

Medium Head Plants

Sarıgül Dam and Hydroelectric Power Plant TURKEY



Sarıgül 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 the middle of year 2012.

The dam is 80 m high above foundation with 463.5 m crest length. The embankment is zoned sand and gravel fill with concrete facing on upstream side, impounding a total volume of 59.40 million m³ in the reservoir. Two diversion tunnels are located at the right bank with 4.50m inner diameter and 330 m 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 between the spillway chute and the dam body. Power intake structure is at the left bank. A power tunnel of 6.00m inner diameter and 5300 m long goes on to the valve chamber from the power intake structure and a penstock of diameter 5.00 m and 85 m long goes down to bifurcation from the valve chamber. Between main powerhouse and bifurcation, penstock divided into two branches with a diameter of 2.80 m. Spillway is located at the right bank near the dam body with six bays controlled by radial gates.

The main powerhouse is a reinforced concrete structure with two vertical axis Francis type turbines, and installed capacity of each unit is 50.40 MW.

Client:

EnerjiSA Enerji Üretim A. Ş. (Verbund)

Main Data:

Concrete faced upstream, sand and gravel-fill embankment:

- maximum height above foundation 80 m
- crest length 463.5 m
- upstream slope 1V:1.5H
- downstream slope 1V:1.6 H
- total volume 2759000 m³

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 100.80MW/101m³/s
- rated head 109 m
- rotation/frequency 300 rpm/50 Hz
- firm energy production 115.23 GWh/a
- secondary energy production 163.76 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.

