

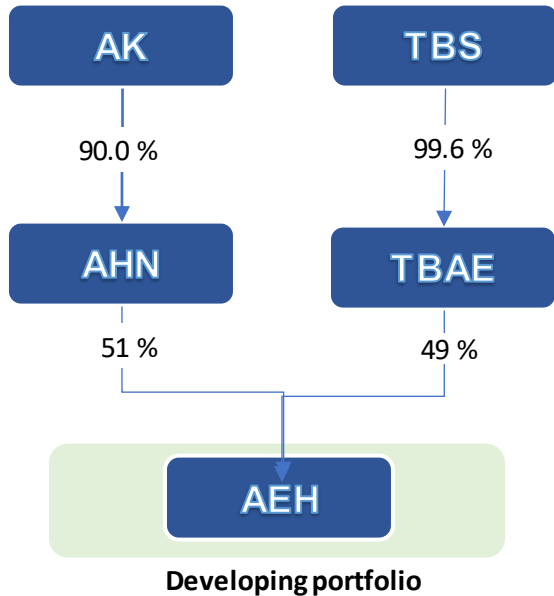


**MHPP Sumber Jaya**  
**Information Memorandum**  
**December 2020**

## Overview PT Adimitra Energi Hidro

The Project is develop under SPC known as PT Adimitra Energi Hidro (“AEH”), as part of PT Adimitra Hidro Nusantara (“AHN”) and PT Toba Bara Energi (“TBAE”) portfolio. PT AEH planned to build MHPP Sumber Jaya in Lampung Province in objective of accelerate improvements to the electrification ratio in the area. Project Sumber Jaya is a small-scale hydro power plant with planned capacity of 2x3 MW, will utilizing the Way Besay River through the run of river (ror) system.

### Ownership Structure of AEH



#### Entity

<b>AK</b>	PT Adimitra Kharisma
<b>AHN</b>	PT Adimitra Hidro Nusantara
<b>TBS</b>	PT TBS Energi Utama Tbk
<b>TBAE</b>	PT Toba Bara Energi
<b>AEH</b>	PT Adimitra Energi Hidro

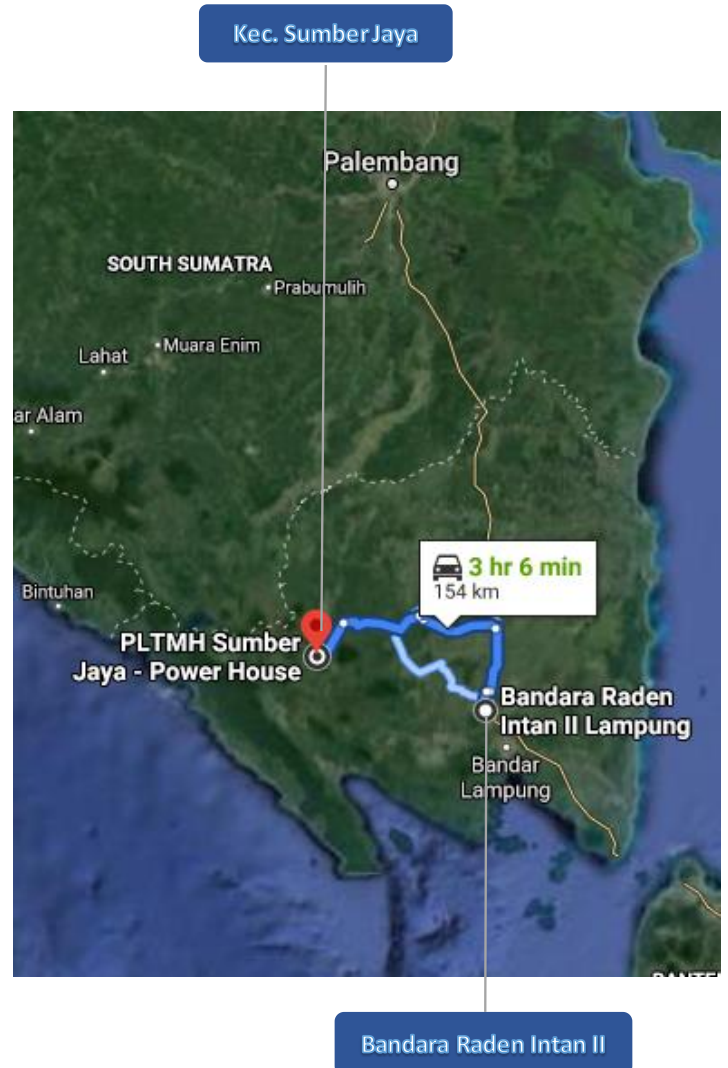
# Project Location

## Location Overview

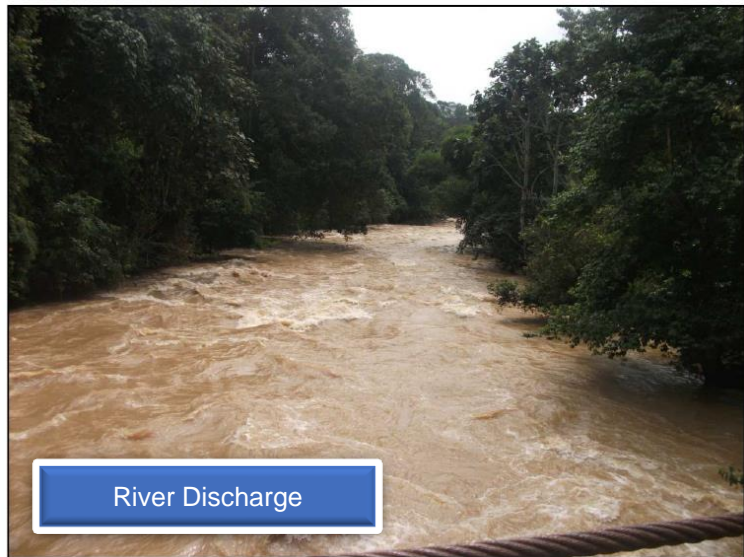
<b>Project Name</b>	<b>PLTM Sumber Jaya</b>
Developer	PT Adimitra Energi Hidro
River	Way Besay
Village	Sindang Pagar & Way Petai
District	Sumber Jaya
Regency	Lampung Barat
Province	Lampung

## Accessibility

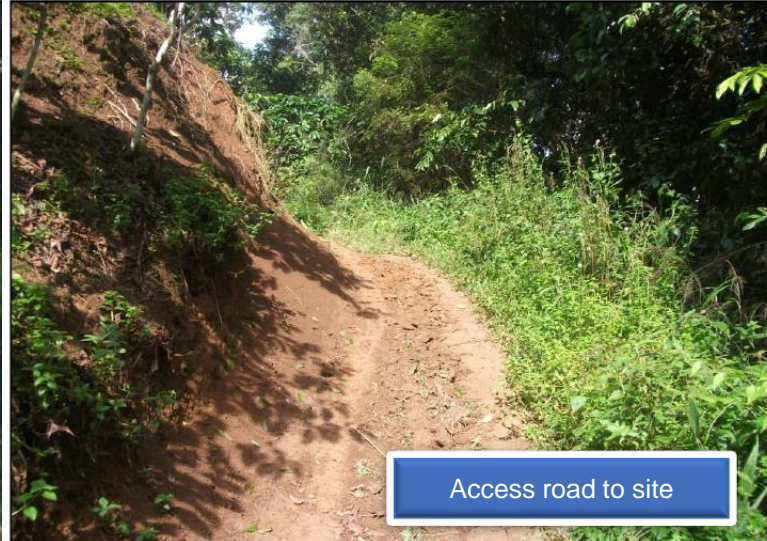
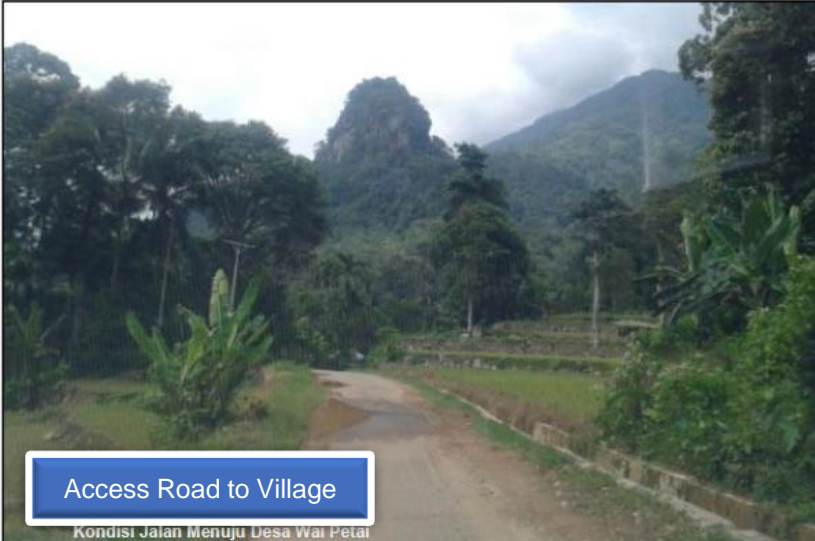
Route	Distance	Travel Time	Road Condition, Vehicle Type
Bandar Lampung – Sumber Jaya Dist. (via Bukit Kemuning)	154 km	3.5 hours	Asphalt; 4 wheels
Sumber Jaya Dist. – Way Petai Vil.	2 km	15 mins	Asphalt; 4 wheels
Way Petai Vil. – Weir/Powerhouse	1.7 km	45 mins	Footpath, soil



## Project Location – Site Documentation



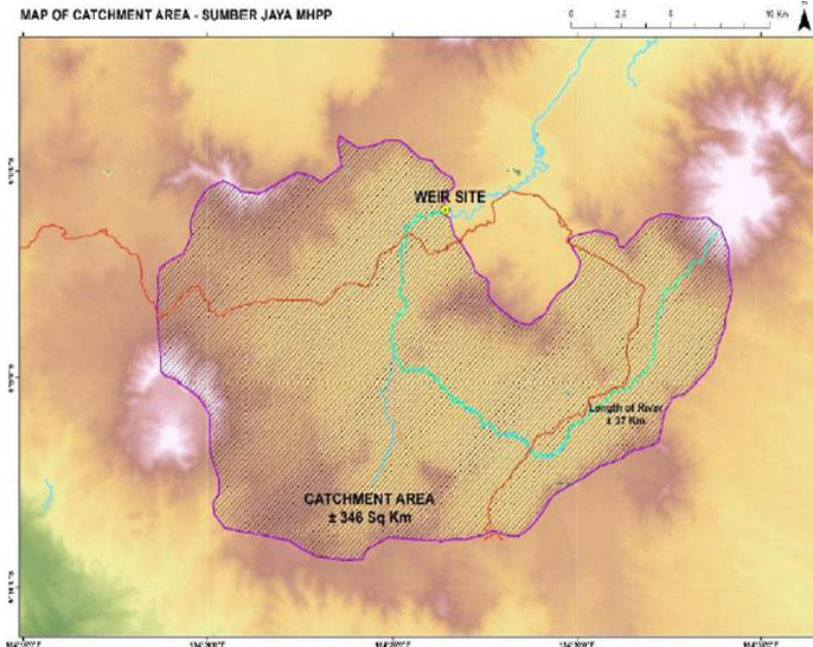
## Project Location – Site Documentation



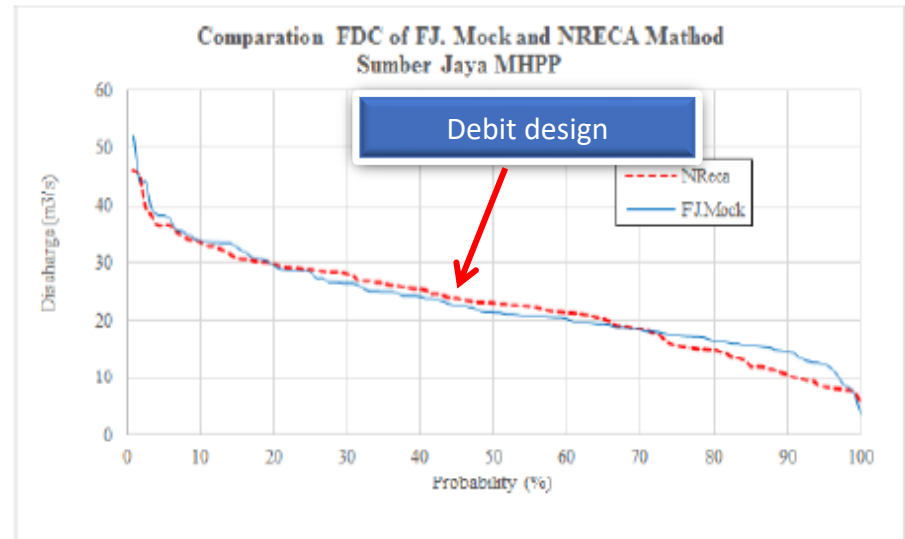
# Technical Specification - Hydrology

- MHPP Sumber Jaya utilizes water from Way Besay River which has catchment area around 346 kmsq at the proposed weir.
- The catchment area was reported is in good condition consisted of most protected forest and farm garden of perennials.
- Rainfall data was collected from nearest stations with availability data which is Way Tenong Station and Bukit Kemuning from 2009-2018. These data was used to estimate the river discharge. Average annual rainfall is in between 3,758-3,950 mm/year.
- Rainfall data from all stations will be utilized in the Low Flow Analysis namely FJ Mock and NRECA Method. Using the climate data from BMKG Kotabumi station, the regional mean rainfall is obtained by Thiessen method. It was derived from the analysis of 10 years discharge record data.
- The daily inflow at the weir site is at 23.01 m<sup>3</sup>/s at probability of 43.6%, FDC represented in table below.

## Catchment Area Map



## Flow Duration Curve

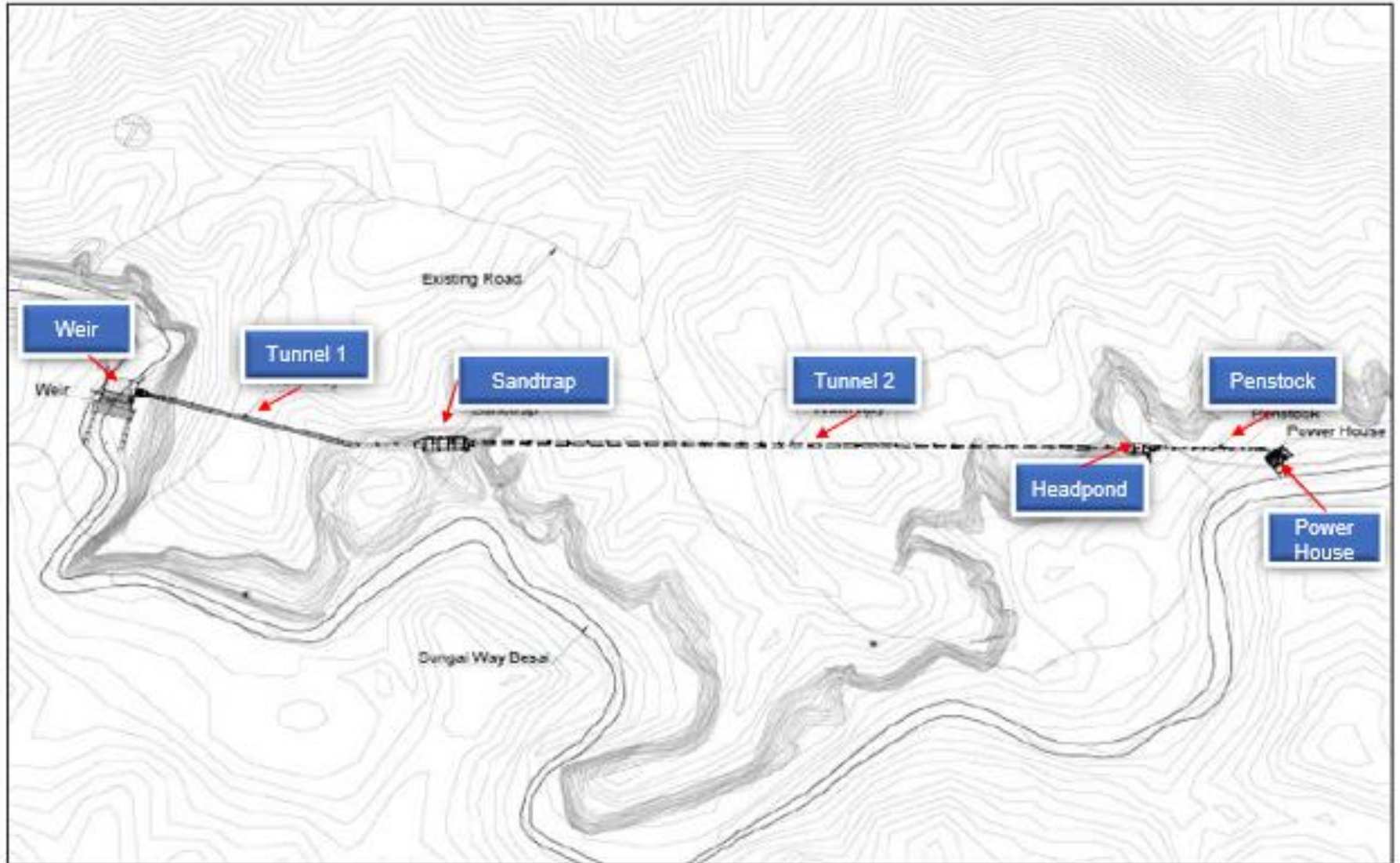


Source: Study Team

## Development Status

SPV Structure	PT Adimitra Hidro Nusantara (51%), PT Toba Bara Energi (49%)
Technical Studies	<ul style="list-style-type: none"> <li>• Feasibility Study by PT Esco Murti Pradana (2017)</li> <li>• Basic Design Review by PT Indokoei International (2019)</li> <li>• Geotechnical Study by PT CND Geoteknika (2019)</li> <li>• Topographic Survey with LiDAR by PT TOP Aerial (2019)</li> <li>• UKL-UPL Report by PT Esco Murti Pradana (2019)</li> <li>• Review Notes by USAID-ICED II (2020)</li> </ul>
PLN	<ul style="list-style-type: none"> <li>• PPA Signed Date : 22 February 2021</li> <li>• Financial Close Date : PPA signed date + 7 months</li> </ul>
Grid Study	<ul style="list-style-type: none"> <li>• Interconnection study by PT Esco Murti Pradana (2016)</li> <li>• Grid study approved by PLN Lampung with KKO/KKF</li> <li>• Connection point to Sumber Jaya substation (about 2 km from the Project)</li> </ul>
Land Acquisition	60% of project scheme area is secured

## Technical Specification – Project Layout





## Technical Specification – Main Features Highlight

### Civil Structures Features

Catchment area 346 kmsq

Design debit 23.64 m<sup>3</sup>/s

Net head 29 m

Dimension of weir 4 m x 40 m

Intake width 1.5 x 9 m

Waterway type Tunnel

Waterway length 1,050 m (4.2 m x 4 m)

Tunnel dimension 4.2 m x 4 m

Penstock type Exposed, steel pipe

Dimension of penstock 2 x 2.2 m

Dimension of powerhouse 10 x 22 m

Transmission line 20 KV 2 km

### Electrical & Mechanical Equipment

Turbine Type Francis Horizontal

No of unit x Rating 2 x 3.0 MW

Rated turbine output 3.0 MW

Rate speed 429 rpm

Efficiency at 100% load 93%

Speed rise 55%

Pressure rise 35%

Runaway speed 1,520 rpm

Governor Type electro hydraulic

Generator Type horizontal synchronus

No of unit x rated output 2 x 3.0 MW

Rate speed 429 rpm

Efficiency at 100% load 96%

Rated voltage 6.3 kV

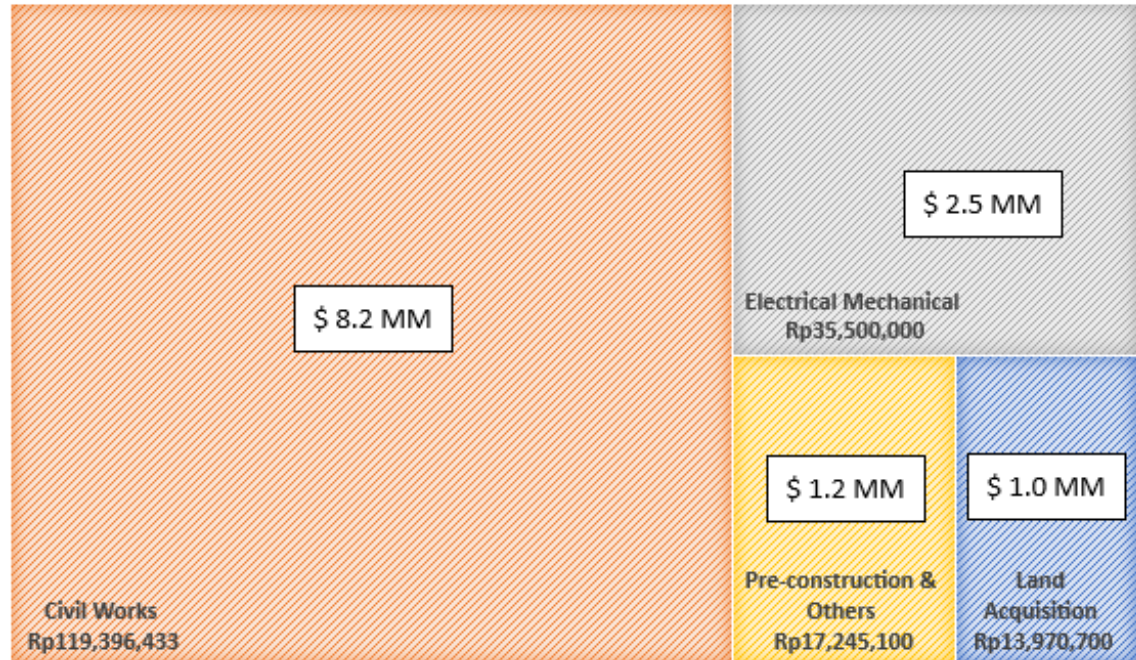
Line voltage 20 kV

Power factor 0.85

Generator transformer 4 MVA, 6.3/20 kV, 3 Phase 50 Hz

## Project Cost & Key Financial Indicator

- The total Project cost for Sumber Jaya is expected at Rp 186,112 mil (~ US\$ 12.84 million)
- With the energy estimation of 39.6 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 33.8 billion for each year. Whereas the COGS and cash opex are expected to be Rp 5.2 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.



**6.0 MW**

39.9 GWh/year (75% CF)

**USD 12.8 m**

Total Project Cost

**11.0%\*\***

Project IRR, current price of cUSD 6.60/Rp 878.90

**17.4%\***

Project IRR, sensitivity on Perpres price of cUSD 10

**Note :**

\* Perpres tariff from latest draft for capacity 5-20 MW is staging price, with cUSD 9.09 x F for year 1-10, and cUSD 5.68 x F for year 11-30. F is location factor, in which Lampung/Sumatera is 1.10.

\*\* potential IRR upside of 50 bps by applying tax holiday scheme

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