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Quick and Dirty: How Does Natural Gas Compete With Renewables and Coal in Asia?

Energy Research Paper

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Faced with relatively expensive natural gas imports, many Asian countries have turned to a combination of renewables and coal. This delivers reliable electricity at reasonable costs with some reduction in greenhouse gases and other pollutants. However, this method is not the basis for long-term sustainable energy supply in this huge and fast-growing region. How can natural gas compete more effectively in the Asian power sector to reduce emissions more deeply? What other market opportunities such as industry or transport are open to it? What price points or other market developments would make natural gas more competitive and affordable?

ENERGY RESEARCH PAPER

This research paper is part of a 12-month series published by the Al-Attiyah Foundation every year. Each in-depth research paper focuses on a current energy topic that is of interest to the Foundation's members and partners. The 12 technical papers are distributed to members, partners, and universities, as well as made available on the Foundation's website.

03 EXECUTIVE SUMMARY

- The period 2025-2030 will see the largest expansion of global liquefied natural gas (LNG) export capacity in history. Usable capacity will rise from about 550 billion cubic metres (BCM) per year in 2024 to at least 800 BCM in 2030, and possibly as high as 870 BCM.
- The China, India, and European phase-out of Russian gas imports should absorb some but not all this new LNG in the early 2030s. Substantial demand growth will be required in emerging Asian markets including the Association of Southeast Asian Nations (ASEAN), Pakistan and Bangladesh, as well as other new markets such as ship bunkering and to some extent Africa.
- Lower LNG prices could result in temporary shut-ins of U.S. capacity, helping to rebalance the market.
- Lower prices should also boost demand, with about 50 BCM of global demand upside in the short term (to 2030) and 90 BCM in the long term (to 2035-40), distributed between the main consuming markets, but with China the key short-term market, and China and India leading in the long-term.
- Emerging Asian markets have strong LNG demand fundamentals, including demographic and economic growth, and declining indigenous gas output. However, they also have economic and energy security reasons to rely on low-cost domestic coal and, increasingly, renewables.
- Middle East and North Africa (MENA) countries, notably Qatar, the UAE and Oman, are undertaking substantial expansion of their LNG export capacity, in competition with the U.S. and other expanding suppliers.
- Asia is the core market for Middle Eastern LNG exporters. Whether the expected oversupply of LNG in the late 2020s and early 2030s is severe, and how long it persists, depends crucially on expansion of Asian LNG demand, particularly in the emerging markets beyond China and India.
- A period of lower LNG prices, around $6 per MMBtu, should result in substantial LNG demand upside, from displacing oil, and to a limited extent coal, and from increasing industrial uptake.
- The emerging Asian LNG market is heterogeneous and likely to be volatile and very price-sensitive in demand. The expansion of cost-competitive renewable energy is a further drag on LNG demand in the power sector.
- Major LNG exporters may be able to boost demand in emerging Asian markets by co-investing in supporting infrastructure to import, distribute and use LNG.

MARKET SIGNALS OVERSUPPLY BEFORE POTENTIAL DEFICIT

The period of about 2026-30 is expected to witness the largest wave of new LNG supply in history (Figure 1). After very little growth in 2023-24, exports in 2025 rose by 28.5 BCM. For comparison, average annual additions in the 21st century have been about 17.5 BCM. Export capacity should grow by about 53 BCM in 2026 and 60 BCM in 2027, a dramatic acceleration[i]. This is led predominantly by projects in the U.S. and Qatar, but with Canada, Australia and various plants in Africa also contributing. This wave of new supply will continue up to 2030 with the completion of Qatar's North Field East, North Field South and (likely) North Field West expansions, various projects in the U.S., Mozambique, the UAE, Oman and others. Russia could also contribute, depending on sanctions constraints.

The implied expansion would take global liquefaction capacity to about 872 BCM in 2030 and 942 BCM in 2035. This is probably somewhat overstated, because: a) some existing plants will see declines in output because of falling feedstock (Trinidad, Egypt, Algeria, Indonesia, Malaysia, Australia (partly allowed for in this projection[iii])); b) some plants will suffer political or technical interruptions, if history is a guide, as in Mozambique, Libya and Yemen; c) the Russian plants are likely to be delayed or not to operate at full capacity because of sanctions; and the expected build-out of some plants, particularly in the U.S., will probably be slowed or cancelled if economics become unfavourable as LNG prices drop. For instance, the planned 3.8 Mtpa (5.2 BCM) expansion of Oman's Qalhat plant appears to have been delayed recently[iv]. On the other hand, if market conditions are favourable, new capacity could appear post-2030, such as

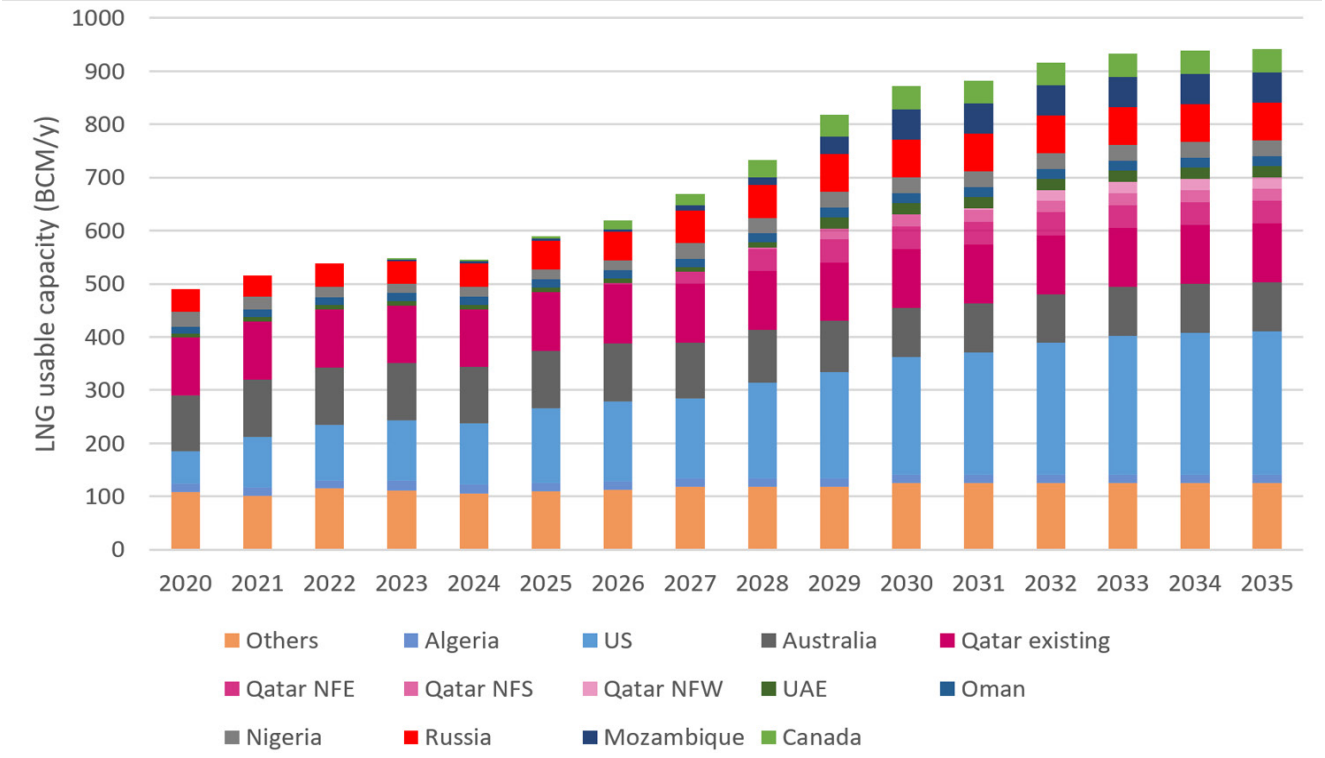
possible further plants in the U.S., Mozambique and Mauritania-Senegal, additional expansions in Qatar, and the long-delayed Tanzania LNG project.

The LNG market has always been highly cyclical. The long lead-times and "lumpy" nature of liquefaction additions mean that new supply tends to come in waves, that overwhelm demand, particularly if they coincide with periods of economic downturn. This is partly ameliorated by the usual practice of selling most volumes from new plants on long-term contracts of 15-25 years, and indexing prices to oil, in typical Asian-directed contracts.

This strong supply growth naturally raises the question of how these volumes will be consumed. Certain structural changes over recent years should make the market more flexible and liquid. The rise of U.S. LNG without destination restrictions, and the use of gas-on-gas indexation for pricing (against TTF or NBP in Europe, JKM in east Asia, or export-based contracts linked to Henry Hub from the U.S.), should allow the market to adjust to oversupply mainly through redirections and price falls rather than cargo cancellations.

However, this price readjustment must be very sharp to bring the market into balance. The rise of "portfolio players" and traders as offtakers means a sizeable amount of contracted LNG may reappear as spot or short-term volumes. Prices might need to fall at least temporarily to levels low enough to force the closure of U.S. export facilities, i.e. when the short-run cost of buying Henry Hub-linked gas, liquefying and exporting it is less than the sales price received, where contractual obligations permit.

Figure 1 Global Operational LNG Capacity, 2020-35 (Actual Output 2020-2024)[ii]



GLOBAL DEMAND GROWTH TO BROADEN BEYOND CHINA AND EUROPE

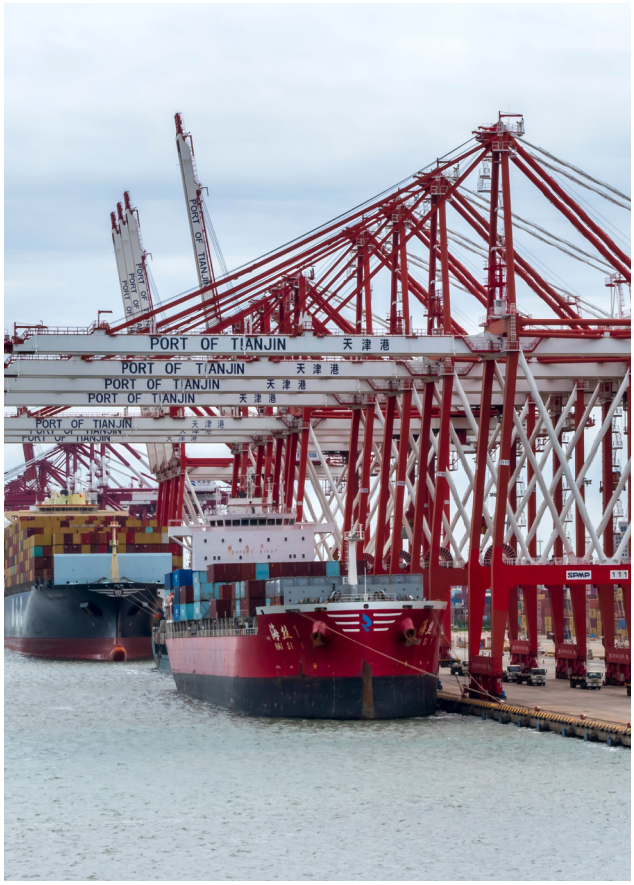
Europe's LNG imports jumped sharply from late 2021 and into 2022 to replace Russian supplies. From 107.5 BCM in 2021 (including Turkey), imports reached 172 BCM in 2022, before falling back in 2024 as mild weather, conservation measures and the growth of renewable energy reduced requirements. Declining indigenous production and cold weather pushed up demand again in 2025, by 34 BCM to about 167.5 BCM. But European gas demand is likely to follow a gradual, bumpy downward path.

In Asia, the traditional main LNG consumers, Japan, South Korea and Taiwan, remain very important but are mature and will see long-term declining demand. After a period (2016-21) when China was the key driver of LNG demand growth, India and other emerging Asian economies such as Pakistan, Bangladesh and Vietnam are therefore expected to drive rising consumption through the 2030s.

China began importing LNG as recently as 2006, and its consumption grew rapidly up to 2021, reaching 110.1 billion cubic metres (BCM)[v]. Up to about 2016, the relatively modest amounts of LNG imports corresponded to power sector gas use around the coastal megacities such as Shanghai and Guangzhou, where pollution reduction was important, incomes high, and gas could be relatively competitive against coal brought over long distances.

After 2016, LNG imports accelerated as moves were made to gasify district heating systems and industry in northern China to reduce coal-based pollution, and to convert heavy goods vehicles to limit diesel consumption. China surpassed Japan as the world's biggest LNG importer in 2021 and was importing more LNG than the whole of Europe. China's gas imports by pipeline from Central Asia and Russia also increased, and domestic gas production rose strongly, at a compound annual growth rate of 6.6% during 2014-2024.

However, this situation changed sharply in 2022 when global LNG prices soared as a result of Russia's cut-off of much of its supplies to Europe and the invasion of Ukraine. Chinese LNG imports fell sharply in 2022, recovered only partially in 2023 and 2024, then fell by 15.5 BCM in 2025. High prices deterred Chinese buying, and alternative domestic and pipeline supplies became more competitive. The trade war and political tensions with the U.S. also made Beijing more cautious of relying on a commodity dominated by its chief rival, and its imports of U.S. LNG ceased almost entirely after February 2025[vi]. It has more political leverage over Russia and Central Asian suppliers by pipeline, and these land-based routes are also seen as more secure.



07 FORECASTS INDICATE A WELL-SUPPLIED LNG MARKET, THOUGH SURPLUS VARIES

Shell's LNG outlook[vii], for example, is positive on overall demand growth. It sees slight growth in European demand from 2025 to 2030, mainly to replace residual Russian gas and declining domestic production, but with a fall thereafter to 2040. World consumption outside Asia and Europe – mostly, Latin America, the Middle East and some African countries - approximately doubles to 2040, to about 70 BCM in an overall market of approximately 900 BCM (up from 540 BCM in 2024). Maritime use (ship bunkering) rises from a small amount today to about 40 BCM by 2040. The combination of India and China grows strongly to about 220 BCM by 2030, thereafter rising more gradually to about 270 BCM. The remaining growth comes from Asia outside Japan, South Korea, China and India, up from about 130 BCM in 2025 to 230 BCM in 2040.

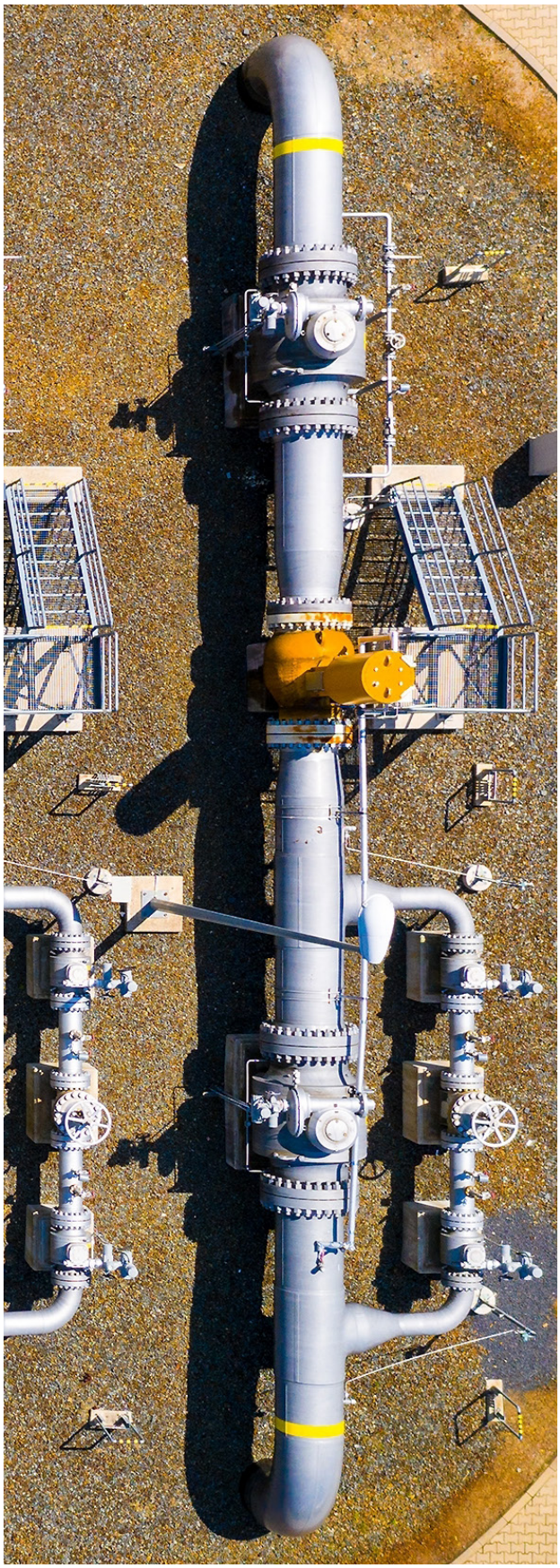
Global supply capacity will reach about 800 BCM by 2030, in Shell's view, or about 872 BCM by 2030 and 942 BCM by 2035 in this study's bottom-up view. Shell's outlook would imply that the market would be in surplus by about 30 BCM in 2030, and roughly back to balance by 2035, if no new net capacity is developed between 2030 and 2035 (some new capacity could replace declining output from plants where feedstock runs short). There would then be an overall shortfall of about 100 BCM by 2040 if no new net liquefaction capacity is added.

This study, by contrast, implies an oversupply of as much as 103 BCM in 2030 and 145 BCM in 2035. This is somewhat overstated, as it does not fully account for declines in existing operations, delayed start-ups, reductions in operating rates, and likely project cancellations

in response to such a large oversupply. Europe could absorb some short-term oversupply into storage, possibly in the range of 10 BCM on a one-year basis, by maintaining higher fill of its 104 BCM of working gas capacity[viii].

On the supply side, geopolitical disruptions are a possible but hard to predict factor. US exports could also be reduced by shut-ins if Henry Hub prices rise (for example, in response to strong data centre power consumption) while global LNG prices drop. Nevertheless, the high-level figures do suggest that the market is likely to be very well-supplied at least to 2030 and probably 2035, and that prices are likely to fall substantially and remain relatively low for several years.

One further wildcard to consider is the potential for a peace agreement between Russia and Ukraine, which would allow some Russian pipeline gas and LNG to return to the European market. While European imports would probably never recover to close to their pre-war level, up to 100-125 BCM of pipeline imports could theoretically return[ix]. Even part of this would displace LNG from Europe and significantly increase the amount and duration of oversupply.



09 ASIA EX-CHINA EMERGING AS THE KEY LNG DEMAND DRIVER

The future of global LNG demand therefore hinges on Asia, and specifically its emerging economies. The structural drivers of the strong anticipated LNG demand growth in emerging Asian markets are clear. The regional economies are growing quickly, with India likely to be the fastest-expanding large economy for years to come. Demographics remain favourable, in contrast to Europe, China, Russia and Japan. Domestic gas production is insufficient to meet demand and is falling in most countries. Political borders and the archipelagic nature of south-east Asia make transnational pipeline projects very difficult to realise; the only nearby major supply region, Central Asia, is separated from the main Asian markets by the Afghan-Pakistan and Pakistan-India borders, and high mountains.

In 2024, the main Asian LNG importers after China and the mature markets were India (37.9 BCM), Thailand (15.8 BCM), Pakistan (11 BCM), Singapore (8.4 BCM), Malaysia (4.2 BCM), and others which include Bangladesh, Vietnam, Philippines and Indonesia. Notably, Malaysia and Indonesia both import and export LNG, because of logistics across their large island territories. Other potential new markets include Sri Lanka and Cambodia, but these would remain relatively small markets..

The total demand of all these importers, excluding India, is only about 50 BCM, or less than a tenth of global demand. Therefore, they would have to grow rapidly from a relatively small base to soak up large amounts of global LNG oversupply. This is compounded by the fact that Singapore and Thailand, two of the larger Asian markets in this group, could also be considered relatively mature economies.

Global LNG demand by 2035 may reach about 800 BCM (Table 1). These figures emphasise the dominant role of emerging Asian countries in LNG demand growth. Europe, China, India, Africa and Central/South America are all expected to see significant expansion to 2030, at least in percentage terms, but growth is minimal or negative in all of them from 2030 to 2035, even in India. Gas demand in emerging Asian countries is set to grow from 221 BCM in 2024 to 270 BCM in 2030 and 309 BCM in 2035, i.e. an eventual rise of about 88 BCM. But its LNG import requirement rises by just over 130 BCM in the same period, as indigenous production declines, particularly in Pakistan, Bangladesh, Malaysia, Indonesia, Thailand, Philippines and Vietnam. This could be partly eased by recent significant gas discoveries, such as those in the Andaman region north of Sumatra, Indonesia[x].

If LNG prices are very low over a sustained period (in the example of Table 1, $6 per MMBtu), then additional LNG demand would develop. This would arise:

- In the short-term, from switching of oil- and perhaps coal-fired power and industrial facilities to gas where possible, and by some increased use by existing gas consumers.
- In the long-term, from deterred investment in new coal-fired, nuclear and renewable power; by new investment in gas-based industries; by overall growth of power demand (for example, data centres investments), part of which is supplied by gas; by expansion of gas-based transport (LNG-fuelled lorries, trains and ships); and by discouragement of investment in competing domestic gas production.

This increased LNG demand could be around 52.5 BCM in the short term and 94 BCM in the long term. The largest single sources of this increased demand are in China (21.5 BCM short-term and 35 BCM long-term) and India (4.6-11 BCM short-term and 17-35 BCM long-term). The long-term demand could also rise slightly from more use in international shipping, a factor not specifically considered in the study this table is based on.

The identified oversupply under mid-price assumptions would be about 30 BCM by 2030 in the Shell view, or 103 BCM in 2030 and 145 BCM in 2035 in this study. Therefore, a period of low prices around $6 per MMBtu would be more than sufficient to eliminate the short-term oversupply, in the Shell view. In this study's view, the oversupply would be roughly halved in the short term and cut by about two-thirds in the long term. If the oversupply is eliminated, prices would tend to bounce back.

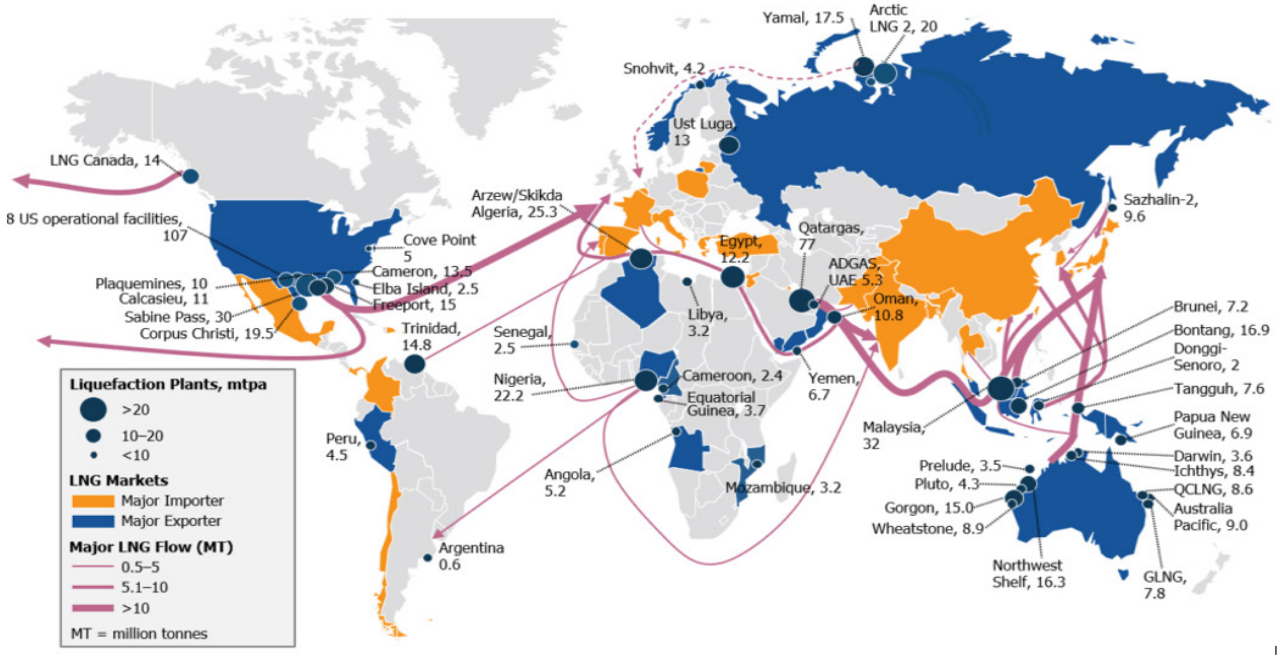
Table 1 Global LNG Demand by Region and Volume Upside at Low Prices[xi]

Country / Region	Base gas demand 2035	LNG Imports			Growth 2024-35	Volume upside	
		2024	2030	2035		Short-term	Long-term
Europe	467.4	133.5	232.0	207.8	74.3	7	13
Japan, Korea, Taiwan	185.6	181.6	182.4	181.7	0.1	8.5	17.5
China	552.9	105.2	133.9	127.2	22	21.5	35
India	115.9	37.9	62.2	62.7	24.8	4.6-11	17-35
Emerging Asia	309.3	50.8	121.6	181.6	130.8	11	13
Africa	252.8	3.9	15.2	13.7	9.8	0	0
Central & South America	195.8	18.2	21.7	22.6	4.4	4.5	15.5
Middle East	592.5	12.2	NA	NA	NA	NA	NA
Total	2672.2	543.3	769.0	797.3	266.2	52.5	94

The natural suppliers of Asian LNG are in the Middle East, Australasia, East Africa, Russia's Far East, and the west coast of North America (British Columbia in Canada, Mexico, and U.S. shipments through the Panama Canal). Conversely, the U.S., Trinidad, West Africa and North Africa mostly supplies Europe. The near closure of the southern Red Sea because of attacks by Houthi forces in Yemen reinforces this trend, although shipping is gradually returning to the waterway. Russia's Arctic LNG plants, meanwhile, will be barred from Europe by sanctions, causing them to take either the Northern Sea Route east around Siberia to the transhipment site in Kamchatka when conditions permit, or the much longer route heading initially west.

However, the growth in U.S. LNG exports and the expected longer-term stagnation of European demand will mean that some Atlantic Basin LNG will have to be displaced to the Pacific Basin. This will be reinforced if the main regional suppliers, Australia, Malaysia, Indonesia and Brunei, go into decline as feedstock runs down.

Figure 2 Global LNG Exports, Imports and Main Trade Routes, 2024 [xii]

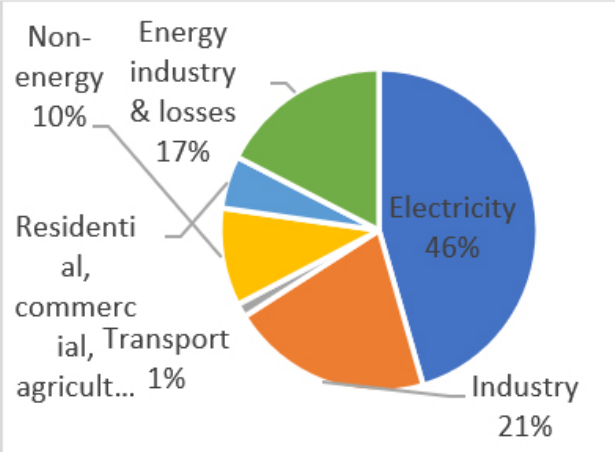


13 EMERGING ASIA'S SECTORAL GAS DEMAND WILL BE CRUCIAL WINS

Domestic gas demand in emerging Asia markets (ASEAN plus Pakistan and Bangladesh) is dominated by the power and industrial sectors. Industrial use includes non-energy use of gas as a feedstock, particularly in fertilisers. Given the warm climate of most of these countries, and the lack of an urban gas grid (except in Pakistan), use of gas for space and water heating is limited. The energy industry's own use is significant, reflecting gas use in oil-field operations and gas liquefaction, particularly in Indonesia and Malaysia.

These countries are expected to see a rather steady rise in gas demand, at least up to about 2040, with a slow decline after that. The exception is Vietnam, where growth is expected to be very rapid up to about 2035, adding nearly 50 BCM from only 6.1 BCM in 2024[xiv]. Vietnam's historic gas consumption was larger, peaking at 10.3 BCM in 2015, and has been constrained by the decline of domestic output. LNG imports would allow consumption to rise again and to displace coal.

Figure 3 Sectoral Gas Consumption in Emerging Asia, 2023 [xiii]

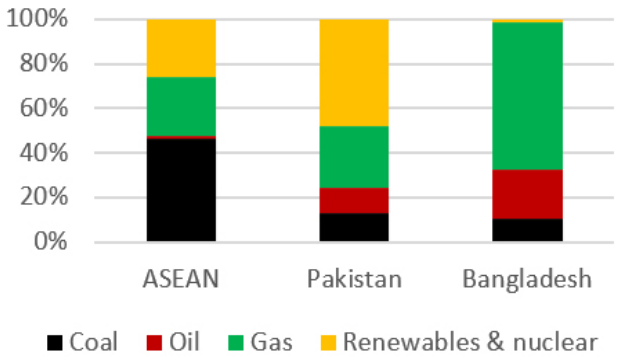


Power generation in Emerging Asia is currently quite evenly divided between coal, gas and renewables plus nuclear power (Figure 4). However, coal is the dominant source in ASEAN, while oil remains quite important in Pakistan and Bangladesh. It is likely that reasonably-priced gas can displace oil in power in these countries, adding about 12 BCM of gas demand.

The challenge for gas to increase its overall consumption in the power sector is to compete with coal, and with increasingly low-cost renewables. Gas power generation capacity grows rapidly from 112 GW in 2023 to 170 GW in 2030 and 182 GW by 2035, with slower expansion thereafter. Most growth in electricity generation, though, is expected by the International Energy Agency (IEA) to be met by solar, wind and hydropower, with coal remaining quite flat after 2030.

The IEA projects a rise in ASEAN's industrial gas use of about 10 BCM by 2035. Iron and steel, non-ferrous metals (such as aluminium, nickel and copper) and cement primarily run on coal. Gas is used in chemicals, particularly fertilisers, and lighter industries.

Figure 4 Power Generation in Emerging Asia by Source, 2023 [xv]



Pakistan is the second-largest LNG importer (after Thailand) in the 'Emerging Asia' group, with 11 BCM of imports in 2024. It began importing LNG in 2015 because of the depletion of its domestic gas production. Gas makes up 28% of its power generation. 58% of its gas consumption goes to power generation, 24% to industry (including non-energy use, particularly fertilisers) and 11% to buildings (residential, commercial and government).

Pakistan's gas consumption peaked at 44.9 BCM in 2021. Following the very high LNG prices of 2022, it suffered several cancellations of deliveries, as well as economic strain. Debt has built up in the power sector because of non-payment of bills and inability to pay for fuel. Solar PV panels have been widely adopted, and customers have reduced their use of grid power or cut themselves off from the grid entirely. In turn, this forces the utilities to raise power tariffs to cover their fixed cost, including capacity commitments to generation plants. This further encourages "grid defection" and installation of distributed solar power. By November 2025, Pakistan had imported 51.5 GW of solar modules from China and installed PV capacity was estimated at over 27 GW. This compares with an official installed solar PV capacity of only 1.4 GW in 2024. A capacity of 27 GW would be the fourth largest in Asia, after only China, India and Japan. Gas consumption fell to 37.1 BCM in 2024.

Vietnam is another instructive example. Favourable incentives caused solar PV generation to jump from 4.8 TWh in 2019 to 10.8 TWh in 2020 and 25.75 TWh in 2021. Wind and hydro power also rose strongly. Meanwhile, electricity generation from gas dropped from 42.5 TWh in 2019 to 34.7 TWh in 2020 and 26.3 TWh in 2021. Generation using coal was roughly flat over the same period. Renewables therefore met all new demand while also displacing gas.

EMERGING MARKETS EXHIBIT GREATER PRICE SENSITIVITY

The ability of LNG to capture a much larger market share in Asia will be very dependent on affordability and competitiveness. The region does not have stringent climate policies, in general, or high carbon prices, unlike Europe. Domestic coal may be relatively cheap, supports employment, and often has a strong domestic business lobby, as in Indonesia. Indonesia is the third-largest coal miner in the world, only just behind India. Coal also offers energy security, particularly if domestically mined. Even if imported, it will generally be obtained from Indonesia, Australia or South Africa, and therefore limits dependence on LNG exporters from the Middle East, Russia or the US.

As of early 2026, South Korea's carbon price was around $8.95 per tonne of CO2, Singapore's was $35.55 (S$45) per tonne with a target of S$50-80/tonne by 2030 [xvi], Australia's was around $21-25/tonne (A$30-35) and Japan's price band was from $11-27 per tonne. China, India, Taiwan, Thailand, Malaysia and Indonesia have carbon prices or trading schemes, or are introducing them imminently, but with very low prices below $10 per tonne. Carbon pricing is therefore not likely to drive significant competitiveness of LNG versus coal or oil in most Asian countries before 2030 at the earliest. If carbon prices do rise, they will also advantage renewable and nuclear power relative to natural gas.

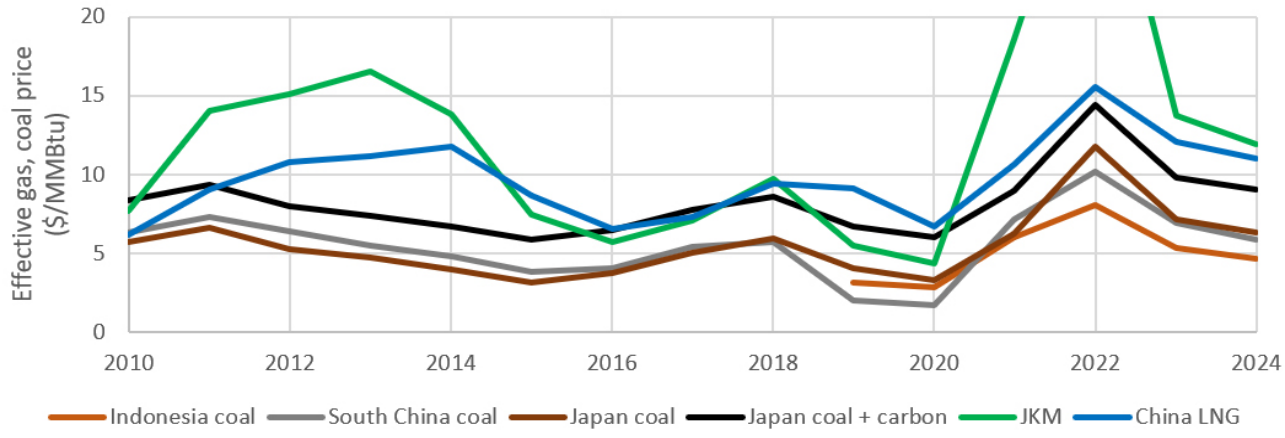
Figure 5 shows the effective coal and LNG prices in Asia from 2010 to 2024. Coal prices have been adjusted for the lower efficiency of coal-fired power stations, assuming they have typical thermal efficiency of 40% versus 50% for gas. The effective coal price is also shown with an assumed carbon price of $27 per tonne, the upper band of the current Japanese system. As noted, nearly all Asian countries have lower carbon prices than this currently and likely for several years to come. The y-axis has been truncated for readability to avoid the very high LNG prices in 2022.

Effective coal prices are lower than those for LNG for nearly the entire period considered. To be directly competitive against coal at current prices, LNG would have to be priced around $6 per MMBtu or less. LNG might be able to gain some market share at prices of $9 per MMBtu, in more pollution- or carbon-sensitive markets, or if highly efficient new gas-plants are displacing old and inefficient coal plants. The greater flexibility of gas, the lower capital cost of gas-fired plants, and their lower non-fuel operating costs (such as avoidance of ash disposal), are positive points. But it does not seem likely that gas will displace large amounts of baseload coal-fired power in China, India or Indonesia.

Gas can also complement variable renewables more effectively than coal. However, its role is likely to be more limited than seemed likely a few years ago. The sharp falls in the cost of grid-scale batteries, combined with reductions in the cost of wind and solar photovoltaic generation, make this a more attractive option. Renewables plus batteries offer energy security and avoidance of volatility in LNG prices. In countries with a strong renewable supply chain, such as India and Vietnam, they are favourable for domestic industries and often receive "local content" protection. Solar power is quick to build and can be scaled easily. Distributed solar has advanced quickly, especially in Pakistan, because of the high costs and unreliability of the grid, versus the rapid and easy installation of a rooftop system for homes and businesses. Renewables have near-zero greenhouse gas emissions in operation, unlike LNG. Offshore wind is relatively more expensive, but is progressing in Taiwan in particular, and China is already the world's largest offshore wind developer. Offshore wind has advantages of higher capacity factors and avoiding competing land uses.

Gas still has a significant role in the power sector. Wind power is not always readily available in tropical south-east Asia countries, while solar output is substantially reduced in the rainy season. Climate change means that hydropower output suffers from drought, less predictable rainfall, and loss of snowpack and glacier retreat in the Himalayas. Densely populated countries or those with substantial jungles or mountains, including Bangladesh, Taiwan, Vietnam, South Korea and Japan, may find it difficult to secure the large areas of land required for utility-scale solar and wind installations.

Figure 5 Effective Gas and Coal Prices in Asia[xvii]



Nevertheless, a system that relies primarily on renewables, with gas as back-up, will see lower overall gas consumption than what seemed likely a few years ago, that is a transition from coal to gas with renewables in a supplementary role.

The realities of these new Asian markets also need to be considered. They are a diverse group, ranging from high-income Singapore to Cambodia, classified as lower-middle income. Credit ratings as assessed by S&P run from Singapore's AAA and Malaysia A- to BBB in Indonesia, BB+ in Vietnam, and CCC+ in Sri Lanka. The huge populations of Pakistan, Bangladesh and Indonesia contrast with much smaller Sri Lanka and Cambodia. While climate is quite similar across south-east Asia, Pakistan has cold winters with substantial heating requirement.

Although nearly 30 years ago, the Asian Financial Crisis of 1997 demonstrated how contagion could spread between vulnerable economies in the region. Some may struggle to pay if LNG and oil prices rise sharply. Sri Lanka defaulted on its sovereign debt in 2022. Sri Lanka, Bangladesh, Thailand and especially Myanmar have all been through recent episodes of serious political instability. These factors further suggest that: a) LNG demand at high prices in emerging Asia will be limited; b) LNG demand will be subject to periods of crisis and potential decline, possibly synchronised across Asia, even in an overall growing market; c) the growth of LNG demand will not be uniform between all the emerging Asian markets, and it will also be different from that in China and India.

LNG has an opportunity to replace oil in shipping, due to its lower cost, lower carbon dioxide emissions and reduced sulphur emissions. LNG is now well available at major ports through Asia, and from 222 ports globally, up from 198 in 2024. Consumption of oil-based fuels for shipping was the equivalent of about 270 BCM of LNG in 2025 [xviii]. The share of LNG rose from 0.6% in 2023 and 1.3% in 2024 to 1.7% in the first 9 months of 2025. To raise this to the target of 40 BCM in 2024, or even higher, would require: a) more LNG bunkering at ports, especially around Africa and the Middle East; b) action to reduce methane slip from LNG-fuelled engines; c) progressing lower-carbon rules for maritime transport.

The growth of LNG demand in Asia is also heavily dependent on infrastructure. There are only two LNG import terminals in Bangladesh, with three more under various stages of development [xix], and two in Pakistan. The fragmented territories of Malaysia, Indonesia and the Philippines would require several terminals to serve different islands. Pipeline buildout is then required to serve inland areas, particularly in India. Smaller-scale deliveries, for example for industries, can be made by truck, which has proved a successful business model in China.

The lower-income and less creditworthy Asian countries will face more of a challenge in building up LNG imports. This would particularly apply to Cambodia and Sri Lanka, both of which are considering establishing their first terminals. Major LNG exporters and traders require creditworthy counterparties, whether national gas companies, utilities, or large private businesses, to sign long-term offtake contracts.

Major LNG exporters could consider supporting demand for their product by co-investing in supporting infrastructure in emerging Asian markets, including import terminals, LNG bunkering facilities, gas distribution networks, gas-fired power plants and gas-based industries.

Similar factors apply to Africa. Other than Egypt, Africa does not import LNG, but Morocco, Ghana[xx], South Africa and others have credible plans. Many African countries, including their important mining industries, continue to rely on expensive oil-based power generation. However, there are structural reasons why African LNG demand will be much lower and slower to develop than in Asia: Africa has substantial domestic undeveloped gas (and renewable and coal) resources; income levels and creditworthiness are lower; gas infrastructure is very limited; markets are fragmented by national borders; and many African countries, including large potential markets such as Ethiopia and Uganda, are landlocked, and therefore not easily accessible for LNG imports. With these caveats, similar observations apply to African LNG demand as for emerging Asian markets.

19 CONCLUSIONS

In the absence of major supply disruptions, a significant LNG surplus appears unavoidable in the late 2020s to early 2030s. While China and India, and the continuation of Europe's phase-out of Russian gas, will absorb some of this, emerging Asian economies will be crucial to growth in LNG demand into the 2030s.

However, there are structural reasons why this expansion of LNG demand may be difficult and will probably require prices that are low by historical standards. Specifically, cheap domestic coal is widely available, particularly in India and Indonesia, and has a strong domestic lobby. Climate policy, including carbon pricing, is unlikely to constrain coal use significantly until the 2030s.

Meanwhile, renewables, particularly wind and solar power combined with batteries, have become readily available and very cost-effective. This casts doubt on whether LNG will capture a large market share in the power sector, particularly in big potential markets such as Indonesia and Pakistan. Indeed, the recent trend in Pakistan and Vietnam has been more in the opposite direction, to a replacement of gas with renewables.

Gas certainly does have opportunities to capture market share from oil in power generation, and to expand in ground transport, industry, residential gas and shipping. But this will be a challenging task and will require significant active development and investment in infrastructure to import, distribute and use gas. Unlike the situation in Japan, South Korea and Taiwan, and more recently in China, major LNG importers may not be able to rely on national and local governments, state companies and big businesses to build up LNG demand independently.

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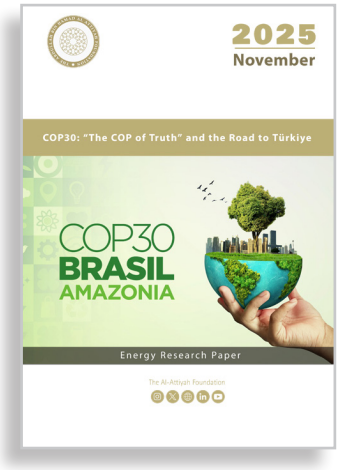

November – 2025

COP30: "The COP of Truth" and the Road to Türkiye

The COP30 conference in Brazil was the first after a series of wider Middle East-hosted COPs, but still the fifth in a row to occur in a significant oil and gas producer.

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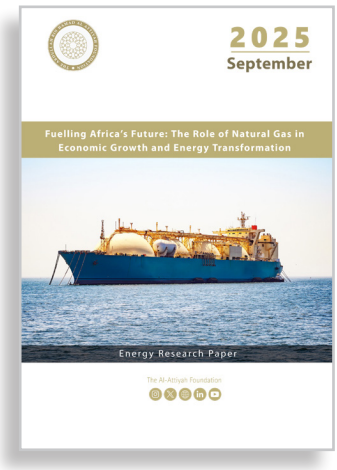

September – 2025

Fuelling Africa's Future: The Role of Natural Gas in Economic Growth and Energy Transformation

Africa's gas sector is in a pivotal phase, with new exporters expanding the region's role alongside established players. Rising European demand creates opportunities, but export growth faces constraints from production shortfalls.

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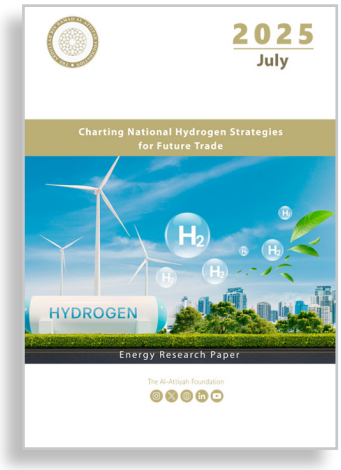

July – 2025

Charting National Hydrogen Strategies for Future Trade

As of June 2024, 61 national hydrogen strategies have been published, revealing diverse ambitions for future trade. However, progress on firm projects has been slow. Most countries aim to become hydrogen exporters, with only 12 planning to import, primarily in Asia and Europe.

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Our partners collaborate with The Al-Attiyah Foundation on various projects and research within the themes of energy and sustainable development.

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