Ertan Hydropower Project

Flood discharge of Ertan

Section drawing of Ertan Arch Dam

Section drawing of power conduit and power house
Main features

**Project Location**
On the Yalong River, Sichuan province, P. R. China

**Catchment and Reservoir**

- **Catchment Area**: 116,400 km²
- **Mean Annual Runoff**: 1,670 m³/s
- **Reservoir Area at FSL**: 101 km²
- **Storage at FSL**: 5,800 million m³
- **Active Storage**: 3,370 million m³

**Discharge Capacity**

- **Crest Outlet**: 7 / 6,260 m³/s
- **Mid Level Outlet**: 6 / 6,930 m³/s
- **Bottom Outlet**: 4 / 2,084 m³/s
- **Flood Discharging Tunnel**: 2 / 7,400 m³/s

**Main Dam**

- **Type**: Double-curvature Arch Dam
- **Height**: 240 m
- **Crest Length**: 774.69 m

**Power plant**

- **Maximum gross head**: 189 m
- **Installed Capacity**: 3,300 MW
- **No. and Capacity of Units**: 6 x 550 MW
- **Power Conduits**: 6 steel embedded in concrete I.D.=9.0 m

**River Diversion for Construction**

- **First Phase**: Cofferdam of Left and Right Diversion Tunnel, Diversion Tunnel Construction
- **Second Phase**: Remove of Diversion Tunnel Cofferdam, Closure, Cofferdam of Dam
- **Third Phase**: Close Diversion Tunnel, Temp Diversion Bottom Outlet Tunnel Construction
- **Fourth Phase**: Close Temp Diversion Bottom Outlet, Ponding

**Project Developers**

- **Owner**: Ertan Hydropower Development Company, Ltd.
- **Designer**: CHIDI
- **Contractor**: EJV, SGEJV, GYBD

**Project Purpose**
Hydroelectric Power Generation

**Years of Construction**
1987-1999

**Main Construction Volumes**

- **Concrete**: 5,857,000 m³
- **Excavation**: 12,638,000 m³

**Main Equipment Suppliers**

- **Turbines**: GE Canada, Dongfang Electrical Machinery Co., Ltd., Harbin Electric Machinery Co., Ltd.
- **Generators & HV Electrical**: GE Canada, Dongfang Electrical Machinery Co., Ltd., Harbin Electric Machinery Co., Ltd.
- **Gates & Hydromechanical**: Jiajiang Hydraulic Machinery Works, China Gezhouba (Group) Corporation, Sinohydro Bureau No.8,

The main project components of Ertan are a concrete double-curvature arch dam (240m high and 775m long) and a huge underground powerhouse complex. Ertan dam is China’s first dam exceeding 200m, and Ertan underground powerhouse complex is the largest one in Asia. The underground complex includes a powerhouse cavern (281m×26m to 31m×66m) with six 550MW units, a transformer cavern (215m×19m×25m) and a surge chamber (201m×19m×69m). The project also has the two large spillway tunnels (13m×13.5m) and a 500m-long bridge, 7 surface spillways and 6 middle outlets. The Project was completed in 2000.