Gas Pricing and Financing

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Gas will become the main oil substitution to fulfill Indonesia’s growing energy needs

Overview of Gas in Indonesia

- Energy demand is expected to grow at an increasing rate following Indonesia’s economic growth and population.
- Gas consumption will increase due to:
  - Diesel and fuel oil substitution on power & industrial sector
  - Diesel and gasoline substituted by CNG in transportation sector
  - LPG substitution in household and commercials
- As such, Indonesia has set an energy mix target to significantly increase the role of gas and coal – substituting the role of gasoline/diesel
- Government is fully support to accelerate gas infrastructure development

Government Program

- Energy source conversion to gas
- Gas as a main energy source for power plant
- Gas infrastructure development across Indonesia

Source: Development Target of Renewable Energy 2025 – Minister of E&MR; Pertamina Analysis
Energy demand mix evolution is driven by consumer growth and fuel substitution – regulation impacts both dimensions

Role of Regulations

- Industrial regulations are key to growth of consumer segments:
  - Facilitation in setting up industry units
  - Pricing driving customer acquisition
  - Public service obligation etc.

- Fuel pricing regulations impact economic substitution between fuels:
  - Price subsidies on gasoline, diesel and natural gas will determine their demand mix

- Mandates may drive substitution of certain fuels:
  - Substitution of gasoline and diesel with CNG may be boosted by mandating CNG use in public transport

- Regulatory thrust on alternate energy may drive its adoption over conventional fuels
However, the lack of infrastructure leads to gas deficits across Indonesia.

Indonesia Gas Balance 2010-2025 (in MMscfd)

Source: Ministry of E&MR
Existing gas infrastructure is still significantly underserving the current and future demand

- Transmission pipelines (open access): 3,795.6 km, Distribution pipelines in Sumatera 707.08 km and in Java: 3,180.17 km
- Installed Capacity of LPG: 4.2 MMTPA, LNG: 42.09 MMTPA
- Capacity of existing regasification terminal: 1,200 MMSCFD

Source: Ministry of E&MR
The demand growth entails large investments in gas infrastructure

- Estimated total investment: ~$8Bn
- Transmission and distribution pipeline cost: $5.9 bn (~70% of total investment)
- Regasification cost: $2.4 Bn (~30% of total investment)

Source: Bapennas
Marginal return causes less attractiveness in midstream sectors investment

Value distribution of International gas value chain business

<table>
<thead>
<tr>
<th>Margin Portion (%)</th>
<th>Upstream²</th>
<th>Transmission</th>
<th>Distribution /Trading</th>
<th>End customer price</th>
</tr>
</thead>
<tbody>
<tr>
<td>~16%</td>
<td>4.0</td>
<td>0.7</td>
<td>~25%</td>
<td>6.3</td>
</tr>
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Value distribution of Indonesia gas value chain business

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</tbody>
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1 Business margin in country that had market mechanism such as Europe – UK, Spain, and Germany (2001-03)
2 include operation and production cost

Source: Pertamina Analysis

- Structure of margin portion in Indonesia, especially in midstream (transmission) is below compare to international benchmark
- Transmission is the lowest margin contributor for developing end customer price
- It can be assumed that return of transmission is marginal and less attractiveness for investors

IRR of transmission pipeline is 11-12%, by 90% of utilization (Regulation by BPH Migas)
Pertamina as NOC has taken major role by developing gas infrastructure that covering all regions in Indonesia.

- Pertamina has identified a portfolio of pipeline, regasification, LNG and mini-LNG projects across Indonesia.
- The most critical projects over the next few years are the Trans-Sumatera and Trans-Jawa pipelines, Arun regas, and LNG KTI development.
- But all those initiatives from Pertamina were not enough to meet the gas demand across Indonesian regions.

Source: Pertamina; Litsearch; company reports; company websites.
Gas infrastructures can be built and operated through a partnership

- Supply
- Storage
- Regasification
- Distribution & Marketing
- Demand

**Partner(s)**

**SOE**

**Joint Venture (JV)**

**Project Financing**

- Multilateral Agencies/Export Credits Agencies
- Commercial Banks

**Partner selection based on capabilities**

**Required Capabilities**
- Investment & financing
- Technology and O&M
- Asset
- Commerce

As large investment is the main hurdle to build gas infrastructure, then business model through partnership and project financing is one of the solution.

Source: Pertamina Analysis
### Typical Business Models

**Downstream-led model**
- LNG regasification is mainly driven by LNG demand on end customers
- Off-take commitment is required

**Upstream-led model**
- LNG regasification is driven by upstream players
- A long term supply agreement and demand certainty along the value chain are required

**Standalone model**
- LNG regasification as standalone chain
- Typically this is applied in: fragmented demand and LNG as important source for the security and diversification of supply

#### Definition

**Upstream-led model**
- LNG regasification is driven by upstream players
- A long term supply agreement and demand certainty along the value chain are required

**Example**
- South Hook project in UK developed by ExxonMobil and Qatar Petroleum processes LNG supplied by Qatargas.
- Malaysia LNG Variant

**Downstream-led model**
- LNG regasification is mainly driven by LNG demand on end customers
- Off-take commitment is required

**Example**
- DEPA's regasification terminal at Revithoussa, the terminals developed by GDF-Suez in France and the investments made by Union Fenosa and Iberdrola in the Segunto and Ferrol regasification terminals in Spain.

**Standalone model**
- LNG regasification as standalone chain
- Typically this is applied in: fragmented demand and LNG as important source for the security and diversification of supply

**Example**
- Enagas of Spain developed terminals in Barcelona,
- Cartagena and Huelva. Gasunie developed the Gate terminal in Rotterdam

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*Source: Pertamina Analysis*
Key challenges to bring gas to unmet demand centers

**Infrastructure**
- Construction of new gas pipelines, liquefaction & regas infrastructure to address geographical dispersion between demand centers (Java and Sumatra) and supply centers (Kalimantan, Papua and Sulawesi)
- More efficient use of existing infrastructure through national gas policy linked to industrial development
- Greater open access to gas markets and pipeline infrastructure

**Pricing**
- Address disparity between domestic gas prices and global LNG prices
- Addressing fuel subsidies creating artificial barriers to adoption of gas as fuel
- Simplify upstream gas supply contract process to improve speed to market

**Regulation**
- Favorable government policies and fiscal incentives / contract terms to support development of upstream fields and gas T&D infrastructure
- Simplification of land acquisition process for development of gas infrastructure

Source: Pertamina Analysis
Regulatory support is required to effectuate favorable demand mix and infrastructure investments

### Key Support required from Regulators

| Facilitation of Target Energy Mix | - Regulatory support is required for Indonesia to achieve the target of oil substitution by increase in gas and renewable penetration. Certain steps in this direction could be:  
  - **Facilitating substitution driven by economics through pricing regulations**: e.g. Liquid fuel price deregulation and/or subsidies on alternative energy / CNG  
  - **Volume allocation of substitutes to consumers to create certainty of supply**: e.g. preferential allocation of gas to city gas distribution, fostering fuel substitution  
  - **Mandates facilitating substitute adoption**: e.g. mandating use of CNG in public transport |
| --- | --- |
| Facilitation of Infrastructure Investments | - Attracting global players to provide access to their existing infrastructure or invest in new infrastructure to support Indonesia’s energy demand:  
  - **Facilitating use of assets of global players**: e.g. exemption from Cabotage to Oil & Gas shipping activities  
  - **Attracting infrastructure investments**: e.g. providing tax breaks to global investors |
| Facilitation of Supply Enhancement | - Attracting investment in exploration & production as well as supply infrastructure such as refineries by easing the regulatory regime appropriately |

Source: Pertamina analysis
Thank You