

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 $\varnothing = 4.3$ 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 $\varnothing = 2.4$ m, length 1 km and inclinisation/slope 70 % / 10 % (TBM excavation $\varnothing = 3.10$ 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
- Stilling 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

