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IAFMI
IKATAN AHLI FASILITAS PRODUKSI MINYAK DAN GAS BUMI INDONESIA

FFPMI 2023
FORUM FASILITAS PRODUKSI MIGAS

29-31 AGUSTUS 2023
YOGYAKARTA

Long-Term Outlook Energy Supply vs Demand

Noor Arifin Muhammad

SPEAKER PROFILE

Name : **Noor Muhammad Arifin**

Company : Direktorat Jenderal Minyak Bumi dan Gas

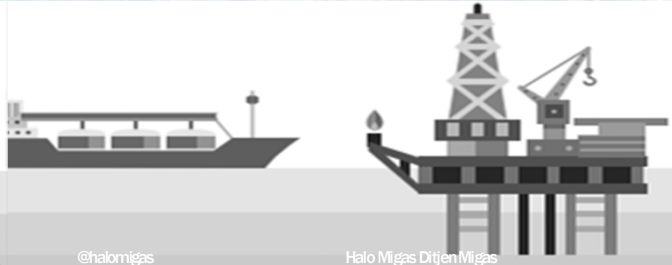
Education : S2 – Industrial Engineering, Purdue University, USA
S1 – Teknik Mesin, ITB, Bandung

Professional Career :
2022 – Now : Direktur Pembinaan Usaha Hulu Migas
2021 - 2022 : Direktur Perencanaan dan Pembangunan Infrastruktur Migas, Ditjen Migas
2019 – 2021 : Inspektur III, Inspektorat Jenderal Migas
2017 – 2019 : Direktur Perencanaan dan Pembangunan Infrastruktur, Ditjen EBTK

DIRECTORATE GENERAL OF OIL AND GAS
MINISTRY OF ENERGY AND MINERAL RESOURCES

Kebijakan Pengelolaan Gas Bumi untuk Transisi Energi berkelanjutan

Yogyakarta, Selasa 29 Agustus 2023



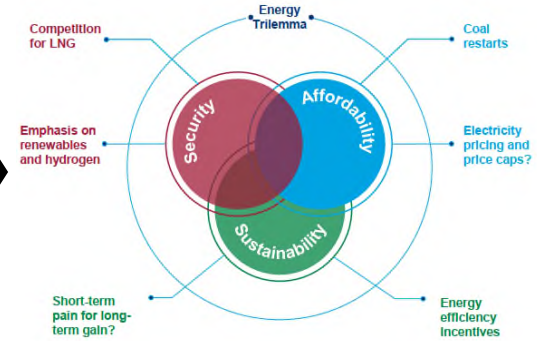
BACKGROUND

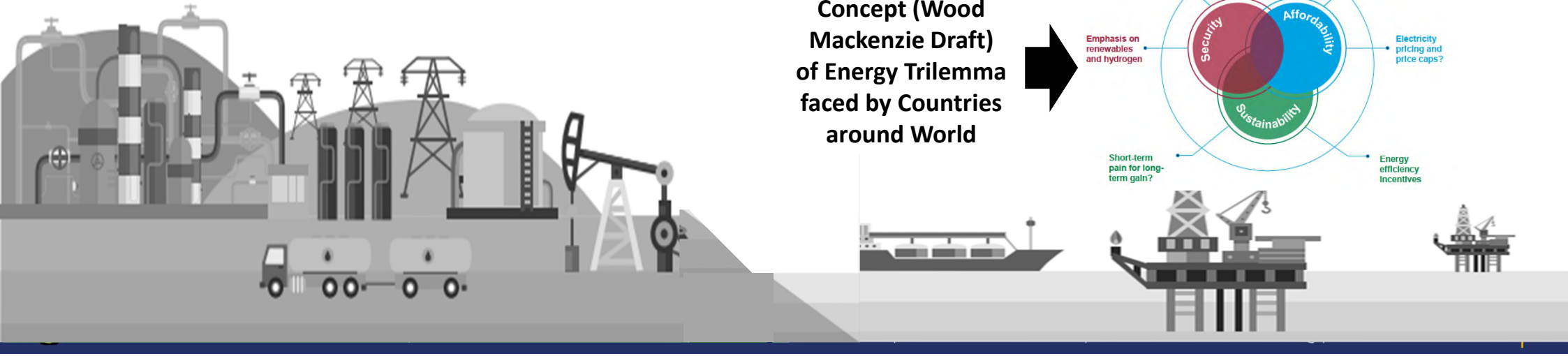
1) **Indonesia Energy Policies**
2) **O&G Upstream Role & Policies**
3) **Potential of Indonesia O&G and Efforts of Government in O&G Upstream Dev. (inc. CCUS/CO2 EOR-EGR)**

Question & Topic of Discussion

- How the E&P industry can best collaborate with the Indonesian Government to foster & accelerate the Energy Transition
  - ✓ growing energy demand
  - ✓ role of O&G Upstream Industry
  - ✓ secure, affordable and low-carbon energy

Concept (Wood Mackenzie Draft) of Energy Trilemma faced by Countries around World





ENERGY TRANSITION

Fossil Fuel

Availability, Accessibility, Affordability, Sustainability, & Competitiveness

New & Renewable Energy

Fossil Fuel + Clean Tech (CCT, CCUS) + *Net Sink*

Green Energy

NRE Acceleration:

- Subtitution of Primary/Final Energy (BBN, *Co-firing*, RDF/SRF)
- Fossil Fueld Conversion
- *Rooftop PV* as main contributor for NRE acceleration
- NRE Utilization for non-electric/fuel (Briket, Biogas, CBG).

+

- EV
- Battery
- Hidrogen

+

***Smart Energy*, *Smart Grid*, Energy Conservation**

- Energy Sovereignty
- Energy Resilience
- Sustainable Development
- Climate Resilience & Low Carbon

REGULATORY IMPROVEMENTS TO PROVIDE BETTER INVESTMENT CLIMATE

TAX FACILITIES

Entrance Fee Exemption
For goods and services

Exemption of VAT and PPnBM
For the procurement
and use of goods and services

Reduction of LBT 100%

PSC Gross Split

PSC Cost Recovery

Exploration period | **Exploitation period**

Commercial Production

CURRENT INCENTIVES

- Additional split to support economy for PSC Gross Split
- Investment Credit, DMO fee, accelerated depreciation for PSC Cost Recovery (GR Num. 27/2017)
- BMN rent incentives (MFR Num. 140/2020)

MEMR together with the Ministry . of Finance are drafting revisions to GR 27/2017 and GR 53/2017 to improve the economy project of upstream oil and gas activities

INCENTIVES FOR UPSTREAM BUSINESS ACTIVITIES (MEMR Decree Number 199/2021)

-Support the economics of field development

Maintaining and increasing oil and gas production, maintaining investment continuity, contributing to state revenue

Given in POD I and/or Further POD including its revisions for the New Working Area and Field Development in the Extension Working Area or Transfer-Management Working Area

Types of Incentives	
Cost Recovery	Gross Split
- Profit Sharing (split) - FTP - Investment Credit - DMO fee - Accelerated Depreciation	- Profit Sharing (split)

ENERGY TRANSITION ROADMAP TOWARD CARBON NEUTRAL

1)Timeline of strategic achievements to achieve net zero emission in the energy sector
2)This Roadmap will be a form of joint commitment between the government and stakeholders to achieve NZE 2060

2021 – 2025

2025: Emission Reduction 198 Mill

Supply:
- Implementation of 3.6 GW solar roof top
- Construction of NRE Plant capacity 10.6 GW
- Gasification gas generator 1.7 GW
- Take out 8.8 GW PLTU at RUPTL
- Convert Gasoil Plant to NRE
- Gas and Steam Power Plant 0.8 GW as a replacement for Steam Power Plant

Demand:
- Decreasing LPG imports by using Induction stove for 8.2 mill HH.
- Electric vehicles 400K cars and 1.7Mill motorcycles
- Gas network for 5.2 million homes.
- CNG Car 100k

2026 – 2030

NDC TARGET ACHIEVED

Supply:
Construction of NRE Plant capacity 10.3 GW to replace coal power plant

Demand:
- Decreasing LPG imports by using Induction stove for 18.2 mill HH.
- Electric vehicles 2Mill cars and 13Mill motorcycles
- Gas network for 10million homes.
- CNG Car 300k
- DME usage to subtitute LPG for 20,4Mill HH

2030: Emission Reduction 314 Mill

2031– 2035

2035: Emission Reduction 475 Mill

Supply:
- No additional Fosil Power Plant
- No Gasoil Power Plant
- Retirement Coal Power Plant 6 GW*)
- NRE Plant: Solar PV 99 GW, Hydro 3,1 GW, Bioenergy 3,1 GW dan Geothermal 5,6 GW
- Hydrogen 328 MW
- Battery use 7 GW

Demand:
- Induction Stove for 28,2 Mill HH.
- EV 5,7Mill Car and 46,3Mill motorcycles
- Gas network untuk 15,3Mill homes.
- CNG Car 800K

2036 – 2040

Supply:
- Retirement Coal power plant 3 GW*)
- NRE Construction: solar PV 68,5 GW, Wind power plant 9,4 GW, Hydro 3,7 GW, Bioenergy 7,8 GW, and geothermal 1 GW
- Hydrogen use 332 MW
- Battery use 46 GW

Demand:
- Induction Stove for 38,2 Mill HH.
- EV 12,3 Mill Car and 105Mill motorcycles
- Gas network untuk 20,3Mill homes.
- CNG Car 2Mill

2040: Emission Reduction 796 Mill

2041– 2050

2050: Emission Reduction 956 Mill

Supply:
- Retirement Coal Power Plant 31 GW*)
- NRE Plant : Solar PV 180,2 GW, Wind power plant 17,5 GW, Hydro 13,7 GW, Bioenergy 23 GW, Geothermal 3 GW, Ocean Current 1,3 GW and Nuclear 5 GW
- Hydrogen 9 GW
- Battery use 151 GW

Demand:
- Induction Stove for 48,2 Mill HH.
- EV 38,2 Mill Car and 205Mill motorcycle
- Gas network untuk 23,4Mill homes.
- CNG Car 2,8Mill

2051 – 2060

Supply:
- Retirement Coal power plant 8 GW*)
- Retirement Gas and Steam Power Plant 8 GW
- NRE Construction : Solar PV 8,2 GW, Wind power plant 11,6 GW, Hydro 37,9 GW, Bioenergy 2,1 GW, geothermal 3 GW, Ocean Current 12,1 GW and Nuclear 30 GW
- Hydrogen use 52 GW
- Battery use 140 GW

Demand:
- Induction stove for 58Mill HH.
- EV 69,6Mill Car and 229Mill motorcycles
- Gas Network 23,9Mill HH.

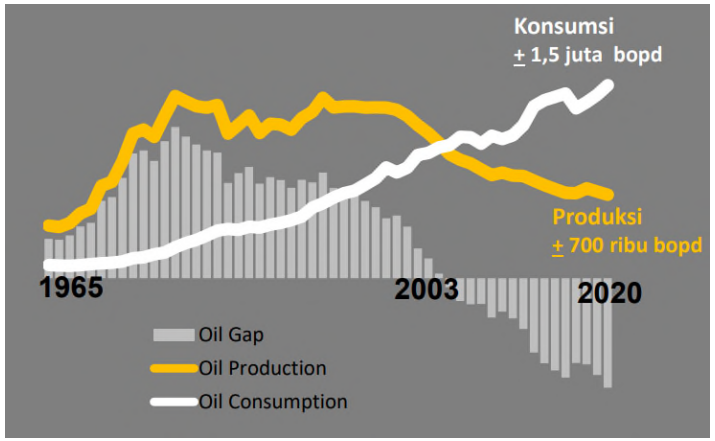
2060: Emission Reduction 1.526

Innovative low emission technology such as CCS/CCUS technology in some extent could be implemented in existing fossil power generation to accelerate the emission reduction while transitioning to a cleaner and greener energy

*) Coal Power Plant & Power Private Utility (PPU) maximum 30 years and IPP 25-30 years (as in PPA)

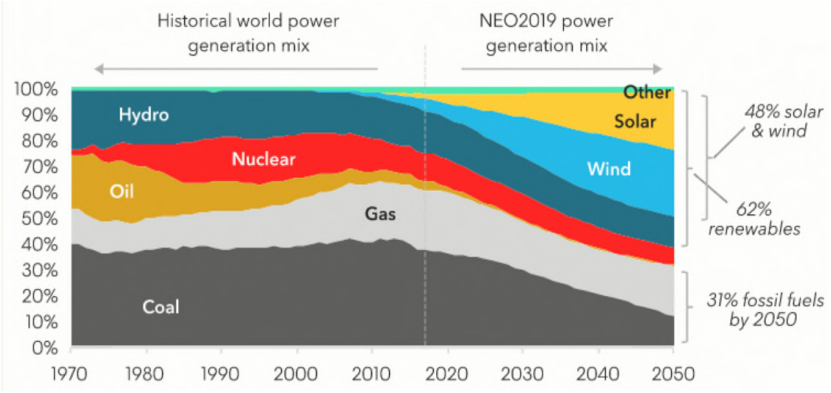
Challenges in Upstream O&G Industries:

Nowadays: Production Decline; In The Future: Energy Transition Policies

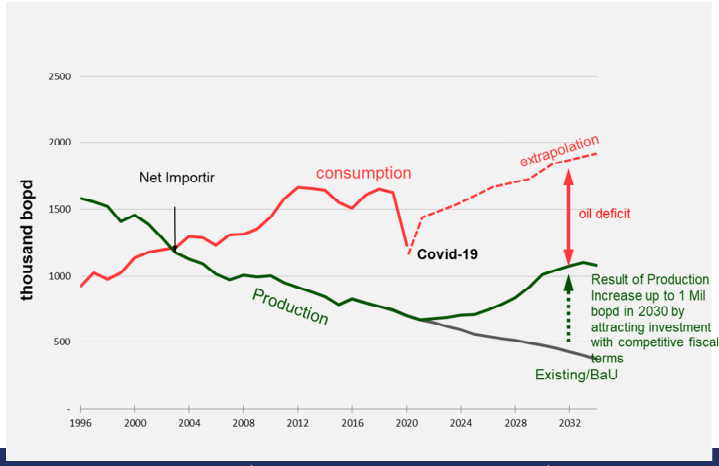


Increase of Oil Production could:

- Decrease CAD (Current Account Deficit),
- Maintain national energy security, and
- Enlarge the intensity of multiplier effect from upstream O&G industries to local and national economic growth.



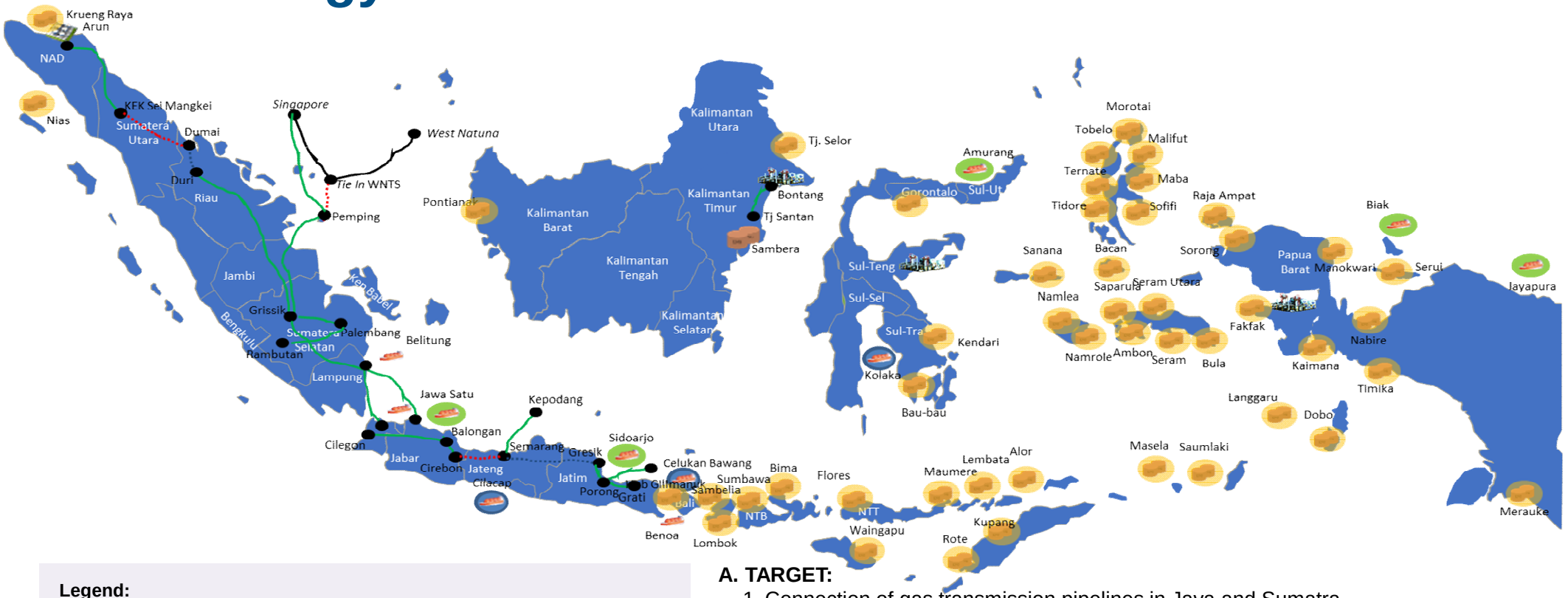
Oil production has been **continuously decreasing**, while consumption has been increasing. Impact: **increased import** and **deficit of trade balance**.



Using Gas as Transition Energy:

- Indonesia gas reserves is more abundant compared to oil reserves.
- Based on economic point of view, gas utilization most likely give positive effect
- Development planning will be more sustainable, transparent, and reliable.

Gas as Energy Transition



Legend:

- Upstream Pipe (Existing)
- Transmission Pipe (Existing)
- Transmission Pipe (On Going)
- Transmission Pipe (Planning)
- Mini Regas LNG (Existing)
- LNG Refinery (Existing)
- FSRU/FSU&FRU/FSRB (Existing)
- Land Based LNG Terminal (Existing)
- FSRU/FSU&FRU/FSRB (Planning PT PLN)
- FSRU/FSU&FRU/FSRB (Planning Business entity)
- Mini Regas LNG (Planning PT PLN)

A. TARGET:

1. Connection of gas transmission pipelines in Java and Sumatra.
2. Providing gas in the region (location according to the RUPTL plan).

B. ACCELERATION:

1. Build the Cirebon-Semarang gas pipeline +260 km.
2. Build of the Dumai-Sei Mangkei gas pipeline +360 km.
3. Build Mini Regas and FSRU/FSU&FRU.

C. UTILIZATION:

Increasing the domestic use of natural gas

Terima Kasih

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