INP Reference

Renovation of Switchgear Kühmoos - Substation

LOCATION: Rickenbach/Laufenburg, Germany

SYSTEM/TECHNOLOGY: Outdoor switchboard 220/380-kV

SERVICES: Project management, Installation supervision

INDUSTRY BRANCH/TYPE OF PLANT: Transmission & Distribution

CLIENT: Schluchseewerk AG

PROJECT SIZE: 400,000 EUR

Tasks

The Kühmoos substation is an important node in the extra-high voltage grid and serves as a feed-in point for the pumped-storage plants in Bad Säckingen (220 kV, 360 MW) and Wehr (380 kV, 960 MW). It is jointly operated by TransnetBW GmbH, Schluchseewerk AG and Amprion GmbH. The plant was built in 1966/67 and upgraded in several stages. The respective companies own their individual fields which they operate and maintain on their own.

Since many components at the Schluchseewerk plant date back to the construction of the plant and due to significantly changed requirements for grid operation, the owners decided to modernize the primary and secondary equipment of their own fields between 2018 and 2022. This will be carried out in four construction phases and in parallel to revision services in the associated pumped-storage plants.

Project description

The goal of the project is to modernize the six machinery lines and two transverse couplers owned by Schluchseewerk AG from top to bottom and get them ready for the coming decades. This upgrade is planned in four construction phases, which are distributed over the two voltage levels from 2018 to 2022, including the detail planning.

Concerning the machinery lines and transverse couplers, the complete primary equipment (isolators, ground electrode, transformer sets, supports, and foundations) will be replaced by new devices, with the exception of the already renewed circuit breakers. The goal is to get the switchboard panels ready for the coming decades and to adapt the technology to current requirements for short-circuit resistance and availability.

Concerning the secondary equipment, existing, partly proprietary technology will be replaced with state-of-the-art field control devices to ensure interoperability with the other fields and power grid systems of the operators. At the same time this will end dependency on already discontinued components. Concurrently, the station power supply will be restructured and adapted to the ownership rights of the plant. As part of

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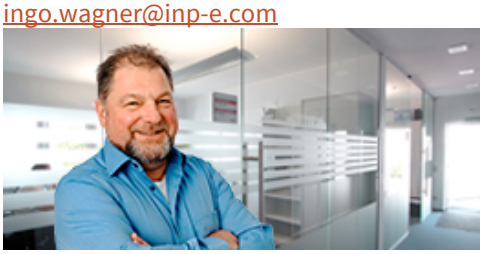

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installing the new secondary equipment, the connection to the new power grid system of Schluchseewerk AG and the interfaces to the other operators will also be redesigned. Existing control systems components will be removed and replaced by modern systems.

INP Services

Requirement specification phase - complete project:

- Preparation of tender documents including product specifications sheet and as-built documentation
- Draft of technical and commercial contract documents together with the client's Purchasing department
- Support of the requirement specification phase with project management and the client's Purchasing department

1. Construction phase - 220 kV machinery lines, Power Plant Säckingen:

- Support of the client's project management
- Implementation of project management tasks on behalf of the client
- Support of contract and contract change management
- Scheduling and coordination
- Coordination of the general contractor
- Support of interfaces with nearby projects of Schluchseewerk AG and TransnetBW GmbH
- Examination of the general contractor's technical engineering
- During construction: Installation supervision and coordination between client and general contractor