Project Melesom-2 PT Graha Hidro Nusantara



Overview PT Graha Hidro Nusantara

The Project is develop under SPC known as PT Graha Hidro Nusantara ("GHN"), as part of PT Adimitra Hidro Nusantara ("AHN") portfolio. PT GHN planned to build MHPP Melesom in Lampung Province in objective of accelerate improvements to the electrification ratio in the area. Project Melesom is a small-scale hydro power plant with planned capacity of 2x1.15 MW, will utilizing the Melesom River through the run of river (ror) system.

Ownership Structure of GHN



Entity	
AK	PT Adimitra Kharisma
AHN	PT Adimitra Hidro Nusantara
GHN	PT Graha Hidro Nusantara



Project Location

Location Overview

Project Name	PLTM Melesom-2
Developer	PT Graha Hidro Nusantara
River	Way Melesom
Village	Bambang
District	Lemong
Regency	Pesisir Barat
Province	Lampung

Accessibillity

Route	Distance	Travel Time	Road Condition, Vehicle Type
Bandar Lampung – Krui (via Kota Agung/Liwa)	254 km	6 hours	Asphalt; 4 wheels
Krui - Desa Bambang	48 km	1 hours	Asphalt; 4 wheels
Desa Bambang - Powerhouse	2 km	45 mins	Footpath, soil; 2 wheels





Project Location – Site Documentation





Project Location – Site Documentation





Development Status

Status	
Technical Studies	 Feasibility Study by PT Esco Murti Pradana (2017) FS Review by PT Indokoei International (2020) UKL-UPL Report by PT Esco Murti Pradana (2019) Review Notes by USAID-ICED II (2020) Updated Basic Design by PT Indokoei International (2021)
PLN	 PPA Signed Date : 22 February 2021 Financial Close Date : PPA signed date + 7 months
Grid Study	 Interconnection study by PT Esco Murti Pradana (2016) Grid study approved by PLN Lampung with KKO/KKF Connection point to PLN 20 KV distribution network (about 1.5 km from the Project)
Land Acquisition	95% of project scheme area is secured



Technical Specification - Hydrology

- MHPP Melesom utilizes water from Way Melesom River which has catchment area around 46.31 kmsq at the proposed weir.
- The upstream of the river is majority form of production forest area and rice fields. These locatios are dense and well vegetated.
- These attributes extend strong hydrological support to the Project and no overlaps into national forest boundaries.
- Long term FDC of the Project's weir site was established and used for power generation planning and production energy simulation together with optimization of development scheme. It was derived from the analysis of 10 years discharge record data and is compared with the discharge estimated using FJ Mock Method based on rainfall data of the closest station (Lemong rain station)
- Considering targeted PF at 65%, hence the design discharge is taken at 4.04 m3/s, FDC represented in table below.



Flow Duration Curve





Technical Specification – Project Layout





Technical Specification – Main Features Highlight



20 kV

0.85

2,7 MVA, 6.3/20 kV, 3 Phase 50 Hz

Line voltage Power factor

Generator transformer



Basic Design – Updates

Cost efficiency strategy : GRP as waterway

Advantages :

- Minimize excavation works (from 107.000 m3 to become 51.000 m3.
- Possibility to eliminate headpond and penstock if we use pressurize GRP as the waterway.
- Minimize disposal price for waterway excavation with the contractor as the disposal area is close.
- Minimize access route works.

Updated basic design is on-going with expected result on February 2021





Project Cost & Key Financial Indicator

- The total Project cost for Melesom is expected at Rp 68.523 mil (~ US\$ 4.7 million)
- With the energy estimation of 12.7 GWh per year (with assumption of losses 3%) and PPA tariff level at Rp 878.90 /kWh as agreed by PLN, the annual revenues are estimated to be Rp 11.2 billion for each year. Whereas the COGS and cash opex are expected to be Rp 2.2 billion per year.
- From the total project cost, 70% will be financed by Senior Lender (Bank) and 30% will be part of equity.
- Civil contractor and mechanical electrical contractor tender is on going and are already in advance stage with some shortlisted candidates.





Note :

** potential upside with tax allowance by 50 bps

** assuming construction period as per PPA 30 months. Potential upside of 120 bps if construction period is shortened to 18 months, hence earlier COD. Projected Project IRR with upside 11.3%



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