# Dicky Edwin Hindarto for IGES



# A JCM CASE STUDY FOR SDG AND ENERGY TRANSITION IMPLEMENTATION

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## **Indonesia JCM Implementation Current Status**





#### Is JCM project will contribute to SDGs achievement?



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# Theoretically climate mitigation projects will contribute to the sustainable development, how to measure it?



## **SDG GOALS and JCM**



#### 8 sustainable development goals are related to JCM implementation in Indonesia



### Model Project Example 1: 12 MW Biomass Powerplant

#### **Project participants**

- PT Primanusa Energi Lestari
- AURA-Green Energy Co., Ltd.

#### Locations

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Tanjung Seumantoh, Aceh Tamiang, Aceh

#### **Expected GHG Emission Reductions**

31,322 tCO2-eq./year



- This project aims to reduce CO2 emissions by implementing a biomass power generation utilizing residues such as Empty Fruit Bunch (EFB) discharged from palm oil factories, and to substitute renewable energy for grid electric power in Indonesia.
- EFB etc. are collected by belt conveyors from a palm oil mill adjacent to the biomass power generation facility. The boiler incorporates a movable step grate stoker with an automatic ash removal function and an optimization control system of furnace temperature, which can suppress the occurrence of clinker peculiar to EFB

#### Model Project Example 1: 12 MW Biomass Powerplant

# JCM subsidy was delivered to the consortium





#### Model Project Example 2: 6 MW Mini Hydro Power Plant in West Pasaman, West Sumatra

#### **Project participants**

- PT Optima Tirta Energi
- Nix Co., Ltd.

#### Locations

Pasaman Barat, West Sumatra

#### **Expected GHG Emission Reductions**

18,319 tCO2-eq./year



The project is intended to conduct an electric power generation by constructing a 6 MW mini hydroelectric power plant at Pasaman Barat Regency, Sumatera Barat province, Indonesia. The off-taker of the project is PLN, a state-owned electric power company. The project has obtained all necessary permits (including Power Purchase Agreement (PPA)), feasibility study, interconnection study, and land acquisition.

#### Model Project Example 2: 6 MW Mini Hydro Power Plant in West Pasaman, West Sumatra



# JF-JCM Project Example

Tangerang

Jakarta

Bekasi Regency

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Bandung

Title of Project	Geothermal Power Generation Project
Country	Indonesia
Sector	Energy - Renewable energy generation
Contribution from JFJCM	\$10.0 million for Patuha Unit-2 plant
Non-JFJCM financing amount and sources	\$469.2 million (ADB OCR \$300 million, CTF \$35 million, GDE \$134.2 million), including \$79.43 million for Patuha Unit-2 plant (ADB OCR \$54.20 million, GDE \$25.23 million)
Project Officer	Florian Kitt, Senior Energy Specialist Energy Division, Southeast Asia Department
Executing/ Implementing Agency	PT Geo Dipa Energi <mark>(</mark> GDE)



Patuha Geothermal Power Plant is

located around 30 km away from Bandung and 185 km from national capital city of Jakarta

 The concession area spreads on the Bandung District and Cianjur District and is approximately 350 km<sup>2</sup> (18 km from north to south and 20 km from

east to west)

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# JF-JCM Project Example

#### \$79.43 million For Patuha Unit-2 plant (ADB OCR \$54.20 million, GDE \$25.23 million)

- Drilling of new wells for the production and reinjection of reservoir fluids
- Construction of steam gathering and fluid reinjection systems connecting the wells and generating units
- Construction of 55MW net output power plant and Patuha
- Transmission interconnection systems between the plants and the grid

**Outcome:** Reduction of approximately 5,284,000 tCO2e over 20 years (264,200 tCO2 annually on average)

Additional \$10.0 million from JFCM For demonstration of the first-of-its-kind technologies for large scale geothermal power plant in Patuha Unit-2 plant



Improved plant efficiency to convert steam to electricity



Minimized degradation of plant performance



Improved reliability, reduced unplanned outage periods of geothermal power plant



Therefore, increasing renewable energy penetration into existing grid and GHG emissions will be further reduced

**Outcome:** Reduction of approximately 5,476,000 tCO2e over 20 years (273,800 tCO2 annually on average)

# **JCM Implementation Recent Challenges**

- The Paris Agreement obliges each country to reduce emissions by strictly regulating the transfer of the results of emission reductions between countries with the corresponding adjustment principle.
- Registering and calculating emission reductions at the national and global levels is becoming increasingly complex.
- Unclear national emission reduction policies that can be penetrated by carbon markets scheme.
- Policies and regulations at the national level, we are still discussing how to implement the new ministerial decree on carbon pricing for JCM scheme.
- PLN policies on solar rooftop that make some delays on project implementation.
- PLN policies on environment attributes that still under discussion.

# JCM, SDGs, and Energy Transition



- 23 from 54 projects are Renewable Energy projects, while the other 31 projects are Energy Efficiency projects.
- All projects have proven to help SDG achievement targets in Indonesia.
- All projects have successfully reduced GHG emissions and are in line with the net zero emissions target achievement program.

 Japan and Indonesia must work hard to prove to the global community that JCM is one of the answer for Paris Agreement.

 Many challenges are still ahead, but JCM hopefully can play significant roles in combatting climate change and improving sustainable development.



# THANK YOU FOR YOUR ATTENTION

# **Dicky Edwin Hindarto**

