



Coal Policy Scenarios in Indonesia's Energy Transition



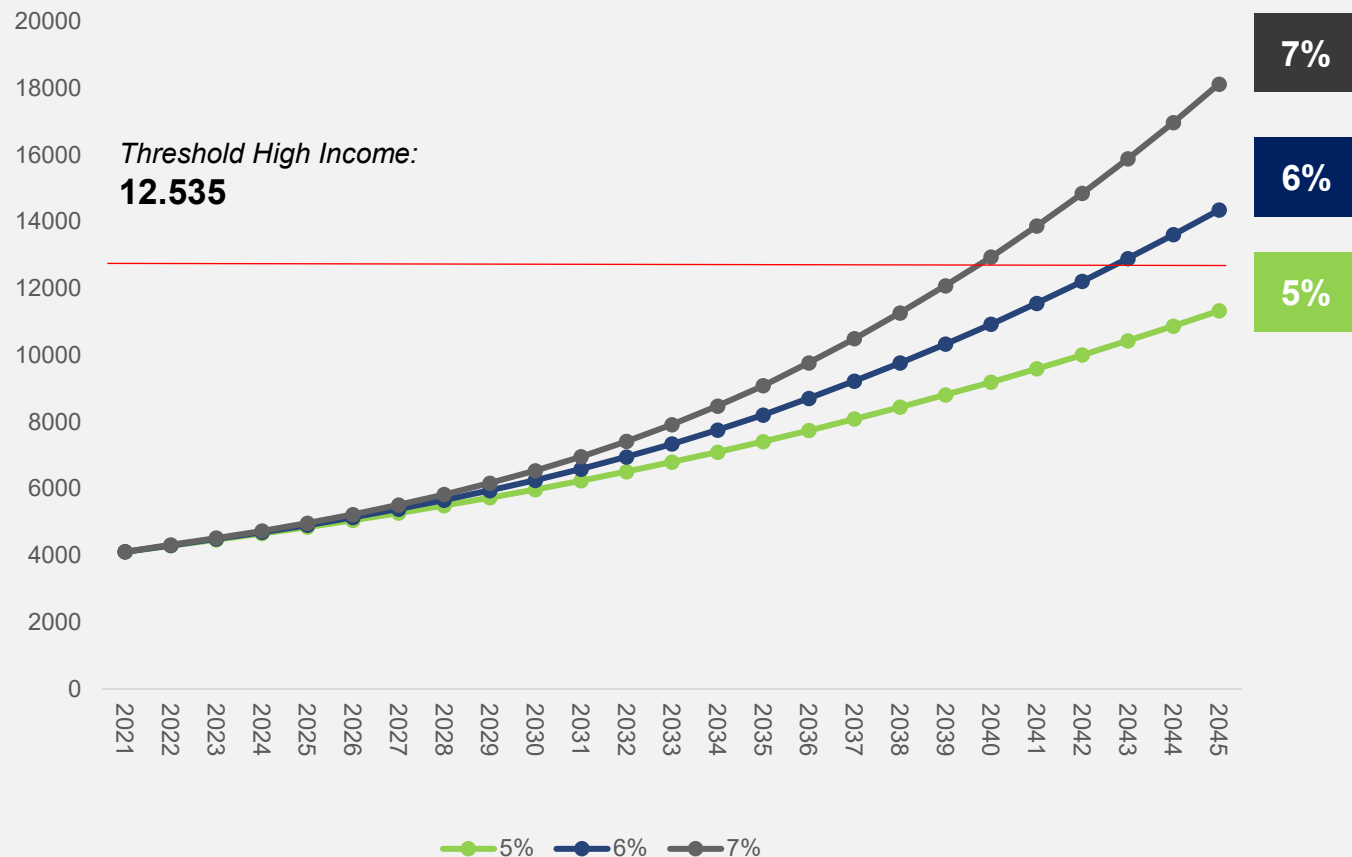
Present on

Webinar Just Transition in Action - Rethinking traditional project development and support tool kits and policies

24 March 2022

Indonesia needs **Economic Transformation** as a long-term strategy to **escape the Middle Income Trap** and **rise from current economic challenges**

PROJECTION OF PER CAPITA INCOME
(USD per Capita, Atlas Method)



Without economic transformation, it will be difficult for Indonesia to get out of the Middle Income Trap before 2045

Structural Change

The shift in the economic structure from the less productive sector to the more productive sector (industrialization), the shift in productivity between sectors.

Green Economy

One of the economic transformation strategies is the **green economy** as a development model that synergizes economic growth and improves environmental quality, carried out through a **Low Carbon Economic and Energy Transition**.

MINING IN THE ECONOMIC RESILIENCE AGENDA FOR QUALITY AND FAIR GROWTH (NATIONAL PRIORITY RPJMN 2020-2024)

The President's Vision and Mission

- 1 Improving Humant Development
- 2 Productive, Independent, and Competitive Economic Structure
- 3 Equitable and Just Development
- 4 Achieve Environmental Sustainability
- 5 Cultural Progress that Reflects National Characteristics
- 6 Dignified and Trusted Judiciary Free from Corruption
- 7 Providing Protection and Security for All Citizens
- 8 Managing a Clean, Effective, and Reliable Government
- 9 Synergy of Regional Governments in the Framework of a Unitary State

President's Directives

- 1 Human Resource Development
- 2 Infrastructure Development
- 3 Regulatory Simplification
- 4 Bureaucratic Simplification
- 5 Economic Transformation

7 DEVELOPMENT AGENDAS

- 
1 Strengthening economic resilience for quality and equitable growth
- 
2 Developing regions to reduce inequality and ensure equity
- 
3 Increasing quality and competitiveness of human resources
- 
4 Mental revolution and cultural development
- 
5 Strengthening Infrastructure to support economic and basic services development
- 
6 Strengthening the environment and improving resilience against natural
- 
7 Strengthening the stability of political, legal, and security affairs and the transformation of public services

DEVELOPMENT OBJECTIVES OF THE ENERGY AND MINING SECTOR IN RPJMN 2020 - 2024

Optimally Fulfilling Domestic Needs



Mining production must be controlled in line with domestic needs, especially industry and from the demand side it must be pushed through a longer and more diverse production chain process

Value Added Improvement

Value-added energy and mining resources are added as raw materials for domestic industries



Role in Regional Development

- Energy and Mining Resources play a role in supporting the regional economy, both large and small scale
- Increased multiplier effect on forward-backward linked industries
- Creating new centers of economic growth
- Increased employment

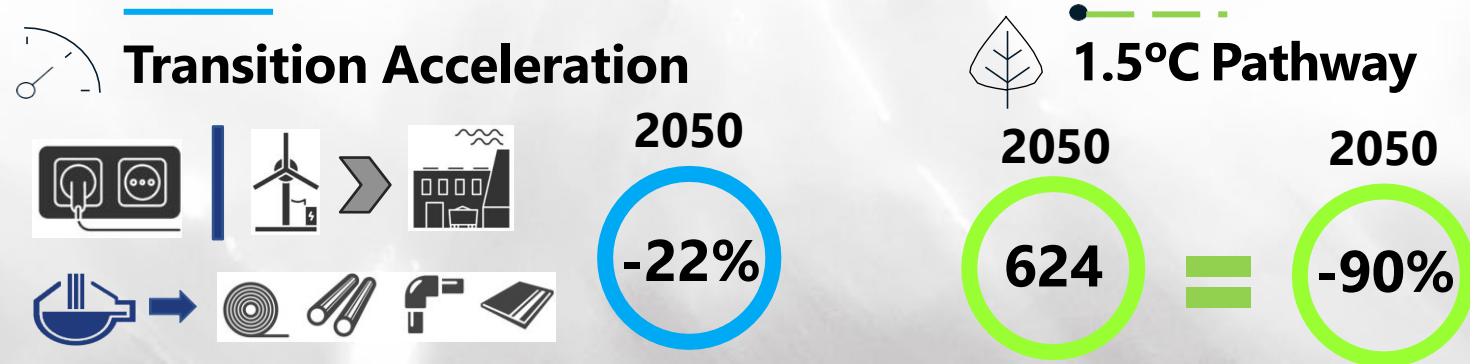
GLOBAL SUPPLY-DEMAND COAL PROJECTION

In the Reference Case, coal demand will fall by **-25%** in 2035 and **-40%** in 2050

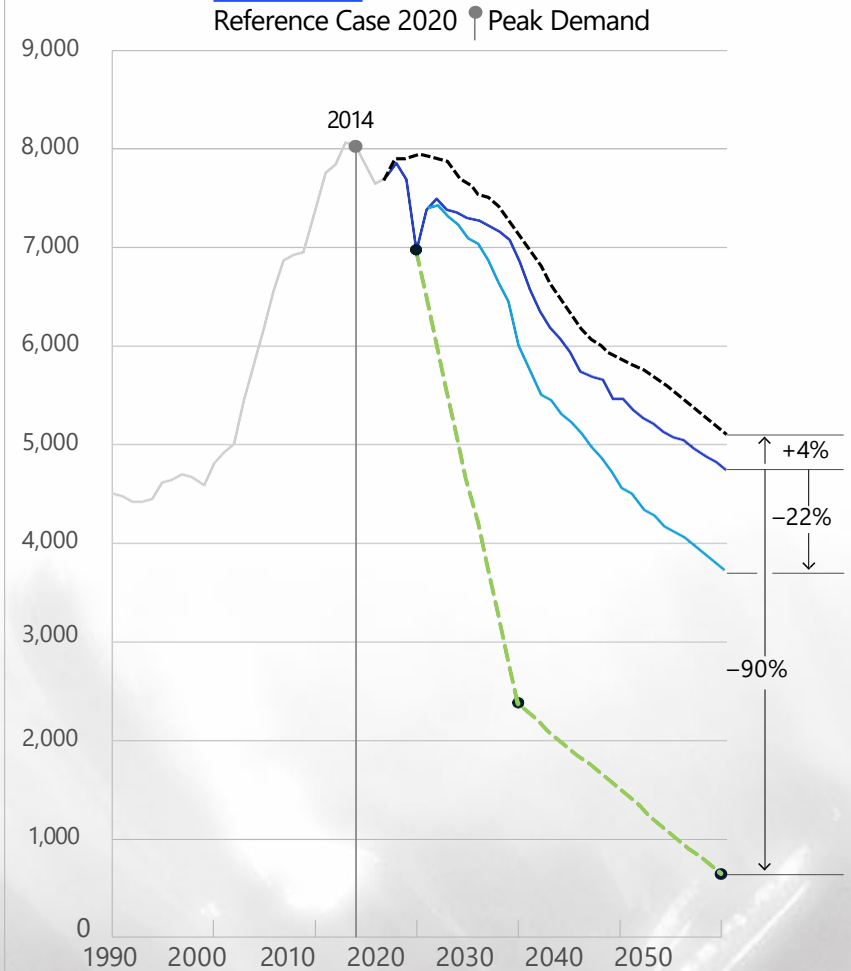
Scenario Description

Reference Case

The decline in coal demand by **-40%** (4.731 million tons) in 2050 is due to the tightening of environmental regulations, especially for power plants, as well as the increase in the use of NRE as a primary energy source.



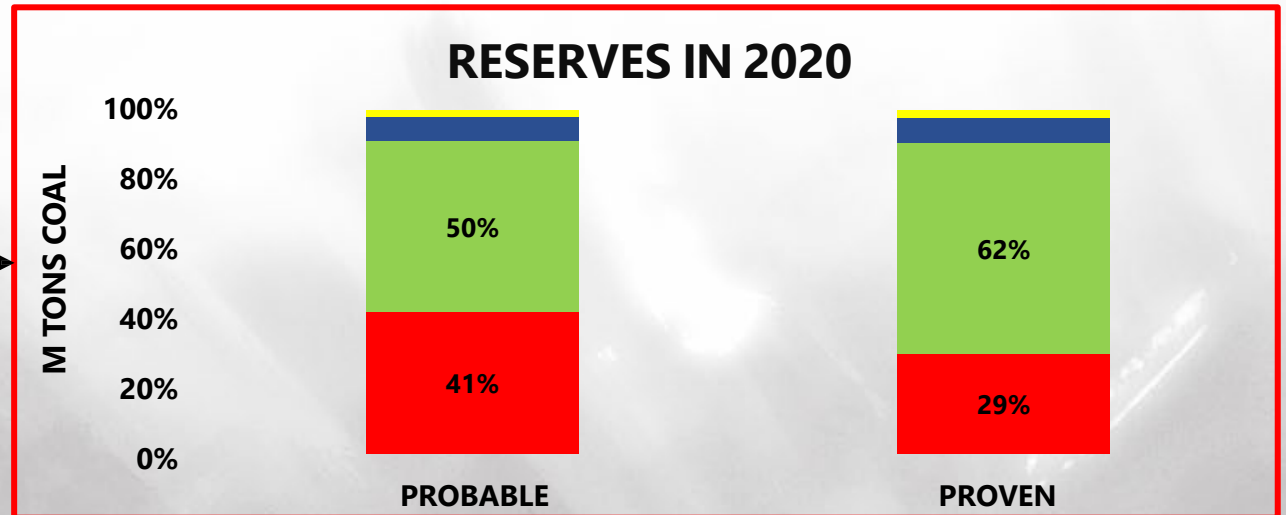
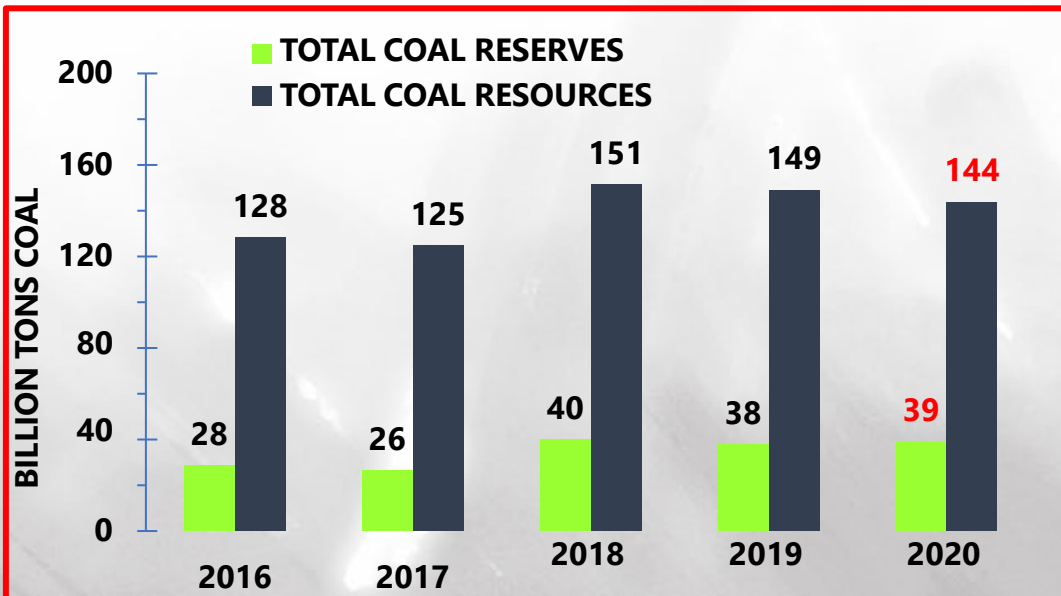
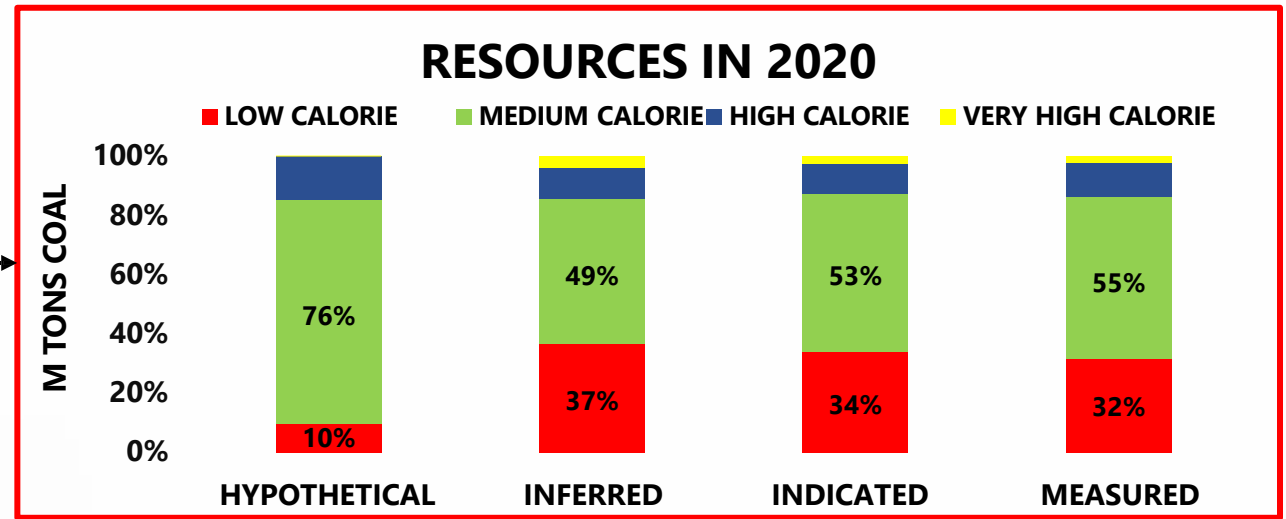
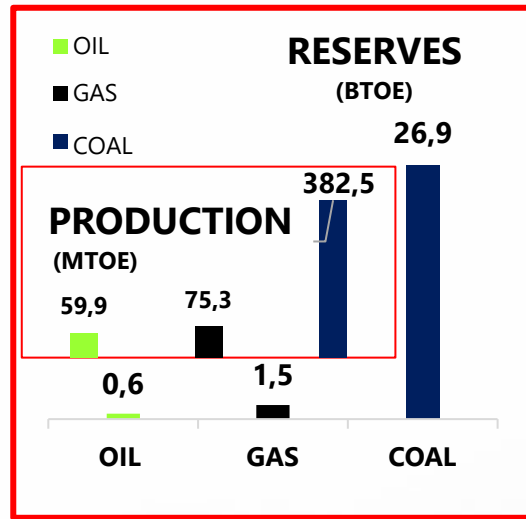
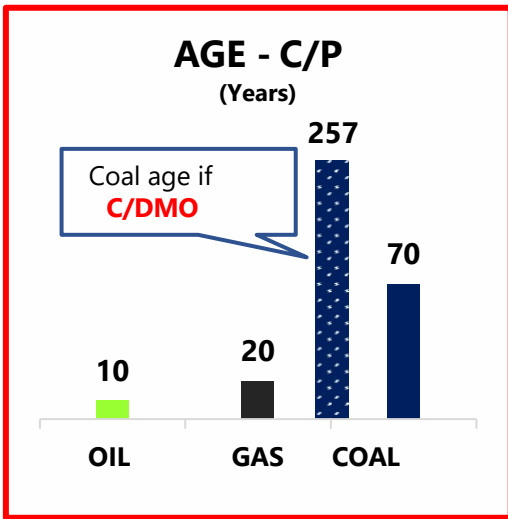
Global demand projection scenario *, Mtce



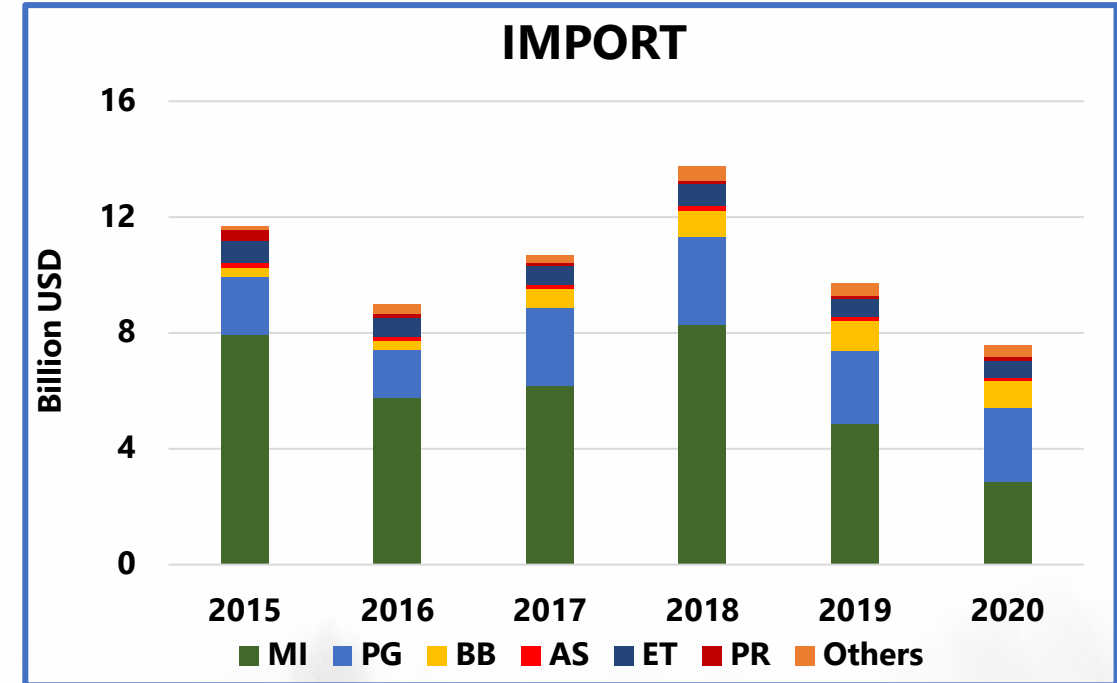
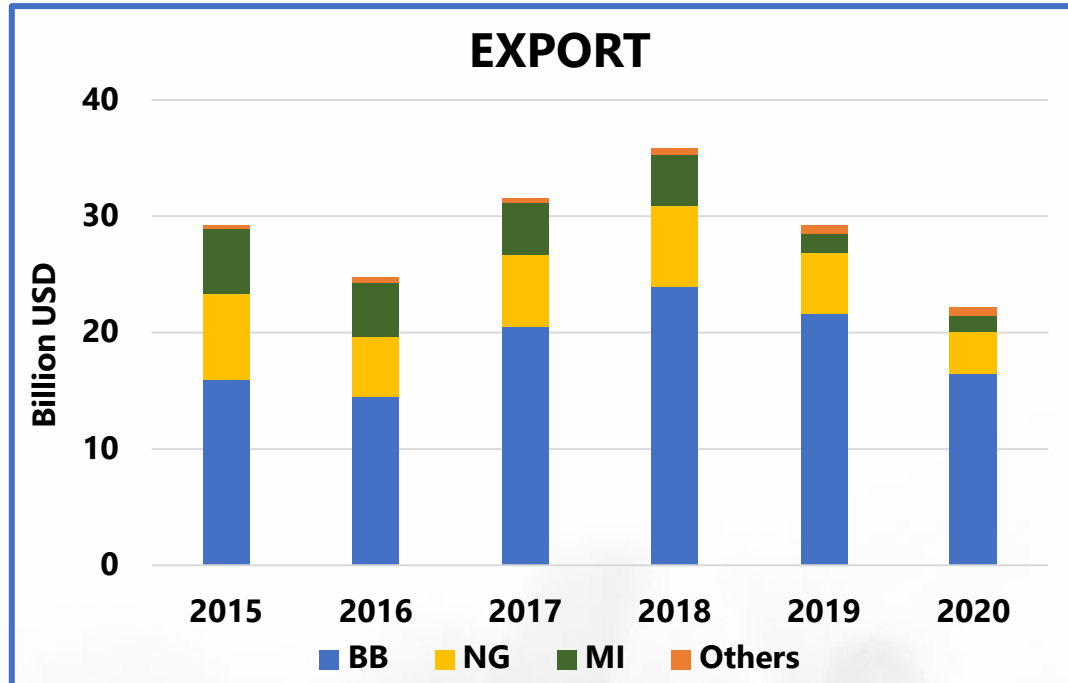
Peak Demand of coal as a primary energy source **has passed (2014)**. In the future, there will be a transition to the use of coal as a carbon source, either for chemical raw materials or advanced carbon materials.

RESOURCES BALANCE AND COAL RESERVES

Mastery of mining technology, processing and development of low and medium calorie coal are required



HISTORY OF ENERGY INDUSTRY EXPORT-IMPORT AND UPSTREAM PETROCHEMICAL



- **Coal (BB), Natural Gas (NG) dan Sweet Crude Oil (MI)** are the biggest export contributor
- **LPG (PG) dan Sour Crude Oil (MI)** contribute the most to energy imports
- **Coal downstreaming** aims to reduce the **import deficit**:
 1. **DME** substituting **LPG**
 2. **Gasolin** from **Methanol** to reduce oil import
 3. **Etilen & Propilen** (from **Metanol**) as **downstream petrochemical industry raw materials**

Note:

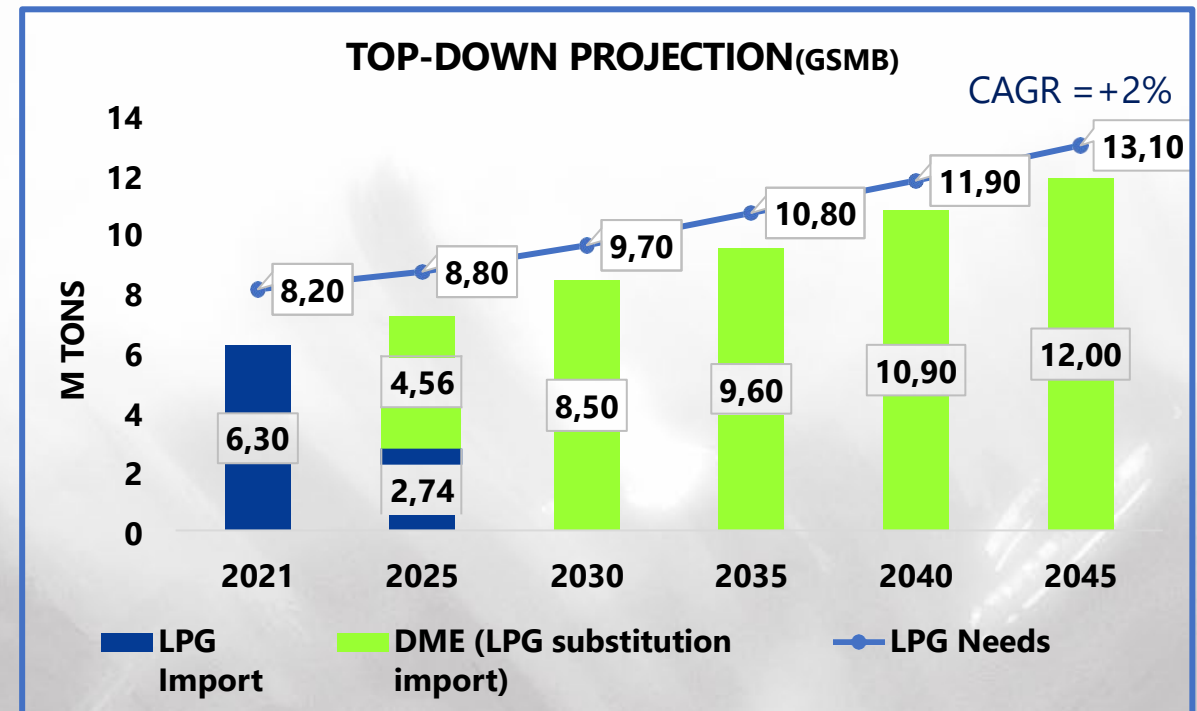
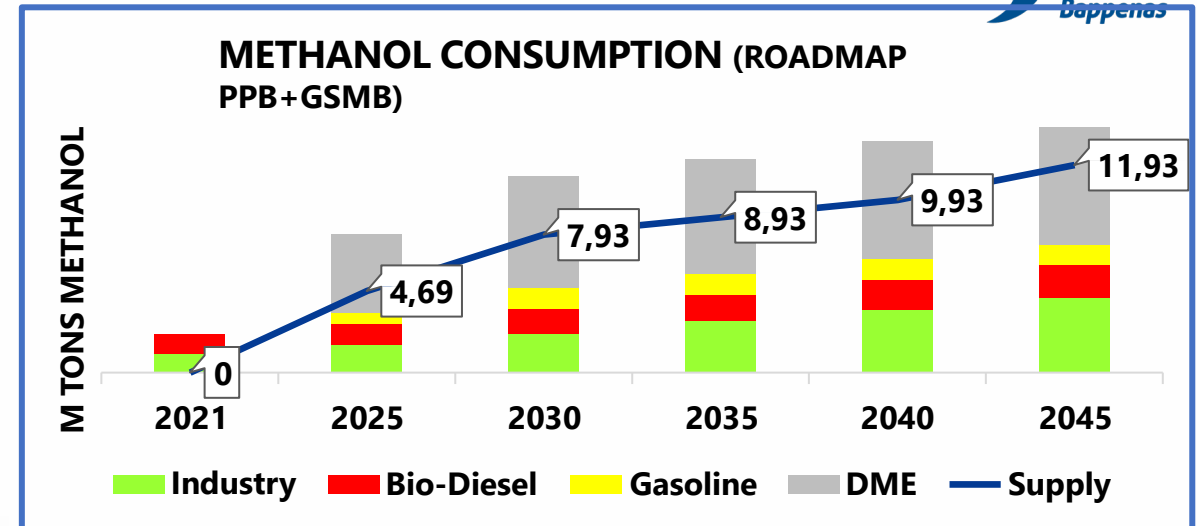
- BB : Coal
- NG : LNG
- PG : LPG
- ET : Etilen
- PR : Propilen
- AS : Ammonia sulfate
- MI : Sour Crude oil
- Others : methanol, coke, hydrogen, urea, briquettes

COAL DOWNSTREAM INDUSTRY: DIMETHYL ETHER (DME)

Converting Coal To DME Through Methanol Production

Background

- **Consumption of methanol is projected to continue to increase** both for the direct/downstream petrochemical industry needs as well as as raw material for bio-diesel, gasoline and DME.
- **LPG demand increases**, while Indonesia produces LNG
- **Import value of LPG** constituent materials (propane and butane) by 2020: **USD 2.5 billion**
- In the Grand Strategy Mineral and Mining, DME is targeted to replace the total LPG by 2030, through coal gasification and conversion to methanol



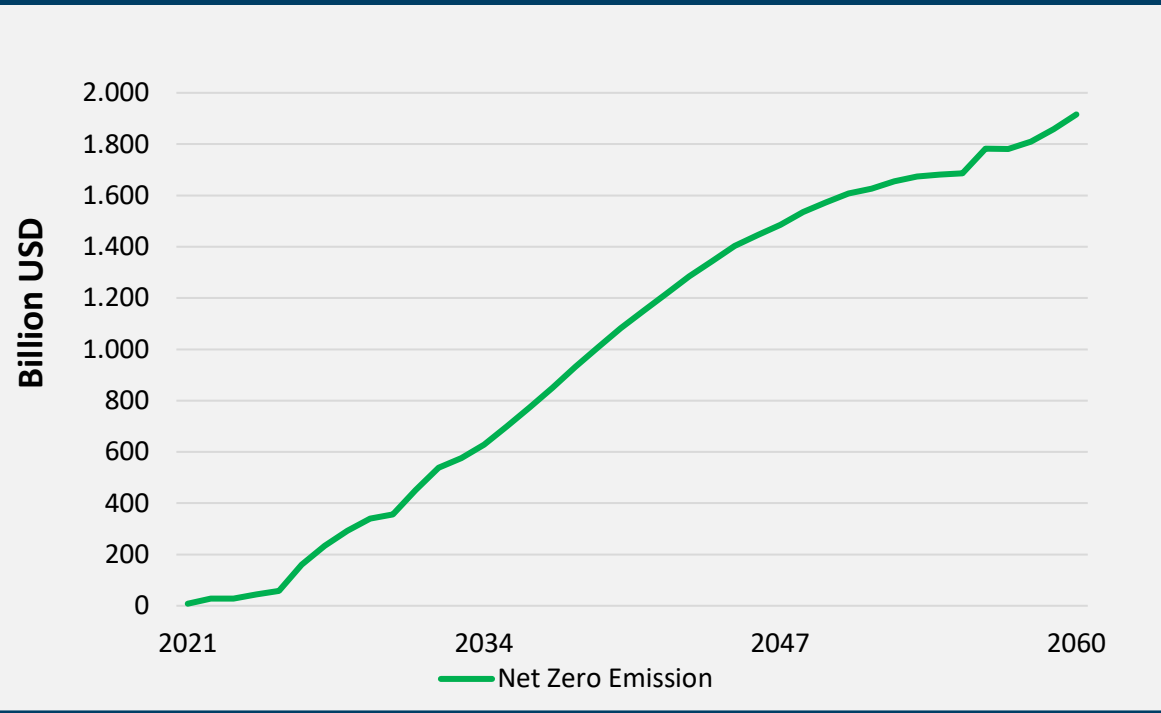
Bappenas Net-Zero Emission Scenario: Energy Sector Assumption

No.	Policies	BAU Scenario	2060 NZE Scenario
1	RE Power Plant	The proportion is relatively fixed until 2060	There is a significant increase in the share of renewable energy in power generation to near 100 percent by 2060, with the rest fulfilled by nuclear power.
2	Energy Efficiency	The final energy efficiency rate is constant at 1 percent per year	Energy efficiency rates increase progressively from 1 percent today to 6 percent in 2030 and so on.
3	Electric Vehicles	No additional electric vehicles for public and private transportation	Increase the number of electric vehicles for public and private transportation by up to 95 percent in 2055.
4	Energy subsidy	No removal of energy subsidies	Elimination of energy subsidies , whether fuel, gas, or electricity until completely by 2030.
5	Coal Utilization	No termination of coal use	Decrease in coal use to zero by 2060 across all sectors .
6	Hydrogen Fuel	No use of hydrogen fuel	Utilization of hydrogen for fuel in the transportation sector (4 percent of total transportation fuel) and industry (100 percent replacing natural gas).

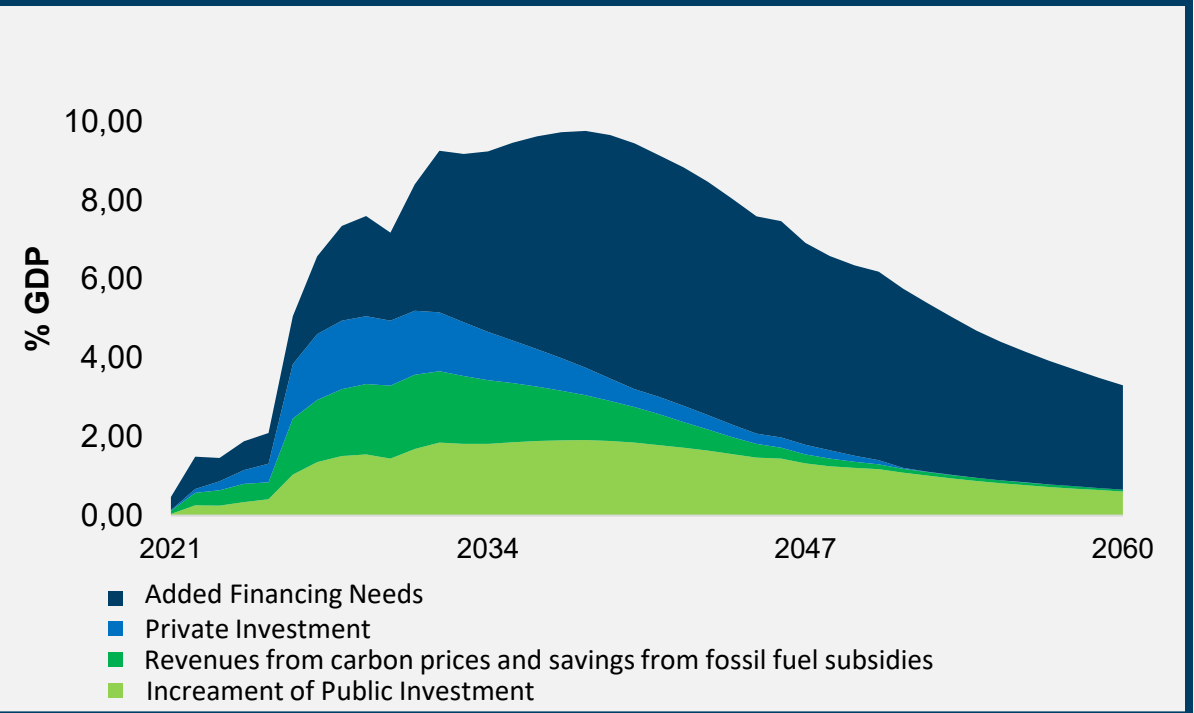
Source: Draft of NZE Exercised by Bappenas

Investment Needed to Achieve Net Zero Emission Target

Investment Needed



Main Source of NZE Scenario Financing



The investment needs for low-carbon programs are identified as very high, with an average of USD 1 trillion for the period 2021-2060. This investment need cannot be borne by the state budget alone, so that new sources of funding are needed, both from fiscal policy and private investment. In the graph to the right, additional financing needs are on average around 3-5 percent of GDP.



THANK YOU

