



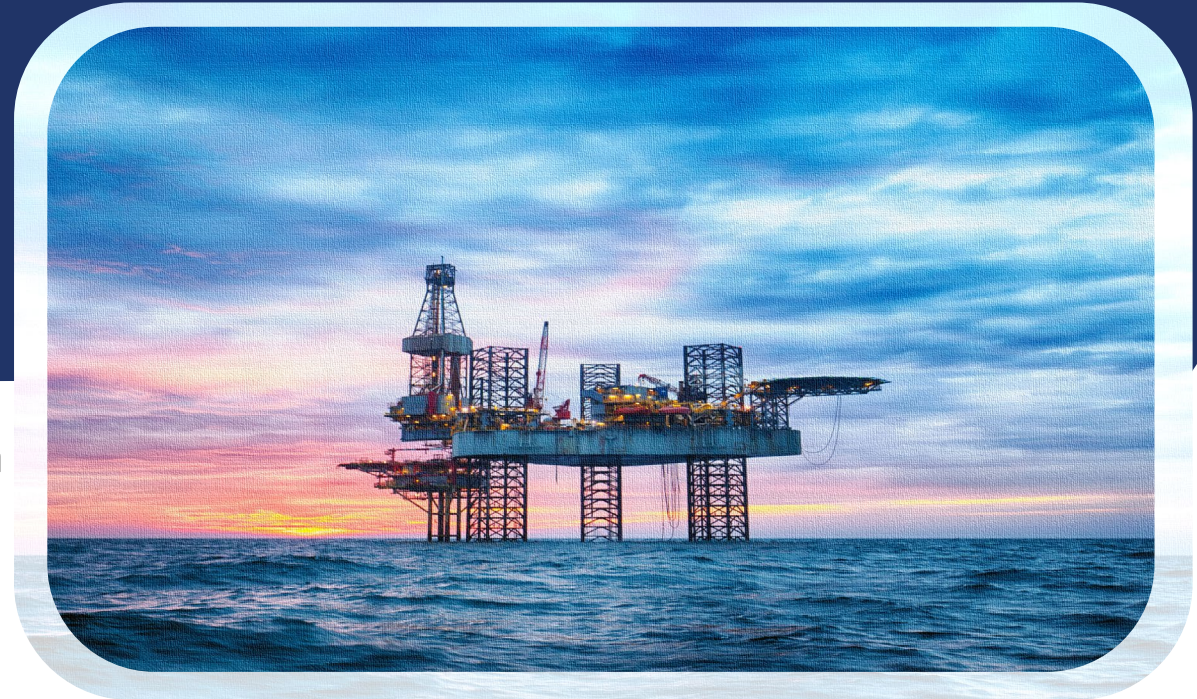
DIREKTORAT JENDERAL MINYAK DAN GAS BUMI
KEMENTERIAN ENERGI DAN SUMBER DAYA MINERAL



ASEAN
INDONESIA
2023



OIL AND GAS SECURITY IN INDONESIA



The 7 th APEC Oil and Gas Security Network Forum

Osaka, March 2024



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FRAMEWORK FOR OIL and GAS GOVERNANCE

The balance of energy security/resilience, economic growth, environmental sustainability, and social justice is crucial



CONCEPTUALIZING THE ENERGY SECURITY FRAMEWORK

Based on regulation and policy regarding energy

- ❑ The Indonesian government has placed energy security as one of its policy priorities.
- ❑ The Indonesian Ministry of Energy and Mineral Resources states that one of its missions is to provide energy security and ensure energy independence as well as increase energy's value added that takes into account environmental issues and present the greatest benefit to the welfare of the people.
- ❑ Energy Security described in terms of the 4 As (availability, accessibility, affordability, and acceptability); meaning the availability of energy at all times in various forms, in sufficient quantities, that can be accessible by most people at affordable prices, and obtained in a way that is not environmentally destructive.

Availability

The availability of energy sources and energy, both from domestic and foreign sources

Affordability

The affordability of consumers towards energy prices

Acceptability

The use of environmentally-friendly energy (on land, sea, and air), including societal acceptance

Accessibility

The ability to access energy sources, energy network infrastructure, including geographic and geopolitical challenges

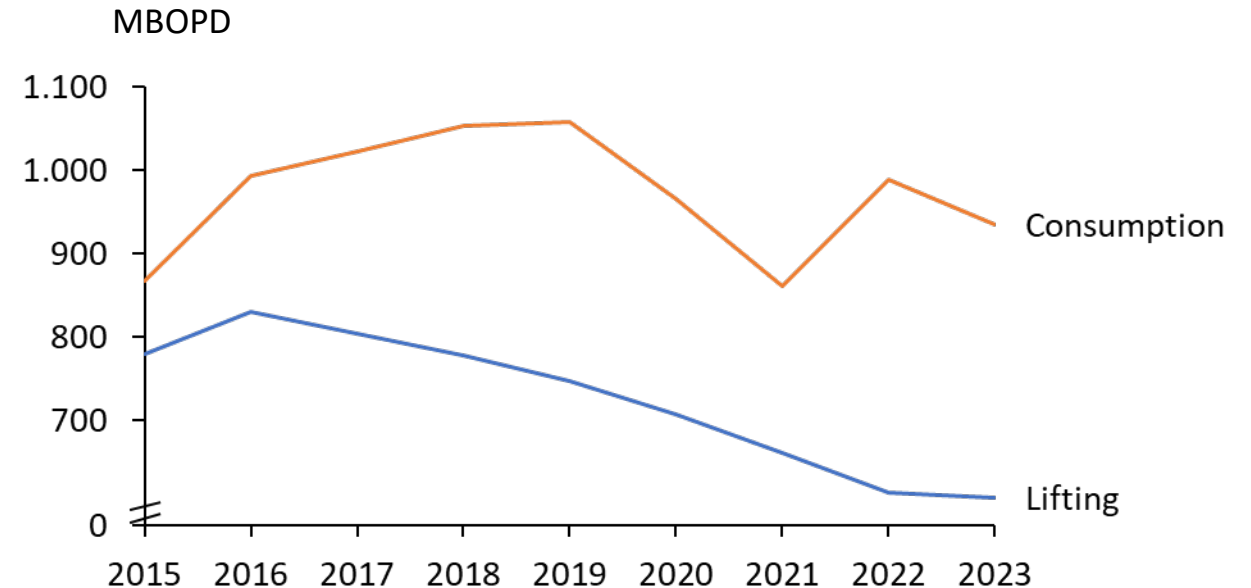
The rising demand and competition for energy resources, coupled with concerns about potential resource depletion, as well as high prices and the impacts of climate change, are the primary reasons why energy security has become so important recently



INDONESIA'S CRUDE OIL LIFTING AND CONSUMPTION

The issue of energy security became even more complex when in 2005 Indonesia became a net importer of oil

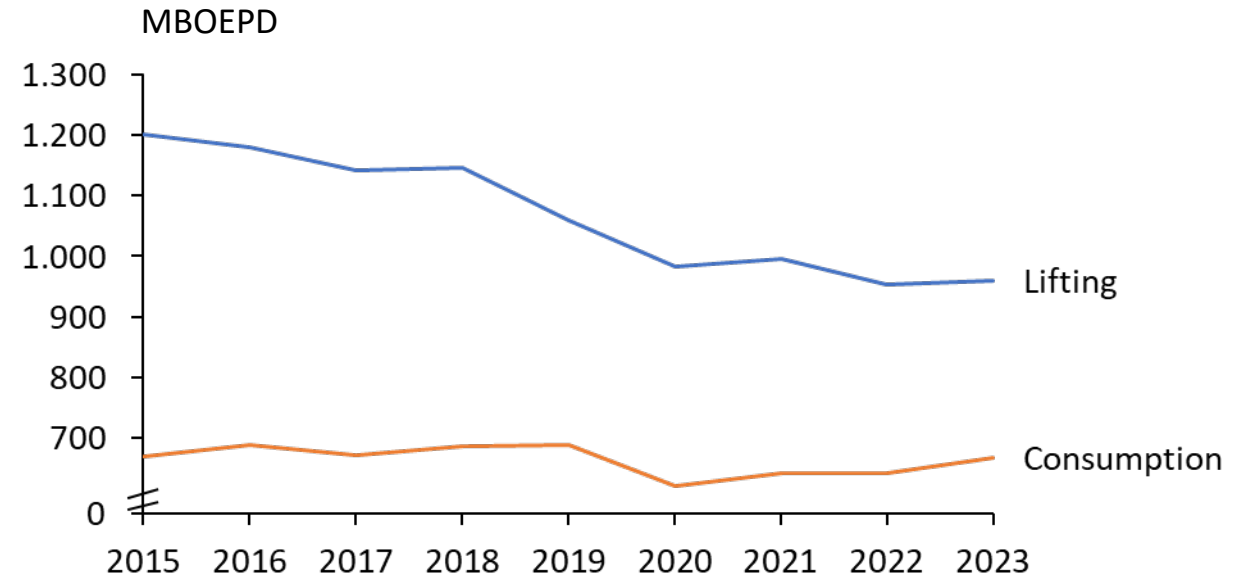
- Crude oil lifting, upon which Indonesia has traditionally relied for its energy needs and domestic oil reserves, has been consistently declining since 2015.
- A primary factor contributing to this downward trend lifting is the geographical distribution of newly discovered reserves, predominantly situated in remote regions characterized by technically demanding exploration conditions with higher production cost.
- On the other hand, crude oil consumption slightly declined throughout the 2020-2021 period amidst the Covid-19 pandemic. Moreover, crude oil consumption greatly depends on refining capacity. The crude oil consumption could be improve if there is additional domestic refining capacity.
- The greater gap between crude oil consumption and crude oil lifting will increase imports and pose a risk to national energy security.



INDONESIA'S NATURAL GAS LIFTING AND CONSUMPTION

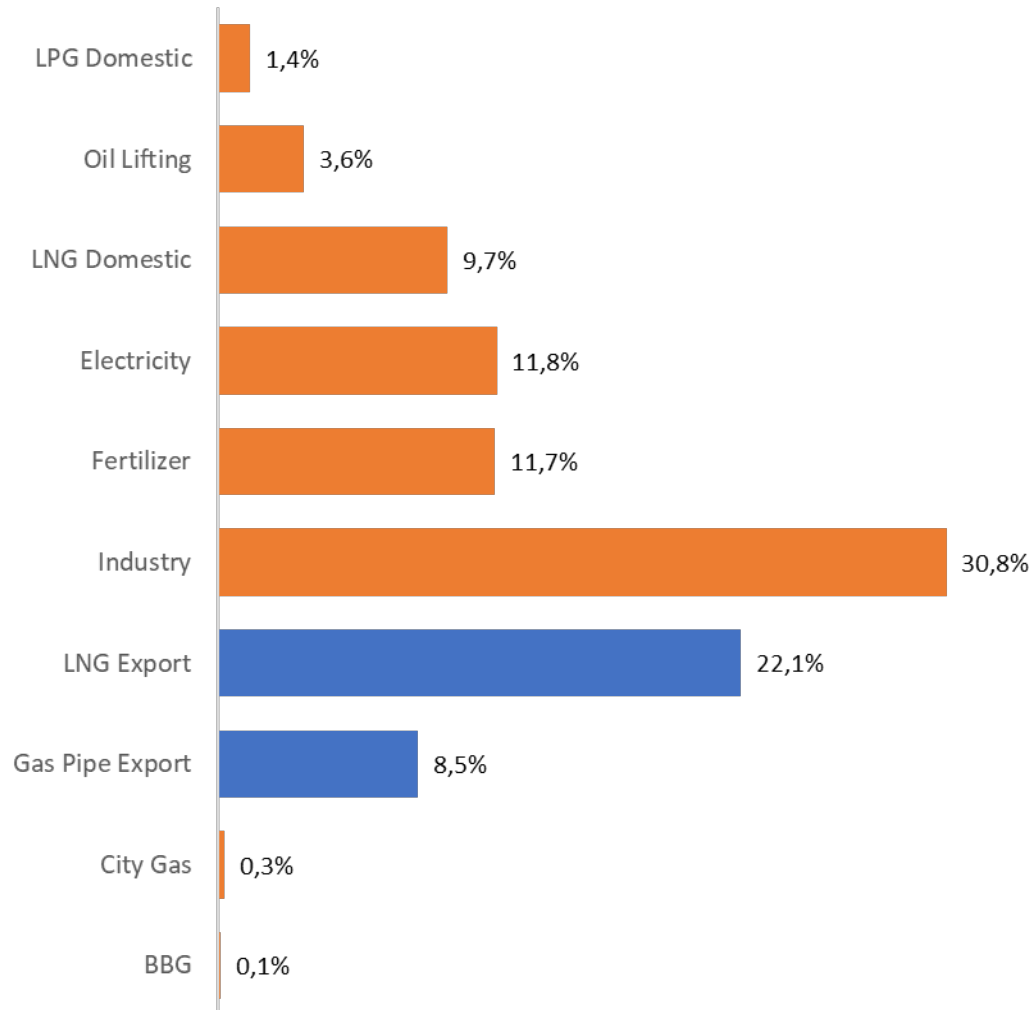
From the supply perspective, natural gas can be the primary reliance of Indonesia's energy security.

- The lifting of natural gas has declined due to the natural depletion of gas fields.
- The majority of Indonesia's domestic gas production comes from fields that are already in production. However, significant reserve potential lies in fields that remain undeveloped due to high costs, such as East Natuna, which has high CO2 content.
- However, the amount of natural gas produced is still higher than consumed, thus the surplus is exported.
- Natural gas consumption has remained stagnant since 2015 due to the insufficient large-scale development in gas-consuming industries. Furthermore, most power plants still primarily rely on coal as their main fuel source.



INDONESIA'S NATURAL GAS CONSUMPTION BY SECTOR IN 2023

Analysed by sector, the end-users are categorised into industrial, household, commercial, transportation, and other sectors, with the industrial sector leading Indonesia's energy consumption with nearly half of the total.

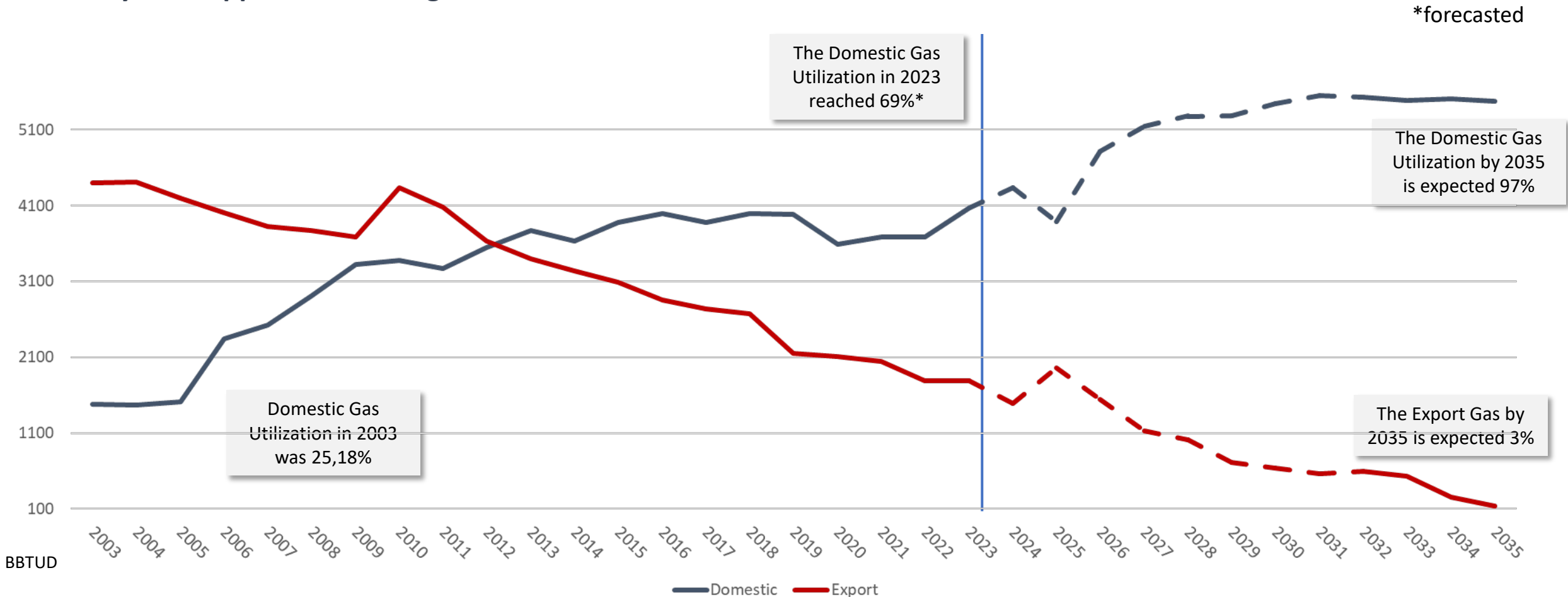


- The priority order for natural gas utilization :
 - ✓ Government programs for transportation, household, and low-income customers
 - ✓ Increase in national oil and gas production (lifting)
 - ✓ Fertilizer industry
 - ✓ Natural gas based-industry
 - ✓ Electrical power supply
 - ✓ Industries using natural gas as fuel
- LNG processing business activities and CNG trading are treated as industries that use natural gas as fuel
- The industrial sector is the largest gas consumer, followed by the electricity sector. Meanwhile, Transportation sector and household are among the smallest natural gas users in Indonesia.
- LNG domestic mainly used for electricity, while LNG export to fulfill long-term contracts with foreign buyers
- Natural gas in the industrial sector is mostly used as fuel, while in the fertilizer sector it is used as a raw material

EXPORT VS DOMESTIC GAS UTILIZATION COMPARISON

Since 2012, Domestic Gas Utilization is higher than Gas being Exported

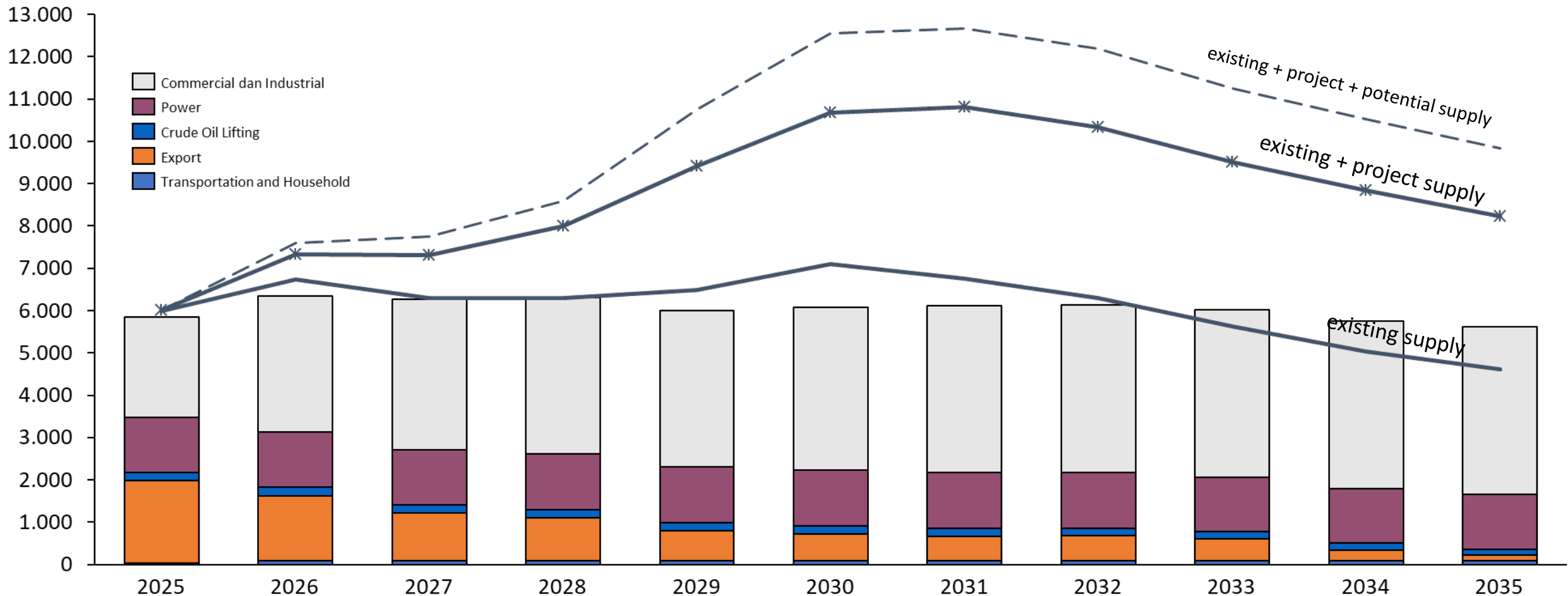
Indonesia is expected to remain a net exporter of natural gas in the coming years. However, The Indonesian government really committed on increasing the use of gas for domestic purposes and reducing exports gradually to maintain energy security and support economic growth.



INDONESIA'S GAS BALANCE 2025-2035

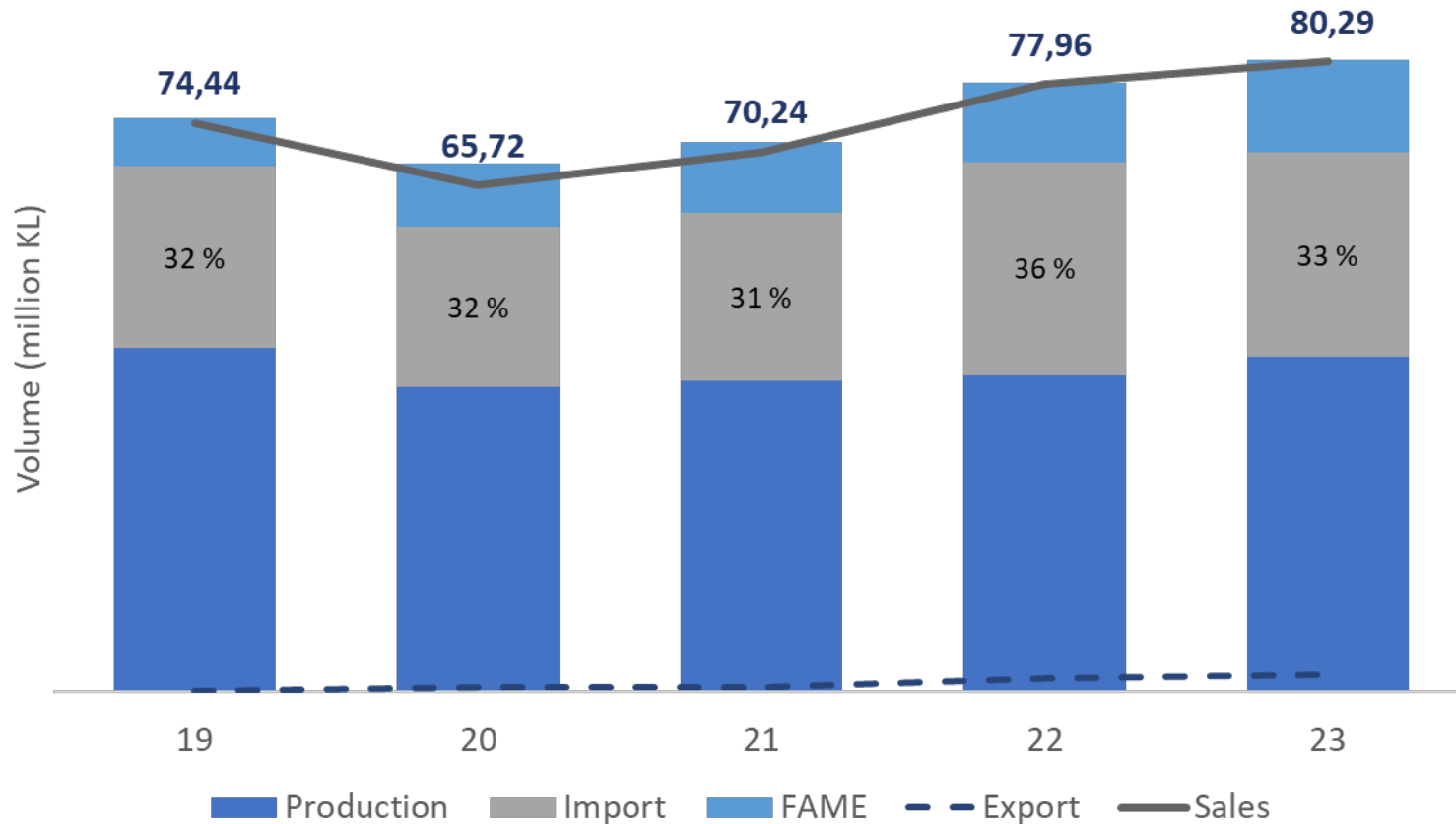
Demand gas expected to be stable until 2035; additional capacity through expansion projects scheduled to begin coming online in late 2023

Indonesia's gas production based existing supply is expected to decline in the coming years due to the naturally depletion of existing gas fields. Indonesia is also exploring the possibility of developing new gas fields, but this process will require time and investment. If the project supply cannot be completed on schedule, there is possibility that Indonesia import more LNG to meet the demand of natural gas.



SUPPLY DEMAND OF FUEL OIL IN INDONESIA

Indonesia still heavily rely on Fuel Oil especially for transportation sector



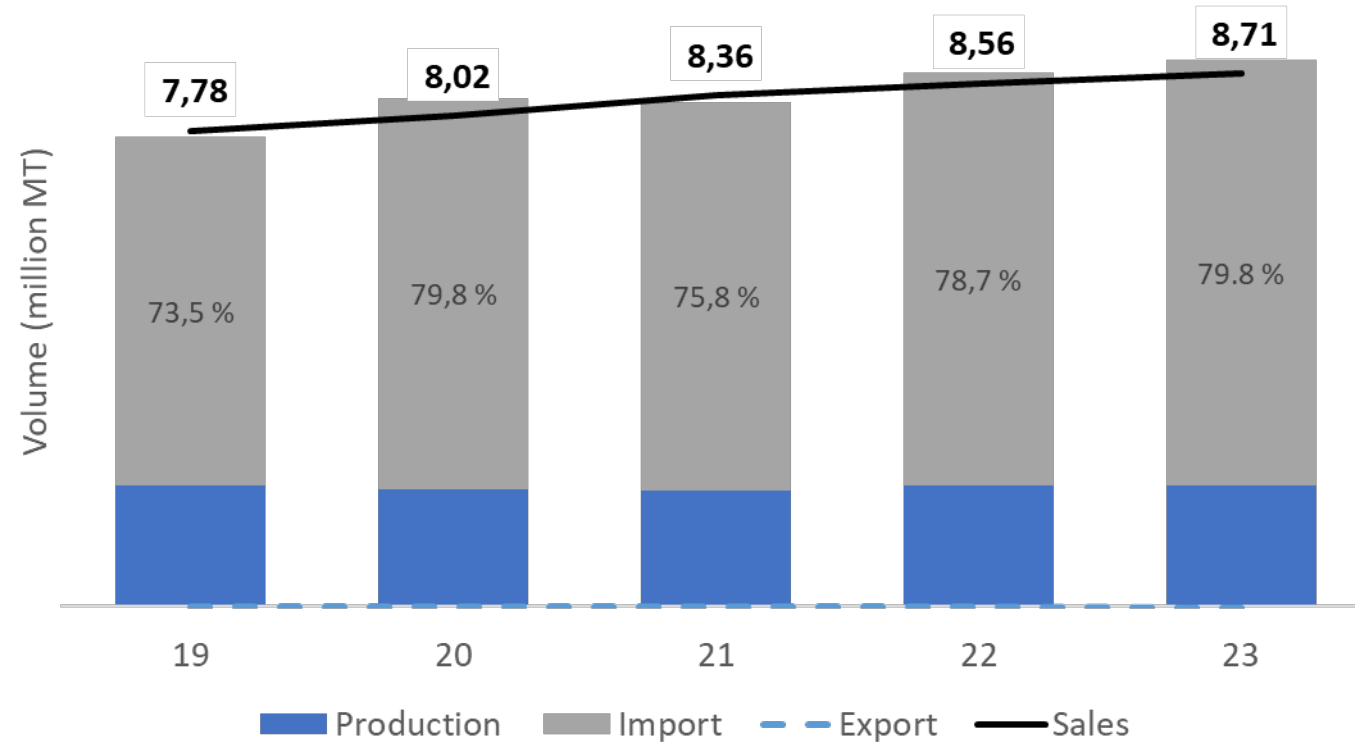
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- The sales of Fuel Oil, which represent the demand declined in 2020 and 2021 due to Covid-19, gradually recovering after lockdown policies were revoked and the economy started to improve.
- Indonesia has been using FAME (Fatty Acid Methyl Esther) for blending Biodiesel since mid-2018. In 2023, the percentage of FAME in Biodiesel reaches 35% volume.
- The mandatory biodiesel policy significantly helps reduce petroleum/Fuel Oil imports, concurrently adding value and bolstering the country's foreign exchange reserves
- Fuel Oil import is dominated by Gasoline and Diesel products.



SUPPLY DEMAND OF LPG IN INDONESIA

Household sector and small enterprises predominantly using LPG as main fuel



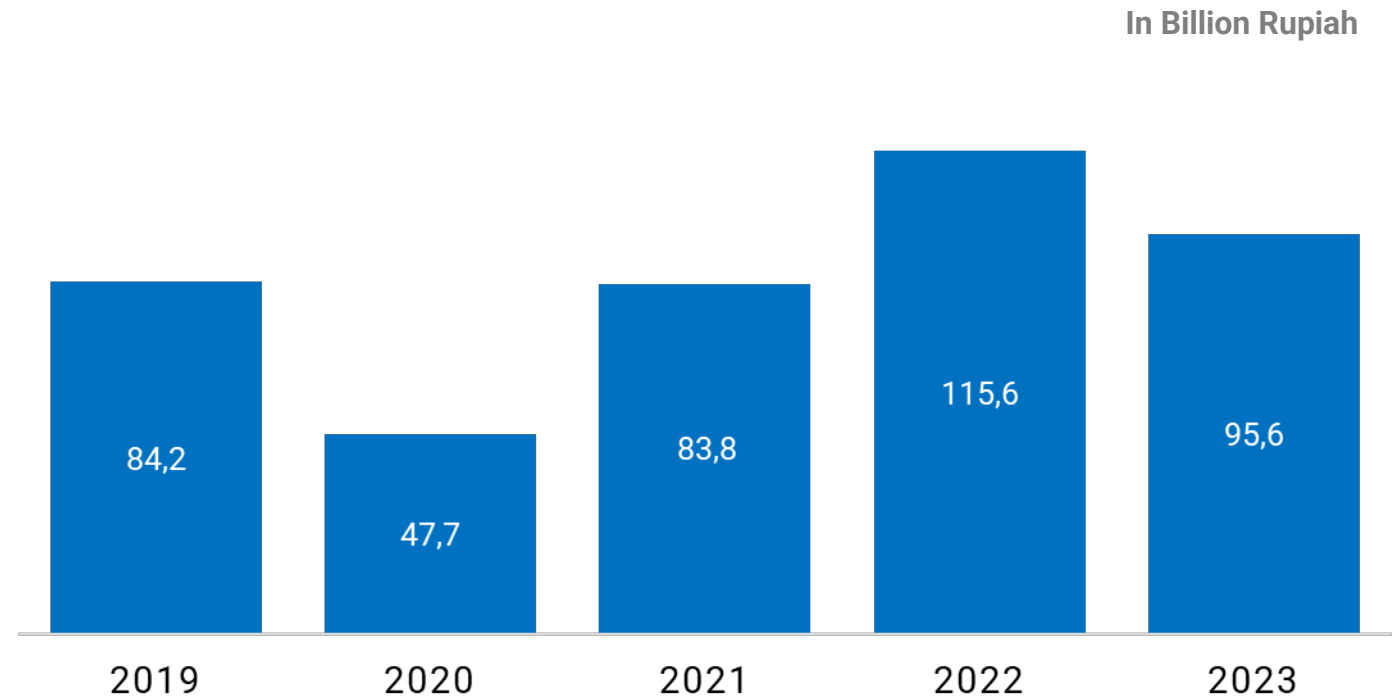
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- LPG used in Indonesia is a mixture of 50% propane and 50% butane.
- The sales of LPG are used as a demand proxy in the data, which indicates consistent increases during 2019 until 2023.
- The increase in LPG consumption is in line with population growth and the unchanging position of LPG as the primary fuel in the household sector
- There was no impact of Covid-19 to LPG Demand in 2020-2021.
- The stagnation in domestic LPG production is attributed to the decline in feedstock availability, primarily deriving from the characteristic composition of natural gas, which predominantly consists of methane.

FUEL SUBSIDY in INDONESIA

Subsidies in Diesel, Gasoline and LPG is still given to maintain people's purchasing power

- Government of Indonesia regulating domestic fuel prices and maintaining the price at certain level in order to avoid unwanted inflation surge and economic contraction.
- The main goal is to protect purchasing power of the low-income groups. In the meantime fuel subsidies place a heavy burden on the government especially when crude oil prices are high.
- Increasing the domestic price of fuel typically creates social and political unrest and so it can only be implemented progressively.
- The government will implement targeted transformation of LPG subsidies, which were previously commodity-based, to become people-based in the future.



* 2023 unaudited



STRATEGIES FOR ENHANCING OIL AND GAS SECURITY

The strategies are aimed at addressing the main issues towards national energy security

❑ **Shift away from oil and increase natural gas consumption as energy transition**

Natural gas is an alternative energy source that is the main choice in the energy transition because it is in sufficient quantity and is relatively more environmentally friendly. Various efforts will be made to maintain production rates and increase gas reserves through the discovery of new fields and also

❑ **Implementing targeted subsidy policies**

Indonesia has started developing plans to more seriously reduce inefficient energy subsidies by improving the mechanisms for purchasing subsidized LPG and fuel oil. Alongside the implementation of targeted subsidies, there is also a focus on implementing fair market pricing.

❑ **Increase in Crude Oil Production**

- Encouraging increased production both from technical aspects and regulatory support.
- Promoting the acquisition of potential oil and gas fields overseas.
- Providing incentives for the economy of oil and gas fields

❑ **Increase in Oil Refinery Capacity**

- Obtain project funding through financing or facilitation in acquiring strategic partners for new refinery development
- The refinery products are designed to have lower emissions, with processing units based on green energy
- Optimally utilizing domestic fossil energy resources and gradually diversifying towards new renewable energy sources

❑ **Substituting LPG through the Utilization of Natural Gas**

Encouraging the development of household gas network infrastructure to reach a wider population



KEY POINTS OF GAS AS ENERGY TRANSITION

Management of Gas Strategy During Energy Transition Period

1. The short-term gas management strategy is focused on energy security, which includes availability, accessibility, affordability, and post-Covid-19 economic recovery. Therefore, the Indonesian Government will prioritize the use of gas for domestic purposes in the coming years and maintain gas prices at a certain level of economic viability.
2. In the long-term strategy, there will be a balanced policy recognizing the crucial role of natural gas in sustainable development as a key facilitator of the energy transition, alongside renewables. However, it is important to avoid excessive emphasis on affordability, as it could potentially lead to future supply challenges.
3. To secure its supply, Indonesia continues to carry out gas production from existing fields, develop conventional and unconventional fields, and increase production through workovers and Enhanced Gas Recovery (EGR) techniques.
4. Investing in natural gas is crucial to guarantee a dependable and cost-effective energy supply. The Indonesian government actively encourages new gas investments and welcomes collaboration, partnerships, funding, and knowledge transfer related to energy transition. Failure to do so could exacerbate the current energy crisis, hinder economic growth, and undermine public support for climate action.
5. Indonesia is actively involved in embracing approaches and exploring technological possibilities that enhance the potential of natural gas in decarbonization. This includes initiatives such as transitioning from coal to gas, employing carbon capture, utilization, and storage (CCUS) methods, producing blue hydrogen and ammonia from natural gas, and promoting the establishment of a circular carbon economy which is an economy that minimizes waste and maximizes the reuse of materials.



THE DEVELOPMENT OF INDONESIA'S NATURAL GAS INFRASTRUCTURE TO IMPROVE ACCESSIBILITY

The objective is to maximize the utilization of indigenous natural gas resources



To improve the interconnectivity of Indonesia's natural gas infrastructure, Government of Indonesia is undertaking strategic planning through the master plan for natural gas networks and national gas distribution (RIJTDGBN). As part of this initiative, the construction of transmission pipelines in the Cirebon-Semarang section using state budget funding is under development while the plan for the Seimangkei-Dumai section construction is still being carefully evaluated. Meanwhile, for the eastern regions of Indonesia, is suggested to use virtual pipelines (LNG carriers) considering the distribution costs. The first project initiated using small scale LNG is Powerplant Gasification Program.





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