World gas: EIU's monthly LNG outlook

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FROM THE ECONOMIST INTELLIGENCE UNIT

Demand

Global consumption of liquefied natural gas (LNG) grew at a robust annual average rate of nearly 17% in 2010-11, fuelled in particular by strong growth in Asian consumption. Although Japan and South Korea remained the largest LNG importers in the region, there was stronger growth in newer markets, above all India and China. The Economist Intelligence Unit estimates that growth in LNG consumption slowed markedly in 2012 owing in part to negligible growth in supply, but also to weak economic growth in western Europe, the slowdown in China's growth and a sharp drop in US imports of LNG. The rapid increase in domestic gas production in the US has largely removed it as a potentially significant market for LNG. LNG consumption will remain constrained by limited growth in supply in 2013, but will accelerate modestly in 2014 in tandem with a pick-up in supply. However, large additions to supply—the first of which may start to come on stream before the end of 2014—suggest that consumption will pick up strongly thereafter.

Japan's LNG consumption will continue to grow, at least in the near term

Despite weak economic growth in 2012, Japan's LNG imports rose by 11.2% year on year in 2012, as the country continued to seek alternative fuels to fill the gap left by the closure of nuclear capacity. Australia replaced Malaysia as the country's largest supplier with an increase of 13.8% in LNG exports to Japan—largely because of the coming on stream of Pluto LNG. Two nuclear power facilities came back on line in 2012 and, despite public opposition, we believe that a gradual return to higher levels of nuclear power generation will be inevitable in the more medium term. Indeed, the prospect of the return of nuclear-fuelled power appears to have increased with the election of another Liberal Democrat Party (LDP) government. The new prime minister, Shinzo Abe, has already declared his intention to build new, much safer nuclear power facilities. The previous government had stated that an increase in renewable energy was its long-term goal. Our current consumption forecasts assume that a few more nuclear facilities will be brought back on line in 2013-14, but in the more medium term some of the recent gains in gas consumption may be reversed if nuclear capacity comes back on line on a more significant scale. A further constraint on Japan's LNG consumption is more structural, in that the country's geography and population density hampers Japan's ability in terms of gas infrastructure to absorb significantly higher volumes

of LNG.

Asia will dominate growth in LNG consumption

While Japan and South Korea have traditionally dominated the global market for LNG, an expansion of liquefaction capacity across Asia means that consumption in South Asia, South-east Asia and China is set to grow strongly over the next decade, particularly following the coming on stream of significant amounts of Australian LNG. Consumption growth in Asia in 2012 will have tailed off compared with the heady growth rates of 2011, although this was partly owing to only limited supply growth in that year, but also because of capacity constraints in importing countries.

Asia benefited from weak LNG demand in Europe in 2012, so that it still managed to increase market share. China's consumption is estimated to have grown by 15% in that year. In 2012 China had LNG import capacity of 29bn cu metres and has an additional 26.6bn cu metres of capacity under construction, according to the International Energy Agency (IEA). Thailand's first LNG regasification terminal came on line in 2011 and other countries, notably India, but also Malaysia, Indonesia, the Philippines, Vietnam and Singapore, are all planning LNG receiving terminals. The lack of interconnecting regional gas infrastructure in South-east Asia makes LNG a particularly attractive option.

The UK's LNG imports fell sharply in 2012

Final data are not yet available, but we estimate that UK imports of LNG fell by 45% in 2012. According to the latest data from the UK's Department of Energy and Climate Change (DECC), imports of LNG (which were almost 100% sourced from Qatar) fell by 52.5% in the first ten months of 2012. Part of the reason behind the fall was weak gas consumption growth as the UK economy struggled to avoid recession, but another factor was above-average temperatures in the early part of the year. Furthermore, the UK was competing for supplies with buyers in Asia, where prices were typically higher than in Europe. We expect a modest pick-up in the next two years, based on the need to fill gas storage as well as to offset persistent declines in domestic production. However, given that the Asian market will remain the market of choice for most suppliers, we do not envisage UK consumption in 2013-14 reaching the level recorded in 2011.

Spain's LNG consumption also weakened in 2012, largely because of a decline in wider gas consumption. Weak economic activity coupled with the price competitiveness of coal lead to sharply lower natural gas demand. Spain even sold on some of its contracted LNG cargoes in preference to flooding the local market with unwanted gas supplies. We expect Spain's consumption to slip again in 2013, before stabilising at around 20bn cu metres/year in 2014, but this assumes that the EU takes action to support carbon prices at a higher level, which will start to undermine the competitiveness of coal.

LNG consumption will be growing steadily in Latin America

Argentina's LNG imports rose by 142% in 2011, as its second regasification plant came on stream in May of that year and as the country sought to offset declining domestic production. However, it appears that LNG imports fell sharply over the course of 2012—by as much as 35-40%—as Argentina repeatedly refused to pay high prevailing prices for LNG and instead focused its efforts on sourcing more pipeline gas from Bolivia. Meanwhile, Brazil's LNG needs have soared in recent months as drought conditions have led to a sharply lower hydroelectric power output. Brazil has two operational regasification

terminals—Pecém in the north-east and Guanabara Bay in the south-east of the country—with another terminal in Bahia under construction. Since December 2012 Brazil has maximised pipeline and LNG imports but has been forced to seek additional supplies of LNG from a regasification plant in Argentina. Brazil's LNG consumption is expected to rise sharply this year, but in the medium term the country is looking to becoming an LNG exporter as sub-salt gas becomes available.

Liquefied natural gas (LNG): consumption[a]

('bn cu metres unless otherwise indicated)

	2010	2011	2012	2013	2014
Japan	93.5	107.0	117.7	121.2	126.1
South Korea	44.4	49.3	51.3	52.3	53.9
UK	18.7	25.3	13.9	14.5	15.8
Spain	27.5	24.2	21.8	20.0	20.4
India	12.2	17.1	16.9	16.1	16.7
China	12.8	16.6	19.1	20.6	23.5
Taiwan	14.9	16.3	17.0	17.2	17.9
France	13.9	14.6	14.6	14.2	14.2
US	12.2	10.0	5.0	4.0	3.6
Others	47.5	50.4	54.4	55.0	57.7
World total	**297.6**	**330.8**	**331.7**	**335.1**	**349.8**
% change	22.6	11.1	0.3	1.0	4.4

[a] Imports of LNG.
Sources: BP Statistical Review of World Energy; Economist Intelligence Unit.

Supply

Global LNG production expanded strongly in 2010 and 2011, with the largest single LNG producer, Qatar, responsible for the bulk of new supply. However, global supply growth ground to a halt in 2012, partly owing to the lack of additional supply from Qatar, but also because of disruption to supply in other parts of the Middle East, particularly Yemen and Egypt, and maintenance at operations in Trinidad and Tobago and Indonesia. The Angola LNG project, which had been expected to come on stream in 2012, was delayed and is now expected to become operational in the second half of this year. The only significant addition to supply in 2012 was the start-up of the Pluto LNG project in Australia. We expect global LNG production to grow at a relatively modest rate of 1% this year, before picking up to grow by nearly 4.5% in 2014, led by increased output in Australia. However, large additions to global LNG supply are expected from 2015.

Qatar will not add to global LNG supply in 2013-14

Qatar’s total gas production doubled between 2008 and 2012 as the Gulf state pursued its target of an LNG export capacity of 77m tonnes/year (t/y), which was eventually reached in 2011. Qatar has no current plans to increase this capacity, and our forecasts for 2013-14 assume unchanged Qatari LNG supply. Qatar is increasing natural gas production, particularly from the Barzan gasfield from 2014, but any additional gas production is destined for the domestic market, including processing into petrochemicals and use in gas-to-liquids (GTL) plants.

The prospects for North American LNG exports are still uncertain

In April 2012 the US Federal Energy Regulatory Commission (FERC) issued its first permit for the construction of an LNG export project. The beneficiary was Cheniere Energy

Partners, which aims to start exporting LNG from 2015. Its four LNG trains will be able to process 16m t/y of gas in total, equivalent to one-fifth of the entire export capacity of Qatar. The export price for LNG to be sold by Cheniere will be related to the main US Henry Hub benchmark, whereas most Asian LNG contracts are linked to the crude oil price. Based on current domestic US gas prices, US exporters would enjoy a price advantage, even taking into account shipping costs to Asia, including transit fees through the Panama Canal, which is being expanded and which will be able to accept LNG tanker traffic. One of the critical issues that regulators will have to address is whether such projects will have a long-term adverse effect on domestic consumers, through pushing up prices. In early December 2012 an in-depth study sponsored by the Department of Energy found that LNG exports would lead to higher domestic costs, but the study concluded that the benefits would outweigh the costs. The US authorities are currently considering 19 more LNG export licence applications.

LNG in Canada has government support but needs huge investment

Companies operating in Canada are also seeking to begin LNG exports. Traditionally, Canada has exported its surplus gas to the US market, but the shale gas boom in the US is reducing demand for these flows. Partly because of the original focus on the US market, Canada lacks the infrastructure required to quickly become an LNG exporter. Canada's gas is primarily found in interior British Columbia and Alberta, some distance from the coast and with no existing infrastructure linking the sites to ports. As of mid-February three export projects had been granted licences by Canada's National Energy Board; the latest of these was a licence granted in early February to the LNG Canada Development consortium, led by Shell and including PetroChina, Mitsubishi and Korea Gas. Kitimat LNG, co-owned by the US's Apache and Chevron, was granted a licence in 2011, while (US/First Nation) BC LNG Export Co-operative received one early in 2012. None of these projects, which will target Asian markets, is likely to come on stream much before 2020.

Once the infrastructure is in place, Canadian gas would, in theory, have an advantage over its US counterpart (assuming that US gas will be exported from the US east coast), as shipping times would be shorter. However, the price of Canadian LNG is expected to be oil-indexed, and the costs involved in building the terminals and infrastructure will be huge. Given that there could be additional costs associated with allaying environmental and First Nation concerns about the projects, it remains to be seen whether Canadian LNG will be price competitive compared with US LNG.

Algeria's LNG exports will increase modestly

LNG supply from Algeria fell in 2011 as a result of a 3% decline in production, but we expect a modest recovery in output in the next two years with the repair of its Skikda plant and the construction of a new facility in Arzew. The Algerian government has also announced plans to provide incentives to international companies to invest in shale gas, with Shell and ExxonMobil already in talks to form partnerships with the Algerian state oil and gas company, Sonatrach. Algeria will prioritise LNG exports, as exports of piped gas have suffered owing to weak markets in Europe. The government has recently signed an extension of a contract to provide Turkey with LNG for an additional ten years, with the potential to expand levels from 4bn cu metres/year to up to 6bn cu metres/year. However, the biggest challenge for Algeria will be matching rapidly growing domestic demand with export commitments. In the aftermath of the terrorist attack on the In Amenas natural gas facility, operated by BP and Statoil in conjunction with Sonatrach, Algeria's gas production will be slower in 2013, potentially disrupting flows of LNG.

Australia's output is set to increase significantly from 2014-15

Australia provided the only new LNG supply in 2012, with the coming on stream of the first train of the Pluto LNG plant in May. Australia has the ambition to overtake Qatar as the largest producer of LNG within the next five years, as seven new projects are under way that will lift its capacity from about 30m t/y to 85m t/y in 2017. However, it is likely that there will be some slippage in the project completion schedule. Three of the ongoing projects are coal bed methane (CBM)-to-LNG plants and another is a floating LNG plant. A further three projects will source offshore gas in north-west Australia.

The first significant additions to supply are expected to come on stream in late 2014, but we remain cautious in our forecasts, as project delays (and cost overruns) are becoming increasingly common. According to the operating companies, the first train of the massive Gorgon LNG plant is expected to come on line in 2014, as well as the Queensland Curtis LNG (CBM) plant.

In a rough estimation, about 90% of Australia's proposed capacity additions are now tied up in long-term oil-indexed contracts—providing some security for the producers, but also suggesting that Australia will not make a significant contribution to global spot LNG supply. In the longer term there are concerns that Australia’s plans for further expansion of LNG output could be affected by the growing investor interest in lower-cost prospects, particularly off the coast of east Africa, but also in North America.

The long-delayed PNG LNG terminal is expected to come on stream in 2014

Our current forecast assumes that Exxon Mobil's US$15.7bn Papua New Guinea LNG plant will become operational in 2014, with full capacity of about 6.6m tonnes to be reached in 2015. However, this timeline could still be disrupted given the strength of civil society in Papua New Guinea—an increasingly powerful force in holding the government and extractive companies to account over their activities—and its opposition to the LNG project.

Indonesia has plans for additional LNG supply

Indonesia currently has three LNG operations in Arun, in Aceh, Bontang in East Kalimantan and Tangguh in Papua, with plans for additional LNG production from the Donggi-Senoro plant in Central Sulawesi (on line in 2014) and the Masela block in the Arafura Sea (2018). However, it is not clear how much of any additional LNG output will be available for export given rising domestic demands. The country already has one FSRU (floating storage and regasification unit, or floating LNG receiving terminal) in West Java and another under construction in Lampung, and plans to build a third in central Java. Some of the LNG that had been earmarked for the US market is likely to be diverted to these FSRUs and used domestically. Indonesia is likely to start importing LNG over the next five years but is expected to remain a net exporter of LNG.

Malaysia will also import LNG but remain a net exporter

In 2012 Malaysia had to import LNG despite being a major LNG exporter and having considerable domestic gas reserves. The need for imports was blamed on a temporary supply bottleneck. However, Malaysia's gas extraction industry has suffered in recent years from low domestic gas prices, which act as a major disincentive for exploration and drilling. Notwithstanding, the state-owned oil and gas company, Petronas, has ambitious plans for

LNG exports and is planning expansion of its 24m-t/y export capacity, Malaysia LNG. In 2012 the company also announced that it was planning to build a floating LNG regasification unit (FLNG) in competition with the Australian-based FLNG, Prelude, being developed by Shell.

Liquefied natural gas (LNG): production[a]

('bn cu metres unless otherwise indicated)

	2010	2011	2012	2013	2014
Qatar	75.8	102.6	102.6	102.6	102.6
Malaysia	30.5	33.3	32.5	32.0	34.0
Indonesia	31.4	29.2	28.7	27.5	27.0
Australia	25.4	25.9	28.0	28.0	35.0
Nigeria	23.9	25.9	26.0	26.0	26.5
Trinidad & Tobago	20.4	18.9	18.5	19.2	19.2
Algeria	19.3	17.1	17.5	18.1	20.0
Russia	13.4	14.4	15.5	16.5	17.0
Oman	11.5	10.9	11.0	11.3	11.5
Others	46.1	52.6	51.5	54.0	57.0
World total	**297.6**	**330.8**	**331.8**	**335.2**	**349.8**
% change	22.6	11.1	0.3	1.0	4.4

[a] Exports of LNG.
Sources: BP Statistical Review of World Energy; Economist Intelligence Unit.

Prices

The spot price of LNG (Japan) rose again in 2012 to an average of US$16.7/m Btu, partly owing to the strength of Japanese buying. We expect prices to slip over the course of 2013-14 as the market gradually prices in additional supplies from 2014. However, moving into 2013 the LNG market is tight, with little prospect of additional supplies, and we expect prices to remain high in the first half of this year. Some greater flexibility in LNG contracts (see below) is expected to be a factor in constraining prices throughout 2013-14. The prospect of strong growth in LNG supply from Australia, coupled with the arrival of US and maybe Mozambican LNG on the global market from 2015, will create downward pressure on prices, particularly as the latter producers are likely to offer export contracts that are not benchmarked to crude oil.

Japan pushes for flexible contracts but will prioritise security of supply

A large number of LNG contracts, originally signed in the 1970s and 1980s, are up for renewal in the next year or so. These early contracts were all linked to the price of crude oil, but the dynamics of the global gas market have changed so much in the last decades that Japan is expected to push for more flexible price arrangements. In particular, Japanese utilities will be looking towards pricing off (much lower) US gas prices. This process has already begun. At the end of November 2012 Japan Kansai Electric Power Company reached an agreement with BP (UK) for a new long-term supply contract taking effect from 2017 and based on a formula related to the US Henry Hub price. Despite these developments, security of supply is tantamount to Japan's importers, and this can be seen in the willingness of the Japanese utilities to sign oil-indexed long-term supply contracts with Australian LNG producers.

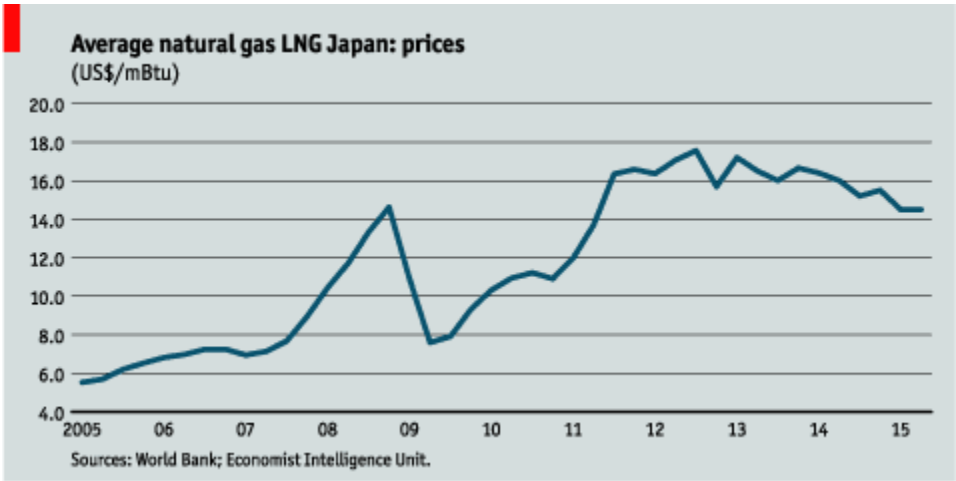
Liquefied natural gas: prices[a]

	2011	2012	2013	2014	2015

Prices

1 Qtr	11.99	16.36	17.20	16.40	14.50
2 Qtr	13.71	17.06	16.50	16.00	14.50
3 Qtr	16.35	17.56	16.00	15.20	–
4 Qtr	16.58	15.69	16.65	15.50	–
Year	**14.66**	**16.67**	**16.59**	**15.78**	**–**
% change	35.1	13.7	-0.5	-4.9	–

[a] Japan basis, US$/m Btu.
Sources: World Bank; Economist Intelligence Unit.



The Economist Intelligence Unit
Source: World Commodity Forecasts