

# Chirijmasa Hydro Power Plant

## Case History



Pelton runners

## Chirijmasa Hydro Power Plant Santa Catarina in Ixtahuacán Guatemala

Project owner  
Fuerza de Gravedad SA



### Status:

- Conceptual design complete
- Ministry of Energy licence ok
- Environmental study sent

### Key Figures:

- Head: 120 m
- Qm wet season 4,4 m<sup>3</sup>/s
- Qm dry season 2,2 m<sup>3</sup>/s
- Qt : 5,4 m<sup>3</sup>/s
- Penstock 1600m
- Turbine 5 MW (2\*2,5 MW)
- Annual generation : 25 GWh
- Estimated cost– 13 mUSD
- Specific cost 0,53 USD/GWh

### Construction time:

Abt. 24 months

### Year :

06/2013-06/2015

### Commissioning:

06/2015



Inttake area Chirijmasa at Santa Catarina Ixtahuacán on Rio Masá



Water flow gauging and road dam



The river and falls through dense wood

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### Brief project description

This project has been in the planning stage for two years.



*Former Mayor who is eager for a development*

The municipal authorities and the local community have approved the project, and an agreement is about to be signed about August 2013.

Most inhabitants belong to the Maya Quiché language group, and all land is divided in privately owned small plots. They have no title deeds to their property, but are willing to sell the plots required for this development in change for cash retribution, road improvement and a social fund for the benefit of the whole community. The Municipality will unify these properties and register a legal title deed in the name of the developer. Access roads are in a bad state, but there is an existing road all the way up to the planned dam area.

The Chirijmasa project is a Run-of-the River project which includes a combined intake and dam construction in concrete. The intake site has solid rock on both sides of the river. The gravity dam will be 3.50 m high and 5 m thick, with water intake on the left side. 180 meters of water conduction pipe ends in a sediment basin with 300m<sup>3</sup> capacity. It feeds the surge tank and penstock, which follows the hillside 1062 m down to the power plant. It connects to 34KV power lines two kilometers away.



Location of San Mash in Santa Catarina

### Project team:

Project director  
Civil Engineer  
Mechanical engineer  
Electrical engineer

Einar Sofienlund,  
Alf V. Adeler  
Bjorn Undrum,  
Einar Sofienlund,

### EPC contractor civil works:

Detail design and engineering  
Project manager and Site engineer

Technohidros, Guatemala  
Ricardo Bonilla, Guatemala

### EPC contractor electro-mechanical works:

Detail design and manufacturing