High Head Plants

Kandil Dam and Hydroelectric Power Plant TURKEY

Kandil Dam and Hydroelectric Power Plant is a hydropower scheme part of the Kandil Cascade Projects located on Ceyhan River in Kahramanmaraş province, south of Turkey. It is a BOT project licensed by the Ministry of Energy and Natural Resources (MENR). Still undergoing construction, the project is planned to be operational at end of the year 2012.

The dam is 104 m high above foundation with 350 m crest length. The embankment is zoned rock-fill with concrete facing on upstream side, impounding a total volume of 438 million m^3 in the reservoir. Two diversion tunnels are located at the right bank with 5.00m inner diameter and 435m length. One of the diversion tunnels is going to be used as power tunnel for the environmental release power house with one horizontal axis Francis turbine which is located close to the spillway chute. Power intake is also at the right bank. A power tunnel of 6.00m inner diameter and 9500m long goes on to the valve chamber from the power intake structure and a penstock of diameter 5.00m and 233m long goes down to main powerhouse from the valve chamber. Spillway is at right bank about 60 m away from dam body, its six bays controlled by gates.

The main powerhouse is a reinforced concrete structure with two vertical axis Francis type turbines, and installed capacity of each unit is 103.29 MW.

Client:
EnerjiSA Enerji Üretim A. Ş.

Main Data:
Concrete faced upstream, zoned rock-fill embankment:

- maximum height above foundation 104 m
- crest length 350 m
- upstream/downstream slope 1V:1.4 H
- total volume 2263000 m^3

Spillway:

- no.s/type/size of gates 6/radial/8.0x16.0 m

Main Powerhouse :

- no.s/type of turbines 2/francis, vertical axis
- rated capacity/rated discharge 206.58MW/107.7m^3/s
- rated head 208 m
- rotation/frequency 333 rpm/50 Hz
- firm energy production 199.61 GWh/a
- second energy production 302.48 GWh/a

Execution: 2009-2012

Services:

- Review, appraisal and recommendations for feasibility study
- Preparation of final design reports and drawings
- Preparation of technical specifications
- Programming site investigations and evaluation of the works
- Preparation of detailed construction drawings for project structures
- Consultancy services to the owner during site construction works
- Building inspection authority during the construction period.