

Tongar Hydro Power

Tailrace



A Tailrace canal has the tile race has 960m length, 6.6 m width canal and 3.4m height, it will return this recharge water back to the river.

Powerhouse



The powerhouse will be located on the left of the Tonga River. The length of powerhouse will be 45 m and width is 25 m, and accommodates two equal size horizontal shaft Francis. The structure of powerhouse will be concrete frame structure with galvanized sheet piling.

Power Plant Specifications

Tongar Hydro Power Plant Project	
Project Name	SPV (PT. Optima Tirta Energy)
Enterprising body	NiX Holdings Singapore, Indonesia partner
Investment structure (joint investment)	West Pasaman, West Sumatra, - Indonesia
Location	16.0m ³ /s
Design Discharge	44.4m
Net Head	2 × 3 MV
Power generation Capacity	Horizonta Francis × 2 unit
Turbine Type	39.73 GWh/year
Annual Power Generation	PT. PLN
Off-taker	25 years (Feed-in Tarif contract)
Electric power selling term	NiX Co., Ltd. , NiX Indonesia Consulting
Technical consultant	

Penstock



The penstock is steel pipe, to divert sufficient water for generator to power house and is resistant to inner water pressure. The penstock is located on the ground surface, just before powerhouse and is fixed by anchor blocks. There is one line of penstock and can divert 16.0 m³/s of water. Internal diameter is 2800mm

Head Pond



The Head Pond is located just before the penstock. Pool type for Head Pond, the dimension 12 m x 40 m and Spillway overway

Waterway



The waterway is located between the sandtrap and head pond, length 3.260 m, top wide 9.1 m, bottom wide 4 m and height 2.5 m, combination type of open and close channel.

Sandtrap



The sandtrap is designed for removing stone or rock from water. The length of the sandtrap is 60 m, height is 4.5 m and width is 14 m which dividate the sections. The velocity of water is reduced by expanding the waterway width and stone and rock will deposit on the bottom of this facility. These deposits will be removed by a flushing canal located at the end of the sandtrap.

Intake



The Intake has 4 gates with 8.1 m width and 2.5 m height, which can be operated mechanically. Water is taken by intake and goes to the sand trap through a transition canal of 53.7 m length.

Weir



Weir are planned to take sufficient amount of water to generate power. The length of it has two sluiceways with 1.90 m of length to discharge sediment sand and stone, weir with between abutment 55 m and height 4.0 m from the river bed.

Legend

- Facility
- Road
- Water Area
- Cut
- Embankment