

High Head Plants

Uluabat Power Tunnel and Hydroelectric Power Plant TURKEY



Uluabat Hydroelectric Power Plant is a hydropower scheme part of the Çınarcık Dam Projects located on Orhaneli River in Bursa province, north-west of Turkey. It is a project licensed by the General Directorate State Hydraulic Works (DSİ). The project is completed, is operational at the end of year 2010.

The Çınarcık Dam has a height of 125m from foundation and a crest length of 325 m. The power intake structure is located at right bank. The power tunnel which its diameter is 4.0m and length of 11,461.636 m (first 513.50 m was performed by DSİ), is excavated by TBM (tunnel boring machine). The surge tank is located at 10+770 km of power tunnel, diameter is 18 m. The surge tank contains 2 balancing tunnels, diameter 4m & 60 m length. 3.2m diameter penstock continues from valve chamber to bifurcation point. Total length is 1,166.00m. At bifurcation point, the penstock, which divided into branches with a diameter of 1.50 m, reaches to powerhouse structure.

The powerhouse is a reinforced concrete structure with two vertical axis Francis type turbines, and installed capacity of each unit is 50 MW.

Client:

Akenerji Elektrik Üretim A. Ş.

Main Data:

- Tunnel length 11,461.636 m
- Tunnel diameter 4 m

Main Powerhouse :

- no.s/type of turbines 2/francis, vertical axis
- rated capacity/rated discharge 100 MW/38m³/s
- rated head 322.4 m
- rotation/frequency 600 rpm/50 Hz
- firm energy production 335.328. GWh/a
- secondary energy production 87.319 GWh/a

Execution:

2007-2010

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

