

2020 JCM Seminar

AURA Green Energy and
PT Gistec Prima Energindo



AURA GREEN ENERGY



PT Gistec Prima Energindo



PT PRIMANUSA ENERGI LESTARI

PROJECT PRESENTATION OUTLINE

Presentation Outline

- **Flores 1.75 MW Hydro Power Plant**
- **Aceh 12 MW Biomass Power Plant**



AURA GREEN ENERGY



PT Gistec Prima Energindo

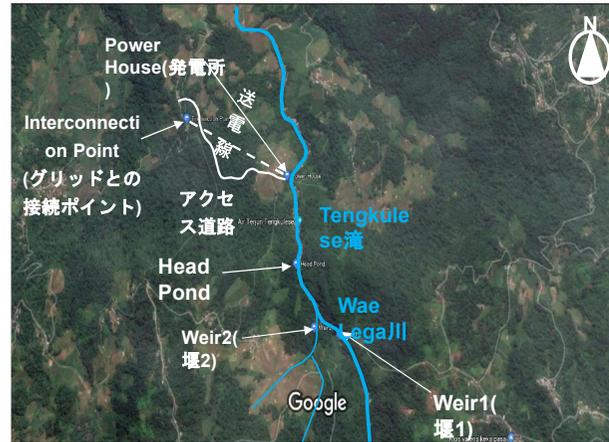


PT PRIMANUSA ENERGI LESTARI

[2019 JCM NOMITATED PROJECT] EAST NUSA TEGGARA, WAE LEGA 2MW HYDRO POWER PLANT AT FLORES, INDONESIA



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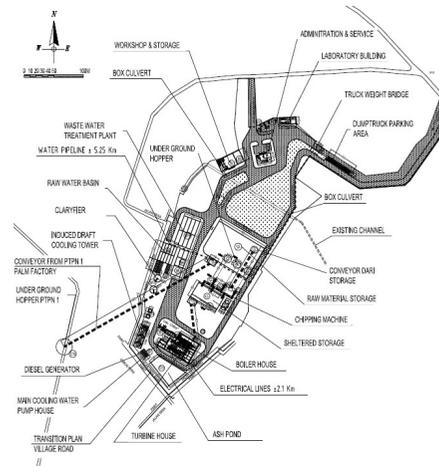


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- In this project, a 1.75 MW Micro Hydro Power Plant (875 kW x 2 units) will be installed on the Wae Lega River in Flores island, East Nusa Tenggara, Indonesia, and will be sold to the Indonesian state-owned electric power company (PLN).
- This project is carried out by an international consortium with Aura Green Energy (hereinafter Aura) as the representative operator and PT.GISTEC PRIMA ENEGINDO (hereinafter GPE) and Tamagawa Holdings Co., Ltd. (hereinafter Tamagawa HD) as joint operators.
- GPE is a group company of PT. GISTEC PRIMA (GP), which has a track record of about 40 years in renewable energy power generation business (micro hydro/ biomass), dam-related equipment, etc.



[2018 JCM NOMITATED PROJECT] TJ SEUMANT 12MW BIOMASS POWER PLANT, INDONESIA



- Construction of Biomass Power Plant Using Palm Oil Residue on Sumatra island, Indonesia
- In Indonesia, the treatment method of palm oil residue (EFB) emitted from palm oil factories that corroded and emit carbon dioxide has been a long term issue. Since the technology for converting + also contributes to hygiene.
- Aura and PEL signed an international consortium agreement on January 11, 2019.

• EFB biomass power generation will reduce GHG and improve environmental and hygiene issues.
[Sustainable Palm Oil Action Plan 2019-2024 [President Order No. 6/2019]]



Leaving no one behind.



Project Snapshots - Community Impact & SDG Goals



Source : Kompas.com

This Area in Taga Laga Buru, Golo Nderu Village, Kota Komba Precinct, Manggarai Timur District, East Nusa Tenggara Province. (29 km from project site)

Our project was adopted by JCM and was able to be commercialized. Construction has begun for completion in 2021.

In addition to reducing CO2, the JCM system contributes to speeding up overseas infrastructure systems, and can also contribute to education in the COVID19 pandemic by supplying electricity. We would like to increase the smiles of local children by completing it as soon as possible.

Message to the President - The Covid-19 pandemic forced students across Indonesia to study at home through online broadcasts. The government provides learning programs from home through television and online broadcasting, but students in Flores Island, East Nusa Tenggara cannot benefit from it due to lack of access to electricity, telephone and internet networks.

The children of the island pleaded to David Oliver Purba, a journalist visiting the area, to **tell President Jokowi that they need electricity, telephone, and internet access.**

Through our project that has been adopted by the Joint Crediting Mechanism (JCM), we will contribute to the education of these children by supplying electricity to the area.

Inline with SDGs no 4,7 and 10

4 = Quality Education

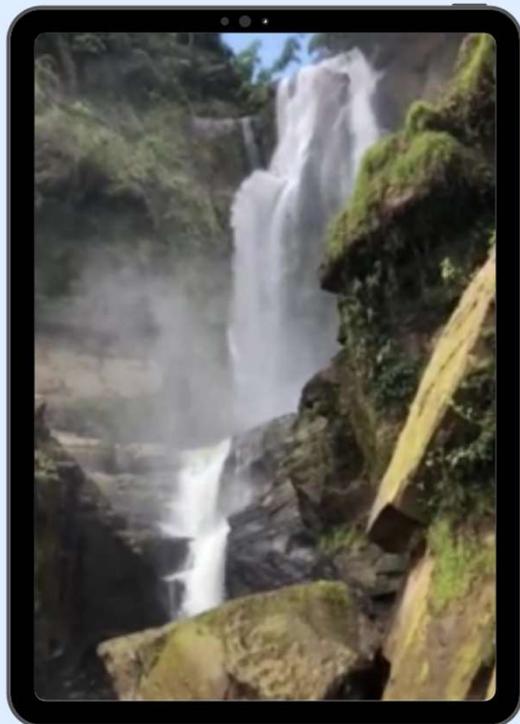
7 = Renewable Energy

10 = Reduce Inequality



Hydropower

EAST NUSA TENGGARA, WAE LEGA 2 MW HYDRO POWER PLANT AT FLORES, INDONESIA. 2019 JCM NOMINATED PROJECT →



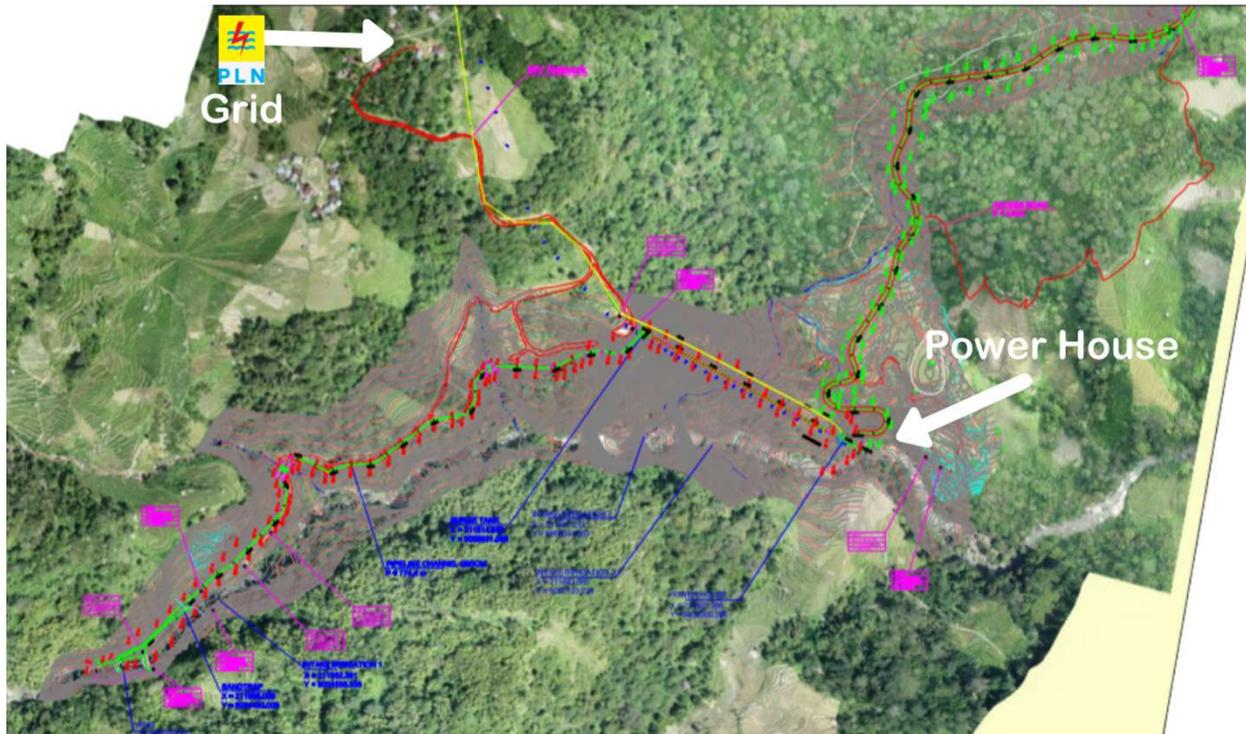
所在地 Location	インドネシア・東ヌサ・トゥンガラ州 East Nusa Tenggara Province, Indonesia
運転開始 Start Operation	2021 年稼働予定 Scheduled in 2021
リファレンス排出量 Reference Emissions	34,765 tCO ₂ /年 34,765 tCO ₂ /year
プロジェクト排出量 Project emissions	0

2MW Micro Hydro Power Plant Project in East Nusa Tenggara

In Indonesia, there is a shortage of electricity due to population growth and economic growth, and the stability of electricity supply has become a major issue, especially in rural areas. In order to solve this problem, we will meet the local power demand by constructing a micro hydro power plant with 2MW capacity that can generate stable power even on islands and mountainous areas by utilizing abundant hydro power resources and selling it into PLN.

In this project, we are planning to reduce carbon dioxide (CO₂) emissions by 6,856 tons per year. In addition, the electrification rate of East Nusa Tenggara, where this power plant will be constructed, is the lowest in the country, staying at 61.9%. It is expected that this project will improve the electrification rate, and we are also considering introducing a system to store surplus power and use it as an emergency power source in the region.

Hydropower

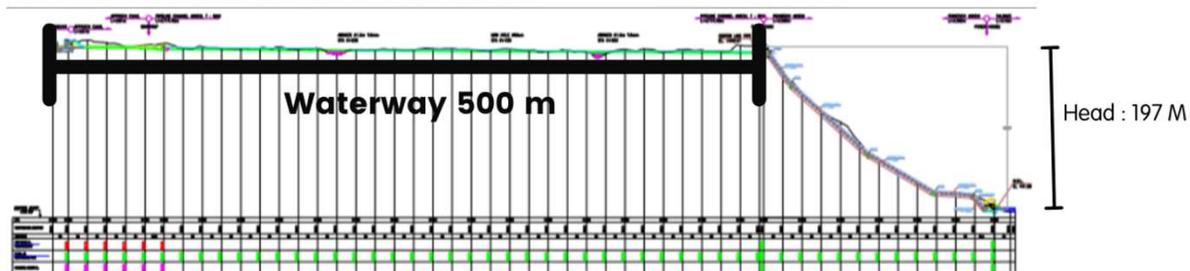


Project Details

Installed Capacity 2 x 1MW
Head 197 M
Design Debit 1,65 m³/s
Transmission Line 2.5 Km
Catchment Area 20 km²

Project Impact

Powers 1,944 Homes (Avg. 900 W each)
Generates 5% of Overall Power in Ruteng Electricity System
Reduce 6,856 Ton CO² per year
Increases Electrification Ratio in the Area
Empowerment in Community by Creating Jobs, Knowledge Transfer, and Betterment of Income



Project Progress

Project is now Under Construction Phase
Estimated to be completed in 2021

Hydropower

Project Snapshots



With the Region's Head (Bupati) and Other Head of Community (Ketua Adat), Army Captain Stationed on the Ruteng Area on the Ceremony of First Stone (Start Construction)



Lunch Together After First Stone Ceremony

Hydropower

Project Snapshots



With the Village's Woman - Our Chairman and the Village's Woman during the Start of Construction of Access road



Construction Team at site



Safety Briefing Construction Team

Hydropower

Project Snapshots



Daytime in Project Site



Construction at Surge Tank site



Truck Carrying Fencing Materials



Project Information Site Displayed



Example of Safety on site

Hydropower

Project Snapshots



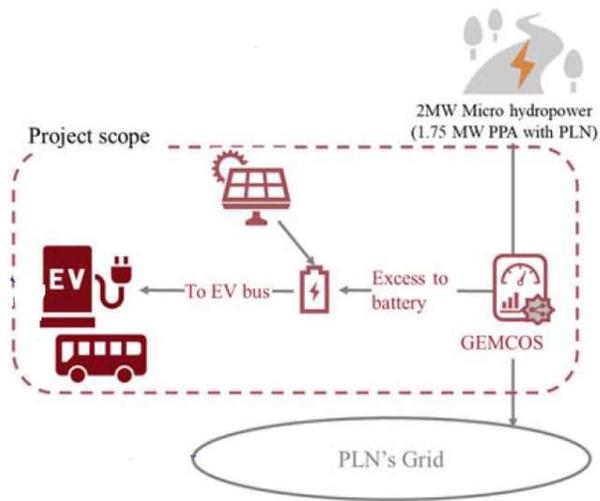
Japanese Counterpart AURA Green Energy and Tamagawa Holdings Site Visit with Local People (Orang Katek) - Indigenous People of Flores, Homo Florensis



Meeting with PLN UIW NTT in Discussion for PPA and Project Planning

GEMCOS

Utilization of Surplus Electricity "GEMCOS" and Construction of Distributed Remote Island Energy Supply Model



Surplus power to EV
Used as an emergency power supply (disaster countermeasures)
Power and utilization of communication

National resilience

Utilization of EV
Consideration to use EV cars
Used for rice milling machine (yield improvement)

To reduce CO2 and revitalize local industries

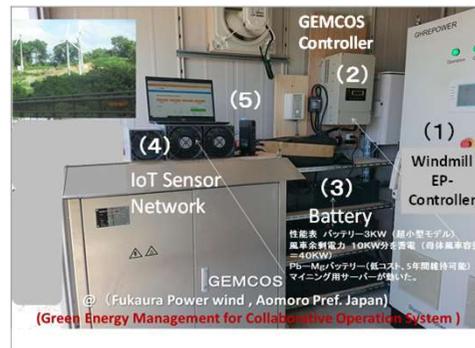
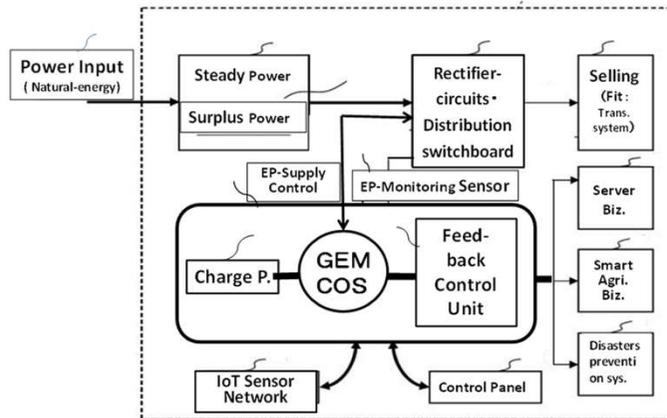


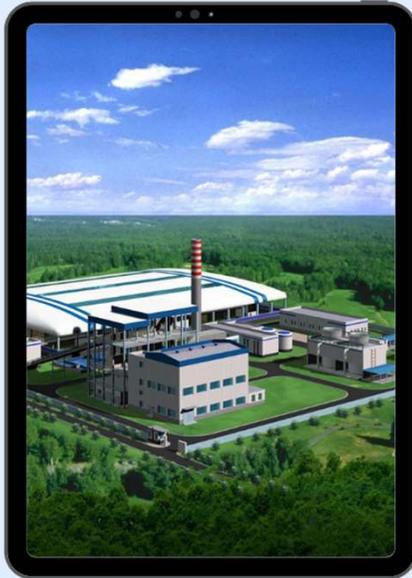
Fig. The control system block diagram using surplus electric power in GEMCOS

GEMCOS™ (Green Energy Management Collaborative Operation System)



Biomass power generation

TJ SEUMANTOH 12 MW BIOMASS POWER PLANT, 2018 JCM NOMINATED PROJECT BY PT PRIMANUSA ENERGI LESTARI



所在地 Location	インドネシア・スマトラ島アチェ州 Aceh Province, Sumatra Island, Indonesia
発電量 Capacity	1.2MW/年 1.2MW/year
運転開始 Start Operation	2021年稼働予定 Scheduled in 2021
想定GHG 排出削減量 Predicted GHG emission reduction amount	<p>31,322 tCO₂/年 31,322 tCO₂/year</p> <p>リファレンス排出量 Reference emissions</p> <p>= 年間推定有効発電量 × グリッド排出係数 Annual estimated power generation × Grid emission factor</p> <p>=34,765 tCO₂/年 34,765 tCO₂/year</p> <p>プロジェクト排出量 Project emissions</p> <p>= バイオマス発電施設の化石燃料消費に伴うCO₂排出量 CO₂ emissions from fossil fuel consumption at biomass power plant.</p> <p>+ バイオマス運搬時のCO₂排出量 + CO₂ emissions during biomass transportation</p> <p>=3,443 tCO₂/年 3,443 tCO₂/year</p>

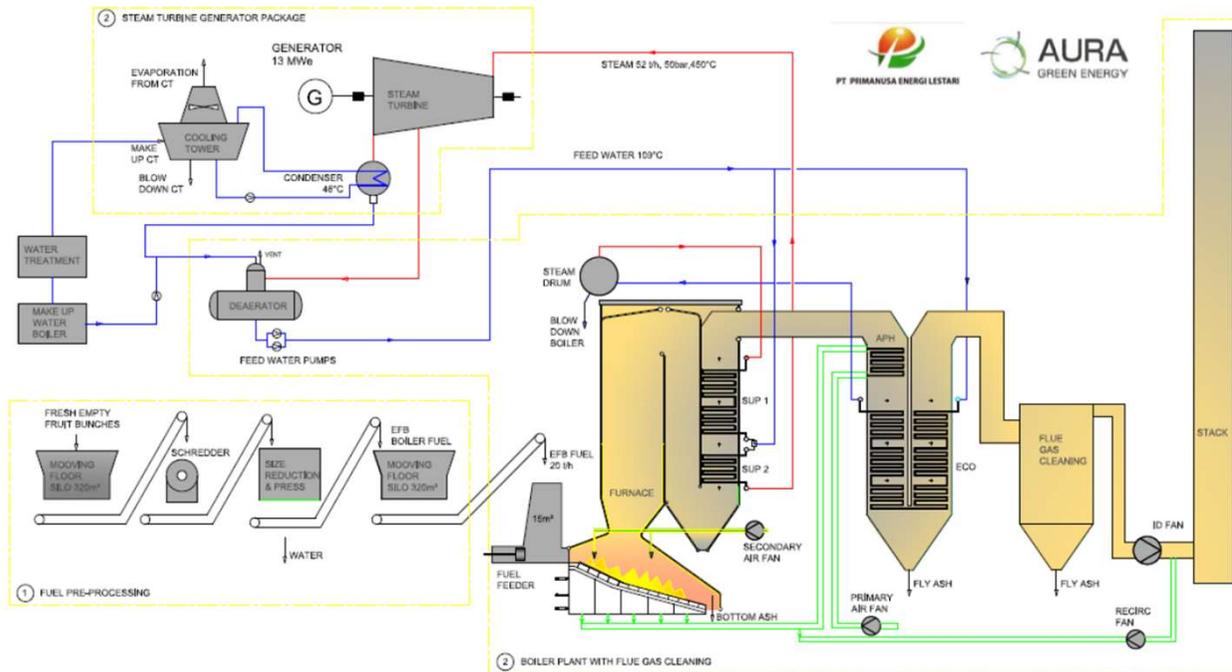
Construction of Biomass Power Plant Using Palm Oil Residue on Aceh Province in Sumatra island, Indonesia

In Indonesia, the treatment method of palm oil residue (EFB) emitted from palm oil factories that corroded and emit carbon dioxide has been a long term issue. Since the technology for converting biomass fuel into power has been founded, we implemented the construction of a power plant with a power generation capacity of 12 MW.

And in this case, we plan to reduce carbon dioxide (CO₂) emissions by 31,322 tons annually and contribute to better hygiene.

In constructing the power plant, we are procuring funds through project financing from Republic of Indonesia Infrastructure Finance Corporation PT. Indonesia Infrastructure Finance ("IIF"), which is scheduled to start operation in 2021.

Biomass power generation



Project Details

Installed Capacity 12 MW (9.8 MW Nett)

Type: Thermal Power Plant (Steam)

Consumption of EFB 25 tph

Transmission Line 2.5 Km

Auxiliary Power around 2.2 MW

Project Impact

Powers 10,889 Homes (Avg. 900 W each)

Replaces Diesel Power in Aceh Electricity System

Reduce 34,765 Ton CO² per year

Promotes Waste Reduction in the Area

Empowerment in Community by Creating Jobs,

Knowledge Transfer, and Betterment of Income

Project Progress

Project is now Under Construction Phase

Estimated to be completed in 2021



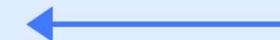
Left to Right : EFB as Main Fuel, Shredded EFB, Palm Kernel Shell as Strategic Fuel

Biomass power generation

Project Snapshot



upper Left to right: →
Making base for Fencing with local Contractor, Beginning of Construction with Markings, Construction Progress with local Contractor (mask remove to show smile). Below is the Construction for Drainage on site



←
Example of Axial Exhaust , a Turbine Component Similiar to The Project's, from Shinippon. Delivery est March 2021

Project progress

Project Snapshot



Signing of Loan Agreement by AURA Green Energy, PT Primanusa Team with IIF Team and Director for the Construction of the Power Plant Project, Nov 2019



Left to Right : LNET with Project Team After Signing Contract and AURA Green Energy by Mr Yamamoto and Vinnie visit to site to see progress

A society will change with COVID-19

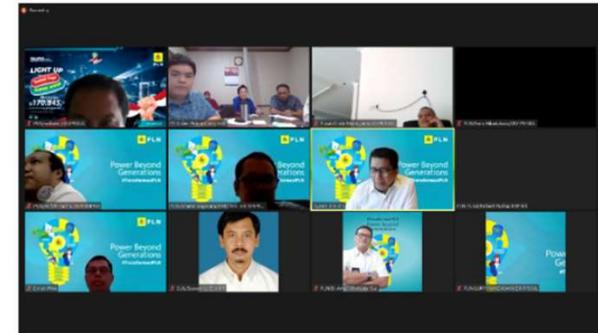
COVID -19 LIMITATIONS



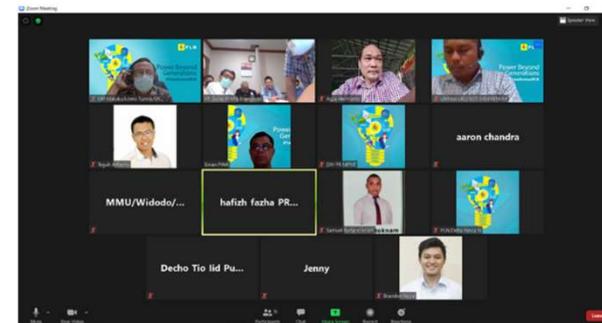
International Availability of Supply Chains and Communications Barrier

COVID - 19 has shocked the world, especially in terms of Global Supply Chain. Lockdowns, Restrictions, and Limitations had Some Suppliers for Foreign Equipment delayed lead time, Thus for all projects we need to order equipments ahead of time to mitigate the effects of COVID 19 in Global Supply Chain, for those who have delays we are coordinating Closely to lessen the effects to the project. So far, all of Our Stakeholders, Suppliers, and Customers have been kind to Us and have provided us with alternative ways to connect

While COVID-19 changes the sense of value of society, for the realization of a project that can promote CO2 reduction and social contribution, we would like to continue to utilize the JCM system and commercialize the power generation business and contribute to society.



Zoom Meeting with PLN Team and Director



Zoom Meeting with PLN, Project Consultant

Let's talk



AURA GREEN ENERGY



PT Gistec Prima Energindo



PT PRIMANUSA ENERGI LESTARI

**FOR
DISCUSSION
ON
PROJECTS**

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