



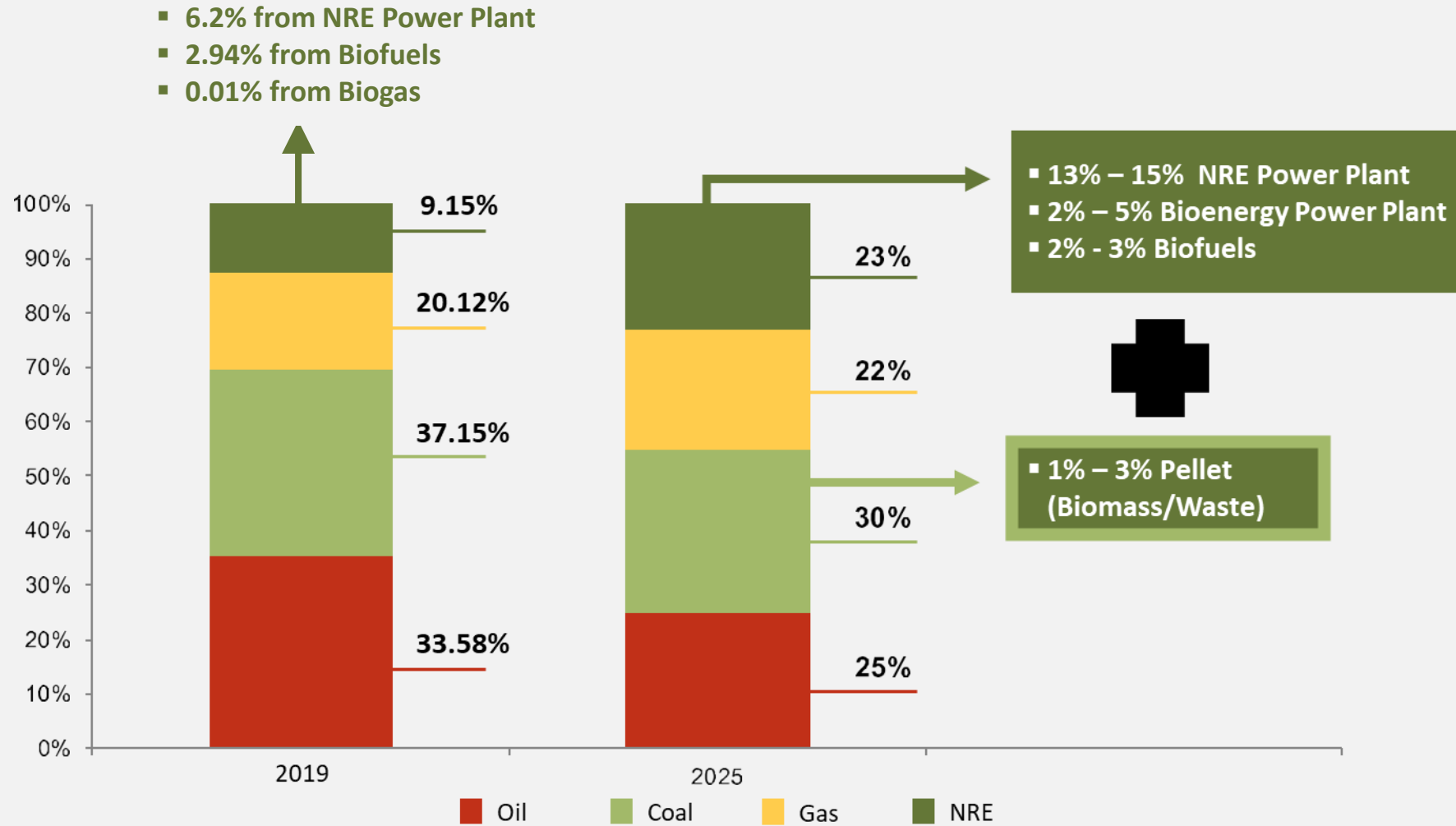
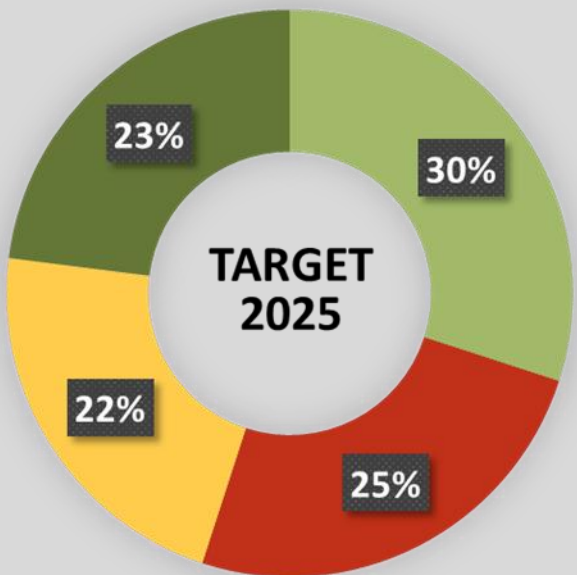
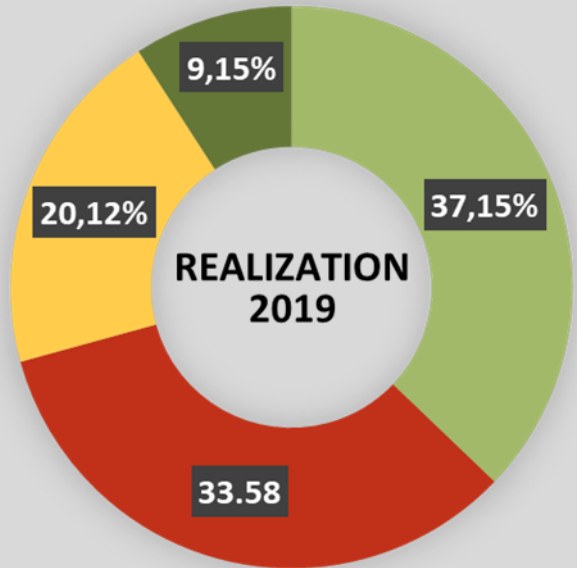
Sustainable Biogas Production And Use in Indonesia

DIBICOO Web Seminar #5
“Sustainable Biogas Production and Use”
November 17th, 2020

TROIS DILISUSENDI
DIRECTORATE GENERAL OF NEW, RENEWABLE
ENERGY AND ENERGY CONSERVATION

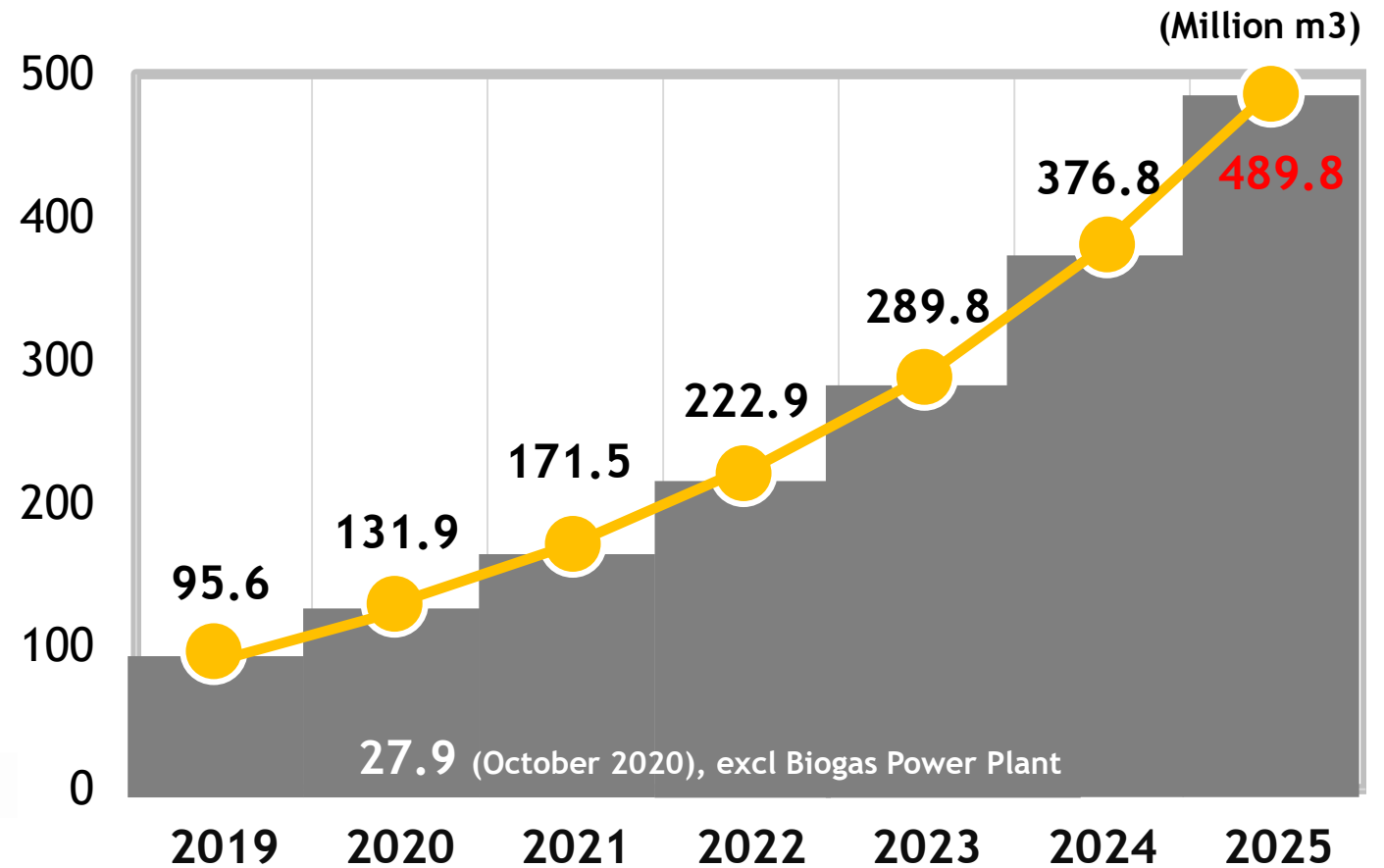
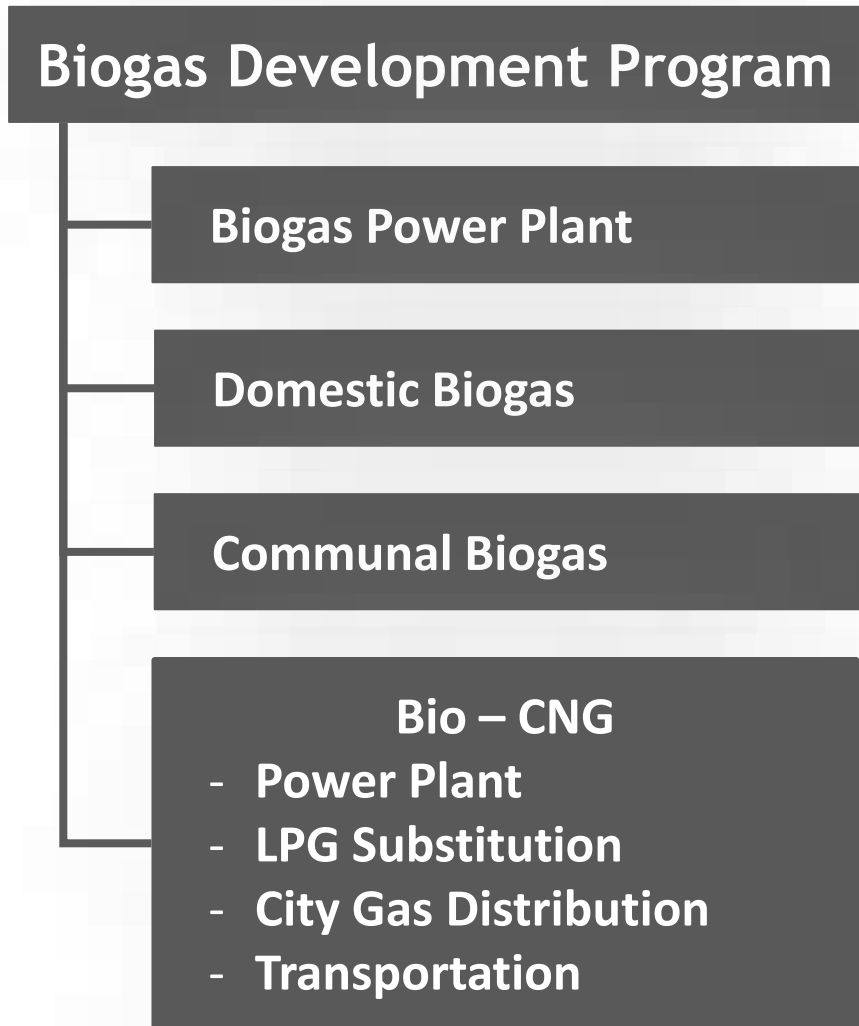


THE REALIZATION AND TARGET OF NATIONAL ENERGY MIX

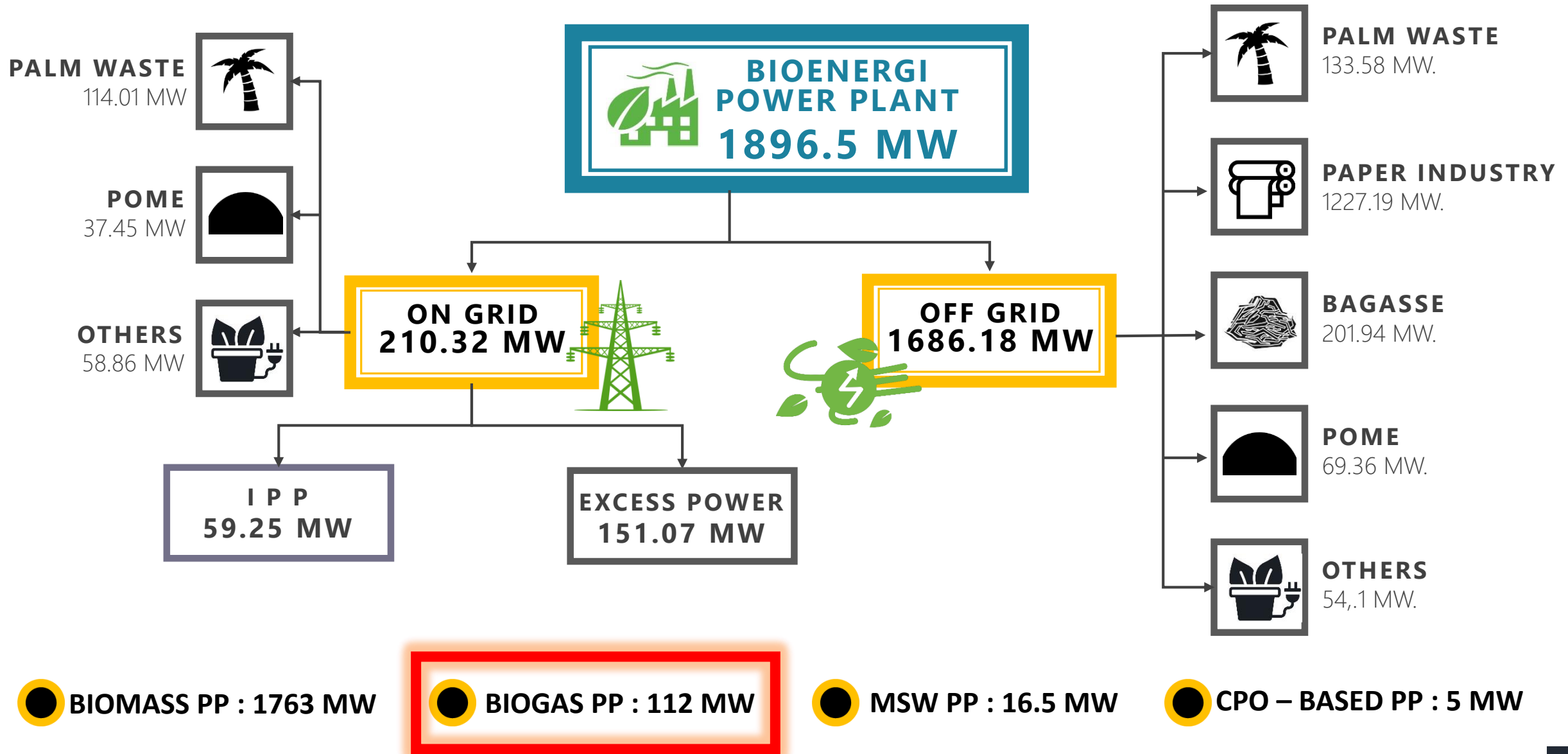


BIOGAS DEVELOPMENT TARGET

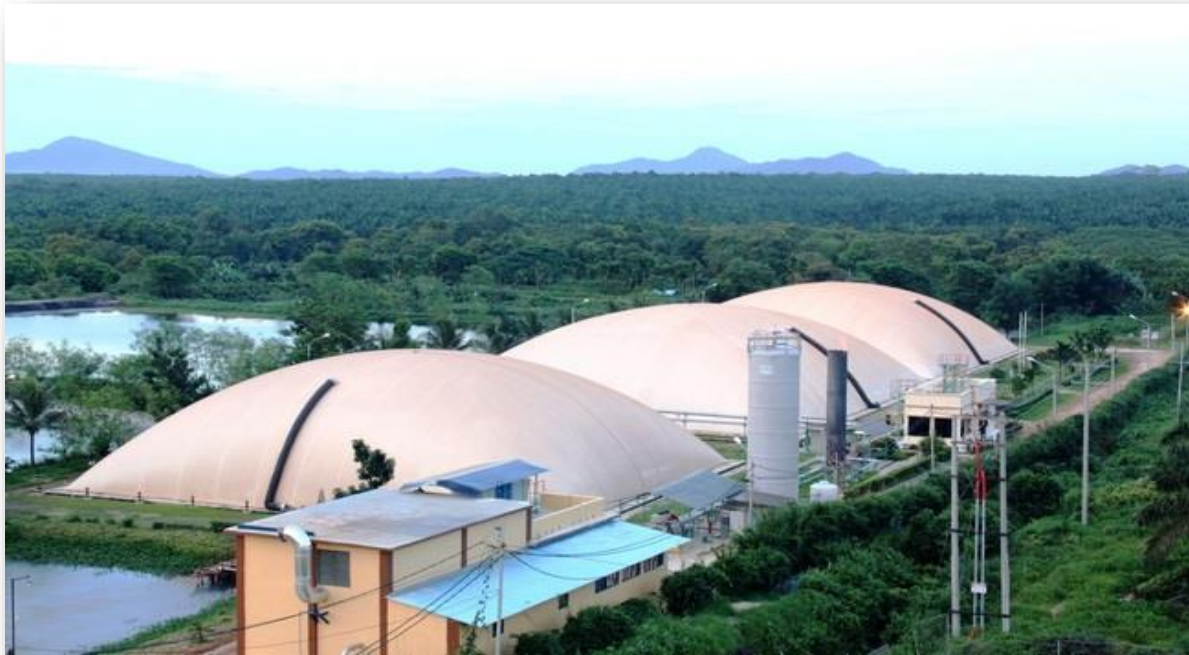
Based on General Plan of National Energy



INSTALLED CAPACITY OF BIOENERGY POWER PLANT- SMT I 2020



IMPLEMENTATION OF BIOGAS POWER PLANT



**PT Austindo Nusantara Jaya.
The first On-Grid Biogas Power Plant**



**POME Biogas Power Plant, PTPN V, Kebun Tandun, Riau.
Biogas: 850 m³/hour (60% CH₄). Capacity 1 MW**

DOMESTIC AND COMMUNAL BIOGAS

Domestic Biogas



- Up to October 2020, there are **47.754-unit** of Domestic Biogas which produce **75.468,7** m³ gas/day or **27,89** million m³/year.
- The funding comes from Government Budget, Donor, Special Allocation Fund, other Ministries/institutional and private sectors.

Communal Biogas



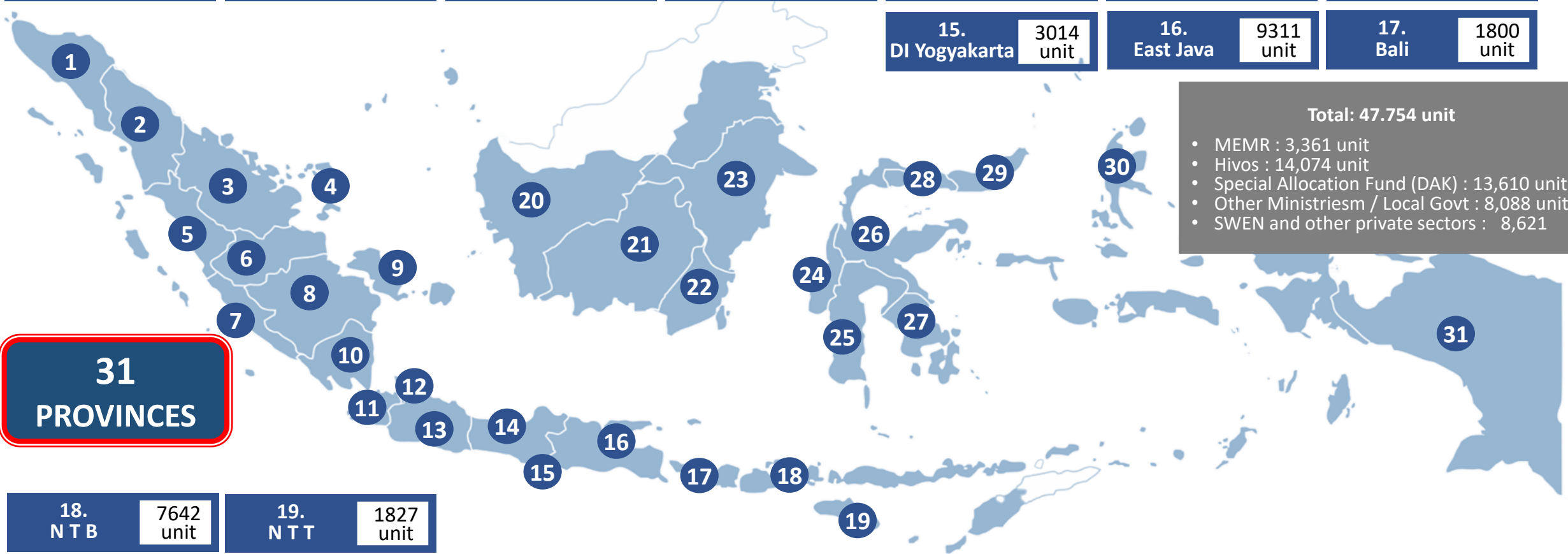
- From 2015 – 2019, MEMR has built 38unit Communal Biogas in Islamic Boarding Schools in 10 provinces (NAD, West Sumatra, Riau, Lampung, Banten, West Java, Central Java, East Java, East Kalimantan and Central Sulawesi).
- Communal biogas processes human waste into biogas as a substitute for LPG and lighting purposes.

Biogas Utilization



DISTRIBUTION OF DOMESTIC BIOGAS *)

1. Aceh	303 unit	2. North Sumatera	166 unit	3. Riau	6 unit	4. Riau Island	2 unit	5. West Sumatera	291 unit	6. Jambi	736 unit	7. Bengkulu	7 unit
8. South Sumatera	108 unit	9. Bangka Belitung	46 unit	10. Lampung	1888 unit	11. Banten	40 unit	12. DKI Jakarta	3 unit	13. West Java	2091 unit	14. Central Java	2277 unit
								15. DI Yogyakarta	3014 unit	16. East Java	9311 unit	17. Bali	1800 unit



Total: 47.754 unit

- MEMR : 3,361 unit
- Hivos : 14,074 unit
- Special Allocation Fund (DAK) : 13,610 unit
- Other Ministries / Local Govt : 8,088 unit
- SWEN and other private sectors : 8,621

18. NTB	7642 unit	19. NTT	1827 unit										
20. West Kalimantan	5 unit	21. Central Kalimantan	248 unit	22. South Kalimantan	347 unit	23. East Kalimantan	604 unit	24. West Sulawesi	31 unit	25. South Sulawesi	4064 unit	26. Central Sulawesi	697 unit
27. SE Sulawesi	551 unit	28. Gorontalo	1195 unit	29. North Sulawesi	36 unit	30. North Maluku	2 unit	31. Papua	7 unit				

*) Status: 19 Oktober 2020.

Bio-CNG Project

- Bio-CNG, a methane rich compressed fuel, is also known as compressed biomethane. Bio-CNG is produced from pure biogas containing more than 95% methane at a pressure of 20–25 MPa.
- Bio-CNG is similar to the regular CNG in terms of its fuel properties, economy, engine performance, and emissions. Bio-CNG has high octane number which results in the high thermal efficiency and can be utilized for transportation, power generation, industrial and commercial purposes.



MEMR, GGGI, Local Government of Central and Regional Development Planning Agencies of Central and East Kalimantan conducted a Bio-CNG Market Assessment study.

BioCNG can be utilized if diesel machinery is converted into dual fuel, such as in electrical generator sets, trucks, or buses. Additionally, BioCNG can be used in the industries around the producers such as for cutting plant or direct combustion for drying in the plywood industry. BioCNG can also be sent through CNG pipes, supplying the gas needed by households, hotels and restaurants, as well as industries.



Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

GIZ through the ExploRE Project, PT SMI, Kaltimex Energy and PTPN IV are preparing the Bio-CNG Pilot Project using corn waste and rice husks in Lombok.



PT Dharma Satya Nusantara Tbk (DSN Group) commissioned its first Bio-CNG Plant in Muara Wahau, East Kalimantan. The Bio-CNG plant will generate electricity with a capacity of 1.2 MW and produce biomethane gas with a capacity of 280- meter³ / hour.

The remaining excess biogas will be compressed into Biomethane Compressed Natural Gas and then stored and contained in gas cylinders which then will be distributed by Bio-CNG-fueled trucks to emplacements (employee housing) and other Palm Oil Mills (POM) in Muara Wahau to replace the usage of conventional solar diesel.

CHALLENGES IN BIOGAS DEVELOPMENT

01

For industrial scale / economic scale project requires a substantial initial capital.

02

An integrated study is needed for commercial scale bio-CNG development, which cover market assessment, sustainability of feedstock, regulatory framework including incentives.

03

Grant/subsidy scheme is considered counterproductive for the development of semi-commercial scale biogas programs carried out by NGOs / non-governmental organizations.

05

Lack of funding and incentives. The biogas installation costs are still considered high, especially for rural communities.

05

Lack of coordination among Ministries / Agencies & synergy between programs. Beside, most programs have not been optimally integrated with other productive activities.

06

The use of biogas installations is considered less practical when compared to LPG.

Strategic Plan

Development of Biogas as a Sustainable Energy Source

1

To improve investment climate for biogas development, including to revise regulations related to the electricity purchase from biogas power plant.

2

To coordinate and synchronize biogas program with related stakeholders (Ministries/Agency, Local Government, Donors and private sectors).

3

Develop biogas program which integrated with other productive activities to create new business opportunities.

4

Encourage public-private cooperation to invest in biogas development.

5

Provide training and technical guidance for biogas recipients (digester maintenance, sustainability of raw materials, and the socio-economic impact of biogas).

6

Conduct a joint study with related stakeholders regarding the regulatory framework and funding mechanism to support the development of sustainable biogas.

7

Conduct integrated studies for industrial scale biogas (Bio-CNG), including identification of feedstocks, supply chain mechanisms, regulations and incentives, infrastructure improvement and synchronization with related development programs (city gas distribution, grid network for biogas power plant, substitution of LPG and biogas for transportation sector).

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