Extension of Innertkirchen Power Plant 1

Client
Kraftwerke Oberhasli AG, Innertkirchen

Consultant
IUB Engineering Ltd
IM Maggia Engineering Ltd

Construction period
2011–2015

Construction costs
110 mio. CHF

Scope of services
- Construction project
- Tendering (construction, hydromechanics)
- Application design for construction, construction supervision and as-built drawings.

Description
The upgrading of Innertkirchen Power Plant 1 aims to optimise and develop the output and energy production in Innert-kirchen. The existing machinery will be upgraded with the addition of a parallel penstock pipeline and a new underground power house with a Pelton turbine. IUB Engineering Ltd provided the following project planning services:
- Plant design and optimisation
- Hydraulic calculations incl. transients
- Connection to the pressure tunnel Ø = 4.3 m, length 9’600 m
- Upgrade of surge tank with new machine room 35 x 12 m as upper chamber
- Steel-lined pressure shaft and horizontal section, each with internal Ø = 2.4 m, length 1 km and inclinisation/slope 70 % / 10 % [TBM excavation Ø = 3.10 m]
- Underground power house 45 x 20 m. This cavern houses the 6-jet Pelton turbine, the generator as well as the generator transformer
- Increase of the power from 240 MW to 390 MW
- Throttle valve housing, connection structure
- 2’100 m long regulated tailrace tunnel using drilling and blasting method with a cross-section of 45 m²
- Still basin for the purpose of dampening hydropeaking including return structure [regulated valve and radial gate]
- Control/regulation strategy for stilling basin and tailrace tunnel
- Several access tunnels using drilling and blasting methods
- Concept for access to construction site with cableway for material transport