

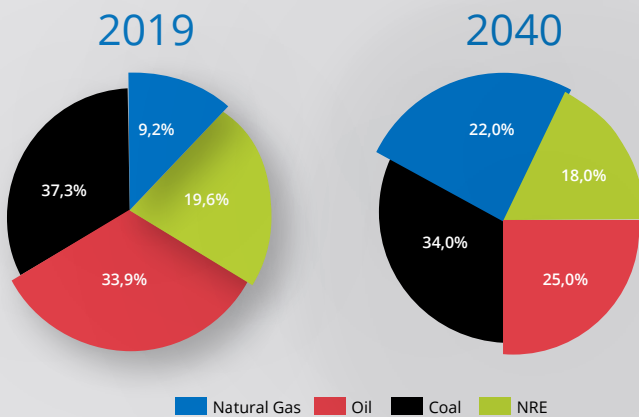
Journey to Energy Transition

"Pertamina is expanding its involvement in the Indonesian energy industry by increasing its contribution to the advancement of the energy mix,"

Nicke Widyawati

President Director & CEO PT Pertamina (Persero)

Indonesia Energy Mix Target



Source: Pertamina Energy Outlook 2020 Market Driven Scenario - Indonesia Energy Mix

As the largest country in ASEAN, Indonesia currently still rely on conventional energy such as oil, coal and natural gas.

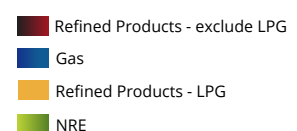
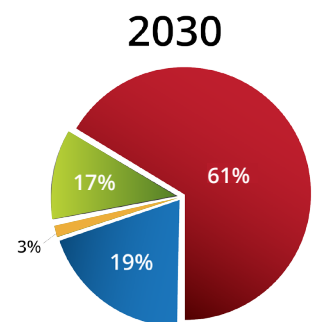
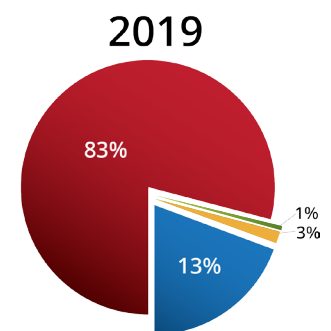
With this national energy mix, the Government is committed to reduce the greenhouse gas emissions by 2030 to 29% independently, and up to 41% with international cooperation and support under the 2015 Paris Agreement.

Pertamina Energy Mix

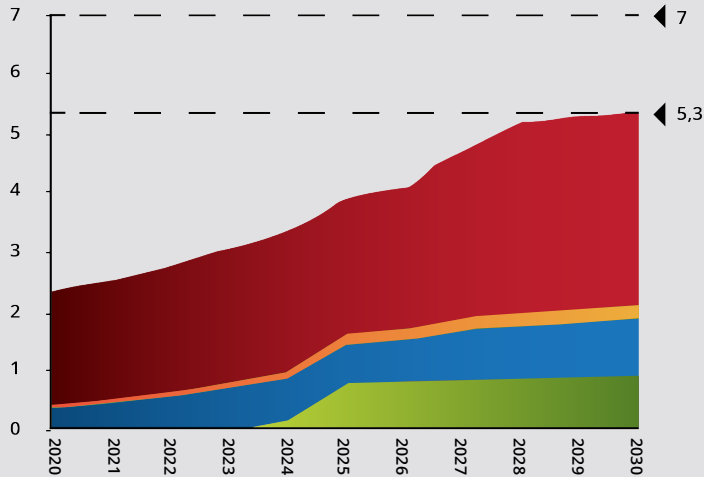
To support the Government target above, Pertamina builds an integrated oil & gas supply chain to supply domestic demand and actively builds a New Renewable Energy (NRE) portfolio using domestic resources.

Pertamina's Key Points

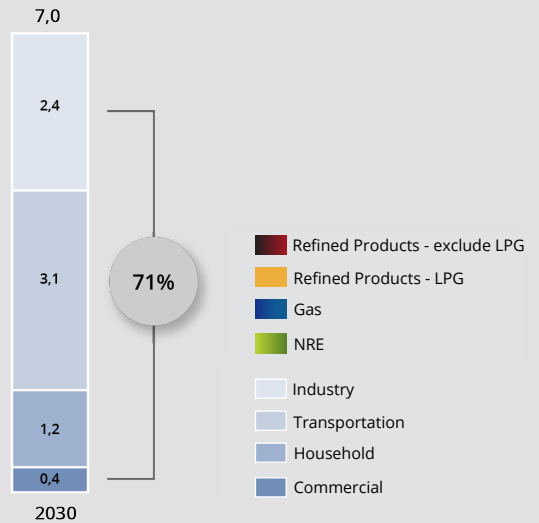
- Pertamina Energy Portfolio **will be aligned with Energy Mix Target in Indonesia National Energy Grand Design in 2025.** Most of energy will be supplied by fossil fuel with aggressively New and Renewable Energy (NRE) and clean energy growth.
- Indonesia's energy demand is projected to grow **2.1% per annum until 2035.** Reduced demand expected in 2020 and 2021 due to COVID-19 pandemic.
- Energy mixed prospective to achieve target **29% lower emission in 2030** from National Energy Demand 7 Million Tera Joule.



Pertamina Energy Production (million Tera Joule)



National Energy Demand



Source: Pertamina Energy Outlook 2020 Market Driven Scenario - Indonesia Energy Mix

Key Summary

- Pertamina has been aligned as large part of the **National Grand Energy Strategy**. In 2030, Pertamina will supplies ~71% of Indonesia’s total energy demand. Align with energy transition, Pertamina adapt energy supply by reducing the refined product and LPG mix; also increasing the gas mix and NRE
- **Align with the energy transition**, Pertamina adapt by building energy supply for Indonesia in the 2020-2030 period **by reducing the refined product & LPG mix** from 86% to 64% **and increasing the gas mix** from 13% to 19% **and NRE** from 1% to 17%
- Considering the existence demand of conventional and NRE, Pertamina also developed an energy portfolio with agility and flexibility as well as discipline in ensuring a **reasonable economic return, maintaining domestic energy security, and maximizing domestic resources**

Several Pertamina projects and activities to expand green energy portfolio, to anticipate NRE growth in Indonesia energy mix, such as:



Geothermal capacity enhancement



Pertamina has started the initiatives for utilization of **green hydrogen** in Indonesia which will use electricity from Pertamina’s geothermal field



Participate in **Indonesia Battery Company**, a joint venture company. Develop **EV battery ecosystem** including swapping & charging business



Methanol Plant construction for gasification



Bio energy, Generator capacity enhancement in 2026, consist of biomass/biogas, bio-blending gasoil & gasoline, biocrude from algae and ethanol



Pertamina plan to apply **Circular Carbon** Economy in several area:
 Recycle : Biomass, Biogas
 Reduce : Solar PV, EV, LNG Bunkering
 Reuse : CO2 for EOR and methanol



New Renewable Energy, Generator capacity enhancement in 2020 – 2026 with energy source from solar PV, wind and hydro