

JICA's Cooperation for Energy Transition in Indonesia

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JICA's Contribution to Renewable Energy Development in Indonesia

By Japane... ODA

Loan

Indonesia's Overall Installation Capacity of Geothermal and Hydro PP (as of 2023) and contribution from Japanese ODA Loan since 1973

GEOTHERMAL POWER PLANT

TOTAL: 2,598MW

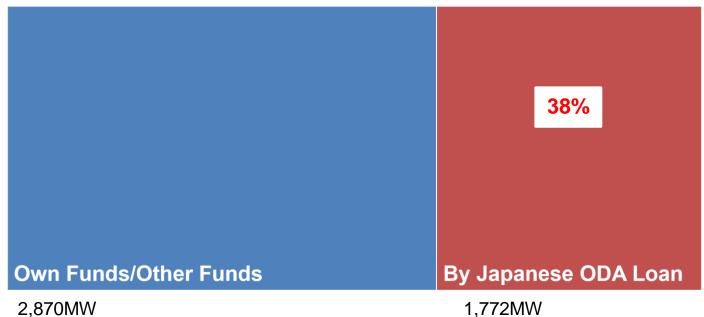
16%

Own Funds/Other Funds

2,188MW 410MW

HYDRO POWER PLANT

TOTAL: 4,642MW







JICA's holistic approach to support Energy Transition in Indonesia

JICA provides full fledge support from upstream to downstream

1. Enhance Enabling Environment

Objective:

Assist Indonesia to develop regulatory and institutional framework to facilitate the development of energy transition.

Available JICA resources:

Technical Assistance (TA)

- Expert Advisory
- Master Plan Capacity Development
- Japan Training

2. Support Project Formulation

Objective:

- Assist Indonesia to develop potential project
- Provide support to structure the project to attract private investors.

Available JICA resources:

TA

F/S (ODA Loan, PSIF)

3. Finance Project Development

Objective:

- Provide ODA loan to support public sector finance.
- Provide long-term debts and equities to the project companies through Private Sector Investment Finance (PSIF)

Available JICA resources:

ODA Loan

PSIF



Overview of JICA's Assistance Strategy for Energy Sector in Indonesia

Objective: To realize <u>stable</u>, <u>reliable</u>, <u>affordable</u> and <u>sustainable</u> <u>power supply</u> with achievement of the de-carbonization in Indonesia through Multi-Pathway Transition.

(1) Renewable Energy

Hydroelectric Power Plant

- ✓ Asahan 3 (ODA Loan)
- ✓ Peusangan (ODA Loan)

Geothermal Power Plant

- ✓ Lumut Balai (ODA Loan)
- ✓ Hululais (ODA Loan)

Waste to Energy

- ✓ Waste to Energy: Legok Nangka (Transaction Advisory with IFC)
- ✓ Project for Capacity Development of Municipal Solid Waste Management (TA)

(2) Energy Transition

Power Development Plan

✓ Master Plan for Energy Transition Management Project for PT. PLN (TA)

Hydrogen and Ammonia

✓ Data collection survey for promoting hydrogen society in Indonesia (Study)

International Interconnection

 ✓ Data collection survey for ASEAN Power Grid (Study)

(3) Capacity Development of MEMR, PLN, Pertamina staffs

(Experts, Japan Training, Site Visit etc.)



Note: Red = Ongoing, Blue = Plan

JICA's On-going Projects in Energy Sector

IP-538

PLN: Peusangan HEPP

- 88MW Hydroelectric Power Plant
- Loan amount: JPY 26,016 M (Phase 1) JPY 13,629 M (Phase 2)
- LA signing date: March 2007(Phase 1) March 2023(Phase 2)

IP-572

PLN: Hululais GPP (E/S)

- Loan amount: JPY 657 M
- LA signing date: Dec 2015
- Loan for civil works is under discussion.

Technical Cooperation

: Coal Fired Power Plant

IP-532

PLN: Asahan No 3 HEPP

- 174MW Hydroelectric Power Plant
- Loan amount: JPY 27,642 M
- LA signing date: March 2006

IP-557

PGE: Lumut Balai GPP

110MW (55MW × 2) GPP

Loan amount: JPY 26,966 M

LA signing date: March 2011

RE in Remote Area (study)

 Study of Electricity Supply from **Renewable Energy Based Power** Plant (Solar and Biomass) in Remote Areas.





Waste to Energy Project (Legok Nangka)

- Approximately 30-40MW
- PPP Project by West Jawa **Government; Transaction Advisory Services with IFC**
- Cooperation Agreement was signed in June 2024

Sutami Dam Upgrading Project F/S (HEPP)

- Current Capacity 105 MW
- Sediment problem should be solved for additional 50 years utilization.
- F/S for Bypass tunnel is ongoing

- TCP for Energy Transition M/P
- JICA Experts to MEMR and PLN
- ASEAN Power Grid Study
- Hydrogen/Ammonia Value chain Study

HEPP: Hydroelectric Power Plant

: Geothermal Power Plant

: Engineering Services

: Technical Assistance Project



Expected Focusing Areas of JICA and way forwards

2024-2025

(1) Renewable Energy

✓ Geothermal Powerplants project development

(2) Energy Transition

- ✓ Materializing the Master Plan for Energy
 Transition Management Project for PT. PLN
- ✓ Starting the "Data collection survey for promoting hydrogen society in Indonesia" from November 2024 until February 2026.

Future cooperation ideas (Tentative)

(1) Renewable Energy

✓ Any other potential financing through ODA Loan (including VGF and PPP Standby Guarantee) and PSIF (Transmission System, Geothermal, Hydro, Solar, Wind, and Hydrogen, etc.)

(2) Energy Transition

✓ Technical Assistance for development of policy, regulation, plan and human resources to contribute Energy Transition.



Concept of the "Data collection survey for promoting hydrogen society in Indonesia" (2024.11 - 2026.2)

Based on Indonesia's National Hydrogen Strategy and Roadmap, the survey will contribute promoting hydrogen society in Indonesia

Indonesia





Japan



- Working closely among the public partners to build private partners' confidence in market creation
- Series of forums to strengthen public and private stakeholder engagement for both Indonesia and Japan
- Development of foundational regulatory frameworks and standards



- Cooperation for development of regulatory frameworks and standards
- Harmonized standards and regulations
- Development of international and domestic supply chain

- Advanced technology and knowledge for production and distribution
- Investment and financial support for development
- Procurement of Hydrogen and Ammonia from IDN

 Development of domestic usage market (Transportation and Power generation)



- Advanced technology and knowledge for usage
- Investment for development and financial assistance

Energy transition

Key points to accelerate Energy Transition in Indonesia with Japan

Indonesia

Japan

✓ Build private stakeholder confidence in market creation

Public partners

✓ Sharing information on initiatives and programs related to Energy Transition

Private partners

✓ Exchanging information on initiatives and issues that JICA could help solve

✓ Series of forums and meetings on Energy Transition to strengthen public and private stakeholder engagement for both Indonesia and Japan









(Reference)







Memorandum of Cooperation between MEMR, BRIN, IFHE, and JICA for partnership towards promoting Hydrogen and Ammonia Development



- Cooperation outline: The Parties will strengthen their comprehensive cooperation in; (i)Research and development of policies, regulatory framework and standards on new energy (hydrogen and ammonia), (ii)Public and private stakeholder engagements for both Indonesia and Japan, (iii)Knowledge and capacity development for the latest technologies and policies, (iv)Formulation of new program/project for financing necessary infrastructures to accelerate the market creation for new energy (hydrogen & ammonia).
- **Purpose**: Based on the Indonesia Hydrogen Roadmap, MOC intends to develop cooperation in the field of promoting new energy(hydrogen and ammonia) toward decarbonization in Indonesia with the view to achieve the purpose of Article 2 of Paris Agreement and net zero target by 2060 in Indonesia.
- Other points: JICA will launch Data Collection Survey regarding supply chain of Hydrogen and Ammonia within 2024 based on the MOC.











MOC signing

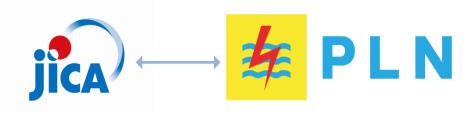


MOU between JICA and PT PLN (Persero) for Capacity Building to promote Energy Transition in Indonesia



- **Cooperation outline**: Both JICA and PLN confirm the importance of collaborative efforts on energy transition to achieve net zero target by 2060 in Indonesia. Particularly capacity building of PLN staffs is the key to enhance energy transition.
- Purpose and objectives of MOU: Both parties will collaborate on capacity building in
 the field of renewable energy(geothermal, wind, solar, and biomass), grid
 stability/battery storage and smart grid, CCUS, new energy (hydrogen and ammonia),
 carbon credit etc. Such collaboration will enable PLN to incorporate cutting edge
 technology and policy trends from Japan and the world, which will contribute long term
 capacity development of PLN for the multi-pathway approach to realize net zero.
- Other points: The training program is under consideration to start from 2024.





Capacity Building to promote Energy Transition in Indonesia

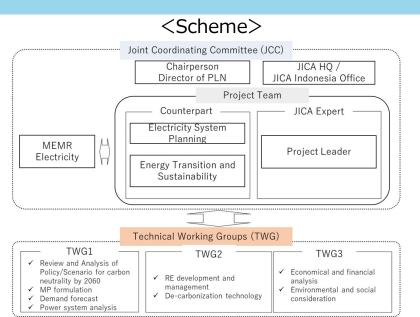


Master Plan for Energy Management Project in Indonesia (PT PLN (Persero) and JICA)



- **Cooperation outline**: It aims to strengthen the capacity of PLN to plan associated with energy transition toward carbon neutrality by 2060 in Indonesia, contributing to socioeconomic development by providing stable, affordable and sustainable power supply.
- Purpose or objectives of MOU: In order to promote smooth decarbonization in Indonesia, the project will support the development of a flexible and realistic long-term plan that could take into consideration a variety of decarbonization technology options, based on the latest trends in decarbonization technologies in Japan and around the world.
- Other points: Cooperation, in cooperation with MEMR (Electricity), is scheduled to start from February next year, and TWG will be established.









Letter of Intent between Pertamina and JICA for partnership towards promoting energy transition in Indonesia



- Cooperation outline: The Parties will discuss and explore potential collaboration such as; (i) financing support for energy transition programs, (ii) conducting research or technical assistance for new energy (Hydrogen & Ammonia), CCS/CCUS, renewable energy, biomethane, and battery (iii) connecting technology partner and market in Japan, (iv) potential collaboration in marine & logistic sector, (v) capacity development program for energy transition, etc.
- **Purpose**: To develop cooperation in the field of promoting energy transition in Indonesia with the view to achieve the purpose of Article 2 of Paris Agreement and net zero target by 2060 in Indonesia.



