



Environment

Through the reactivation of the Salido Kecil Mini hydro power, besides improving the electricity supply in the grid Painan / West Sumatra, it is also expected in reducing the Carbon Dioxide (CO₂) emission by reducing the electricity generation from the diesel fuel power plant which presently is the backbone on the electricity generation in west Sumatra area.

Thereby, Salido kecil Mini hydro power is contributing on the environment protection through the Clean Development Mechanism (CDM) under the Kyoto protocol.

Technical Specifications

Aprox. Head Nett head 99 meter, Gross head 106,7 m
 Approx. Flow 0.43 m³/s (unit I)
 Penstock 342 m long, diameter 0.61-0.71 m
 Intake stone masonry weir
 Headrace aqueduct open and covered channel ±2 km

Turbine

Type Pelton
 Manufacturer Briegleb, Hansen & Co (Gotha, Germany) dan MAN
 Maschinen Fabrik (Augsburg/Nuernberg, Germany)
 Rotational speed 750 rpm
 Pmech 340 kW

Generator

Type Brushless Synchronous Alternator
 Manufacturer Dipl. Ing. Hitzinger Gesellschaft m.b.H. Austria
 Rated power 400 kVA
 Rated current 577 A
 Nominal voltage 400 V
 Frequency 50 Hz
 Speed 750 rpm
 Power factor 0.9

Transformer

Type Distribution
 Manufacturer PT. Asata Utama (Starlite) Indonesia
 Rated power 450 kVA
 Rated Voltage 20 kV/400V

Control System

Type Entec DTC Vario,
 Actuator TA – 22 Oil hydraulic
 Feature Fully automatic starting-synchronizing-stopping, web interface, data logging, full electric protection, etc

Further informations,
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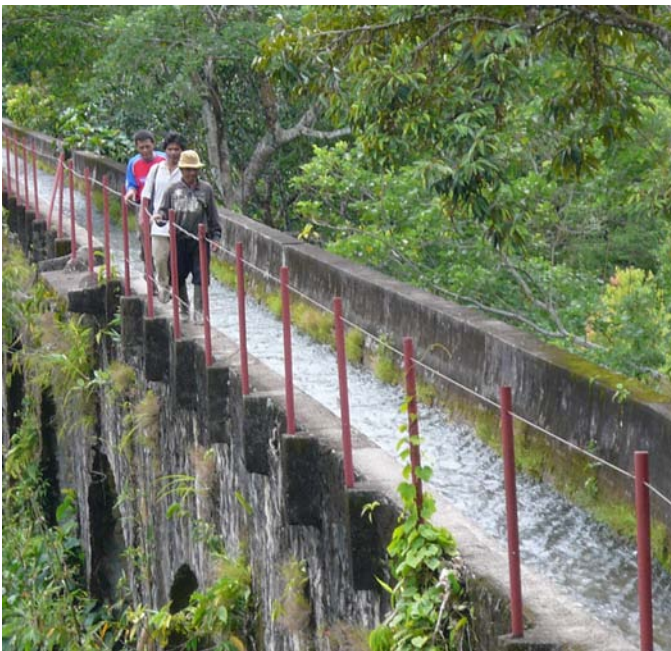
Mini Hydro Power Plant

Salido Kecil

History

Salido Kecil Mini Hydro Power was built on the beginning of 20th century on the Dutch colonial age. At that time, the plant was mainly supplying the gold mining in the surrounding area. In the early year of Indonesia independence (1957s) there was a local rebellion and extreme flood which destroy some civil facility and electromechanical equipments. From 1957s - 1980 the plant was abandoned.

On the 1980s PT. Angrek Mekar Sari (PT. AMS) acquired the plant, carried out some necessary repairs and still owns and operates the scheme based on the Indonesian government license. The plant supplied electricity to Painan, the district capital located approximately 12 km from Salido Kecil and surrounding villages, however on 1995, after Painan was connected to the West Sumatra grid following the improvement of PT. PLN generating facilities in West Sumatra, the power supply agreement was annulled, it also because the outdated generating facility which didn't meet the national electric standard. Currently the plant supplies a few households near by and ice factory owned by PT. AMS. The plant is currently operating well below its full potential



Rehabilitation

The first phase of the rehabilitation started on January 2006 and completed on August 2007. The project comprise of the rehabilitation of civil structures, upgrading and replacement of the electromechanical equipments and interconnection facilities.

Rehabilitation of the civil structures including the repair on the water conveyance system, stabilisation of the weir, repair and replacement of sluice gates, stabilisation and repairs at the forebay, power house and other miscellaneous repairs. The works providing quite large number of short term employment which mainly (90%) taken from the local peoples in the village.

The electromechanical rehabilitation comprises of overhaul of hydraulic turbine with the improved design, replacement of generator, control system, protection and interconnection facilities to meet the national standard (PLN).



Interconnection

After rehabilitated, the plant supplying the grid through the medium voltage line (20 kV) with the capacity of one unit up to 330 kW. The interconnection scheme is one of the pilot project for the small power producer which sell the electricity to the grid according to the decree of the Mineral and Energy Resources Ministry regarding the interconnection procedure for small scale power plant up to 1 MW called “PSK Tersebar”. Based on this regulation, power plant from renewable energy resources with the capacity below 1 MW is allowed to sell the power to the national grid (PLN) with certain conditions and standards.