
Natural Gas in the ASEAN Energy Landscape

Natural gas will continue to play a key role in meeting the future energy requirements of power and industrial sectors in the Association of Southeast Asian Nations (ASEAN) region, with Liquefied natural gas (LNG) serving as a bridge fuel to promote higher penetrations of renewable energy and mitigate the risk of over-reliance on coal.¹ However, some obstacles to effective use of gas remain:

- **Over-subsidization.** The region needs gas pricing reform to promote efficient use, allow for a wider range of import sources, and facilitate development of newer fields with higher wellhead costs. But reform progress has been slow, and not all ASEAN markets can support unsubsidized netback LNG market-based prices.
- **Uncertainties in project completion.** The timely development of gas distribution infrastructure, power generation capacity, and expanded transmission networks face uncertainties, including ever-changing national plans that provide limited clarity to the market. These uncertainties are compounded by commercial and regulatory challenges, particularly with regard to gas contracting and access arrangement needs.²

For many ASEAN member countries, imported LNG is essential to secure supply once indigenous gas supplies run out, provide cost-competitive generation, and help achieve a least-cost power sector.

Gas demand in ASEAN power sectors will likely face increasing competition from renewables and coal-fired projects as key member countries rebalance fuel mix in order to maintain security of supply, and upstream gas resources decrease. With few gas reserve findings in the last decade and production declining, the region's estimated demand for natural gas will likely surpass production around 2024, making ASEAN a net gas importer.^{3,4}

Annex: Natural Gas Updates and Key Priorities by Country

Brunei Darussalam

Overview and Updates:

- Major gas producer and exporter.
- Production decreased by 2% in 2020, while demand grew by 4%.
- LNG exports fell by 7.3% in 2020 to 8 bcm, more than offsetting 2% growth in 2019.

Key Priorities:

- Balancing gas exports and domestic use, while promoting alternative sources.
- Domestic gas use, especially for electricity generation.
- Lowering domestic gas consumption in order to free up more supplies for export by:
 - Cutting energy intensity 45% by 2035, with initiatives introduced to reduce domestic energy consumption and encourage higher gas exports.
 - Diversifying the fuel mix through various initiatives to promote renewable alternatives for power generation.

Cambodia

Updates:

- Imported its first LNG volumes in January 2020 through small-scale tanks supplied by the China National Offshore Oil Company (CNOOC) and benchmarked to the domestic price of Chinese LNG transported by trucks.

Key Priorities:

- Meeting growth at low cost, and reducing dependence on imported fuels.
- Reducing dependence on imported coal and oil products (diesel/HFO) by increasing exploration and commercialization of the oil and gas sectors.
- Building a floating storage and regasification unit (FSRU) to import larger LNG volumes in future, and constructing an internal pipeline and trucking network.

Indonesia

Overview and Updates:

- Major gas producer and exporter.
- Reached peak production of 86 bcm in 2010, after which output gradually declined to today's level of 68 bcm/y.
 - Demand fell by 8% in 2020, while production shrank by 10%, continuing the downward trend that began in 2015.
 - LNG exports dropped 4% in 2020, driven mostly by decreased Japanese demand and imports. The Tangguh LNG Phase 2 expansion is in progress and expected to start-up by mid-2022, after Covid-19 delays.
- The country's 3 LNG receiving terminals are dominated by intra-Indonesian trade (4.9 bcm), with marginal volumes (0.3 bcm) imported in 2019.

Key Priorities:

- Balancing domestic market obligations with exports.

Lao People's Democratic Republic

Overview and Updates:

- Significant hydropower resources.

Key Priorities:

- Leveraging hydro exports to promote electrification and investments.
- Reducing dependence on petroleum imports by developing indigenous resources (hydro and some coal) and capitalizing on electricity exports to generate foreign exchange.

Malaysia

Overview and Updates:

- Major gas producer, and the world's fifth-largest LNG exporter, though domestic gas production is depleting:
 - LNG exports grew by 19% in 2019 but decreased 7% in 2020, with less demand due to the pandemic.
 - Gas production contracted by 10 bcm (or 16%) in 2020.
 - LNG imports in 2020 declined marginally to approximately 4 bcm.
- Introduced a system of regulated third-party access to gas infrastructure in 2016, monitored by Malaysia's Energy Commission, Suruhanjaya Tenaga.
- Gas subsidies have been gradually removed, replaced by a market-based pricing approach.

Key Priorities:

- Working towards a balanced energy pathway.
- Addressing domestic gas depletion in Peninsular Malaysia and achieving security of supply and diversification objectives.

Myanmar

Overview and Updates:

- Significant gas producer since the 1990s, and currently a major producer and exporter.
 - Gas production has historically depended on the Yadana and Yetagun offshore fields, but has more recently been sustained by development of the Shwe and Zawtika fields.
- Production remained stable between 2005 and 2013 at around 10–12 bcm/y, increasing to almost 20 bcm/y after 2014.
 - Due to the natural depletion rate of mature fields, production is expected to decline quickly until 2030, when it will be only one-fourth of what it is today.
- Domestic consumption is low due to pricing issues, supply constraints, and poor infrastructure.

Key Priorities:

- Nascent energy market development.
- Shifting to prioritize domestic gas for domestic use, while also exploring various FSRU proposals.
- Diversifying into gas and coal to address frequent power cuts in major cities.
- Restructuring and corporatizing the power distribution sector to improve performance and efficiency.

Philippines

Overview and Updates:

- Reduced power generation caused a 9% decline in gas demand in 2020.
- The Malampaya gas-to-power project uses indigenous gas and fuels about 3.5 GW of gas-fired plants in Batangas, Luzon.
 - Indigenous gas is expected to be substantially depleted when the contract ends in 2022- 2024, which has LNG players circling the opportunity to backfill Batangas power plants.

- FGEN LNG signed an EPC contract in 2020 and is expected to receive the archipelago's first LNG cargoes by late 2022.
 - Three other regasification terminals have received permits and are at various stages of development.

Key Priorities:

- Importing LNG after 2020 to offset expected declines in domestic gas production.

Singapore

Overview and Updates:

- No domestically produced gas; instead reliant on pipeline imports from Malaysia and Indonesia, and LNG imports via its onshore terminal SLNG.
 - The government invested in SLNG to increase energy security and position Singapore as an Asian LNG trading and bunkering hub.
 - Since the beginning of 2018, parties could also import spot LNG cargoes, subject to a marketwide 10% cap of the country's long-term gas supplies.
- Liberalized electricity market, with a competitive wholesale electricity market (NEMS) developed in 2003. Neither gas nor power prices are subsidized.
- Despite Covid-19, gas demand showed resilience in 2020, growing by 8%. LNG imports grew even more by 14%, reaching a historical high above 5 bcm.

Key Priorities:

- Establishing a regional hub and offering LNG bunkering and small-scale LNG services.

Thailand

Overview and Updates:

- Natural gas accounts for over 70% of power generation fuel mix.
- Consumption and production declined in 2020 by 6% and 11%, respectively.
 - As a result, LNG imports grew 6% and reached a historical high of 7 bcm, still well below the economy's nameplate regasification capacity.
 - Offshore gas reserves have halved since 2005, (a signal of decline in domestic production).
- Construction of the Nong Fab LNG receiving terminal has been delayed and is now expected to become operational by late 2022.

Key Priorities:

- Building LNG import facilities to plug the gap between declining production and piped imports against gas demand
- Heavily building-out LNG regasification terminals to replace declining piped gas import volumes
 - Increasing existing Map Ta Phut regasification terminal's capacity by 5 bcm/y
 - Building new FSRUs to accommodate higher imports

Vietnam

Overview and Updates:

- Vietnam has dramatically increased their renewable energy share through advantageous policies. However, this increase has introduced a number of technical challenges. Vietnam intends to use gas to balance some of these issues.
- Produces gas from offshore fields in the Southern Region, with the bulk of the gas supplied to gas-fired power plants located in the same area.
- Rapid power demand growth is expected.

- Domestic policies expected to support gas, and allow more investment in gas-fired power projects.
- The Vietnamese Power Development Plan (PDP) VIII (2021–2030) should develop an estimated 50 GW in gas-fired capacity over the 2021–2030 period through 20 LNG-to-power projects.

Key Priorities

- Adding significant coal-fired capacity.
- Exploring multiple LNG import terminals and upstream gas projects to supply gas to existing and new gas-fired projects.
 - Given declining domestic production and growing domestic demand, the government set a goal of importing 7 bcm of LNG in 2025 and up to 20 bcm by 2035.
 - Two projects are under construction: the 2 MTPA Hai Linh terminal and the 3 MTPA Thi Vai terminal, which should begin operations in 2021 and late 2022, respectively.

Endnotes

1. ASCOPE and the Lantau Group. 2018. Gas Advocacy White Paper (GAWP) for ASEAN.
2. ASCOPE and the Lantau Group. 2018. Gas Advocacy White Paper (GAWP) for ASEAN.
3. ASEAN Centre for Energy (ACE). 2020. [The 6th ASEAN Energy Outlook](#).
4. ASEAN Centre for Energy (ACE). 2020. [The 6th ASEAN Energy Outlook](#).