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Ilisu (Turkey): Dam and Hydropower Project (1200 MW) on Tigris River

Client
Republic of Turkey, DSI, Turkish Office of State Hydraulic Works, Ankara
Contractor: IC Ilisu Consortium composed of Nurol & Cengiz (Turkish Civil Contractors), Andritz Hydro (HM & EM Works), Stucky & Temelsu (Engineering – Switzerland, Turkey)

Consultant
ECS Consortium composed of AF Consult and IM Maggia Engineering (Switzerland) Dolsar Engineering & Rast Engineering (Turkey)

Period
Final design: 2007–2009
Construction: 2009–2020

Construction costs
€ 1.6 billion

Scope of services
Final design, preparation of technical specifications, review and approval of application design and site supervision as Owner's Engineer

Description
The Ilisu Dam & Hydroelectric Power Plant (1,200 MW) is located on the Tigris River in southeast Turkey in Mardin District. The power plant is composed of a 135 m high and 2,289 m long concrete faced rockfill dam (CFRD), gravity dam, spillway, power intakes & power tunnels (3 x Ø12/10 m), powerhouse (6 units, 1200 MW), tailrace channel and 3 river diversion tunnels (Ø12 m) with low level outlet. The design and site supervision works include:

- Concrete faced rockfill dam (H= 135 m, crest length L= 2,289 m, dam fill volume 23.5 million m3, reservoir volume 10,430 hm3, reservoir surface 313 km2)
- Gated spillway with 3 chute channels, gravity dam and transition zone to CFRD, (spillway capacity 17,988 m3/s)
- Power intake & power tunnels (Ø12/10 m)
- Open powerhouse with 6 Francis units of 222 MW each (L / H / W = 178 / 56 / 38 m)
- River diversion with 3 tunnels (Ø12/L= 1000 m, capacity 3,600 m3/s)
- Switchyard (380/154 kV double busbar SY)

Main Data

- Capacity: 6 x 200 MW
- Design discharge: 1,200 m3/s
- Annual energy production: 4,120 GWh