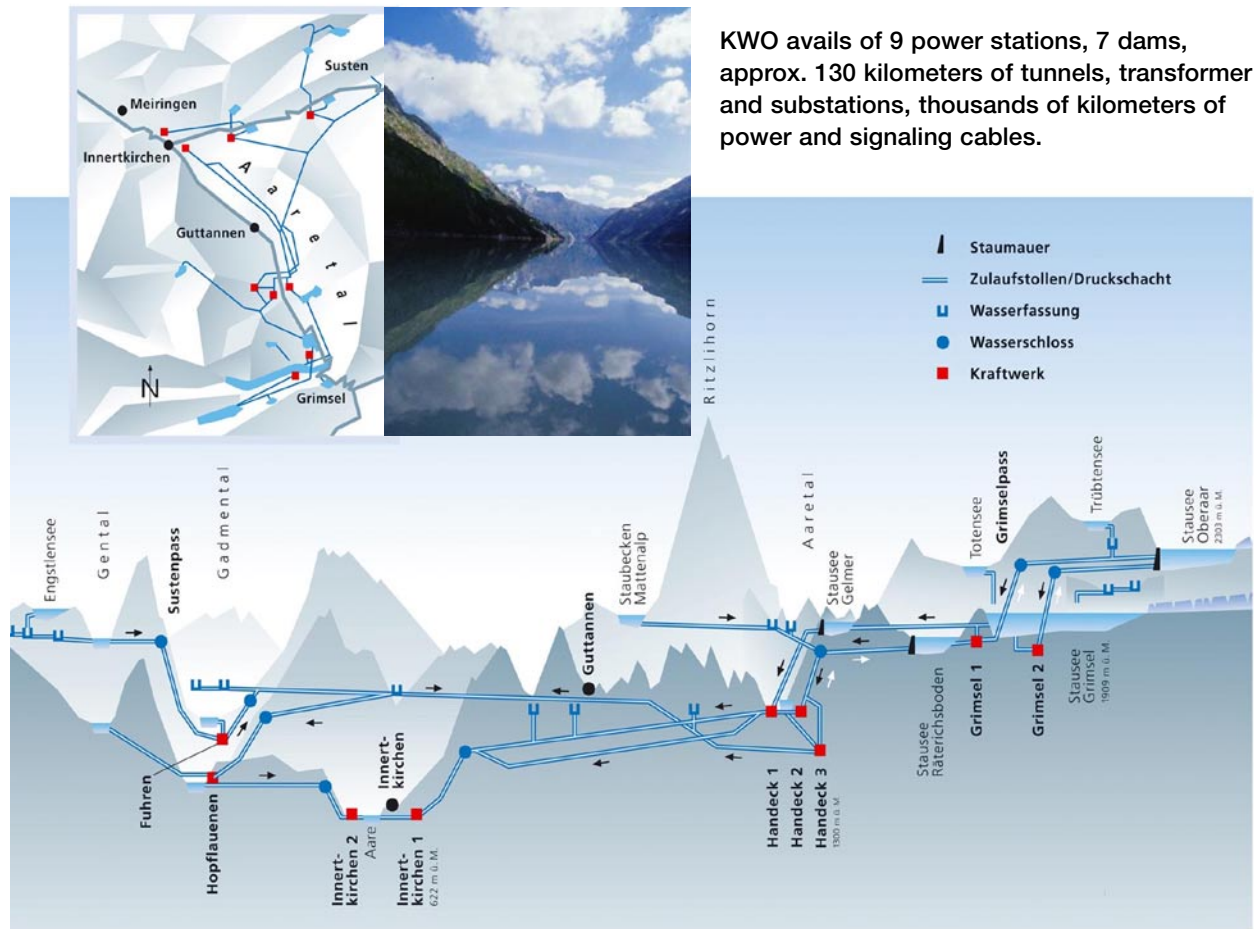


KWO plus – ABB Solutions for a retrofit project



- ▲ KWO modernizes its existing plants and increases power generation
- ▲ Convincing retrofit competence and solution concept
- ▲ The largest station protection system REB500sys to-date protects the 220kV switchgear and saves hardware and cabling
- ▲ Interesting division of work between KWO and ABB

KWO, Kraftwerke Oberhasli AG, a traditional Swiss utility is dedicated to future-proof planning. Within its massive investment program “KWO plus”, comprehensive retrofits and measures to increase generation are being realized. The abundant hydropower potential of the Grimsel and Susten area gives way to a considerably higher utilization for power generation. In the implementation of the five stages of the investment plan over the next 15 years, KWO places much emphasis on ecology, value retention as well as a sound cost / return ratio. Thus the nine power stations with a total of 28 turbines, presently more than 1050 MW output and an annual energy production of 2300 GWh will soon generate considerably more energy.

The project “Retrofit Innertkirchen 1” is the first stage. The station control and generation protection in this 235MW power station with its five generators as well as protection and control of the 220/150/50kV substations are being replaced in several tranches. KWO has made good experiences with the well-proven ABB protection equipment of various generations that was installed in Innertkirchen in the past. Moreover, the retrofit competence, the comprehensive solution concept and the innovative station protection of ABB were further decisive factors.

Within the first two tranches, ABB will, apart from material supplies, provide services such as

- Ensuring the seamless integration of the new secondary with the existing primary equipment
- Engineering for KWO's own manufacturing of the protection and control cubicles
- Realization of KWO's control concept, i.e. connection of the bay control devices for the switchgear to the power plant control system (third party)

The above services comprise the entire basic and system engineering for the retrofit:

- Survey of the plant
- Basic design for the protection and control cubicles as well as the parameterization of the interfaces to the control system
- Detailed design for cubicle manufacturing
- Detailed design for the integration of the secondary with the existing primary equipment.

The material deliveries comprise of Numerical protection and control devices for the 220 kV switchgear and the 5 generators:

- Line, transformer protection REL/T316*4
- Station protection system REB500sys for



The primary equipment of the Innertkirchen 220 kV substation will remain in service also after the retrofit.

- Busbar protection
 - Breaker failure protection and
 - Main 2 Line protection
- With its 13 bay units, this is the largest station protection system to-date.*

- Control units REC316*4 and mimics for local control, bay interlocking, etc.
- Protocol converter COM581 connecting all protection and control units to the power plant control system (IEC-60870-5-104)
- Generation protection REG316*4

Division of work with KWO:

During the “low-maintenance” winter season, the employees of KWO will assemble, test and commission the protection and control cubicles. These activities are supported by the detailed engineering specifications and close cooperation.

Customer benefits

- Operational safety
- Optimal integration
- Reduced cabling with decentralized protection and control
- Less hardware and space requirements with station protection REB500sys

Conclusion

For KWO it is important to have a partner, who is capable of providing the entire scope of supply and services for the secondary system from a single source. Thereby retrofit competence, an integrated concept and a comprehensive service offering are essential.

The division of work and cooperation of KWO and ABB permit the optimal utilization of the available resources.

The systems fulfill the highest quality, security and environmental standards for the reliable power supply.

For more information please refer to the responsible ABB sales engineer for your country or to the address mentioned below



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