KEMENTERIAN ENERGI DAN SUMBER DAYA MINERAL
REPUBLIK INDONESIA

ENERGY TRANSITION FINANCING
THROUGH JETP & ETM

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3rd Japan RE Invest Indonesia 2023
New Otani Hotel Tokyo
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G20 2022 WAY FORWARD: ENERGY DEVELOPMENT OBJECTIVES

G20 Bali Leaders' Declaration

Energy Sector – Paragraph 11-12

- The G20 leaders reiterated the commitment to **achieve global net zero greenhouse gas emissions/carbon neutrality by or around mid-century**, while taking into account the latest scientific developments and different national circumstances.
- The commitment **to achieve the targets of SDG7 was also reaffirmed** and the gaps in energy access will be closed to **eradicate energy poverty**.
- **Bali Compact and Bali Roadmap are considered as the guidance** to realize energy market **stability, transparency, and affordability.**

Enhanced NDC 2030

No	Sector	2010 GHG Emission (Million Ton CO_2e)	GHG Emission by 2030			Reduction	
			BaU	CM1	CM2	CM1	CM2
1.	**Energy**	**453.2**	**1,669**	**1,311**	**1,223**	**358**	**446**
2.	Waste	88	296	256	253	40	45.3
3.	IPPU	36	70	63	61	7	9
4.	Agriculture	111	120	110	108	10	12
5.	FOLU	647	714	217	-15	500	729
	TOTAL	**1,334**	**2,869**	**1,953**	**1,632**	**915**	**1,240**

Note: *CM: Counter Measure;* CM1: *self effort*; CM2*: international assistance*; IPPU: *industrial processes and production use*

- Through Enhanced NDC, Indonesia raised its carbon emission reduction target, the energy sector has increased from 314 million tonnes of CO2e to 358 million tonnes of CO2e
- By 2021, the energy sector will be able to reduce GHG emissions by 70 million tonnes of CO2e.
- Strategies: RE power generation, biofuel utilization, energy efficiency, fuel switching, and so on.

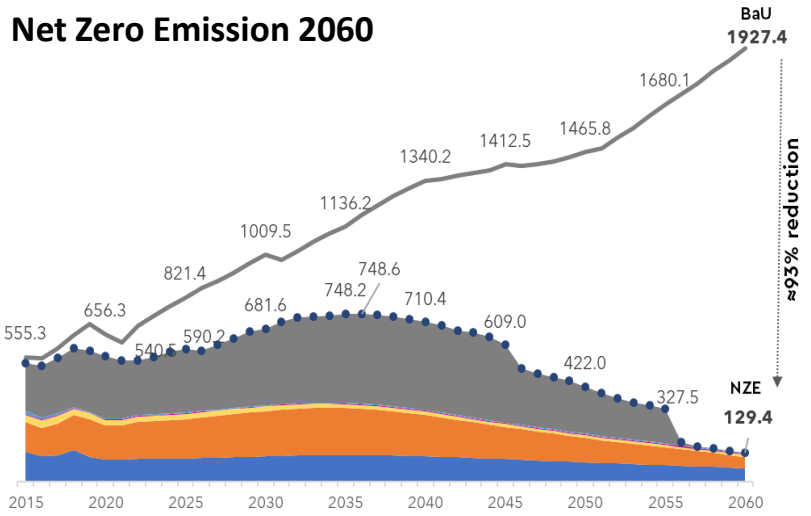
Bali Common Principles in Accelerating Clean Energy Transitions (Bali COMPACT)

Nine voluntary principles for accelerating clean, sustainable, just, affordable, and inclusive energy transitions to ensure smooth and effective transitions in accordance with national circumstances and priorities.

Bali Roadmap

Outlining concrete actions to address energy transitions effort among members, by realizing three priorities **(energy accessibility, technology scale-up, and financing)** through active involvement and collaboration of G20 countries.

Net Zero Emission 2060



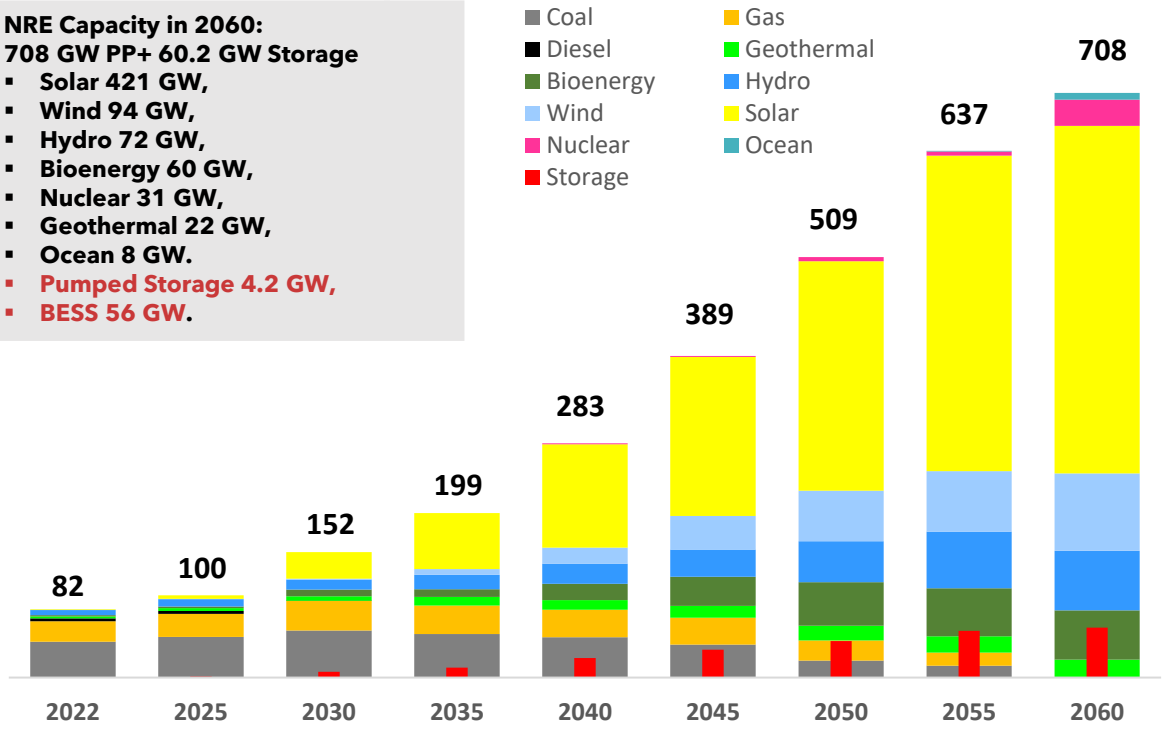
1. Emission reduction: 93% from BaU, by optimizing supply side by using NRE and demand side by applying energy efficiency.
2. NRE will provide whole electricity.
3. More diverse new energy source will also be utilized, including nuclear for power plant and hydrogen for transportation.
4. Application of innovation and modern technologies is also promoted, such as carbon capture and smart grid

NZE 2060 IN ACCORDANCE WITH ENERGY SECTOR DEVELOPMENT

NZE Power Plant Development Roadmap

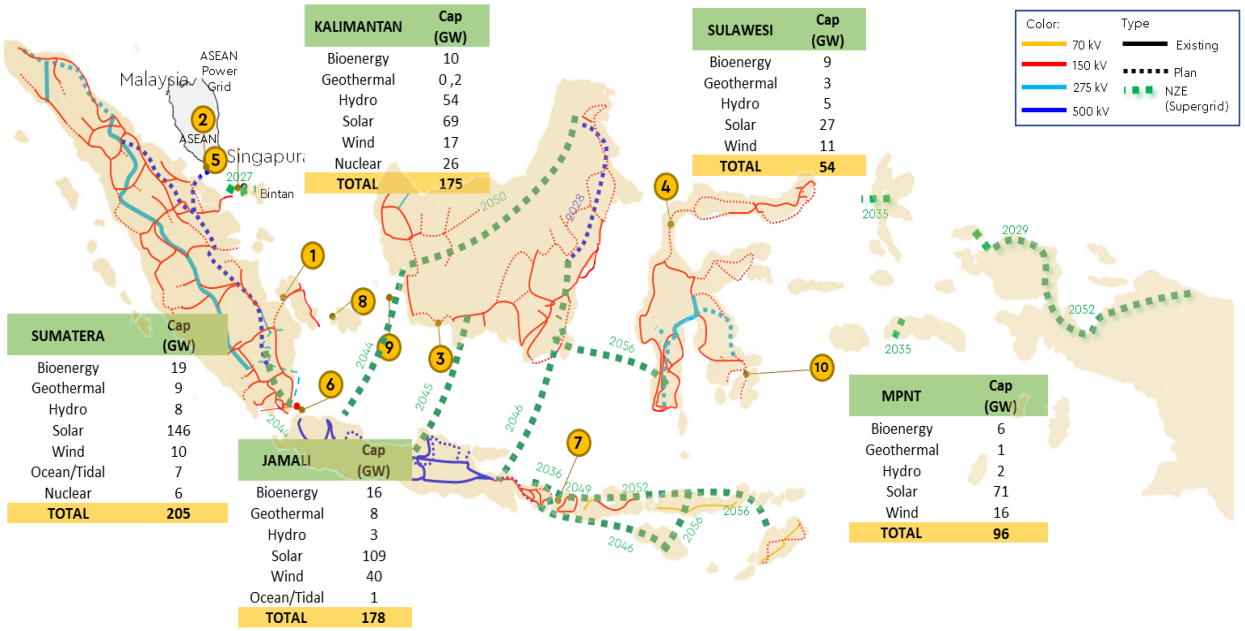
NRE Capacity in 2060:
708 GW PP+ 60.2 GW Storage

- **Solar 421 GW,**
- **Wind 94 GW,**
- **Hydro 72 GW,**
- **Bioenergy 60 GW,**
- **Nuclear 31 GW,**
- **Geothermal 22 GW,**
- **Ocean 8 GW.**
- **Pumped Storage 4.2 GW,**
- **BESS 56 GW.**



- NRE power generation will be mainly sourced by VRE while optimizing other RE resources to help maintaining system stability.
- Pump storage enters the system in 2025, Battery Energy Storage System (BESS) to be massively utilized in 2031.
- Nuclear PP will enter the system in 2049 to maintain system reliability. By 2060, up to 31 GW nuclear PP will be deployed.
- Ocean Currents: starting from around 2055, by 2060 it will reach 8 GW.
- Total investment: **1,108 billion USD/28.5 billion USD p.a.** up to 2060.

Super Grid and RE Sharing Resources



KALIMANTAN	Cap (GW)
Bioenergy	10
Geothermal	0,2
Hydro	54
Solar	69
Wind	17
Nuclear	26
TOTAL	175

SULAWESI	Cap (GW)
Bioenergy	9
Geothermal	3
Hydro	5
Solar	27
Wind	11
TOTAL	54

SUMATERA	Cap (GW)
Bioenergy	19
Geothermal	9
Hydro	8
Solar	146
Wind	10
Ocean/Tidal	7
Nuclear	6
TOTAL	205

JAMALI	Cap (GW)
Bioenergy	16
Geothermal	8
Hydro	3
Solar	109
Wind	40
Ocean/Tidal	1
TOTAL	178

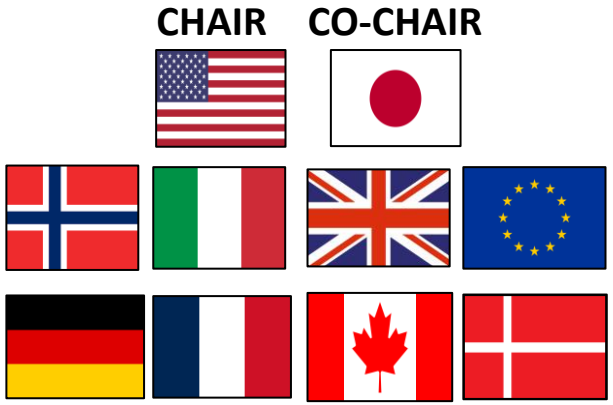
MPNT	Cap (GW)
Bioenergy	6
Geothermal	1
Hydro	2
Solar	71
Wind	16
TOTAL	96

- In order to optimize Indonesia's unique circumstances as an **archipelagic country in which RE resources are widespread all over the country**, a modern and integrated super grid is required, to establish resilient and robust transmission infrastructure in Indonesia.
- Objectives:
  - Ramping up renewable energy development.
  - Maintaining the transmission stability and security.
  - Addressing mismatch between renewable energy resources and the location of high electricity demand area.
  - Providing and expanding energy access.

Interconnection investment will be reduced if REBID (Renewable Energy Based Industry Development) is implemented.

JUST ENERGY TRANSITION PARTNERSHIP (JETP)

support the energy transition of the electricity sector in Indonesia which is ambitious and fair to keep global temperature rise below 1.5°C



President Joko Widodo together with United States President Joe Biden and leaders of the International Partners Group (IPG) countries launched JETP international agreement during the G20 Summit series of events in Bali.

TARGET

- **Peaking in the electricity sector's emissions is projected to occur in 2030**, faster than the initial projection;
- **The maximum emission from the electricity sector is 290 million tons of CO2 in 2030**, lower than the baseline value of 357 million tons of CO2;
- Set a target **to achieve net zero emissions in the electricity sector by 2050**, 10 years faster than the initial projection;
- Accelerate the use of renewable energy so that by **2030 it is hoped that at least 34% of electricity generation will come from renewable energy**.

FUNDING 20 billion USD

Fund mobilization will be carried out through **the Indonesia Country Platform as a financing mechanism for the early retirement of Coal PP and the construction of renewable energy generators** with PT Sarana Multi Infrastructure (PT SMI) as the manager who will partner with the Glasgow Financial Alliance for Net Zero (GFANZ).

KESDM is preparing a **Roadmap for Early Retirement for Coal Power Plants in accordance with the mandate of Presidential Regulation Number 112 of 2022** concerning Acceleration of Renewable Energy Development for the Provision of Electricity.

JETP uses **the Net Zero Emission roadmap supported by the International Energy Agency (IEA)** and it is hoped that the IEA can provide further technical assistance.

JETP SECRETARIAT & UPDATE

JETP SECRETARIAT LAUNCH

- The Minister of Energy and Mineral Resources, Mr Arifin Tasrif, along with the International Partners Group (IPG) Delegation, the Ambassador of IPG countries, and representatives of the Government of Indonesia inaugurated the JETP Secretariat located at the Ministry of Energy and Mineral Resources, on 16 February 2023.
- The JETP Secretariat is a coordination, planning, and information centre for JETP activities.
- JETP will identify several steps to achieve the target through early retirement of Coal PP, development of renewable energy, network/transmission, renewable energy supply chain, energy efficiency, and just social transition.

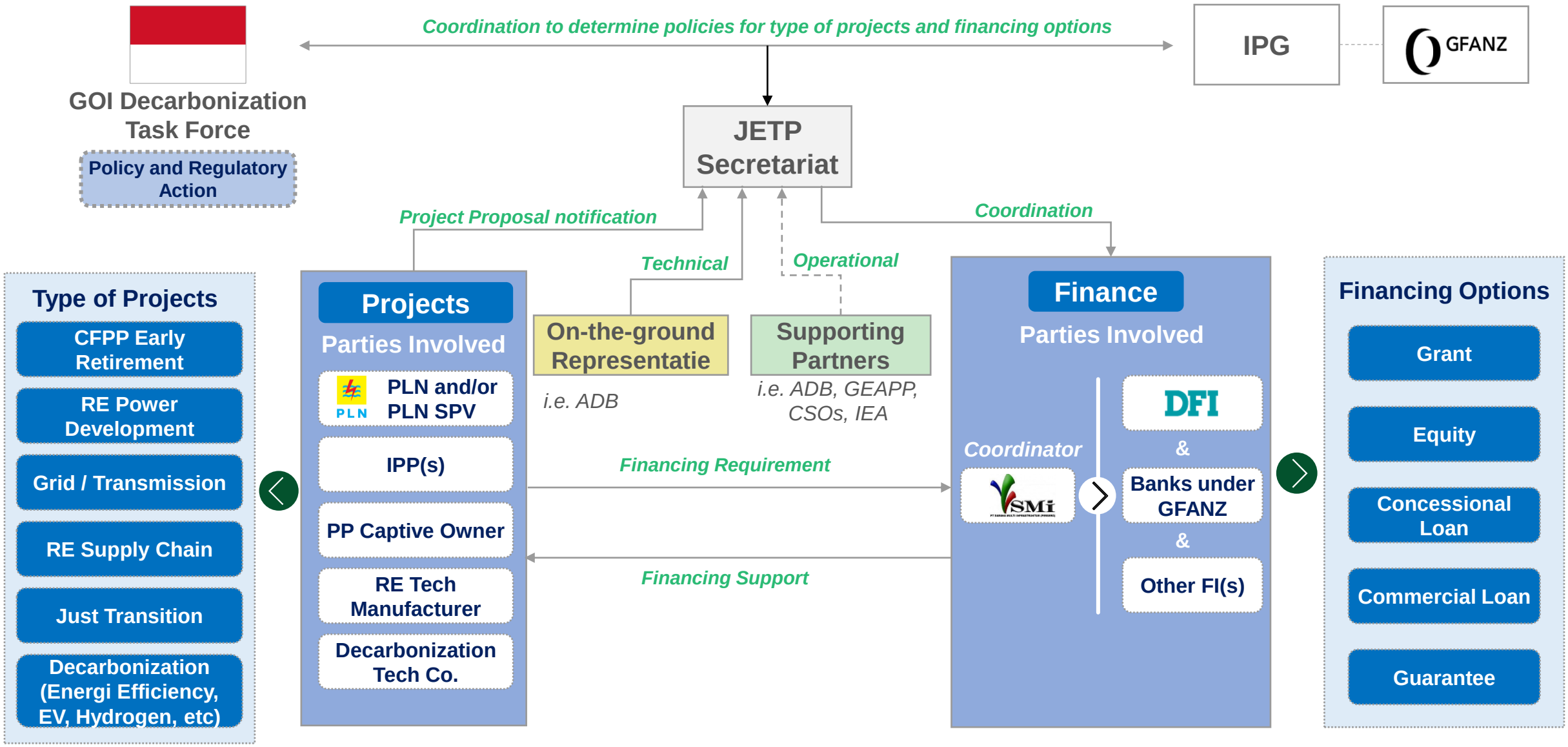
JETP STRATEGY IN COAL PP EARLY RETIREMENT ROAD MAP

1. Early Retirement of 6.1 GW Coal PP owned by PLN
   - Java-Bali: 5.68 GW
   - Sumatra: 0.47 GW
2. Development of Renewable Energy PP to replace Coal PP
3. Java-Sumatra interconnection
4. Co-firing 10% Biomass at Coal PP owned by PLN
5. Battery Utilization

Source: Draft Early Retirement Coal PP Road Map

potential project focus under JETP

JETP GOVERNANCE AND WORKFLOW



GEOGRAPHIC LOCATION OF PROPOSED ACCELERATED CFPP RETIREMENT PROGRAM

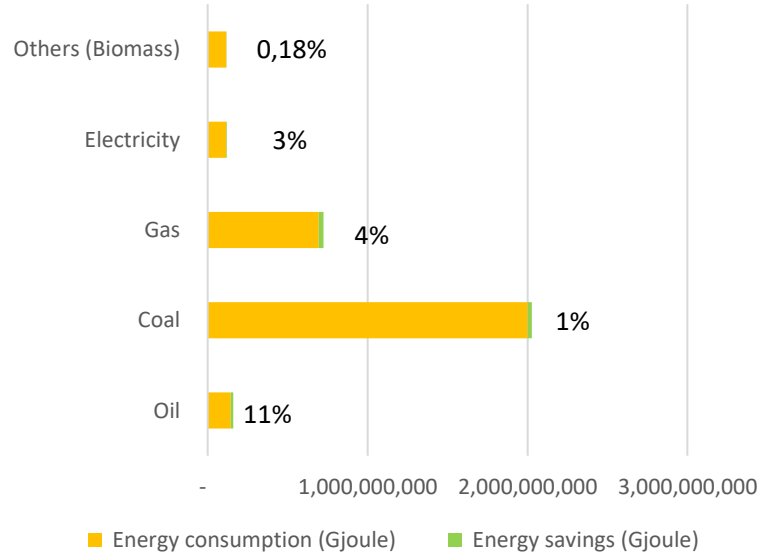
1. Exercises were carried out on **33 Coal Fired Power Plant facilities,** with total capacity **16,810 MW**; out of which, **28 units** are owned and operated by **PLN and its affiliates** (13,531 MW, 80%), while **the other 5 are IPP's** (3,279 MW, 20%);
2. Geographically, 11 units **are located in Sumatera Grid with total installed capacity of** 1,898 MW, **2 units in Sulawesi** (105 MW), **4 units in Mapana Grid** (28 MW), and **18 units in Java- Bali Grid**, 14,779 MW;
3. Most of the 30 CFPPs were part of the **FTP-1** (*Fast Track Program*), with total capacity of **9,101 MW**, excluding Celukan Bawang 1-3, Cilacap 1-2, Cirebon, Keban Agung 2, Bukit Asam 1-3, Ombilin, Suralaya 1-2, Suralaya 5-7, Paiton 1-2, and Paiton 5-6;
4. List of PLN's proposal 5,505 MW (**5.5 GW**) are all included into the list of 31 CFPP, comprising Nagan Raya, Pangkalan Susu, Labuhan, Teluk Sirih, Ombilin, Bukit Asam, Tarahan, Sebalang, Suralaya 1-7, dan Paiton 1-2;
5. CFPP Celukan Bawang (380 MW) will also consider to be retired

ENERGY MANAGEMENT SYSTEM (EnMS)

effective and efficient use of energy to produce maximum output through structured and economical technical actions **to optimize energy utilization** including energy for production processes and optimize consumption of raw materials and supporting materials.

The energy consumer who **consumes energy ≥ 6,000 TOE/year** oblige to **implement energy management**

Energy Savings Percentage to Energy Consumption (Gjoule)

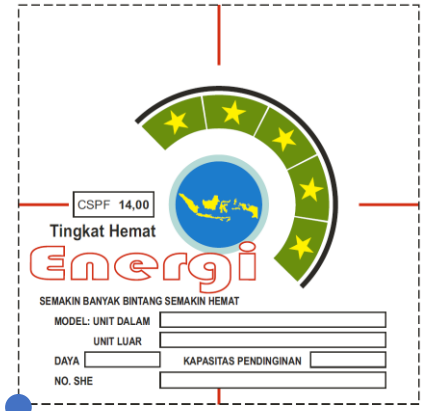


Source: Energy Management Online Reporting DGNREEC, 2022

In 2022, 242 companies have reported total energy savings from energy management activities: 73,659 Tjoule or equivalent to 20.5 TWh

EQUIPMENT STANDARDIZATION AND ENERGY EFFICIENT AWARENESS

Minimum Energy Performance Standard (MEPS) & Labels



2021

Regulation Establish
1. Air Conditioning

2022

Regulation Establish
1. Rice Cooker
2. Fan
3. Refrigerator
4. LED Lamp

2023

Final Regulation
1. Showcase
2. Television
3. Blender
4. Iron
5. Water Pump
6. Electric Motor
7. Washing Machine

2024

Final Regulation
1. Boiler
2. Revising MEPS

2025-2030

- Revising MEPS

MEMR Reg No. 14 Year 2021 on the Application of MEPS for Energy Utilizing Equipment
MEMR Decree No. 103.K/EK.07/DJE/2021 on MEPS and Labels **Air Conditioning**
MEMR Decree No. 113.K/EK.07/DJE/2021 on MEPS and Labels **Refrigerator**
MEMR Decree No. 114.K/EK.07/DJE/2021 on MEPS and Labels **Fan**
MEMR Decree No. 115.K/EK.07/DJE/2021 on MEPS and Labels **Rice Cooker**
MEMR Decree No. 135.K/EK.07/DJE/2022 on MEPS and Labels **LED Lamp**

Awareness & Award

CONCLUDING REMARKS

- Indonesia committed to NZE by decarbonizing our energy sector 2060 or earlier with international support.
- Our medium term goal is to meet our enhanced NDC target of CO2 emission reduction 358 MtCo2 from the energy sector.
- Under international support under JETP and ETM initiatives, we aimed to peak our emission from the power sector in 2030 by accelerate our coal power plant retirement, renewable energy development, and energy efficiency.
- We look forward for cooperation on projects related to energy sector decarbonisation that can be supported through JETP and ETM and establish new initiative of AZEC.

Thank You

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