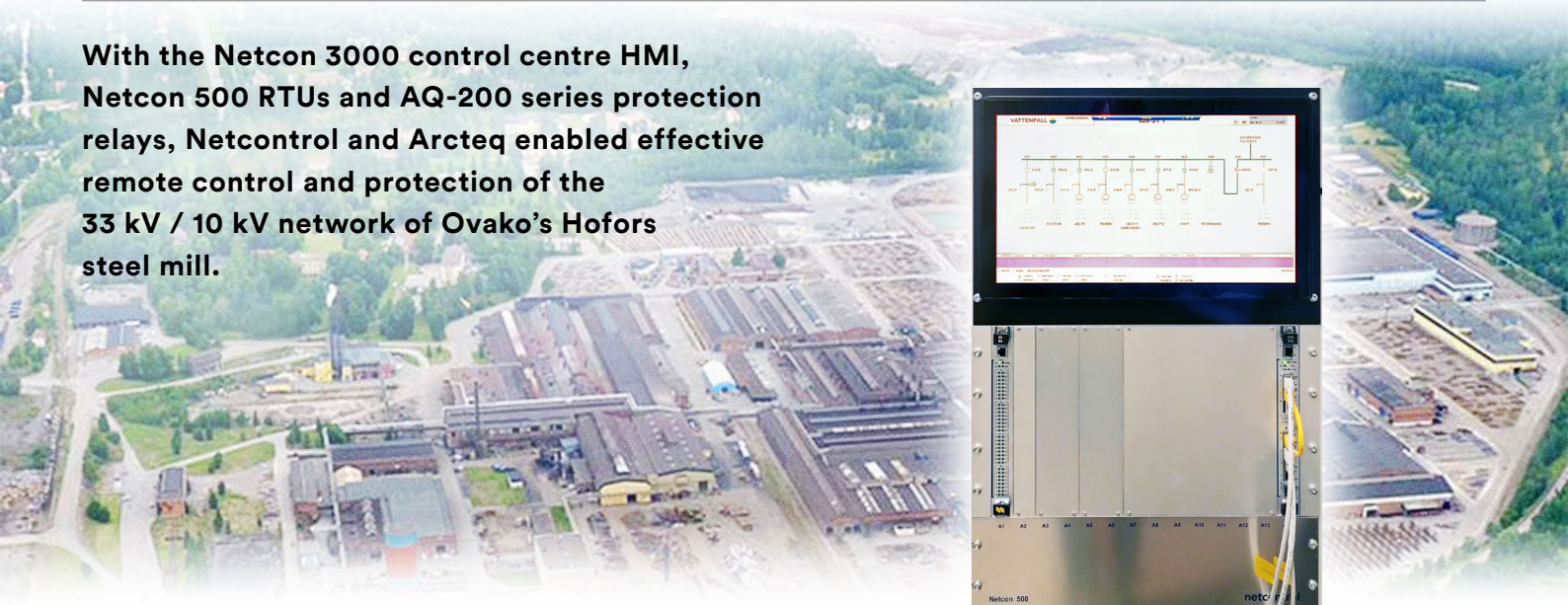


CASE STUDY

The grid of Ovako's steel mill is automated by Netcontrol

With the Netcon 3000 control centre HMI, Netcon 500 RTUs and AQ-200 series protection relays, Netcontrol and Arcteq enabled effective remote control and protection of the 33 kV / 10 kV network of Ovako's Hofors steel mill.



COMPANY AND SITE

Ovako is a leading European manufacturer of engineering steel for customers in the bearing, transportation and manufacturing industries. The steel mill in Hofors, Sweden, originates from the mid-16th century. Ovako's production is fully based on recycled steel scrap and in combination with efficient processes together with Nordic fossil-free electricity, the carbon footprint of the steel products is 80% lower than the global average. Ovako is a member of the Nippon Steel Group, one of the largest steel producers in the world, and a subsidiary of Sanyo Special Steel.

BACKGROUND

A 130 / 33 kV / 10 kV transformer substation at the site makes the processing possible. The 33 kV voltage level is for an electric arc furnace for the smelting, whereas 10 kV is used throughout the site. The 33 kV / 10 kV grid is currently owned and operated by Vattenfall Elanläggningar AB, a subsidiary of the publicly owned Vattenfall AB.

Historically, no remote control was available. The protection relays were hard-wired to trigger sum alarms in the event of a fault, and this one-way

mode was all the communications that existed between the substation IEDs and the grid operator.

A project was therefore initiated to introduce a complete remote control and monitoring solution for the medium voltage grid, with an HMI for the grid operator, as well as to modernize most of the existing protection equipment and to set up a high-end IEC 61850 substation bus.

NEW CONTROL & PROTECTION EQUIPMENT

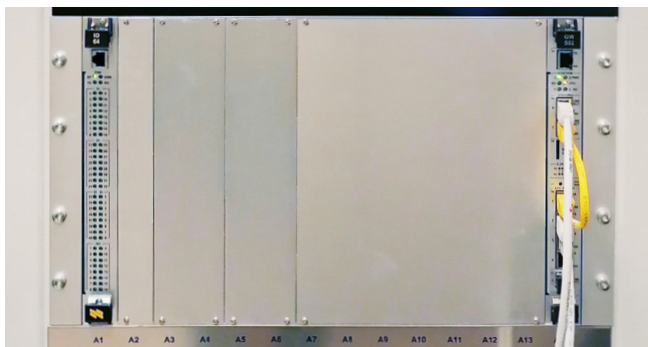
Netcon 3000 HMI

The Netcon 3000 system was installed as the control centre HMI, ensuring robust and flexible remote control of the MV grid. The system was



customized to fit all of Ovako's requirements, and its flexibility allows future expansions or changes.

Netcon 500 RTUs



For each of the substations, one Netcon 500 RTU was put into operation to enable the communications between the substation IEDs and the central HMI. As a modular hardware platform that supports 50+ communication protocols, the Netcon 500 is well prepared for forthcoming changes, should they be required, including various makes of IEDs.

Arcteq protection relays

Since Netcontrol AB had just signed a distribution contract with Arcteq Relays Ltd for the Swedish market, all the control and protection equipment could be supplied by Netcontrol. This made for a more efficient project.

Arcteq's AQ200 series relays were a perfect fit for this application since they provide optimal performance for medium voltage protection, control and monitoring applications. The relays



have a fully modular hardware construction which gives a high level of flexibility; additional I/O or communication cards can simply be plugged in to the relay retrospectively according to application needs.

As the new protection relays were to be installed into existing switchgear, Arcteq supplied combiflex fitting frames, which allowed a simple and cost-effective retrofit.



Overall scope

In total, Netcontrol AB supplied:

- Netcon 3000 HMI system
- 15 pieces of Netcon 500 RTUs
- 100+ Arcteq AQ-200 series relays
- Various fibreoptic switches to set up the communication infrastructure.

VATTENFALL AB

Evenemangsgatan 13
169 79 Solna
Sweden
Tel. +46 8 739 50 00
group.vattenfall.com/se/

NETCONTROL AB

Ängsgårdsgatan 13
721 30 Västerås
Sweden
Tel. +46 21 177 780
www.netcontrol.com

