

ELECTRIC CORPORATION OF ECUADOR



Chontal Hydroelectric Project





LOCATION

Chontal Hydroelectric Project

Ecuador
Galápagos



The Chontal Hydroelectric Project is located over the Guayllabamba River in northwest Ecuador, on the border of the provinces of Pichincha and Imbabura.

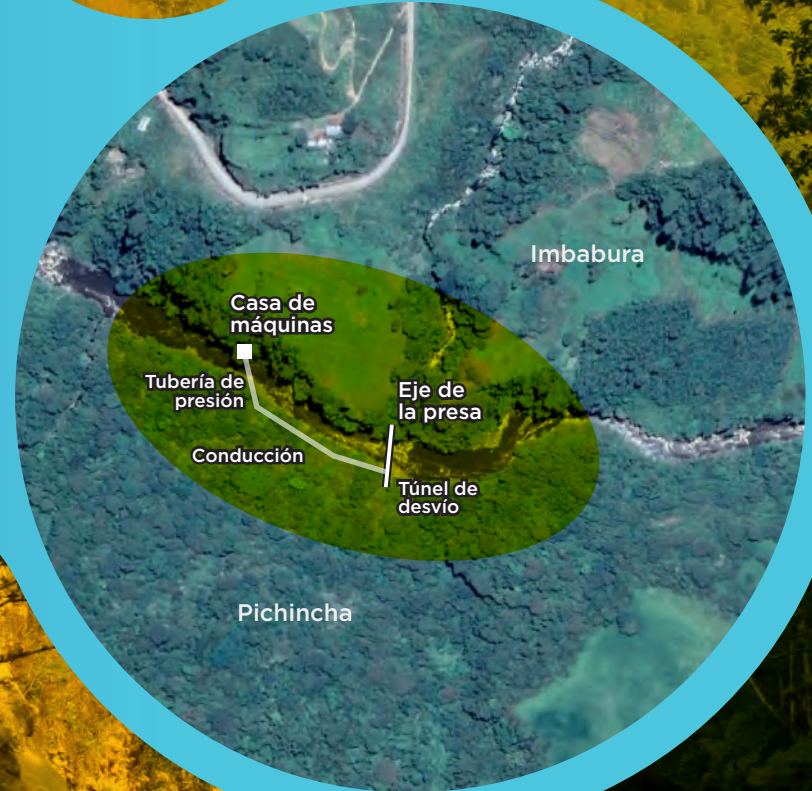


Chontal Hydroelectric Project

ACCESS



The project works are located 100 km northwest of Quito, and is accessed by the Calacalí-La Independencia road, with a asphalted section of 74 km, until the detour to the town of Gualea; and by a paved road of 26 km which reaches the site of San Roque on the Selva Alegre-Saguangal road under construction.





GENERAL DESCRIPTION



RCC type concrete dam

The dam is a compacted concrete structure, of the type known as RCC (Rolled Compacted Concrete), with a height of 142 m, a width of 9.0 m and a length of 416.20 m.



Headwork and hydraulic conduction system

The headwork for the collection of water for hydroelectric generation is located on the left abutment at an elevation of 734 m.a.s.l, 17 meters below the minimum operating level of the reservoir.

Conduction is planned through a low-pressure tunnel, fully lined, 7.00 m in diameter and 871.35 m long up to the axis of the surge tank.



Surge Tank

The surge tank will have an internal diameter of 14m, a restricted orifice of 4,00 m and the connection shaft and high-pressure tunnel will have a diameter of 5,60 m.



Interconnection



The Chontal power plant will have a 13.8/230 kV elevation substation, from which a 230 kV transmission line will exit to the Maduriacu power plant substation.

Powerhouse and restitution channel

The powerhouse is above ground, semi buried, and houses two Francis-type units of 97 MW of power each, two synchronous generators of 106 MVA, each at 13.80 kV. The powerhouse building is 55 m long, 22.6 m wide and 29.0 m high.

Turbined waters will be discharged to the the Guayllabamba river, through a concrete-lined rectangular channel, 16.0 m wide, with vertical side walls of variable height and a total length of 119.80 m with variable slope.



ACCESSES



The main construction sites are accessed from the Selva Alegre-Saguangal main road, at station 30+780 of the same. The access develops through the right abutment of the Guayllabamba river and begins approximately 800 m before the Simón Bolívar school, in San Roque.

The access to the lower part is 1614.5 m long and a temporary Bailey-type bridge has been planned, which will serve exclusively for the construction of the diversion tunnel.

The access to the powerhouse begins at the abscissa 0+755.58 of the road and crosses the Guayllabamba river through a 35m span metal bridge.





	Level of study	Bidder design		
	Existing studies	<ul style="list-style-type: none"> • Cartography and Topography • Geology • Climatology • Hydrology • Sedimentology • Environmental impact study • Power and energy study • Technical specifications • Cost and financial evaluation 		
	Power (MW)	194	Energy (GWh/year)	1037
	Estimated plant factor (%) and design flow	61% - 180 m ³ /s	Study completion date	No studies
	Estimated construction time	60 months		
	Estimated construction budget	389 (MM USD)	Civil works (246MM USD) Electromechanical equipment (122MM USD) Environmental mitigation (3MM USD) Engineering and administration (18MM USD)	





Physical

- Climatology
- Water quality
- Soil
- Geology
- Hydrology
- Hydrography

The Final Environmental Impact Study (EIS) of the Chontal Hydroelectric Project was prepared based on the terms of reference of the Preliminary Environmental Impact Study (PEIS), Manual of procedures for the Environmental Assessment of Electrical Projects and Activities of CONELEC and pertinent Environmental Legislation.



Biotics

- Plant cover
- Terrestrial flora
- Fauna

The areas for direct and indirect influence for the construction and operation of the project were determined.



Archaeological



Socio-economic



Futuro Energético



CELEC EP

Corporación Eléctrica del Ecuador