

Medium Head Plants

FEKE- I Weir and Hydroelectric Power Plant TURKEY



Feke-I Diversion Weir and Hydroelectric Power Plant is a hydropower scheme located on Göksu River in Adana 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 2011.

The weir is consisted of two part which is designed free and radial gated spillway. Free spillway is 9 m high above foundation with 77 m crest length. Radial gated spillway is 10 m high above foundation with 24 m crest length. Radial gated spillway is concrete ogee profile, controlled with 3 radial gates with dimensions of 6.0m x 5.0 m. From an intake structure on the left bank a power tunnel of 6935 m length reaches the powerhouse. The power tunnel is unlined, has a diameter of 5.20 m with modified horse shoe shape. After surge tank, inner diameter of power tunnel is reduced to 3.8 m. The penstock bifurcates into two branches with 2.4 m diameter and enters the powerhouse. The powerhouse is a concrete structure, which is 36.40 m long and 27 m wide. There are two generating units with francis type turbines, and installed capacity of each unit is 16.20 MW.

Client:

Akkur Enerji Üretim Ticaret ve Sanayi A.Ş.

Main Data:

Concrete ogee profile, radial gated weir:

- maximum height above foundation 50 m
- crest length 33 m

Spillway:

- no.s/type/size of gates 3/radial/6.0x5.0 m

Powerhouse :

- no.s/type of turbines 2/francis, vertical axis
- rated capacity/rated discharge 32.40 MW/ 55.8 m³/s
- rated head 59 m
- rotation/frequency 375 rpm/50 Hz
- firm energy production 43.63 GWh/a
- second energy production 73.37 GWh/a

Execution:

2007-2011

Services :

- Review, appraisal and recommendations for feasibility study
- Preparation of final design reports and drawings
- Preparation of technical specifications and tender documents
- Programming site investigations and evaluation of the works
- Assisting owner in evaluation of E&M bid documents
- Preparation of detailed construction drawings for project structures
- Verification of detailed design drawings of hydro-mechanical and electro-mechanical equipment
- Consultancy services to the owner during site construction works, before and during installation of hydraulic steel structures and of electro-mechanical equipment
- Monitoring acceptance tests and supervision of commissioning of equipment and plant

