

ENERGY TRANSITION POLICY TO ACHIEVE NET ZERO EMISSION: SOLAR ENERGY

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Indonesia Solar Summit 2024

Jakarta, 21 August 2024



NATIONAL COMMITMENT TO REDUCE GHG EMISSIONS - ENERGY SECTOR

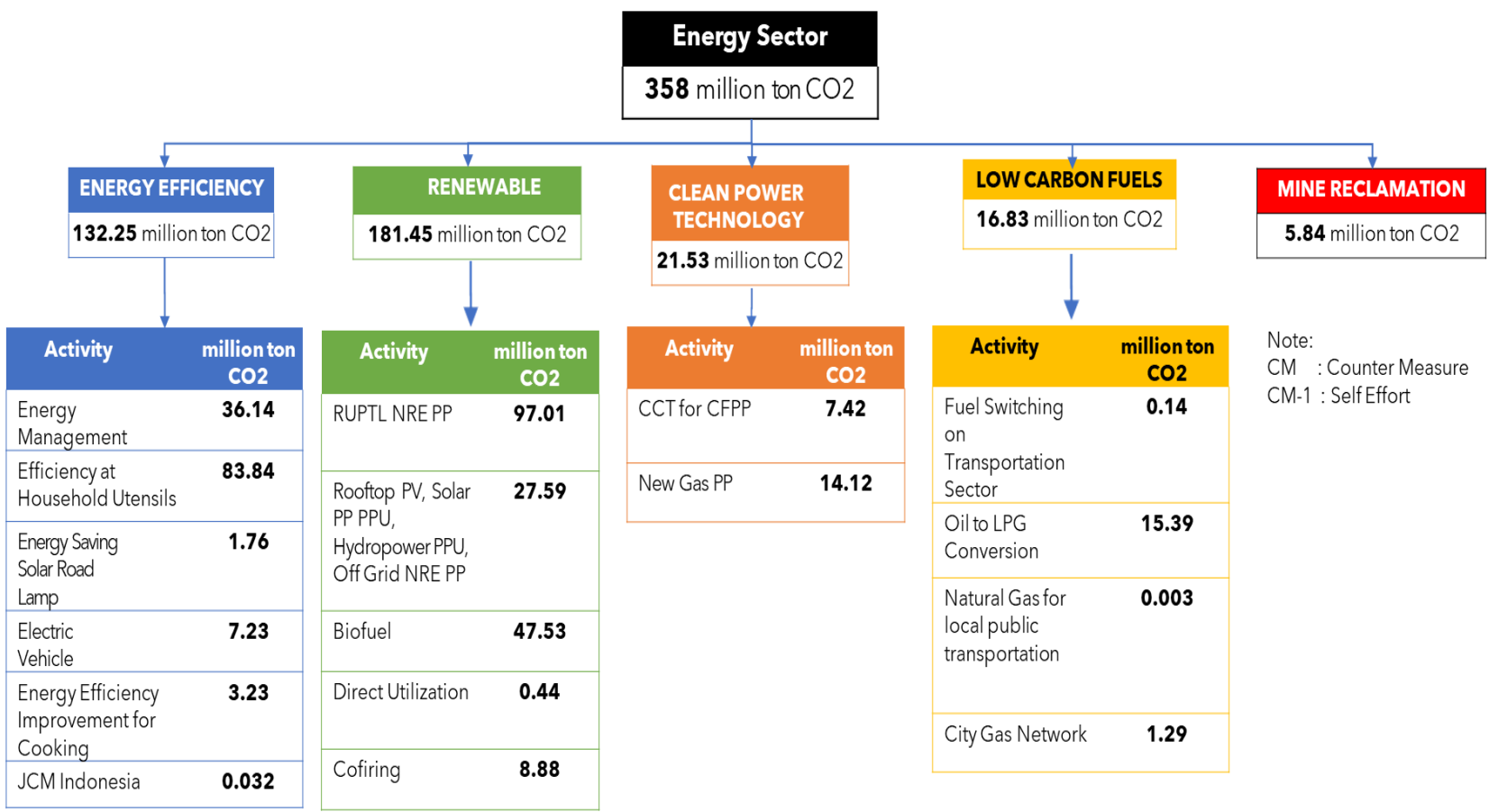


Through enhanced NDCs, Indonesia raises emission reduction target. Achievement of emission reduction from energy sector in 2023 is **123.2 million tons of CO₂e**, consist of : implementation of **renewable energy (51.30)**, **energy efficiency applications (31.87)**, adoption of **low-carbon fuels (natural gas) (15.55)**, utilization of **clean power generation technologies (13.33)**, and other activities (**11.18**).

Enhanced NDC 2030

No	Sector	2010 GHG Emission (Million Ton CO ₂ e)	Emission Reduction	
			CM1	CM2
1.	Energy	453.2	358	446
2.	Waste	88	40	45.3
3.	IPPU	36	7	9
4.	Agriculture	111	10	12
5.	FOLU	647	500	729
TOTAL		1,334	915	1,240

Detailed Target for Energy Sector



POTENTIAL & UTILIZATION OF NEW AND RENEWABLE ENERGY



Indonesia's NRE resources are **abundant, diverse and spread** throughout the country. Currently, **installed capacity of NRE is 13.7 GW**, or only 0.3% of the total potential has been utilized

	POTENTIAL (GW)	UTILIZATION (MW)
SOLAR	3,294	675
HYDRO	95	6,697
BIO ENERGY	57	3,408
WIND	155	152
GEO THERMAL	23	2,597
OCEAN	63	0
COAL GASSIFICATION		250
TOTAL	3,687	13,781

Development Program



Rooftop PV
 Large Scale Ground Mounted PV
 Floating PV



Hybrid Dam
 Pumped Storage



Biodiesel Bioethanol
 Bioavtur
 Biomass



On-shore Wind
 Off-shore Wind

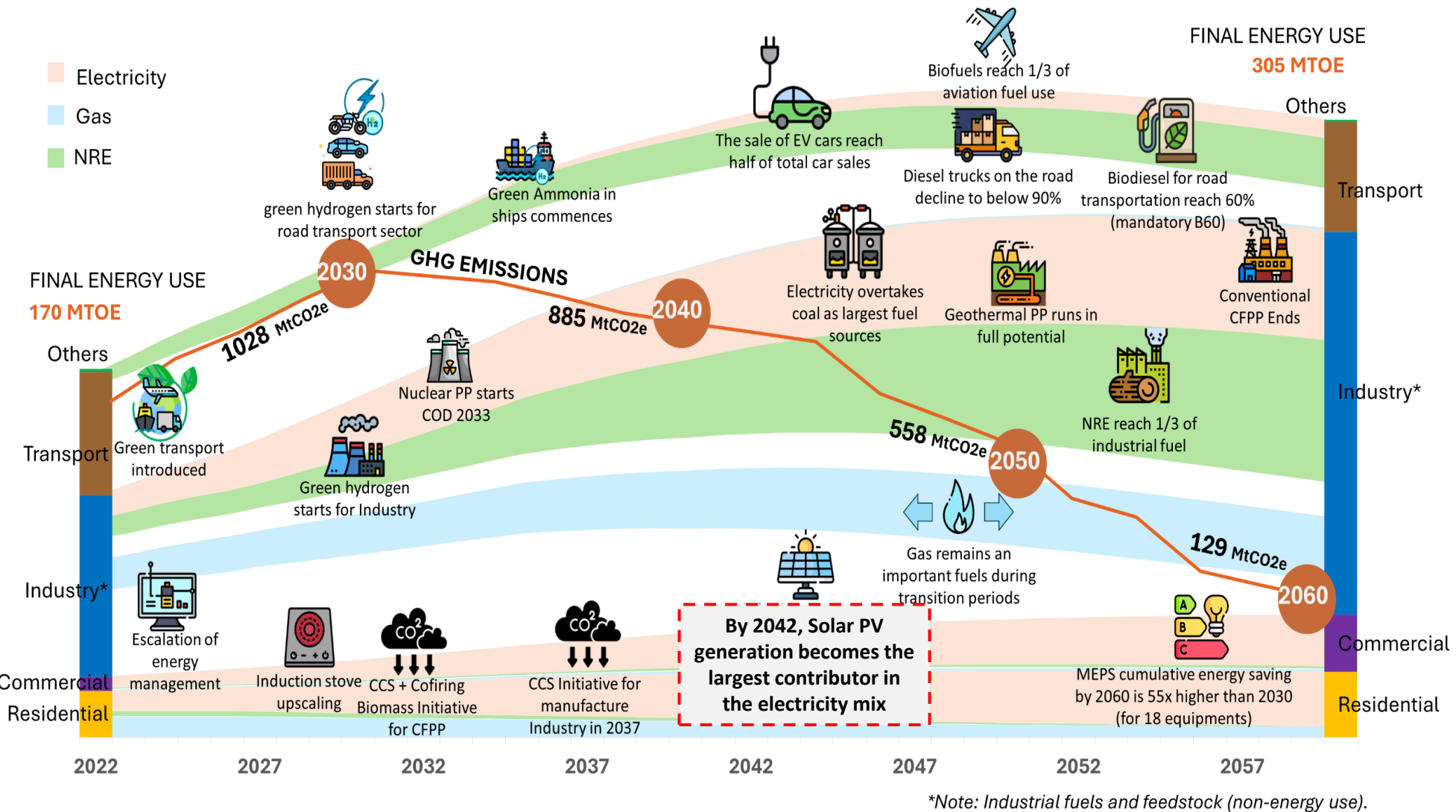


Government Drilling
 Fiscal Incentives



Study of Ocean Energy in Eastern Indonesia

NZE ROADMAP FOR ENERGY SECTOR

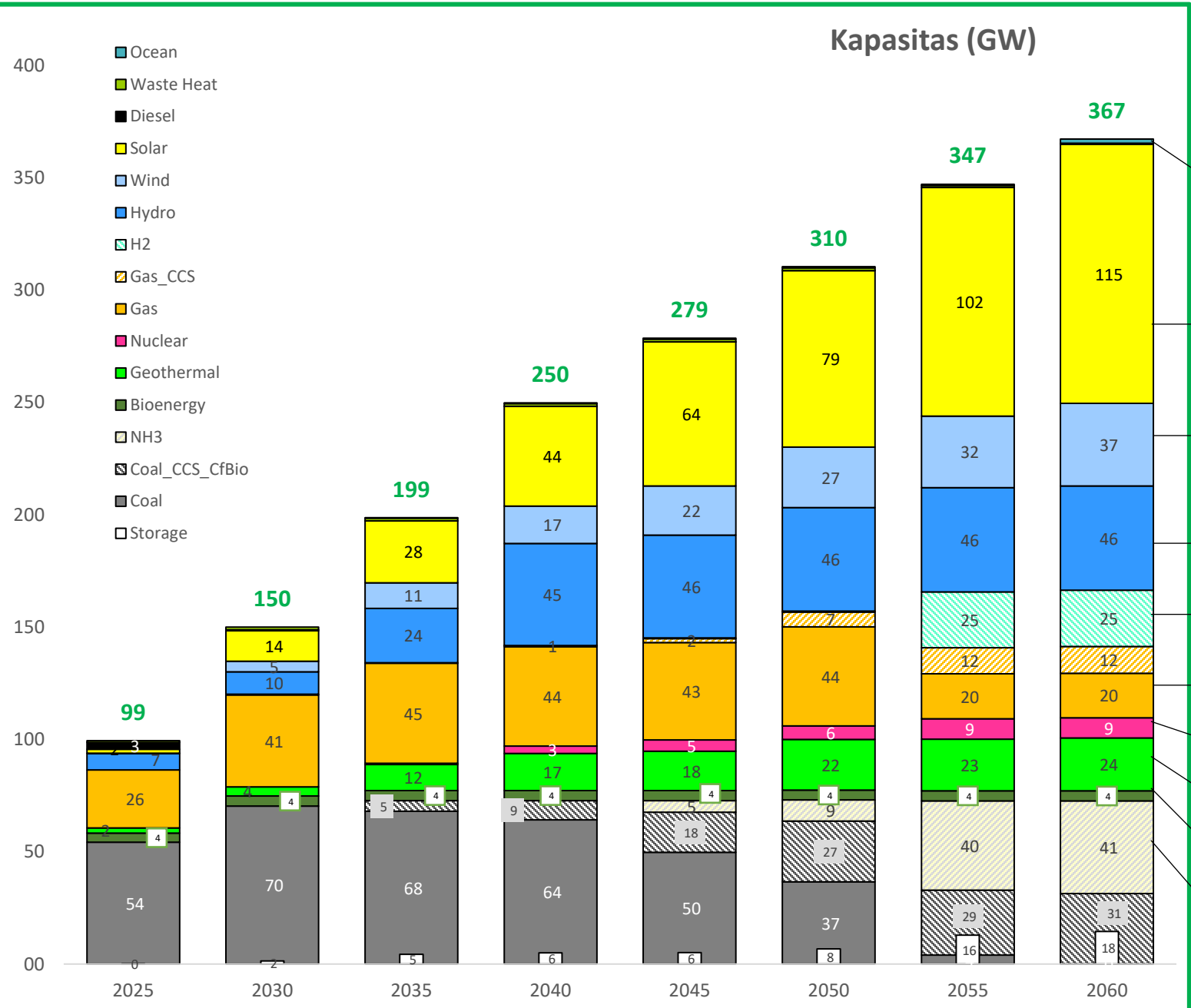


STRATEGIES TO ACHIEVE NZE 2060

- 1 Energy Efficiency
- 2 Electrification (EV, electric for cooking, agriculture, etc)
- 3 Moratorium for New Coal-Fired Power Plant & coal phase down
- 4 Renewable energy (on-grid, off-grid & biofuel)
- 5 New Energy (nuclear, hydrogen, ammonia)
- 6 CCS/CCUS

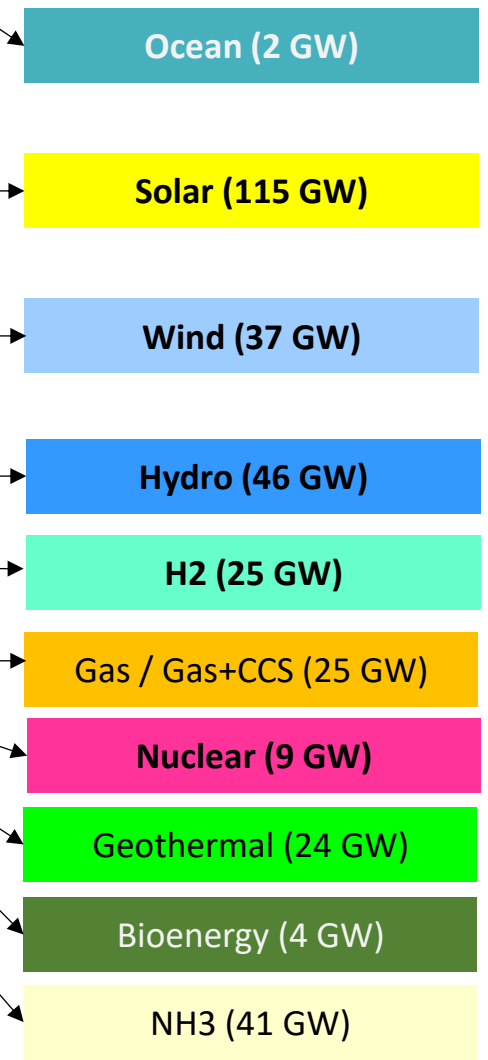
Source: Draft of Indonesia's Net Zero Emission (NZE) Roadmap for Energy Sector 2060

DRAFT ROADMAP OF ELECTRICITY SUPPLY



Installed Capacity (DMN) 2060 is 367 GW consist of

- **42% VRE with storage 18 GW**, and
- **58% Non VRE (dispatchable)**



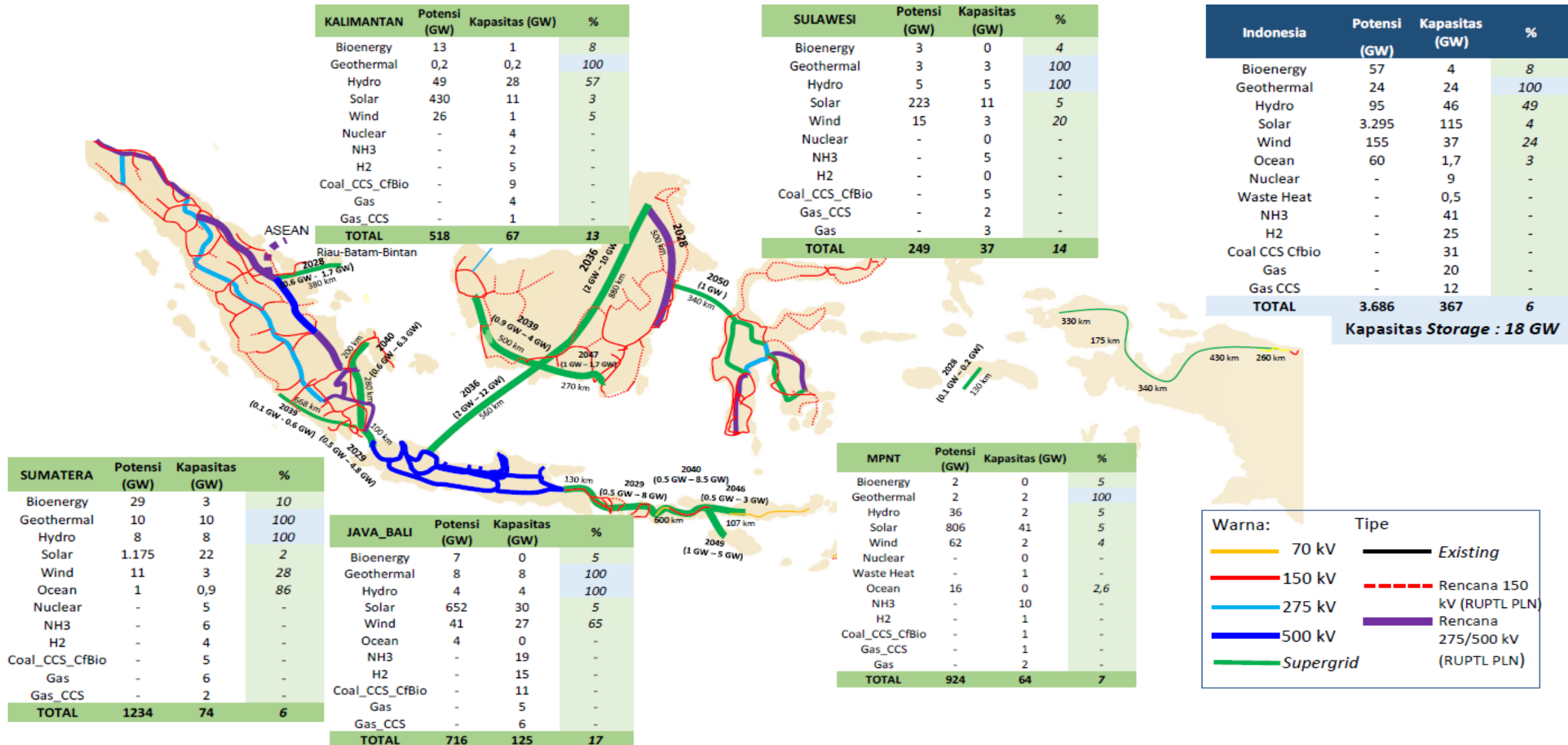
VRE
42%

Non
VRE
58%

Disclaimer: draft for discussion only

SUPERGRID AS KEY TO ENERGY TRANSITION TOWARDS NZE 2060

“The Supergrid would allow for more resource sharing between systems and higher penetration of VRE, including Solar”



DEVELOPMENT OF SOLAR PV

Solar energy is prioritized to be developed due to continuously decreasing cost of investment

PV ROOFTOP



PV Rooftop PT Pabrik Kertas Tjiwi Kimia 9.8 MWp, Jatim

Target 2025: 3.61 GW

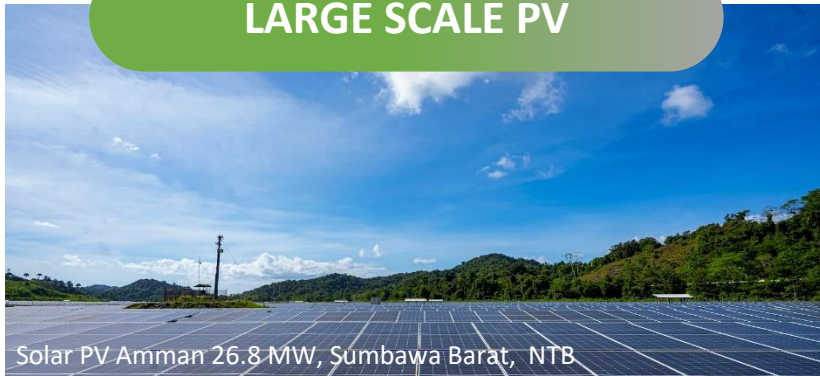
- Government building (37,35 MW)
- Social (16.65 MW)
- Commercial (728.68 MW)
- Industry (1,307.10 MW)
- Household (1,525 MW)

Installed Capacity by 2023:

170.7 MWp (9,100 PLN customers), for example:

- PV Rooftop at PT Pabrik Kertas Tjiwi Kimia East Java 9.8 MWp
- PV Rooftop at Coca Cola Cikarang 7.2 MWp
- PV Rooftop at Danone Aqua Klaten 3 MWp

LARGE SCALE PV



Solar PV Amman 26.8 MW, Sumbawa Barat, NTB

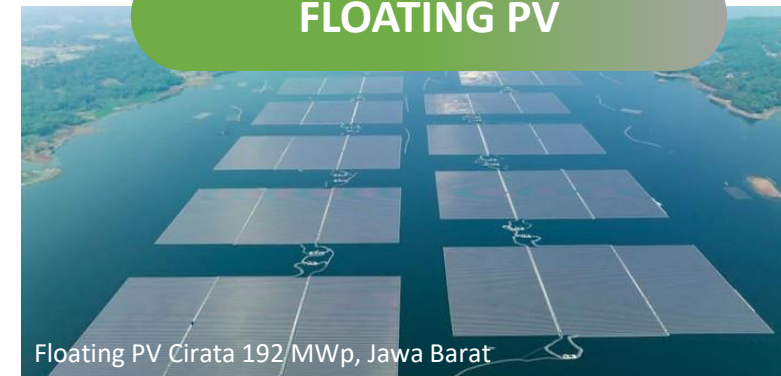
Target 2030: 4,68 GW

- Jamali (2,906.06 MW)
- Sumatera (192.82 MW)
- Kalimantan (303.71 MW)
- Sulawesi (175.79 MW)
- MPNT (1,101.04 MW)

Installed capacity by 2023 is 201.68 MWp, including:

- Amman West Sumbawa Barat – 26.8 MWp
- Duri Sinabung, Riau – 3.95 MWp
- Duri Gate 1-1, Riau – 4.28 MWp
- Rumbai South Substation, Riau – 5.73 MWp

FLOATING PV



Floating PV Cirata 192 MWp, Jawa Barat

Potential : 89,37 GW (293 locations)

PUPR Dams : 14,701.71 MW (259 locations):

- Jawa Bali (9.076,95 MW) – 114 locations
- Sumatera (1.967,56 MW) – 17 locations
- Kalimantan (690,22 MW) – 11 locations
- Sulawesi (1.646,84 MW) – 15 locations
- Maluku – Nusra (1.320,14 MW) - 100 locations

Lakes : 74.665,25 MW

(36 locations):

- Jawa Bali (641,3 MW) – 2 locations
- Sumatera (34.867,9 MW) – 12 locations
- Kalimantan (2.437,9 MW) – 3 locations
- Sulawesi (24.415,6 MW) – 6 locations
- Maluku – Papua – Nusa Tenggara (12.302,4 MW) - 13 locations

Installed capacity by 2023 is 193 MWp:

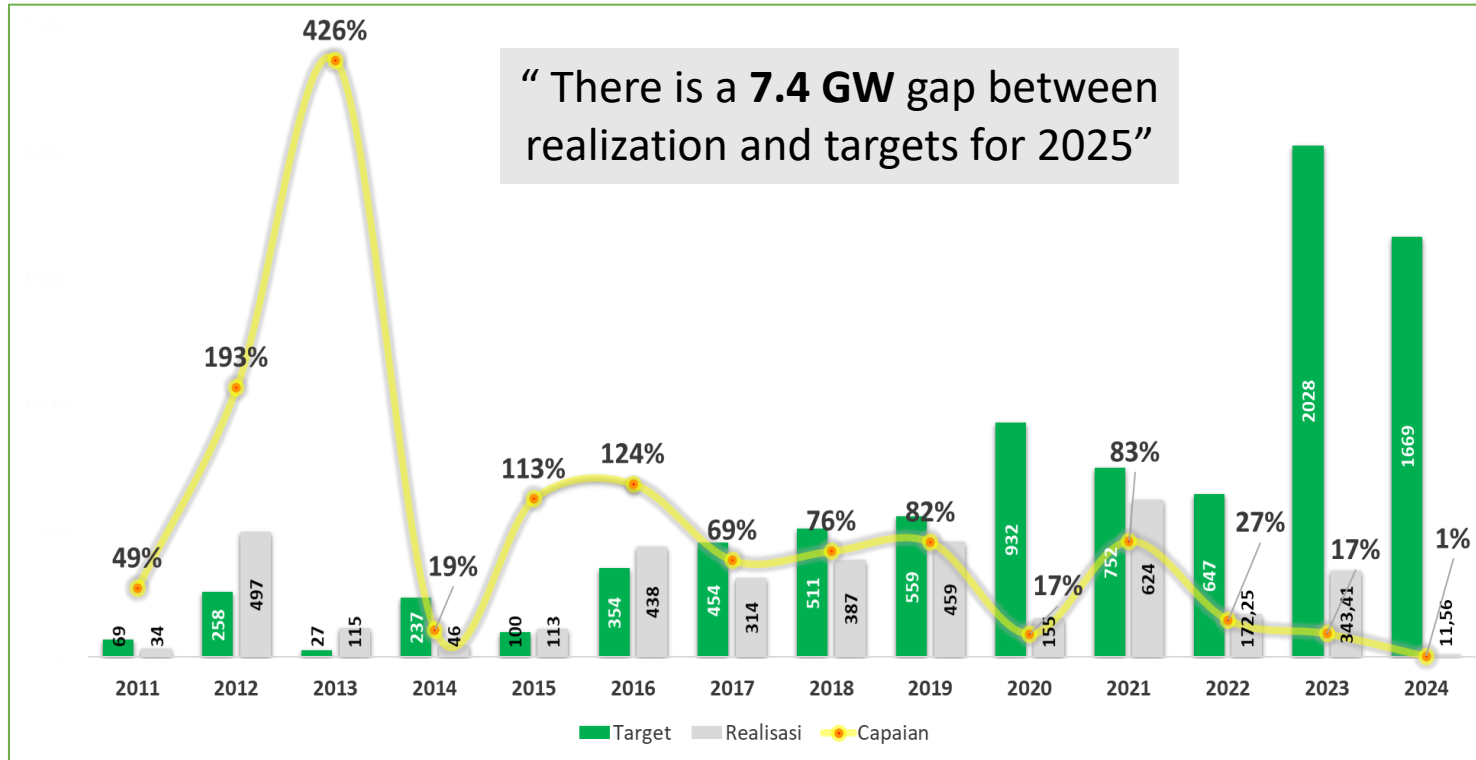
- Floating PV PT Adaro Power – 0,47 MWp
- Floating PV Cirata – 192,54 MWp

GREEN RUPTL PT PLN (PERSERO) 2021 – 2030

INVESTMENT TARGET & OPPORTUNITIES

RUPTL Targets and Achievements

Although NRE capacity increases every year, Indonesia still has to accelerate NRE implementation to meet development targets.



Policies to Boost Investment

- **Ease of permits**, ex: OSS & perizinan.esdm.go.id
- **Fiscal Incentives**, ex: Tax Allowance, Tax Holiday, Import Duty Exemptions
- **Non-Fiscal Incentives**, Ex: Biodiesel incentives through BDPKPS

RUPTL Targets and Required Investments

01

HYDROPOWER

Additional cap until 2030: **10.4 GW**
 Emission Reduction: **46.46 million tons CO2e**
 Investment required: **25.63 Billion USD**

02

LARGE SCALE SOLAR

Additional cap until 2030: **4,68 GW**
 Emission Reduction: **6.97 million tons CO2e**
 Investment required: **3.2 Billion USD**

03

GEOHERMAL

Additional cap until 2030: **3.35 GW**
 Emission Reduction: **22.4 juta tons CO2e**
 Investment required: **17.35 Billion USD**

04

BIOENERGY

Additional cap until 2030: **590 MW**
 Emission Reduction: **4.61 million tons CO2e**
 Investment required: **2.2 Billion USD**

05

WIND

Additional cap until 2030: **597 MW**
 Emission Reduction: **2.22 million tons CO2e**
 Investment required: **1.03 Billion USD**

06

OTHER NRE BASELOAD

Additional cap until 2030: **1.01 GW**
 Emission Reduction: **4.51 million tons CO2e**
 Investment required: **5.49 Billion USD**

07

PEAKER

Additional cap until 2030: **300 MW**
 Emission Reduction: **2.01 million tons CO2e**
 Investment required: **0.28 Billion USD**

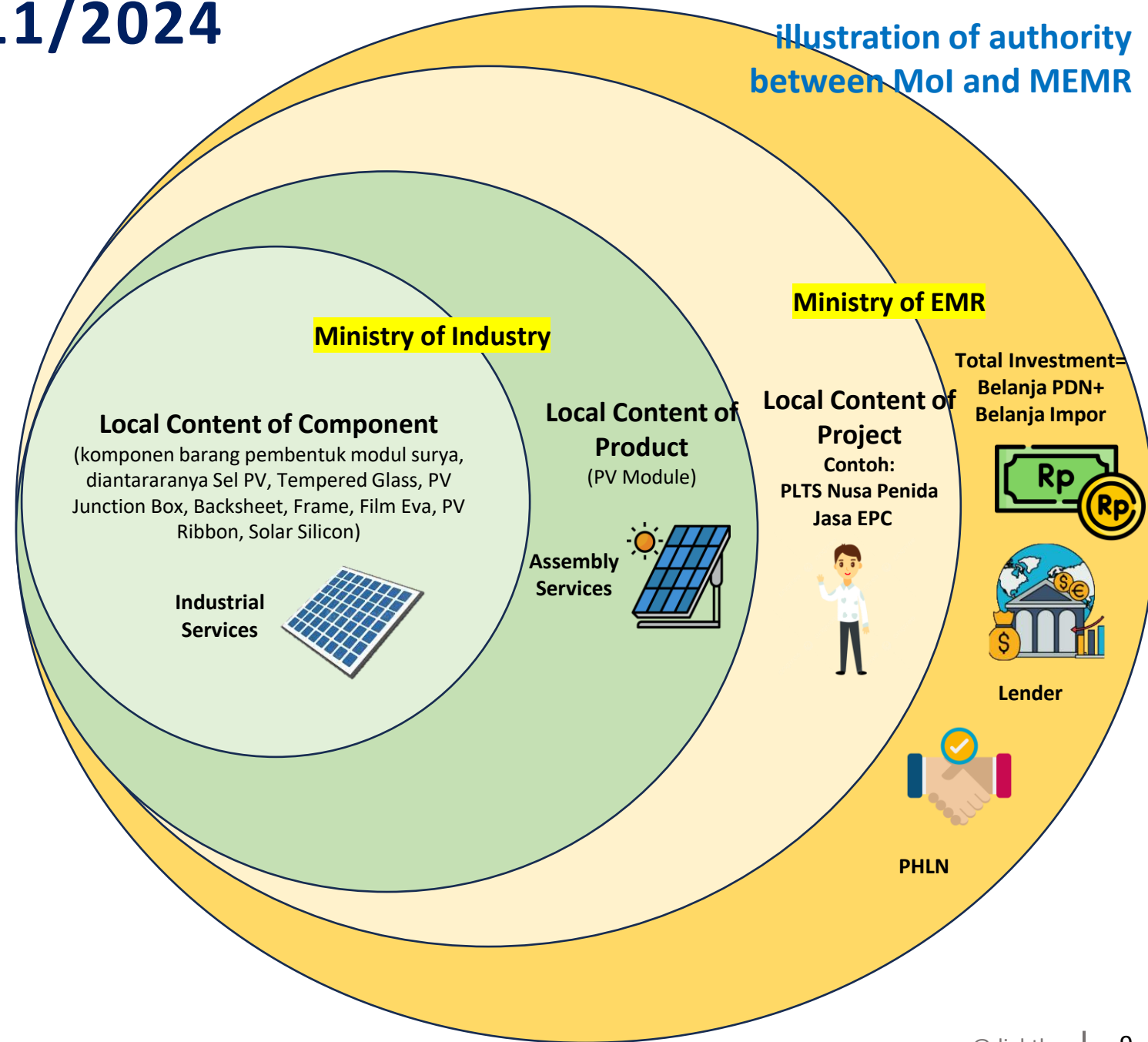
MEMR REGULATION NO 11/2024

ON THE USE OF LOCAL PRODUCTS FOR ELECTRICITY INFRASTRUCTURE DEVELOPMENT

“To accelerate the development of electricity infrastructure while still prioritizing the use of domestic products, it is necessary to regulate the use of domestic products for the development of electricity infrastructure”

- Accompanied by Minister of Industry Regulation 33/2024 On Guidelines for The Use of Domestic Products for Electricity Infrastructure Development which repeals previous regulation (Minister of Industry Regulation 54/2012)
- Guidelines for the minimum local content value for electricity infrastructure development projects are regulated in MEMR Decree.

illustration of authority between Mol and MEMR





SYNERGIES TOWARDS ENERGY TRANSITION

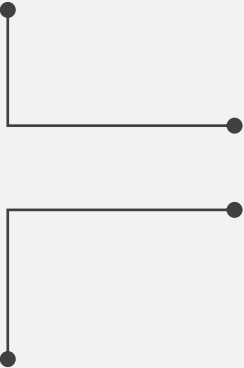
Collaboration and participation from all stakeholders, including **human resource development**, are needed to achieve a **Just Energy Transition** and meet **Climate Change Mitigation Goals**.

Engaging in power generation and fuel business activities, support services, job creation, contributions to state revenue, and economic activities.

NGOs play a role as a balance and partner to the government, providing advocacy/support for communities, conducting positive campaigns, and actively participating in the development of renewable energy.

JUST ENERGY TRANSITION

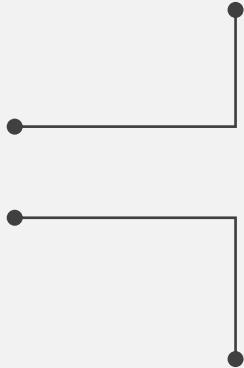
ENTERPRISE



MEDIA

Menedukasi masyarakat akan pentingnya NRE serta menyebarkan program pemerintah kepada masyarakat

Community & NGOs



ACADEMIC

Creating innovations in the field of renewable energy that can be directly utilized by the community, improving the quality of human resources, and promoting technology transfer.



GOVERNMENT

Educating the public about the importance of renewable energy and disseminating government programs to the community.

Thank You

www.ebtke.esdm.go.id

   @djbtkc  Ditjen EBTKE



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