MEDIA BRIEF

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Institute for Energy Economics and Financial Analysis
IEEFA.org

Examining Cracks in Emerging Asia's LNG-to-Power Value Chain

Unprecedented volatility in global liquefied natural gas (LNG) markets over the past two years has demonstrated the immense challenges LNG imports pose for emerging Asia. As a result of exorbitant prices, many countries in the region have been priced out of LNG markets, resulting gas shortages, fuel switching, and power outages.

Despite clear price sensitivities and fuel supply risks, LNG is often presented as a solution for emerging Asian countries, many of which are facing declining domestic gas production and high economic growth expectations. LNG investors have proposed an unrealistic pipeline of LNG terminal and gas-fired power projects and pitched LNG as a "bridge fuel" to help reduce regional coal consumption.

For many project developers and countries, however, LNG is a bridge that may never be built. Fundamental project, country, and financial market constraints in emerging Asia are likely to significantly reduce the pipeline of feasible LNG-related projects and prevent rapid, sustained growth in regional LNG demand.

This report examines the proposed pipeline of LNG-to-power projects in seven countries: Vietnam, Thailand, the Philippines, Cambodia, Myanmar, Pakistan, and Bangladesh. It begins by discussing the broader macroeconomic and financial risks associated with an increasing dependence on imported LNG. Please see page five below for a summary table of these key risks. The report then provides a more realistic assessment of future LNG developments in the region based on:

- Project fundamentals, such as project location, credibility of project sponsors, and technological attributes, among other factors.
- Country market fundamentals, such as the efficacy of energy sector planning, governance and regulation, gas and power pricing regimes, and economic outlook.
- Financial market constraints, such as prudential limits on commercial project finance lending, multilateral and bilateral lending considerations, and the evolution of sustainable investing.

Based on the above project, country, and financial market screen across all seven countries studied in the report, 62% of LNG terminal investments and 66% of gas-fired power plant projects are unlikely to be built. IEEFA tracked 139 million tonnes per annum (mtpa) of proposed LNG import terminal projects and 99 gigwatts (GW) of proposed gas-fired power projects in the seven countries studied in the report. Based on fundamental project and country-level factors, 62% of proposed LNG import terminal capacity

and 61% of gas-fired power capacity is unlikely to be viable. After considering commercial project finance lending market constraints, IEEFA found that an additional 5% of power projects in the region are unlikely to secure financing. In total, IEEFA anticipates that 52.6mtpa of terminal capacity and 33.2GW of gas-fired power capacity will be feasible.

Country Assessments

1. In Vietnam, IEEFA anticipates that 22% of total proposed LNG investments are viable, including 9mtpa of LNG terminal projects and 13.3GW of power projects. These capacities represent just 37% and 20%, respectively, of all proposed LNG terminal and gas-fired power projects. After considering constraints on the financial lending market, IEEFA determined that an additional 5% of power capacity was unlikely to be built, bringing the total capacity of viable power projects down to 10.83GW. Key risks in Vietnam for LNG projects include:

- Recent gas finds with significant recoverable reserves threaten the need for LNG assets, but domestic production will depend on pricing negotiations with upstream companies.
- New public partnership and investment laws limit public guarantees and state exposure to fuel price volatility, requiring developers to bear more market risk.
- Lack of a common gas pricing regime handicaps domestic gas and LNG developments. Case-by-case gas pricing creates regulatory gridlock and deters investment.
- Competition with coal and renewables adds uncertainty for gas plant utilization.

2. In Thailand, IEEFA determined that 64% of proposed investments were potentially viable, including 15.5mtpa of LNG terminal capacity and 15.9GW of gas-fired power capacity. These figures represent 44% and 67% of proposed LNG terminal and power projects, respectively. While many of the proposals are considered feasible, an accelerated reliance on imported, US dollar-denominated LNG could negatively impact the Thai economy and industrial competitiveness in global markets. Key risks for LNG projects in Thailand include:

- Tariff reforms have contributed to the growth of private LNG investments, but higher fuel costs passed through to end-users could hinder long-term LNG demand.
- Delays in the implementation of open-access rules for existing gas and LNG infrastructure may impede private sector regasification projects and LNG imports.
- The Overlapping Claims Area with Cambodia may contain large gas reserves, but field development has been delayed by political volatility and bilateral negotiations.

- Renewables deployment may limit long-term take-or-pay contracts for new gas plants

3. In the Philippines, IEEFA considered just 29% of total proposed LNG investments viable. This includes 6.3mtpa of import terminal capacity and 2.9GW of gas-fired power capacity (34% and 27% of announced pipelines, respectively). Key downside risks for LNG-related infrastructure projects in the Philippines include:

- Limited contractual opportunities for gas-fired power plants can hinder project financing, since project sponsors without a PPA face price and LNG volume uncertainty.
- Nascent and evolving legal regimes do not provide certainty for long-term cost recovery. Lack of demand in non-power sectors further amplifies risks for LNG investments.
- LNG fuel price pass through can raise end-user power tariffs and undermine economic growth. Low-cost renewables deployment threatens LNG-fired power plant utilization.

4. In Cambodia, IEEFA anticipates 11% of proposed LNG investments to be feasible. Only 200MW of gas-fired power capacity may be feasible, out of a total of 1,600MW proposed. Moreover, no large LNG import terminals are likely to be realized.

- Rising government subsidies for electricity consumption mean that investors may be increasingly exposed to the country's sub-investment grade credit rating.
- Electricity grid constraints and lack of gas infrastructure limit the buildout of LNG-to-power facilities. Project sponsors must build own-use grid facilities, adding to costs.
- The lack of existing laws and regulations specifically governing the mid- and downstream gas sectors may limit foreign interest in potential investments.

5. In Myanmar, IEEFA determined that, of the pre-coup pipeline, only 14% of proposed LNG investments may be viable, including 3mtpa of LNG import terminal capacity and 1.6GW of power capacity. These figures represent 13% and 15% of total announced terminal and power projects, respectively. Given the current military rule, however, IEEFA does not see any major projects proceeding, and the feasible project figures represent potential investments should the political environment stabilize.

6. In Pakistan, IEEFA considers 98% of proposed LNG investments to be viable, including 18.8mtpa of LNG import capacity and 1.3GW of gas-fired power capacity. This high proportion of feasible projects is due to the fact that one CCGT power project reached financial close in 2021, while four LNG terminal projects have received construction permissions from the government. While there appears to be

sufficient demand for LNG, the biggest issue is whether the country can afford cargoes. Key market risks for LNG projects in Pakistan include:

- Gas and power underpricing exacerbates LNG-to-power credit risks and inflates gas demand. Recurring non-payment and default issues plague gas and power value chains.
- Electricity grid constraints contribute to circular debt and limit private sector energy investments. Non-payment issues undermine the bankability of PPAs.
- Regulatory risks may continue to hinder private sector LNG investments and involvement in the gas value chain. Projects often face multiple year permitting delays.

7. In Bangladesh, IEEFA anticipates 33% of total LNG investments to be feasible, including 3.8mtpa of LNG regasification capacity and 3.1GW of gas-fired power capacity. These figures represent 25% and 34% of the proposed pipeline of terminal and power capacities, respectively. Key project risks in Bangladesh include:

- Rising gas and power subsidies increase default risks within the LNG-to-power value chain. Low regulated tariffs put increasing financial strain on state-owned enterprises.
- Regulatory whiplash has paralyzed LNG developments. Technical roadblocks and price volatility have caused the government to reverse course on LNG procurement plans.
- Generation overcapacity and renewables deployment threaten thermal power plant utilization. Inadequate grid infrastructure exacerbates thermal plant underutilization.
- New LNG import terminals will require significant gas pipeline investments.

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Key Macroeconomic and Financial Risks of LNG Imports

	Risk	Description	Country Examples*
1)	Commodity Price Volatility	The inherent volatility of global gas markets significantly impacts delivered gas and power prices.	Thailand, Bangladesh, Pakistan
2)	Foreign Exchange Volatility	US dollar-denominated commodity charges expose consumer prices to macroeconomic impacts, mostly felt through inflation.	Thailand, Bangladesh, Pakistan
3)	Higher Power Tariffs for End-Users	In markets that pass through fuel price fluctuations to end-users, imported LNG can raise final gas and power tariffs.	Thailand, Philippines, Cambodia
4)	Higher Government Subsidy Burdens	In subsidized markets, government entities must pay for fuel price fluctuations via additional national budget allocations.	Vietnam, Bangladesh, Pakistan, Myanmar
5)	Declining Economic Competitiveness of Domestic Industries	Higher fuel costs can raise industrial operating costs, hurting regional competitiveness. Country commitments to LNG may force multinationals with corporate sustainability targets to relocate.	Thailand, Bangladesh, Vietnam
6)	Fuel Supply Insecurity	Disruptions in global LNG trade can cause gas shortages. High prices can force buyer countries out of spot markets, causing fuel shortages. Even countries with long-term supply contracts face fuel shortages if exporters opt to divert cargoes into higher-priced spot markets.	Bangladesh, Pakistan, Thailand
7)	Imported Fossil Fuel Lock-in Limits Renewables Penetration	Fixed LNG offtake volumes and power plant capacity payments can cause long-term dependence on imported fossil fuels, limiting each country's ability to benefit from declining renewables energy costs.	Emerging Asia
8)	Stranded Asset Risk for LNG-to-Power Investments	Volatile global fuel prices and pentration of low-cost renewables can limit utilization of LNG-to-power assets. Renewed growth in domestic gas production can reduce the need for LNG import assets.	Emerging Asia
9)	Limited Project Financing Available for Fossil Gas Assets	The supply of money for a given market is not endless. Commercial banks have prudential lending limits, which can limit their exposure to just one or two infrastructure projects.	Emerging Asia
10)	Growth of Sustainable Investing Makes Long-term LNG Financing Unreliable	Cross-border financiers--including MDBs and bilateral development institutions--are under increasing pressure to support global decarbonization and sustainable development.	Emerging Asia

Note: Boxes with a '' include only countries that currently import LNG, though all emerging Asian countries may be susceptible to these risks in the future.*

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About IEEFA: The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. (www.ieefa.org)