

INVESTMENT OPPORTUNITIES IN FUTURE NATURAL GAS INFRASTRUCTURE



Road map on natural gas infrastructure development 2016-2030.
More than US\$ 30 billion investment opportunities are ready to be
tapped in the western and eastern territories of Indonesia.

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Indonesian Natural Gas Industry Outlook



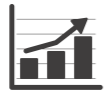
US\$ **32,4** billion

Total investment needed to build natural gas infrastructure until 2025.



13,432 MW

The capacity of natural gas-fired power plants to be built in Indonesia (38%) of the 35,000 MW project.



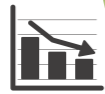
7%

The average growth of natural gas demand from 2016 to 2020.



819 mmscfd

Projected natural gas deficit in West Java, the region with the highest natural gas consumption in Indonesia.



1,200 mmscfd

Projected natural gas deficit to meet domestic demand by 2019.

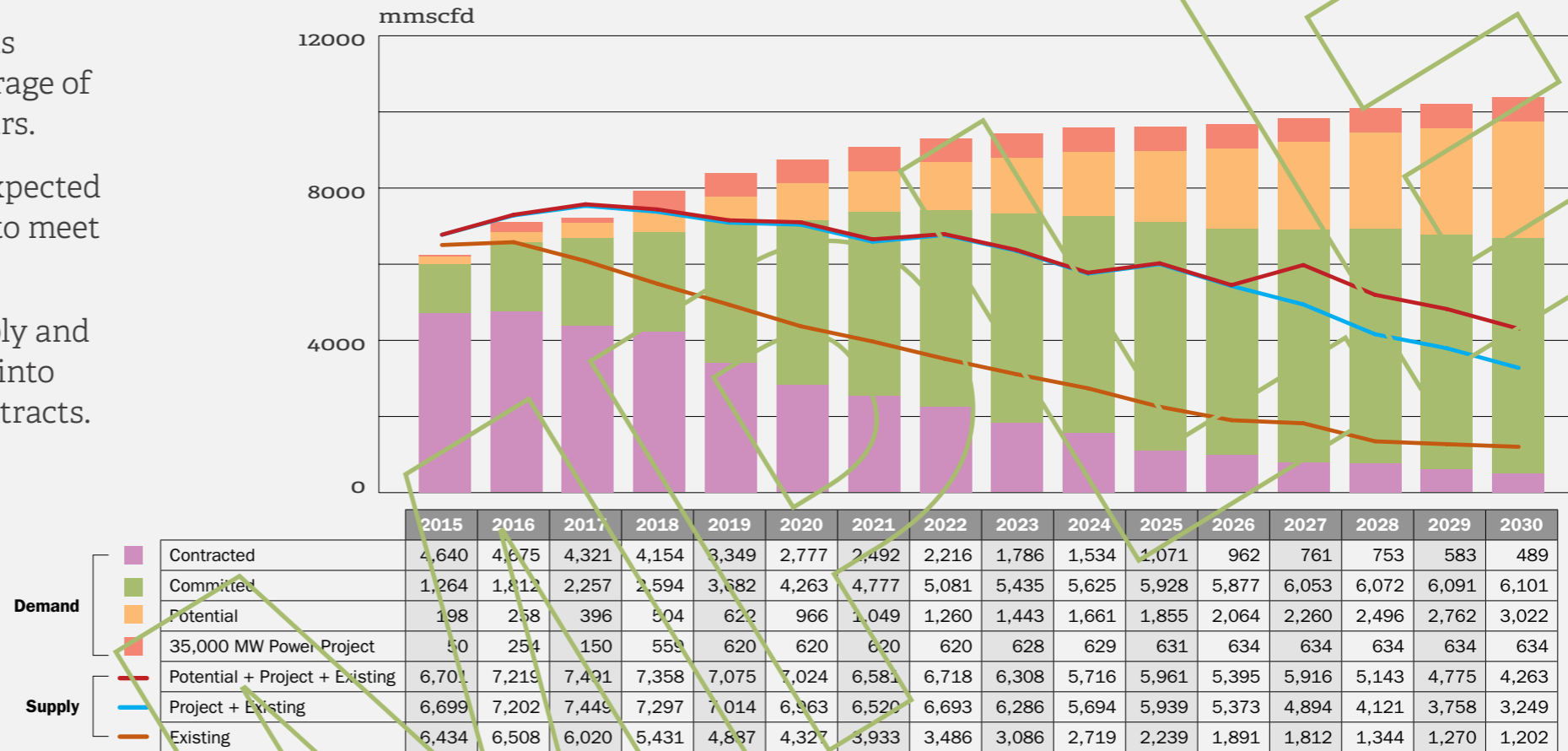


10,684 KM

The length of new natural gas pipelines to be built in Indonesia..

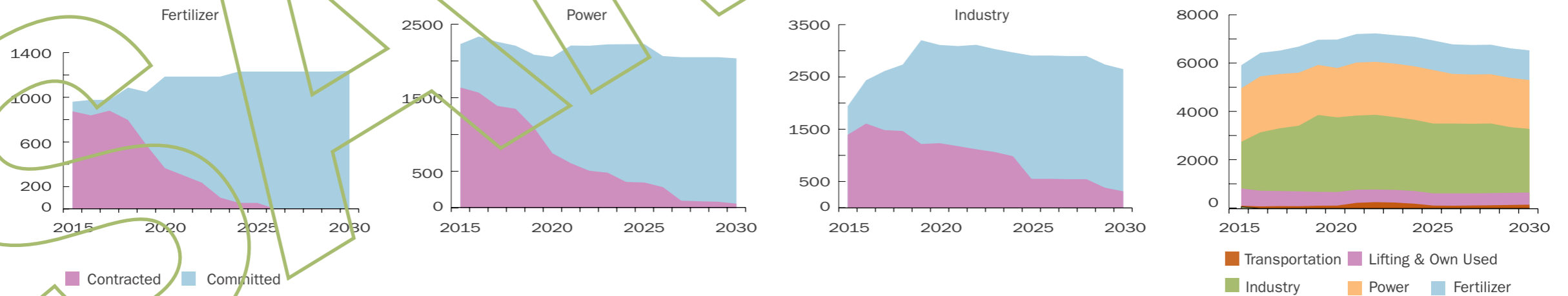
Natural Gas Balance 2015-2030

- Domestic natural gas demand is expected to increase by an average of 7% per year over the next 5 years.
- Starting in 2019, Indonesia is expected to start importing natural gas to meet domestic demand.
- This domestic natural gas supply and demand balance does not take into account natural gas export contracts.



Over the next 5-15 years, the power, industry and fertilizer sectors will be the largest natural gas consumers in Indonesia.

Contracted & Committed Domestic Demand 2015-2030
(mmscfd)



SOURCES: MINISTRY OF EMR, MEMR'S GAS BALANCE TEAM, PLN, SKK MIGAS, MINISTRY OF INDUSTRY

Natural Gas Infrastructure Road Map 2030

- Infrastructure in the western region of Indonesia will be integrated with natural gas pipelines from Sumatra, Java to Bali. Kalimantan Island will also be integrated with natural gas pipelines, from Pontianak to Tanjung Selor, North Kalimantan.
- Eastern region of Indonesia will rely on virtual pipeline, i.e. the natural gas will be transported with other modes of transportation, such as ships. Virtual pipeline will be equipped with the construction of a Floating Storage Regasification Unit (FSRU) and ORF (Onshore Regasification Unit).
- The construction of land-based regasification unit is expected to flourish to keep pace with the rapid development of the eastern region of Indonesia by the Indonesian government.

Infrastructure Road map 2014-2030

| No | Description | Period I | | | | | | Period II | Period III |
|----|-----------------------------|----------------------|-------|-------|-------|---------|---------|-------------|-------------|
| | | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 - 2025 | 2026 - 2030 |
| 1 | Open Access | 6,153 | 6,153 | 6,153 | 6,215 | 6,776 | 7,390 | 9,604 | 12,580 |
| 2 | Pipeline (km) | Upstream Dedicated | 4,123 | 4,123 | 4,123 | 4,123 | 4,123 | 4,123 | 4,123 |
| 3 | | Downstream Dedicated | 8,806 | 9,177 | 9,211 | 9,431 | 11,546 | 11,546 | 13,480 |
| 4 | | Private Used | 66 | 66 | 66 | 66 | 66 | 66 | 66 |
| 5 | Liquefaction/ LNG (units) | Large Plant | 3 | 3 | 3 | 3 | 5 | 5 | 5 |
| 6 | | Mini Plant | 0 | 3 | 5 | 7 | 7 | 9 | 10 |
| 7 | Regasification * (units) | FSRU | 2 | 3 | 5 | 9 | 10 | 11 | 11 |
| 8 | | Land Based | 3 | 17 | 24 | 46 | 62 | 64 | 66 |
| 9 | CNG Storage (units) | Inland | 42 | 68 | 72 | 72 | 106 | 108 | 108 |
| 10 | | Marine | 2 | 4 | 6 | 9 | 12 | 15 | 20 |
| 11 | Gas Fueling Station (units) | CNG | 104 | 136 | 163 | 189 | 210 | 289 | 800 |
| 12 | | LNG | 0 | 0 | 0 | 0 | 2 | 4 | 7 |
| 13 | Distribution Network (area) | 4 | 8 | 12 | 16 | 20 | 25 | 75 | 150 |
| 14 | City gas (houses) | 203 K | 326 K | 608 K | 924 K | 1,3 mil | 1,5 mil | 3 mil | 5 mil |

SOURCES: MINISTRY OF EMR

Opportunities in Eastern Indonesia

- In the eastern region of Indonesia, natural gas will be transported by ship (at sea) or truck (on land) which is known as a virtual pipeline or milk round.
- Natural gas will be converted into compressed natural gas (CNG) or liquefied natural gas (LNG).
- Natural gas will be transported primarily to meet high demand among anchor buyers, e.g. power plants in the eastern region of Indonesia.

LNG Demand Projection in Eastern Indonesia

0
cargoes
2016

47
2020

53
2025

LNG Demand Projection in Virtual Pipeline Road Map



SOURCES: MINISTRY OF EMR, MEMR'S GAS BALANCE TEAM, PLN, SKK MIGAS