Foot on the Gas: Southeast Asia needs to pump the brakes on LNG

October 2023

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Executive Summary

Southeast Asia should reconsider its growing reliance on liquefied natural gas as it transitions from coal to renewable energy. While LNG has long been hailed as a cleaner alternative to coal, recent research reveals that LNG is not as environmentally friendly as thought. This growing evidence challenges the notion that LNG is a viable transitional fuel.

While LNG carbon intensity is approximately 50% of coal when calculated solely at a power plant, the greenhouse gases that escape during its production, storage, transport, and regasification compound its carbon footprint. These upstream emissions, which account for almost two-thirds of LNG's total emissions, put LNG's overall emissions not far below those from coal—and when properly accounted for could exceed coal's.

Recent research using advanced technology to detect methane leaks suggests the problem may be more severe than initially estimated. Methane leaked throughout LNG's life cycle has a much greater potential impact on the climate than carbon dioxide created through burning gas for electrical power.

Yet LNG's popularity continues to grow, with industry forecasts projecting that LNG production will rise roughly 25% by 2040. This is out of line with International Energy Agency projections that global LNG use must peak by 2025 and begin declining to achieve its target of Net Zero Emissions (NZE) by 2050. These projections are before factoring the new concerns over high rates of emissions across the entire LNG life cycle.

Geopolitical events have only intensified interest in LNG investment. Supply disruptions caused by the war in Ukraine in 2022 sent global prices soaring, prompting more buyers to seek the kind of long-term purchase contracts required to justify the large-scale investment involved in LNG infrastructure.

Southeast Asian nations have also embraced LNG as they rush to meet fast-growing electrical power demand while phasing out coal and as domestic natural gas supplies dwindle. The Philippines and Vietnam, in particular, have adopted energy plans that will boost their reliance on LNG by investing in new import facilities and gas-fired power plants. Missing from their plans is a comprehensive evaluation of LNG's overall impact. Their LNG investments thus carry two risks. There is a financial risk that the new gas power and LNG transport infrastructure with long-term purchase contracts become comparatively high cost and inflexible as the cost of renewables falls. There is also the risk that the investments result in higher than expected carbon dioxide emissions, breaching international targets.

Recommendations

- LNG producers should rigorously document and report the carbon emissions of every cargo, using new technologies for monitoring methane, and submit them to a third-party certification body.
- LNG sellers and buyers, whether oil and gas companies or governments, should re-appraise the viability of ongoing investments, taking into full account LNG's overall life-cycle emissions.
- Southeast Asian nations should thoroughly review their energy policies to account for LNG's higher carbon footprint. They should consider replacing planned LNG investments with greater investment in renewable energy.
- Financial institutions and investors should reassess lending and investment policies to take into account LNG's full life-cycle emissions and their real impact on net-zero goals. They should consider discontinuing new financing of LNG projects and gradually reducing exposure to existing LNG projects.

LNG's Carbon Footprint

Natural gas has long enjoyed a reputation as the least environmentally harmful fossil fuel, one that can safely substitute coal and liquid hydrocarbons for power while reducing greenhouse gas emissions. When burned, natural gas yields roughly half the carbon dioxide coal does for the same power output, and emits a fraction of other pollutants, such as nitrous oxide and sulphur hexafluoride.

LNG's carbon footprint is substantially underestimated.

Because natural gas is inherently difficult to transport, however, nations without domestic supplies have increasingly turned to super-cooled, liquefied natural gas, or LNG. This provides an environmentally friendly way to ship gas from sources too far away for transport through pipes. Countries in Asia and beyond have thus accepted LNG as a transitional fuel suitable for meeting their growing electric power demands as they shift from coal and other petroleum products to renewables to meet the Paris Agreement's goal of reducing greenhouse gas emissions, or GHGs, and keep global warming below 1.5□C.

Recent research, however, has revealed that LNG produces significantly more emissions than was thought. While LNG, once converted back into gas, is relatively clean-burning, the emissions created during its production, storage, transport, and regasification are substantial. Taken together, the GHGs emitted during this upstream portion of LNG's overall life cycle put its total associated emissions almost on par with coal's.

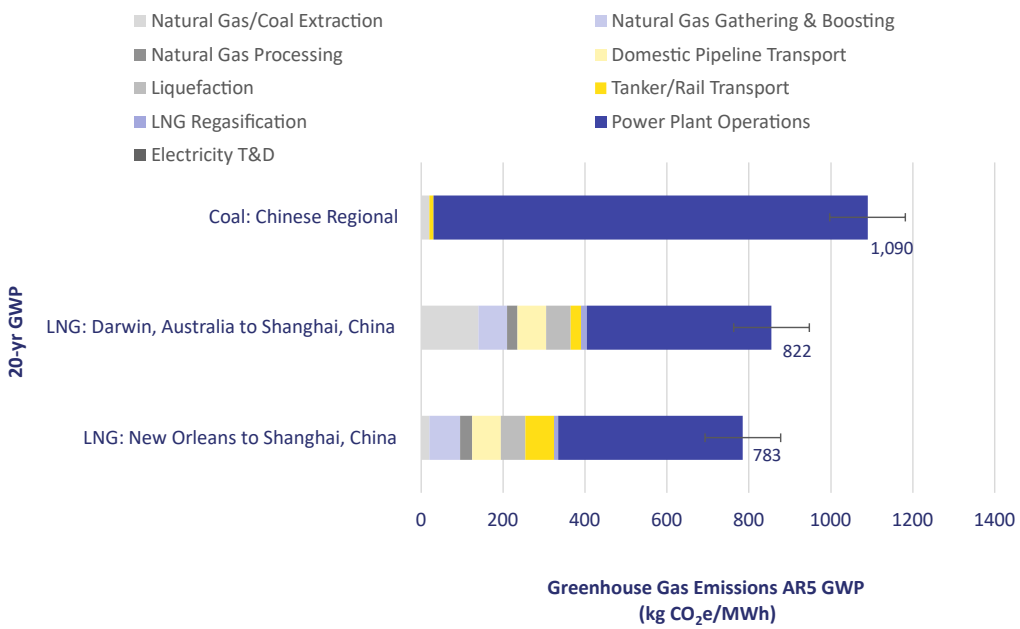
A 2019 study by a U.S. Dept. of Energy lab found LNG's life-cycle emissions similar to coal's.

The U.S. Dept. of Energy's National Energy Technology Laboratory (NETL) in 2019 conducted a study comparing the emissions created by exporting LNG from the United States and from Australia to Shanghai for power generation with the emissions associated with a coal-fired power plant there. It then calculated the estimated impact those emissions would have—their global warming potential, or GWP—over 20 years.

Nearly two-thirds of LNG's emissions occur before it is burned for power.

The NETL found that the 20-year GWP of the coal-fired plant was still higher than that from LNG (see Figure 1). But nearly all coal's emissions were created while burning it for power. Nearly two-thirds of LNG's emissions, however, were created upstream before combustion. The result: LNG produced almost three-quarters as much greenhouse gas as coal for every unit of electricity it produced.

Fig. 1 Greenhouse Gas Emissions Across LNG's Full Life Cycle



Source: *NETL, "Life cycle greenhouse gas perspective on exporting liquefied natural gas from the United States: 2019 update."*

Liquefying, shipping, and re-gasifying LNG account for 10% of its upstream emissions.

Almost a quarter of the emissions associated with LNG were produced extracting, transporting, and processing the natural gas used to make LNG. But just over 10% of LNG's upstream emissions were produced while liquefying the natural gas, transporting it by tanker, and regasification, all of which are energy-intensive activities that produce their own emissions.

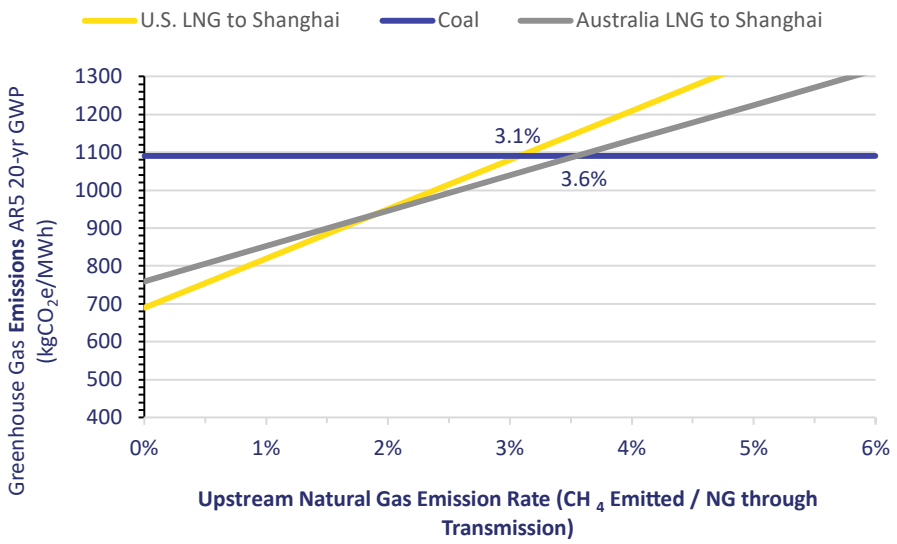
Methane is also leaked as gas is piped to LNG plants, liquefied, and shipped.

But another, more insidious source of LNG emissions is simple leakage. The NETL found that roughly 0.7% of U.S. natural gas was lost to leakage before ever being liquefied, and 1.5% of Australian natural gas. The NETL also estimated that an additional 0.5% of the gas was lost while being liquefied and transported.

Methane has a much greater impact on climate than CO_2.

Gas leakage poses a bigger problem than such small percentages might suggest. The main component of natural gas, methane, has an outsized impact on the climate because it traps much more heat than CO2. According to the latest figures from the United Nations' International Panel on Climate Change, the global warming potential of methane in the atmosphere is up to 87 times that of CO2 in the first 20 years after emission.

Fig. 2 Global Warming Potential of LNG vs. Coal



Source: NETL, "Life cycle greenhouse gas perspective on exporting liquefied natural gas from the United States: 2019 update."

This fugitive methane, leaked into the atmosphere, stands to do more damage than an equivalent amount of carbon dioxide released burning it. The NETL projected that LNG's carbon intensity would be as high as coal's if fugitive methane levels rise much higher than 3% (specifically, 3.1% for LNG from the USA and 3.6% for LNG from Australia).

While that's well over double the NETL's estimates of actual leakage, recent research using improved technology to detect methane leaks suggests the problem may be much worse, and that LNG emissions may already be closer to coal's than the NETL estimated.

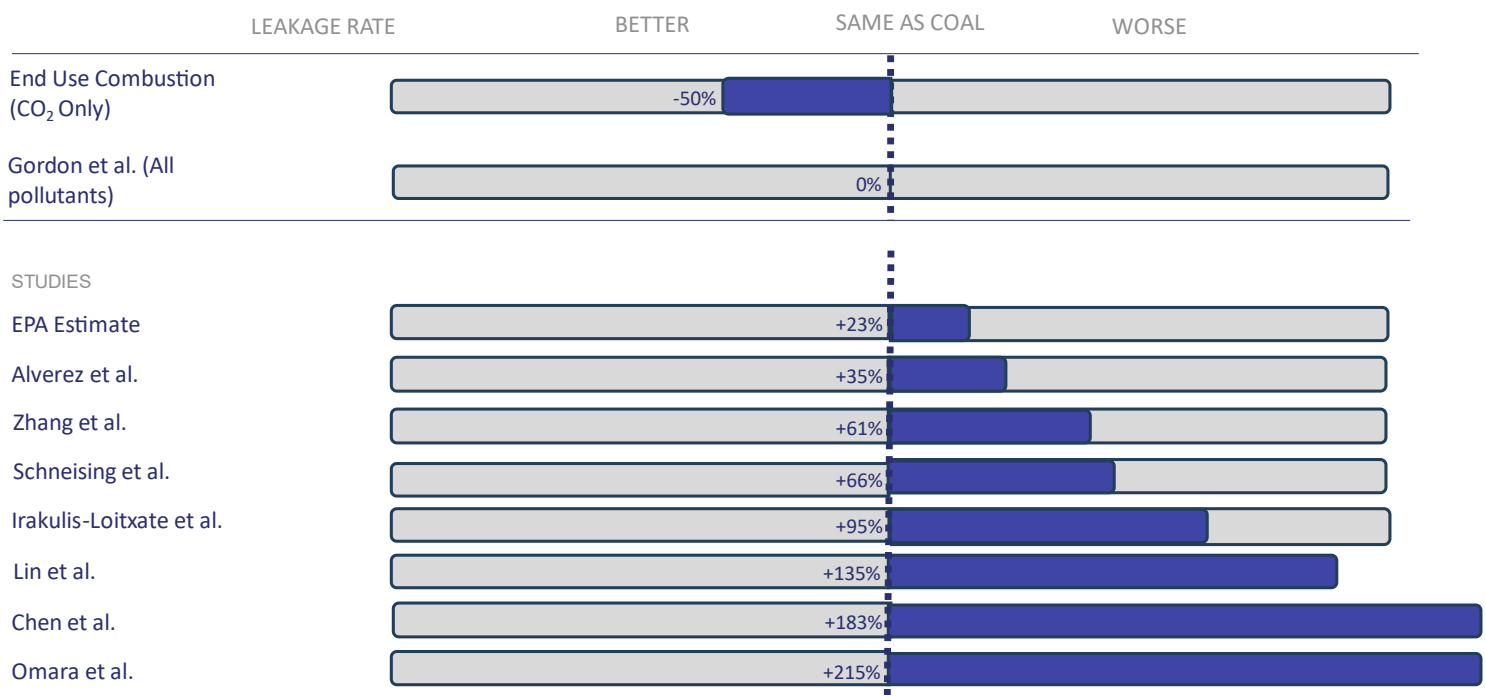
A July report revealed that methane leakage in the U.S. has long been underestimated.

In a July report, the Colorado-based non-profit Rocky Mountain Institute (RMI) found that the U.S. Environmental Protection Agency may have been under-recording methane leakage in natural gas supply chains for decades. Among other things, the RMI found, the EPA appeared to have relied on ground-based measuring equipment that missed the extent of the problem. More recent research using more advanced sensors on airplanes and satellites has found evidence that methane leakage is much more prevalent.

LNG's actual methane leakage rate could put its emissions on par with coal's.

The EPA estimates methane leakage in U.S. natural gas supplies at about 1.4%, but the more advanced studies report leakage rates ranging as high as 11%. And while the NETL estimated that it would take a leakage rate above 3% to put LNG emissions on par with coal's, RMI found that, given methane's greater potency as a GHG, leakage rates of even 0.2% could eliminate the advantage gas has over coal. A leakage rate of 11% in a natural gas supply chain would result in 215% more emissions than coal to produce an equivalent amount of electricity.

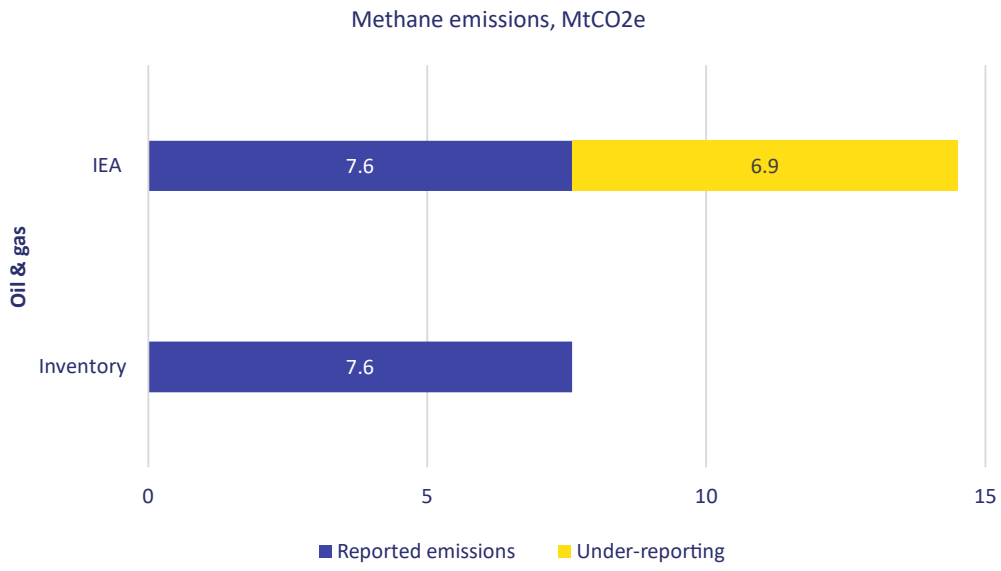
Fig. 3 Leakage rates



Source: Rocky Mountain Institute

The U.S. isn't the only country where gas leakage may be worse than thought. Using new IEA data on global emissions, the U.S.-based Institute for Energy Economics and Financial Analysis (IEEFA) concluded in its own July report that Australia may have underestimated methane emissions by its own oil and gas sector by 90%.

Fig. 4 Methane Leakage in Australia's Oil & Gas Sector



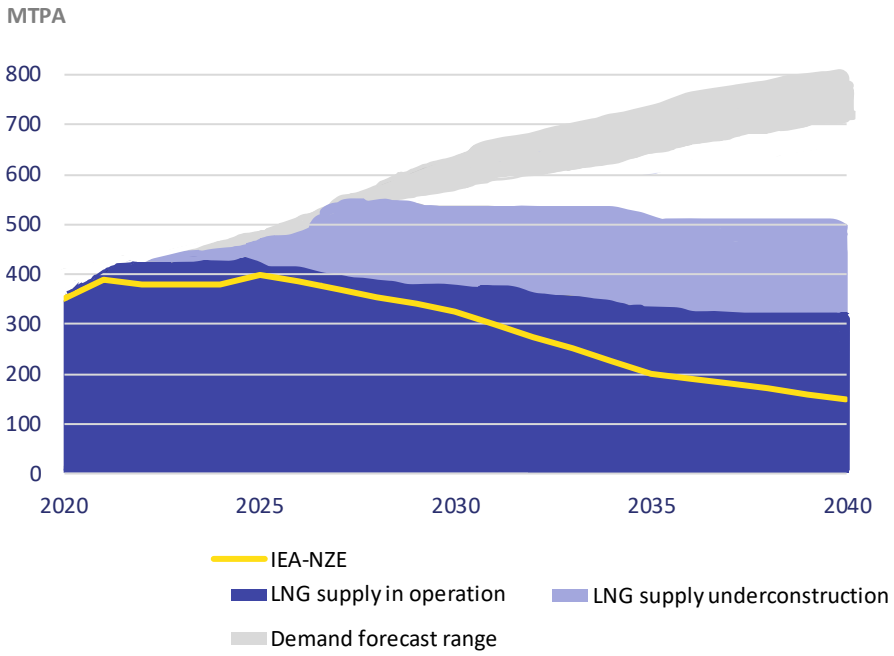
Source: IEEFA

The Global LNG Landscape

LNG's popularity as a fuel source continues to grow despite the mounting evidence that LNG produces substantially more environmentally damaging greenhouse gas than once known.

The IEA projects that global LNG usage must peak in 2025 and decline to 150 million tonnes per annum (Mtpa) by 2040 to achieve its 2050 NZE target. Whereas Shell forecasts demand to reach almost 700Mtpa by 2040, with projected LNG production/supply rising by 20% to 480 Mtpa based on LNG infrastructure currently under construction.

Fig. 5 Global LNG Supply/Demand Scenarios



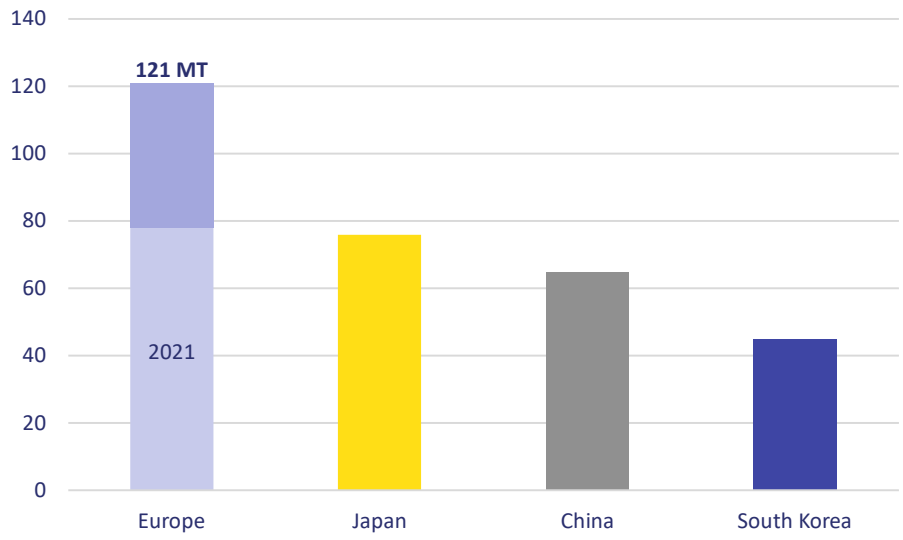
Source: Shell interpertation of Wood Mackenzie, Poten & Partners, IEA, S&P Global Commodity Insights and FGE 2022 & 2023 data.

Demand Dynamics

Spot prices for LNG rose to record highs last year as the EU scrambled to replace Russian gas.

Global trade in LNG grew 6.8% in 2022 to 401.5 metric tons (MT), according to the International Gas Union, a London-based association for the natural gas industry. Part of that growth was due to short-term disruptions in supplies of pipeline natural gas. Russian exports of gas to Europe via pipeline dried up after Moscow's invasion of Ukraine, prompting European importers to turn to LNG to fill the shortage. EU imports jumped 66% in 2022, sending spot-market prices for LNG to record highs and capping a period of rising volatility that began with the global pandemic in 2020.

Fig. 6 Top LNG Importers, 2022 (MT)



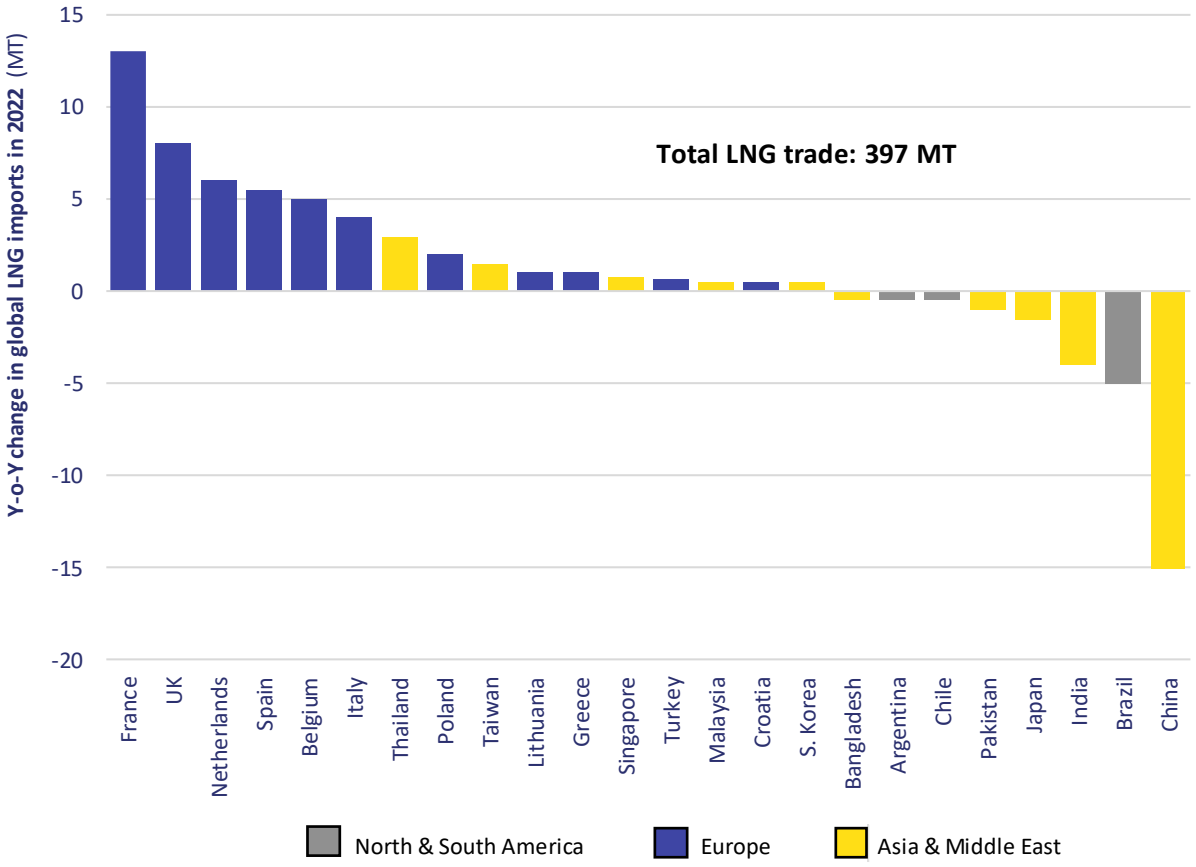
Source: "Shell LNG Outlook 2023"

High prices and volatility prompted more buyers to commit to long-term purchase contracts.

Less than a third of LNG shipments are traded on the spot market for immediate delivery; most are instead committed under long-term, forward contracts, with prices indexed to the price of oil.

As European buyers scrambled for spot supplies last year, Asian buyers who could replaced LNG imports with coal. That reduced imports of LNG into Asia, but increased coal consumption. The volatility in spot markets is also driving more buyers into the greater stability, but firmer commitment, afforded by long-term contracts

Fig. 7 Change in Net LNG Imports, by Country, 2022



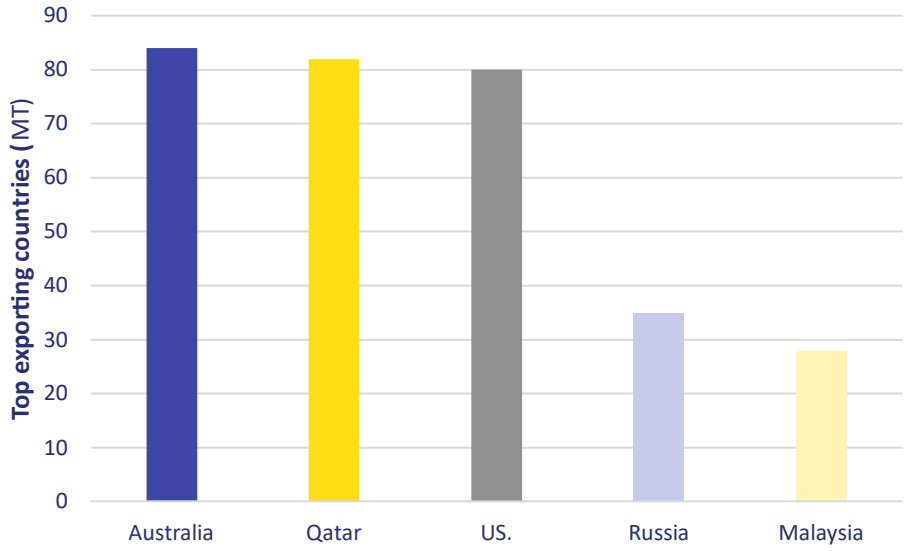
Source: "Shell LNG Outlook 2023"

Supply Dynamics

Australia remains the largest LNG exporter, but the U.S. and Qatar are expanding production.

Australia is the largest LNG exporter, at 80.9 MT in 2022, followed by Qatar and the U.S., each of which supplies roughly 20% of global exports. The U.S. accounted for 41% of increased global supply in 2022, thanks to two new liquefaction plants there that began operating in late-May.

Fig. 8 Top LNG Exporters, 2022 (MT)



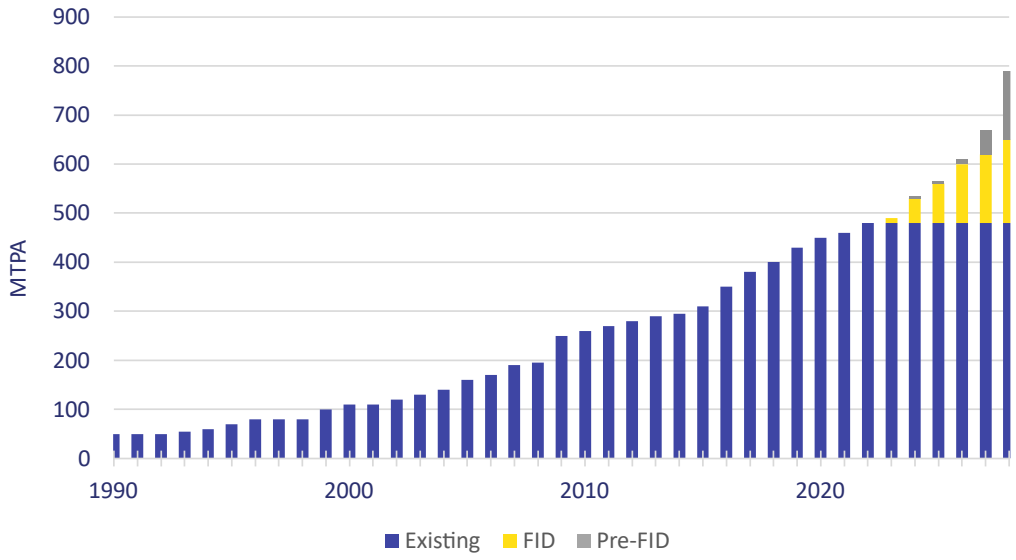
Source: "Shell LNG Outlook 2023"

Surging Investment in New Supplies

Price volatility and rising demand for long-term contracts supports new LNG projects.

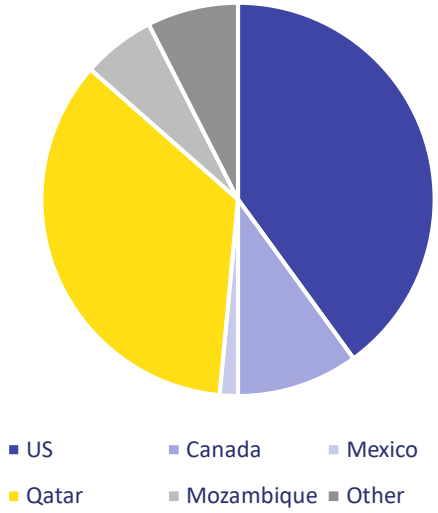
Volatility in the spot market and the resulting increase in demand for longer-term contracts has strengthened the case for increased investment in LNG production. As of last year, the industry was in the process of building, or had approved plans to build, new liquefaction facilities capable of adding 178.3Mtpa to global supply.

Fig. 9 Global Liquefaction Capacity Development, 1990-2028



Source: International Gas Union, "2023 World LNG Report"

Fig. 10 LNG Supply Growth by Producing Country, 2025-2030



Source: "Shell LNG Outlook 2023"

Roughly 44% of that new capacity is being built in just two countries, Qatar, and the U.S.

United States - The Rio Grande Export Facility

The $18.4 billion Rio Grande LNG project received funding from Singapore and Abu Dhabi.

Houston-based, Nasdaq-listed energy company NextDecade is developing a 27Mtpa production and export facility in Brownsville, Texas. The company recently obtained $18.4 billion in financing for Phase 1 of Rio Grande LNG, which will include three LNG trains capable of producing 17.6Mtpa. While most of the funding for Phase 1 came from bank loans, roughly a third came from a consortium that included New York-based Global Infrastructure Partners, the Government Investment Corp. of Singapore, Abu Dhabi sovereign wealth fund Mubadala, and France's TotalEnergies. The project has already secured long-term purchase contracts for 16.2Mtpa of Phase 1's production with several buyers, including TotalEnergies, Shell, ExxonMobil, Guangdong Energy Group, and Japan's Itochu.

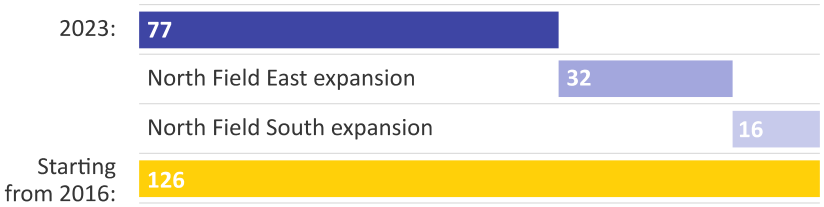
Qatar - North Field East Expansion

Qatar's $28.8 billion North Field East Expansion will add 33 Mtpa of capacity with long-term buyers in China.

Qatar's $28.8 billion North Field East project entails expanding gas fields in the Gulf and piping the additional gas to four new LNG trains on shore. When it begins production in 2025, the project will raise Qatar's LNG production capacity by 43% to 110Mtpa. Qatar's national energy company, QatarEnergy will hold 75% of the project. Other investors include Total Energies, Shell, and ExxonMobil, each with an approximately 6% interest. Eni and ConocoPhillips each have a 3% interest.

Qatar has also launched plans for a second expansion, called North Field South, which will expand its gas fields further and build six new LNG trains, boosting LNG production to 126Mtpa by 2027.

Fig. 11 Qatar North Field Expansion (Mtpa)



Source: S&P Global Commodity Insights

QatarEnergy has already signed 27-year purchase and sale agreements for the new LNG with China Petroleum & Chemical Corp., or Sinopec, and with the China National Petroleum Corp. under which each will buy a 1.5% stake in the project.

New LNG projects will boost production the IEA says must decline.

Both of these projects, while underpinned with long-term contracts and rising demand, run counter to the IEA's analysis that LNG supplies must peak in 2025 and decrease thereafter.

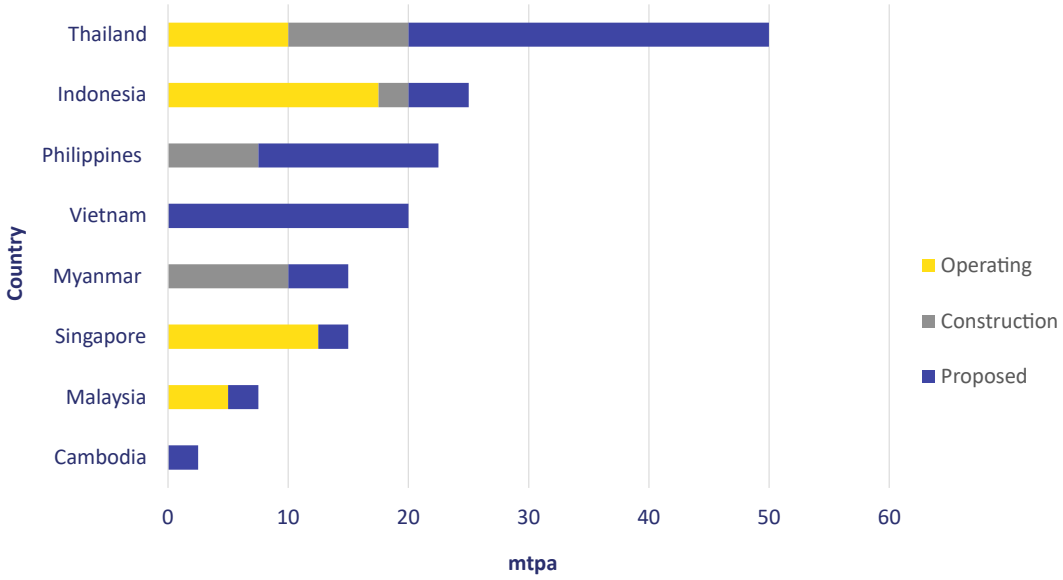
Growing LNG Demand in SEA

LNG in Asia has long been confined to larger, more developed economies without their own major oil and gas supplies, including Japan, South Korea, and China. China and Japan are today the world's largest LNG importers (see Figure 5).

Southeast Asia is becoming a significant player in the LNG market.

But with their own gas fields declining—and still convinced of LNG's suitability as a transitional fuel—more Southeast Asian nations are investing in facilities to import LNG. Last year's biggest addition to global LNG consumption was Thailand's new, $900 million regasification facility, with a capacity of 7.5 Mtpa.

Fig. 12 LNG Import Capacity Operational and in Development in SEA, June 2021



Source: Global Fossil Infrastructure Tracker, Global Energy Monitor

Philippines and Vietnam: Maiden LNG Investments

The Philippines and Vietnam have built their first LNG terminals.

The Philippines and Vietnam are making their first forays into LNG and received inaugural cargos in 2023. Neither had any LNG infrastructure before this year, when the first of several planned terminals began operating. Combined, new terminals in the Philippines and Vietnam are slated to expand Southeast Asia's LNG import capacity by 7.8 Mtpa.

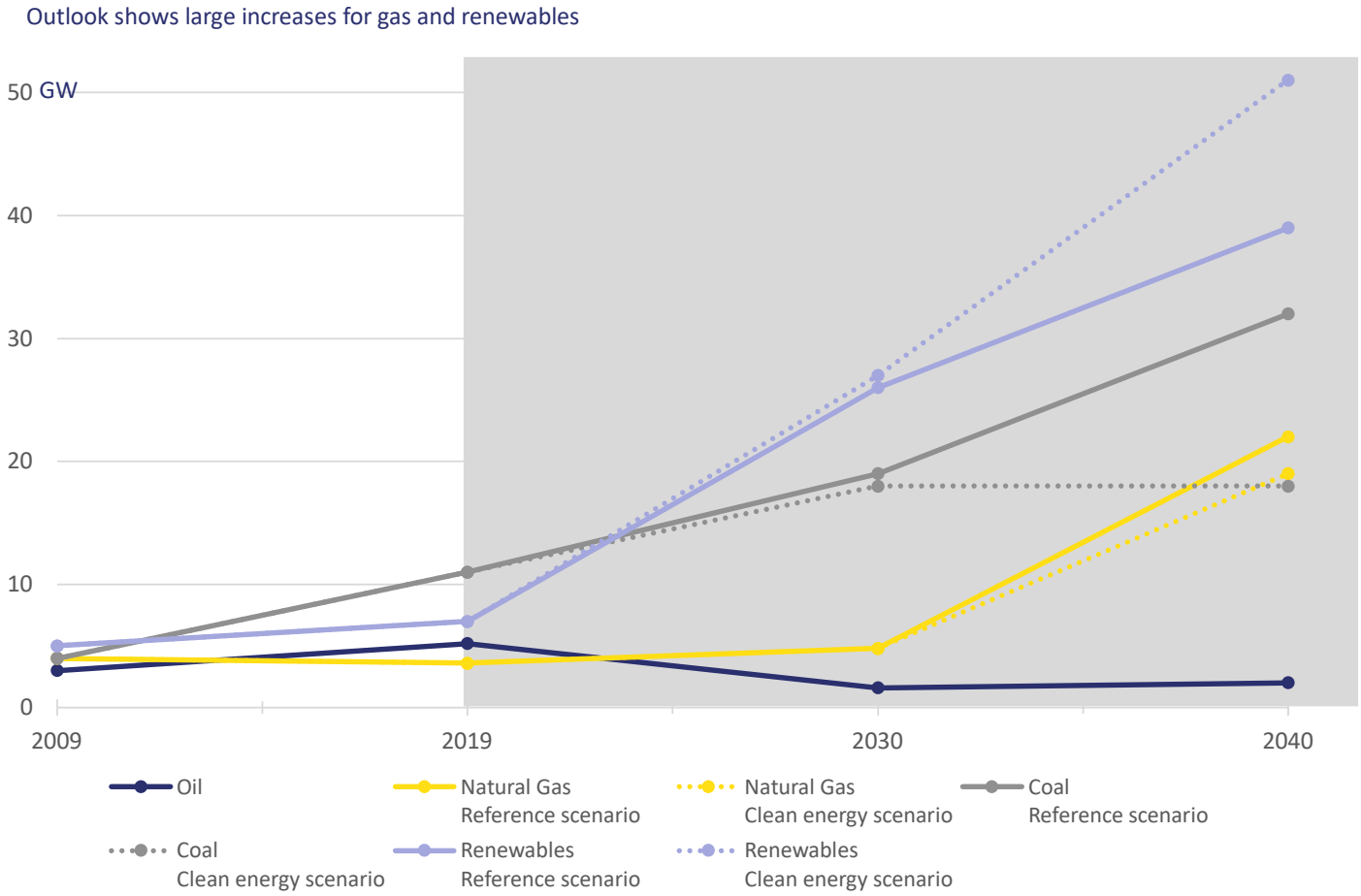
Philippines

Two new LNG terminals in the Philippines will provide up to 6.8Mtpa this year.

While it still relies primarily on oil and coal for power, the Philippines has also been using natural gas piped from its Malampaya gas field in the South China Sea. Natural gas accounted for 17% of the country's fuel for power in 2022. But Malampaya is depleting rapidly and is projected to run out by 2027. The government is promoting development of renewable energy—last year Manila exempted investments in renewables from a 40% cap on foreign ownership in the energy sector. But as part of the Dept. of Energy's Energy Plan 2018-2040, Manila continues to approve projects to import LNG as a transitional fuel.
The Philippines plans to build seven LNG terminals, including:

1. Philippines LNG, a 3Mtpa terminal south of Manila in Batangas, owned by Atlantic Gulf & Pacific, whose investors include Osaka Gas and government-owned Japan Bank for International Cooperation. Approved in 2021 and completed in April at an estimated cost of PHP14.6 billion (USD258 million), the terminal supplies LNG to San Miguel Global Power's Ilijan Power Plant.
2. Batangas Interim Offshore Terminal (IOT), a 3.8Mtpa floating storage and regasification terminal, also in Batangas and owned by FGEN LNG, a joint venture between Philippine utility First Gen Corp. and Tokyo Gas. The IOT is due to begin operating by the end of 2023 and will supply First Gen's four gas-fired power plants in Batangas.

Fig. 13 Projected Philippine Fuel Reliance (Dept. of Energy scenarios)



Source: IEEFA, "No Guaranteed Future for Imported Gas in the Philippines," 2021.

The Dept. of Energy's plan envisions building LNG import terminals capable of handling 18.76Mtpa of LNG, enough to produce 10.9GW of power at the country's CCGT power plants. That will, it projects, boost the share of natural gas in the country's energy mix to 27% by 2040, compared with a 50% share for renewables such as solar and hydroelectric power.

Fig. 14 Planned/Proposed Philippine LNG Terminals

Project Sponsor	Project	Import Capacity (mtpa)	Location	Target COD	Permitting Status	Corporate Model
FGEN LNG Corporation	Interim FSRU Terminal	5.3	Barangays Sta. Clara	3Q22	PCERM received Sept. 2020	Standalone
Excelerate Energy	FSRU Terminal	1.5	Batangas Bay	2Q22	NTP received	Standalone
Energy World Corp	Onshore Storage and Regasification Terminal	3.0	Pagbilao Grande Island, Quezon Province	2024	PCERM received Dec. 2018	Integrated LNG-to-Power Plant
Batangas Clean Energy, Inc.	FSRU Terminal	3.0	Barangay Pinamucan-Ibaba, Batangas City	Jul-25	NTP received	Integrated LNG-to-Power Plant
Atlantic Gulf & Pacific	FSRU Terminal	3.0	Batangas Bay	Jun-22	NTP received	Standalone
Shell Group	FSRU Terminal	3.0	Batangas Bay	TBD	NTP received	Standalone
VIRES Energy	FSRU Terminal	TBD	Batangas Bay	TBD	NTP received	Integrated Floating LNG-to-Power Plant
Total		**18.76**				

Source: IEEFA, "No Guaranteed Future for Imported Gas in the Philippines," 2021

Fig. 15 Planned/Proposed Philippine Gas-Fired Power Plants

Plant Name	Capacity (MW)	Location	Owner	Target COD	Corporate Model
Luzon (Committed)					
EWC CCGT Power Plant	650	Pagbilao, Quezon	Energy World Corporation	2024	Integrated LNG-to-Power Plant
Ilijan LNG Power Plant	1,750	Batangas	Excellent Energy Resources, Inc.	Mar-23	Standalone
Natural Gas-Fired Power Plant	1100	Batangas City	Batangas Clean Energy, Inc.	Jul-25	Integrated LNG-to-Power Plant
Luzon (Indicative)					
Lloyds Energy Philippines Inc. Floating Power Plant	1200	San Pascual, Batangas Bay	Lloyds Energy Philippines Inc.	2023	Integrated LNG-to-Power Plant
SMC Ilijan LNG Power Plant (Expansion)	3600	Batangas	SMC Global Power Holdings Corp.	Phase 1: 2024	Standalone
Lucidum Liquified Natural Gas Power Plant	300	Silanguin Bay, Zambales	Lucidium Energy, Inc.	TBD	Integrated LNG-to-Power Plant
Luzon (Proposed)					
VIRES LNG-Fired Barge Project	500	Batangas City	Vires Energy	TBD (2022)	Integrated LNG-to-Power Plant
Santa Maria Gas Plant	600	Batangas	First Gen	2023	Standalone
Santa Joseph Gas Plant	600	Batangas	First Gen	2023	Standalone
Subic Power Plant	600	Subic, Zambales	MGen, Aboitiz	TBD	Standalone
Total Capacity	**10,900**				

Source: IEEFA, "No Guaranteed Future for Imported Gas in the Philippines," 2021.

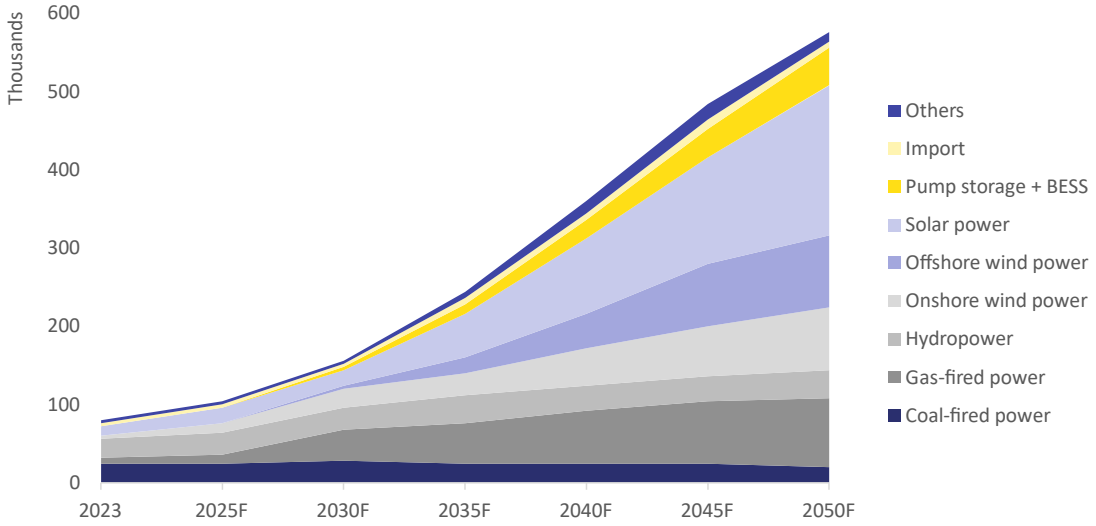
Plans for USD13.6 billion in new LNG projects, but risks remain.

In a 2021 report, however, the IEEFA warned that building so many new LNG projects—representing USD13.6 billion in combined investment—raised the risk that some would fail to secure reliable long-term buyers and thus end up underutilised or unfinished. The IEEFA pointed to a history of stalled LNG projects in the country, notably due to regulations. Notably the Electric Power Industry Reform Act (EPIRA) of 2001 allowed retail power customers to choose which utility to buy power from. Utilities have consequently become reluctant to commit to long-term fuel purchase agreements, the IEEFA said. This has created a more challenging environment for LNG projects that rely on long-term supply contracts to justify their large up-front investments, the report argued.

Vietnam

Vietnam faces a similar predicament. The nation is trying to reduce its reliance on coal while tackling worsening power shortages that imperil its fast-growing economy. In May, the government approved an Eighth National Power Development Plan, or PDP8, which envisions investing USD134.7 billion to double Vietnam's power capacity by 2030. The plan foresees a complete phaseout by 2050 of coal, which now accounts for 28% of total power generation. Renewables, notably solar and wind power, will become Vietnam's dominant sources of power by 2050.

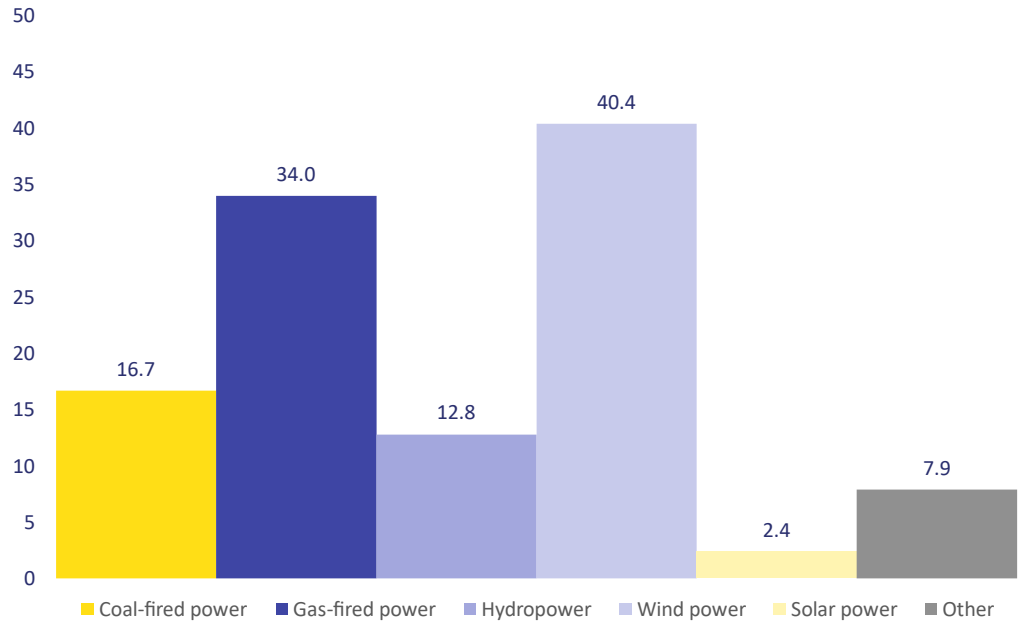
Fig. 16 Projected Power Sources Under Vietnam's PDP8 (MW)



Source: VNDIRECT Research, "PDP8 - a turning point for the industry," May, 2023

But Vietnam's plan also calls for more than doubling its reliance on natural gas, to almost 27% of the country's power by 2030, from just 13.1% in 2020. To accomplish that, Vietnam plans to build over 28GW worth of gas-fired power plants by 2030. LNG will fuel 13 power plants producing 22.4GW of power, or almost 15% of the nation's electricity by 2030. That will make LNG Vietnam's fastest-growing source of fuel under the new plan.

Fig. 17 Proposed Investment Under Vietnam's PDP8, by Fuel (USD Billions)



Source: VNDIRECT Research, "PDP8 - a turning point for the industry," May, 2023

Vietnam plans to build three major LNG terminals to fuel 13 new power plants.

To supply these 13 plants with LNG, state-owned PetroVietnam Gas plans to build three major gas import terminals, including:

1. The Thi Vai LNG Terminal, a 1Mtpa import terminal on the South China Sea southeast of Ho Chi Minh City. First planned in 2012, the USD285 million terminal received its first LNG cargo in July and will reportedly supply gas to two power plants and an industrial estate nearby. PetroVietnam Gas plans to expand Thi Vai's capacity to 3Mtpa.
2. Son My LNG Terminal, a proposed, 3.6Mtpa import terminal on the South China Sea east of Ho Chi Minh City. First planned in 2011, PetroVietnam Gas and U.S. utility AES in July received provincial government approval to build the plant. AES and PetroVietnam are still reportedly arranging financing for construction.

Fig. 18 Proposed LNG-Fuelled Power Plants Under Vietnam's PDP8

	Capacity (MW)	Progress	Investor
LNG power plant			
Nhon Trach 3&4	1600	2021-30	PVPower
LNG Hiep Phuoc I	1200	2021-30	Hai Linh Company Limited
LNG Bac Lieu	2400	2021-30	Delta Offshore Energy
LNG Quang Ninh I	1500	2021-30	PVPower - Colavi - Tokyo Gas - Marubeni
LNG Thai Binh	1500	2021-30	TTVN Group - Tokyo Gas - Kyuden
LNG Nghi Son	1500	2021-30	Milennium (USA)
LNG Quynh Lap	1500	2021-30	Bidding
LNG Quang Trach	1500	2021-30	EVN
LNG Hai Lang	1500	2021-30	T&T Group - Hanwha - Kospo - Kogas
LNG Ca Na	1500	2021-30	Bidding
LNG Son My II	2250	2021-30	AES Group
LNG Son Mỹ I	2250	2021-30	EDF - Sojitz - Kyushu - Pacific Group
LNG Long Son	1500	2021-35	PGV - TTC - TV2 - Mitsubishi - GE - GTPP
LNG Long An I	1500	2021-30	VinaCapital - GE
LNG Long An II	1500	2021-35	VinaCapital - GE
Domestic gas-fired power plant			
O Mon III, IV (Lo B)	2100	2026-27	EVN (Genco 2)
O Mon II (Lo B)	1050	2027	Vietracimex - Marubeni
Dung Quat I, II, III (CVX)	2250	2028	NA
Mien Trung I, II (CVX)	1500	2028	PVN

Source: VNDIRECT Research, "PDP8 - a turning point for the industry," May, 2023

Conclusion

LNG is not a climate-friendly transitional fuel and increasing use is inconsistent with IEA emissions targets.

LNG is not the climate-friendly alternative to coal once thought. Even under the most generous assumptions, LNG's carbon intensity rivals coal's once upstream emissions are included in calculating its environmental footprint. When fugitive methane emissions during shipment and transport are added, LNG's emissions may even surpass those of coal.

Yet the outdated assumption that LNG is clean energy underpins growing investment, with projected production of LNG far exceeding what the IEA calculates is necessary to meet the goals of the Paris Agreement. If allowed to continue, expanded LNG use stands to thwart efforts to keep global warming below 1.5°C. Growing investment in LNG by the Philippines, Vietnam, and other Southeast Asian nations will only help push the world further beyond this critical target.

LNG producers should reconsider new projects and deploy the latest technologies to track emissions from existing ones.

ARE recommends a multifaceted approach to reducing overinvestment in LNG. First, stakeholders in LNG production and supply chains must diligently document the carbon emissions of each cargo, using the latest monitoring technologies to more accurately gauge leakage. Oil and gas companies should also re-evaluate their LNG infrastructure investment plans and align them with the IEA's net-zero scenario.

Southeast Asian countries should halt new LNG projects and shift to renewables.

Southeast Asian nations should review their energy policies and, given LNG's higher impact, give greater priority to developing renewable energy. The Philippines and Vietnam should halt plans to build new LNG terminals and gas-fired power plants. They also need to revise their long-term energy plans to reflect LNG's life cycle emissions, not just those created burning it.

Investors and lenders should stop financing LNG projects.

Lastly, financial institutions and investors should reassess their lending policies and consider banning new LNG financing and phased divestment from existing LNG projects.

Growing evidence of LNG's upstream emissions exposes the idea that it is a viable transition fuel as a myth. Given ever cheaper renewables, Southeast Asia can no longer afford to ignore LNG's real environmental cost.

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