



# MIDDLE EAST INSIGHTS

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## LNG: BRIDGE OR DEAD-END? IN SEARCH OF KNOWN AND UNKNOWN IN THE ENERGY TRANSFORMATION

BY PHILIPPE ROSE

**Qatar is the world's largest exporter of liquefied natural gas (LNG). But, with the rise of strong competitors for the LNG market such as the United States and Australia and declining demand as technological improvements make renewables more feasible, what are the prospects for the LNG industry? This article in the Qatar Insights series takes a broad look at the LNG market.**

The energy mix is undergoing a major transformation. On the supply side, renewables represent the fastest growing share of the mix, growing by more than 7 per cent per annum, <sup>1</sup> likely reaching 10 per cent of primary energy by 2035 (or half of additional energy needs); gas is set to overtake fossil fuels; and coal is on the decline. On the demand side, decarbonisation is on the national energy strategy agenda of many countries around the world, with aggressive renewables and energy efficiency targets set, supported by international frameworks, including the 2015 Paris Climate Conference or COP21 agreement; and consumer expectation of action to address environmental challenges, including the willingness to change consumption habits, is growing. The British government's target of banning the sale of internal combustion engines by 2040 is illustrative of these trends.

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<sup>1</sup> BP Energy Outlook 2017, <https://www.bp.com/content/dam/bp/pdf/energy-economics/energy-outlook-2017/bp-energy-outlook-2017.pdf>

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In this turbulent period, it is important to distinguish areas of relative certainty from areas of speculation and unknowns. This is particularly relevant for gas and liquefied natural gas (LNG).

The case for gas is appealing. Gas emits half the carbon dioxide (CO<sub>2</sub>) of coal for electricity generation and emits 75 per cent less nitrogen oxides (NO<sub>x</sub>). Gas provides a stable source of electricity, especially when incorporated as swing capacity with renewable sources, as the output from gas power plants can be switched on and off in a matter of hours.

From a national policy perspective, concerns around air pollution linked to coal-powered plants in India and China are creating a ripe environment for gas to grow in the energy mix. Major energy companies have embraced gas and shaped their strategies around it, pivoting away from oil. Shell is affirming that the company is “more a gas company than an oil company”.<sup>2</sup> The bet is that gas can compete to squeeze coal out and is a bridge until renewables increase their share. Gas provides a hedge against the erosion in oil demand from electrical vehicles and other efficiency gains.

These trends are translating into forecasts that LNG supply is due to increase 50 per cent between 2014 and 2021,<sup>3</sup> and is expected to overtake coal by 2030 as a primary source of energy, with LNG at double the growth rate of gas.

In the short term, the rapid expansion in export capacity will increase trade in LNG by 2020, driven by new supplies from Australia and the United States, the latter in particular being responsible for having made LNG accessible to more buyers. Gas demand is driven first by the United States, thanks to the emergence of low cost shale gas supply. Second, by China, through macroeconomic growth and government support for gas-fired power plants. Third, by the Middle East’s prioritisation of oil for export, leading to more reliance on gas for the domestic power sector.

However, this demand growth is still not expected to keep pace with supply during this timeframe. Further, new capacity is challenging economics, as gas prices have fallen by 40 per cent in five years. This buyers’ market has enabled more contractual flexibility than previously, leading to only 60 per cent of LNG sales being on long-term contracts.

LNG demand has three main drivers. First, complementing domestic gas and pipeline supply, such as in China, South America, and Singapore. Second, replacing declining domestic production, such as in Egypt, Bangladesh, Thailand, and India. Third, balancing the domestic market. New buyers have entered the LNG market, doubling the number of importing countries in the past decade. These include Malta (to increase its security of supply), Ghana (to complement its domestic and pipeline supply), Bangladesh and the Philippines (to replace domestic production).

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<sup>2</sup> “The Future of Big Oil? At Shell, It’s Not Oil,” Bloomberg, July 20, 2016, <https://www.bloomberg.com/news/articles/2016-07-20/the-future-of-big-oil-at-shell-it-s-not-oil>

<sup>3</sup> BP Energy Outlook 2017, <https://www.bp.com/content/dam/bp/pdf/energy-economics/energy-outlook-2017/bp-energy-outlook-2017.pdf>

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Beyond 2020, continued LNG demand is expected to pull deliveries away from Europe, which has been acting as a market of last resort in absorbing surplus volumes, tightening supply and triggering the need for supply countries to invest further in LNG production.

The unknowns affecting the outlook for LNG fall along three categories: extent of the supply/demand imbalance; direction of regulatory and technological changes; LNG pricing structures.

Market imbalance is driven both by supply and demand uncertainty. Three countries feature prominently. First, Qatar's plans to increase its LNG capacity by 30 per cent, with the lifting of its moratorium on LNG production in the North Field amidst the financial pressures arising from its dispute with some of its Arab neighbours. Second, Iran, with the partial lifting of international sanctions on the country and its opening to foreign investors. Third, the United States, with a more aggressive approach to utilising LNG as part of its energy and foreign policy.

The decline rates of legacy projects will affect the timing of new investment decisions, with the market favouring nimble projects with low unit costs and secure offtakes or end customer contracts. The large number of credible new projects, including those in the United States and Canada, will continue to add pressure to long-term offtake contracts. The growing competitiveness of Floating LNG in unlocking gas resources will enable relatively more affordable and faster decision to onstream cycles, encouraging new buyers. Investors' risk appetite for projects in Qatar could also be swayed, should the regional crisis escalate, either through further pressures on the Qatari regime or as a consequence of the possible unraveling of the Iran nuclear deal.

On regulation and technology, much of the policy focus is on driving out coal. However, this effort may end up leapfrogging gas in the process, as in Europe, where wind and solar power have won over gas-powered plants. With coal remaining cheaper and nuclear power still being considered in countries such as South Korea, the private sector's role in shaping a responsible regulatory framework, e.g., through carbon pricing, will be essential. Technologically, the changes in electrification and transition to renewables could be accelerated by wild cards such as progress in battery storage, but there is also substantial potential for LNG to support decarbonisation in the non-power sector in the form of fuel for ships and trucks.

On pricing, a large share of future supply will come from North America, which uses the Henry Hub global benchmark, but the growing gas demand from Asia relies on oil-linked LNG prices. If crude prices remain in the \$50-60 per barrel range, emerging market customers are unlikely to be willing to pay for US LNG, which would land at around \$7-8 per Million British Thermal Units in Asia. Solving this misalignment on pricing risk could delay new investments.

These uncertainties leave LNG in a particularly vulnerable and volatile space within the energy mix over the next decade, with a broad set of possible outcomes. One scenario would be for gas and

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LNG projects to be a “dead-end”: a combination of improvements in reservoir recovery for legacy projects, and ongoing pricing risk issues, while battery storage technology (and efficiency of conventional vehicles) and carbon capture make advances in a regulatory environment that does not favour gas. These factors would lead to fewer new projects sanctioned and LNG growth to plateau. An alternative scenario would be for LNG to be a “bridge” in the energy mix, with advances in cost-efficient, compact LNG projects enabling a proliferation of suppliers and buyers in a liquid commodity-like market. Gas, and LNG in particular, would find their place in the non-power sector and in complementing supply from renewables (possibly even competing with renewables growth), while coal is avoided.

Beyond this timeframe of a decade, both scenarios converge. Gains in renewables growth will eventually crowd-out gas demand in Europe, and emerging economies will overcompensate. China, India, and the rest of Asia will drive 65 per cent of global gas demand growth,<sup>4</sup> with Southeast Asia becoming a net importer by 2035. In all likelihood, Qatar’s LNG industry will have played a significant role in preserving the country’s regional independence. By then, the competitive landscape will tell whether the bets made by the energy majors will have paid off, and whether gas will have played its part to support decarbonisation of the mix — or, as critics say, been a “bridge to nowhere”.

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<sup>4</sup> “Global gas supply and demand perspective to 2030,” McKinsey Energy Insights, July 2017