

# Innkraftwerke

A new automation system for five run-of-river power plants in Germany

s Gars hydropower plant

**A**NDRITZ HYDRO has been awarded a contract for the delivery of fully networked secondary technology and will install a complete NEPTUN system at five hydropower stations on Germany's Inn River by 2021.

HPPs Rosenheim, Feldkirchen, Wasserburg, Teufelsbruck and Gars are part of a chain of 14 run-of-river power plants acquired by Austrian-based utility Verbund AG from German energy provider E.ON in 2009. All of the five run-of-river power stations are located in Germany and use the water resources of the River Inn.

They are equipped with a total of 21 Kaplan turbines (master units), two Kaplan bulb turbines (at Triebwerk Wasserburg and Gars) and 19 gates. After renewal of primary equipment of "Triebwerk" units in 2009 and 2013, the secondary equipment will now be modernized.

ANDRITZ HYDRO will provide the instrumentation and control equipment (automatic control, mechanical protection), the governor and its hydraulic oil units, the excitation system based on HIPASE, and will perform a complete replacement of the machines' transducers.

t Rosenheim hydropower plant



The new instrumentation and controls will allow fully automated operation, with the governors ensuring optimum efficiency and maximum energy yield, thanks to their Adaptive Cam Control (AAC) and redundant water management automation.

Included in the delivery are the integration of controls for the machine-related 110 kV feeder, the 20 kV, 6.3 kV and 0.4 kV substations, the replacement of automatic control of station service, as well as the integration of control system for HPP Triebwerk and various other auxiliaries.

Based on a scalable 250 SCALA operating and monitoring system, operation of the facility will be provided by a redundant compact type SCADA system at the main control room and local operator panels at each unit and dam area.

All five HPPs will be remotely controlled and monitored via the central control room in Töging, using IEC 60870-5-104 communication protocol.

The main task and effort in this project is, to execute all modification works while proceeding operation, ensuring reservoir stability through a controlled discharge of water.

With this contract, VERBUND Innkraftwerke GmbH reconfirms its long-term partnership with ANDRITZ HYDRO.

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## TECHNICAL DATA

### Rosenheim (3 gates):

Output: 35.1 MW / 3 x 16 MVA

Head: 8.2 m

Speed: 88.2 rpm

### Feldkirchen (4 gates):

Output: 38.2 MW / 3 x 15 MVA

Head: 8.7 m

Speed: 90.9 rpm

### Wasserburg (4 gates):

Output: 24.1 MW / 5 x 5 MVA

Head: 7.15 m

Speed: 115 rpm

### Triebwerk Wasserburg:

Output: 1 x 5.55 MVA

Speed: 136.48 rpm

### Teufelsbruck (4 gates):

Output: 25 MW / 5 x 5 MVA

Head: 7 m

Speed: 115 rpm

### Gars (4 gates):

Output: 25 MW / 5 x 5 MVA

Head: 7.4 m

Speed: 115 rpm

### Triebwerk Gars:

Output: 1 x 5.5 MVA

Speed: 136.4 rpm

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