HD **World: Commodities - EIU's monthly liquefied natural gas outlook**

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The Economist Intelligence Unit expects global imports of liquefied natural gas (LNG) to expand by 1.7% in 2014, slightly slower than last month, as we have cut our import forecast for **China**, although it will still grow by 20%. Although imports from the two largest buyers, Japan and South Korea, will slow relative to recent years in 2014, Asia will still provide the bulk of overall import growth. By contrast, imports in Europe will contract again, as underlying **energy** demand is poor and some utilities are swamped with excess renewables capacity and make use of cheaper **coal**. Several countries will open import terminals for the first time in 2015, with Eastern Europe, the Baltic region and Latin America among the new markets for the liquefied fuel. Import growth will also accelerate in 2015 as the first of the mega export projects from Australia starts producing.

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Data from the International Group of Liquefied Natural Gas Importers (GIIGNL) show that Asia remained the overwhelming market for LNG imports in 2013, taking over 75% of the global market. This was an increase from a 70.8% share in 2012 that came largely at the expense of falling imports into Europe (14% of the market in 2013, compared with nearly 30% in 2010). The bulk of the market remains on medium to long-term contracts, with spot purchases taking less than 30% of the total. As significant increases in export capacity come on line from 2014-20, we would expect this share to rise as a more tradable and liquid market in LNG emerges.

Potential nuclear restart will limit Japanese demand from 2015

Japan's LNG imports were up by nearly 2% year on year in the first half of the year to over 44.2m tonnes. This was an acceleration on the first quarter, when imports were up by just 1%. In the short term, Japan will continue to rely on an elevated use of natural gas for power generation while its nuclear power stations are offline. However, the country's Nuclear Regulation Authority said that two nuclear facilities in the south of the country were safe to operate (although they are now awaiting local approval). We maintain our forecast of import growth of slightly less than 1% in 2014 (although underlying gas demand is running at a slower pace, suggesting that some stocks are being built up). In 2015 it seems more likely that nuclear power will return to a degree, to limit gas use, and we expect LNG imports to slide marginally. However, Japan's overall LNG imports will remain at a structurally high level of over 80m tonnes. Not all nuclear capacity will return, because of safety concerns and the fact that domestic utilities have signed import deals with new projects, particularly in the US (where cheaper LNG should be available from 2016). Japanese buyers are likely to transform their contracts to more short- and medium-term lengths rather than the long-team deals that had predominated in the past 20 years.

Stockbuilding at new terminals will see South Korea's imports rise in 2015

South Korea's LNG import growth will slow in 2014 owing to a high base effect from 2013, when the country increased its reliance on the fuel after several nuclear facilities were closed because of faked security certificates and maintenance. Imports were down by 4.7% in the first half of 2014, as mild summer temperatures limited electricity needs. We still expect some growth this year and a surge into 2015 as some of South Korea's nuclear capacity remains offline. KOGAS, the Korean utility that is the world's single-largest buyer of liquefied gas, is carrying out work on two import terminals. The first, at Samecheok, will start **operations** in 2015 with import capacity of 8.4m tonnes/year (t/y), and will support

a faster level of import growth that year; the second facility, at Boryeong, is scheduled to start importing in 2016 with capacity of 3m t/y. South Korea is encouraging greater use of gas compared with **coal**, providing tax breaks at the retail and wholesale level for gas consumers. The prospect of a gas pipeline linking South Korea and Russia could displace some of the country's reliance on LNG imports, but we do not expect this to happen in the near term.

China will take greater share of LNG import market

China now accounts for around 8% of the global LNG market, up from less than 2% only five years ago. The country has recorded strong import growth rates, and in the first half of the year LNG inflows were up by 19% year on year. **China**'s public policy is directing the country toward a greater use of natural gas in its power mix, at the expense of **coal** for environmental reasons. Pricing reforms, which would see wholesale gas prices rise, may also help to increase demand for LNG, as importers would face smaller losses when selling into the domestic market. We expect **China** will be one of the fastest growing of the large importers of LNG in 2014-15, when underlying gas consumption will rise by an average of over 11% a year.

In May 2014 PetroChina, a state-owned **energy company**, signed a US$400bn, 30-year agreement with Gazprom, the Russian state-controlled gas **company**, to supply **China** with 38bn cu metres/year of gas. **China** will use the gas to meet fast-rising demand-the government expects **China** to consume around 400bn cu metres/year by 2020-but it will also put pressure on LNG exporters relying on selling into **China**. The terms of the deal have not been officially disclosed but the cost of gas is estimated at US$350/1,000 cu metres (far less than current spot prices for LNG). The cheaper pipeline-delivered gas will allow **Chinese** importers to put downward pressure on LNG exporters to match the Russian gas price.

Liberalisation of gas prices could **lead** to higher LNG demand

Data from the GIIGNL show that India's LNG imports fell by nearly 2% in 2013 despite additional import capacity being added. Expansions of existing facilities are due to boost re-gasification capacity by 13.9m t/y, and four new terminals, either planned or under construction, stand to add a further 18m t/y of capacity. In theory, India could be importing 53m t/y by 2017. Yet several obstacles stand in the way of India reaching its full potential as an LNG importer. One, which India is working to remove, is its inadequate gas pipeline infrastructure: plans call for a doubling of the size of the gas-transmission network by the end of the decade. Moves are also afoot to free up the rules governing the allocation of gas to end users. But the main obstruction is the gulf between the price that India pays for LNG on international markets and regulated tariffs at home. The new government seems likely to follow through on its predecessor's plans to double gas prices to US$8.4/mBtu, effectively narrowing the gap between the costlier imported LNG and domestic gas.

New markets are emerging in South-east Asia

South-east Asia is a small but growing LNG importing region. In 2013 both Malaysia and Singapore started importing LNG and both have plans to expand import capacity. Meanwhile, Indonesia is converting its Arun export terminal to an import facility and planning to add some floating storage and regasification units (FSRU). Despite its high costs, LNG still remains an attractive fuel source for many **energy**-strapped nations in Asia, particularly as existing power infra-structure is largely gas-fired. A new import terminal is set to be built in the Philippines, the country's first, by the end of 2015, with capacity of 3m t/y.

Europe's imports will move eastward from 2015

Our outlook for LNG imports into Europe is poor for 2014-15. Continued weak underlying **energy** demand will combine with mild temperatures (that have helped stocks in major consumers remain at adequate levels) to adversely affect LNG consumption in the UK, Spain and France, all of which have been large consumers in the past (although the year-on-year decline in the UK's demand slowed sharply in April and May). Future sources of demand are likely to come from eastern Europe and the Baltics as consumers seek to lessen their almost complete reliance on imports of piped Russian gas. New import terminals will open in Poland and Lithuania and will start receiving cargoes in earnest by 2015. The **company** behind the Polish facility said in August that the project would be operational by 2015, although construction costs have risen. In March Finland and Estonia signed an agreement jointly to develop an LNG import facility. In the short term the simplest course of action to reduce reliance on Russian gas would be to improve the EU's internal gas networks, so that fuel landed in France or Spain is directed eastwards rather than to Latin American or Asian markets.

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Liquefied natural gas (LNG):
consumption
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m tonnes unless otherwise indicated)

	2011	2012	2013	2014	2015
Japan	79.1	88.1	88.0	88.7	87.8
South Korea	35.6	36.8	40.4	41.2	45.3
China	13.1	14.7	18.6	22.3	24.9
India	12.3	13.3	13.1	13.2	13.4
Taiwan	12.2	12.7	12.7	11.4	11.6
Spain	17.3	14.5	9.1	7.6	6.8
United Kingdom	18.4	10.4	6.9	5.5	4.7
France	10.5	7.2	5.9	5.0	4.6
Mexico	2.8	3.5	5.7	6.3	6.7
Others	39.5	35.3	36.5	39.7	45.1
World total	240.8	236.3	236.9	241.0	251.1
% change	9.3	-1.9	0.2	1.7	4.2

Imports of LNG.
Sources: International Group of Liquefied Natural Gas Importers; International Gas Union; The Economist Intelligence Unit.

Supply

Global LNG exports will expand by 1.7% in 2014, an improvement on the pace in 2013, owing to new supply from Papua New Guinea and Australia coming on line. We expect further growth of around 4.2% in 2015 as more capacity enters the market. Over 11m tonnes of entirely new liquefaction capacity is on track to be completed by the end of 2014, and the full start-up of replacement trains in Algeria will bring the total additional capacity closer to 20m tonnes. In 2015 an even greater volume of new capacity is due to come on line, including the first LNG export terminal in the US and the Gorgon megaproject in Australia. LNG projects are routinely subject to delays caused by cost overruns or construction timelines. In addition, many of the firms behind proposed export terminals in the US, Canada and Australia may lack the capital, financial robustness and technical capabilities to bring their projects on line. Nevertheless, from 2015-19 we expect a significant expansion of the global LNG industry, even if only a small share of the proposed projects comes to fruition.

Qatar's production will be steady in 2014-15

Qatar will remain unchallenged as the world's largest supplier of LNG exports in the medium term, and output will fluctuate based on maintenance or spot cargo related developments. Qatar is investing to raise gas output from the offshore Barzan gasfield but offtake from the project will be used for domestic purposes. Qatar will continue to explore new markets in Asia for LNG, with Pakistani and Qatari officials continuing to discuss gas supply contracts (although pricing appears to be a stumbling block toward signing a long-term agreement).

Output in Malaysia is still expanding, despite strong growth in 2013

Malaysia's LNG exports have slowed in 2014, up by 4% in the first half of the year compared with growth of close to 6% for 2013 as a whole. Petronas, the state-run oil and gas company, is carrying out expansion work at Malaysia's existing LNG export facility at Bintulu, adding a ninth train that it expects to start operating by late 2015 or into 2016. Petronas is also undertaking work on developing two floating LNG facilities (FLNG). The Petronas FLNG vessel is due to start operations in 2015 with capacity of 1.2m t/y; its hull was launched in April 2014 and the vessel is on track to be completed by the end of the year. The Rotan FLNG-which will have slightly larger capacity-is scheduled to begin producing LNG by 2018. Malaysia's share of the global LNG market will start to fall from 2015, when greater Australian production enters the market and as more natural gas is consumed locally. Petronas opened Malaysia's first LNG import terminal in 2013 and several more are due to be commissioned between 2015 and 2017. Part of the fuel for these facilities is likely to be produced locally. The country's strategic location between the exporting Middle East and importing Pacific Basin is making it attractive as a potential host for an LNG trading hub, with one European logistics company investigating a storage terminal in the south of the peninsula, near Singapore.

US government revises its LNG approval process

In May the US government revised its approval process for LNG export facilities under consideration. Companies will now need to receive environmental approval from the Federal Energy Regulatory Commission (FERC) first, before the Department of Energy (DoE) authorises exports to countries with whom the US does not have a free-trade agreement. FERC approval is a more onerous and lengthy process, and the government's objective may be to identify only projects that have the substantial commercial backing of either buyers or companies with LNG experience. Over 280m tonnes of export

capacity has been proposed to the DoE, and there was never any likelihood that the full amount would enter the market. So far only one project is under construction: Sabine Pass in Louisiana. Additional facilities received interim environmental approval from the FERC in May: Dominion Resource's Cove Point facility in Maryland and the Downeast LNG plant in Maine. However, these facilities will still need to receive full FERC approval before they begin construction. At present, we do not expect exports of LNG from the US to make a significant impact on global markets until 2016 at the earliest, with a greater effect towards the end of the decade.

A new export terminal is scheduled to open at Arzew in Algeria

Exports from Algeria were up strongly in the first quarter, according to government statistics. Production rose by nearly 20% year on year. We expect Algerian export growth this year at over 6%. A new 4.8m-t/y train at Arzew is also set to open shortly, which puts the risks to our forecast on the upside. Algeria will export several cargoes to gas-starved Egypt in 2014, but these are unlikely to be sold on concession, as previous cargoes from other Arab nations have been down since Egypt's LNG infrastructure has been idled.

Elsewhere in the Middle East, political and economic disruptions have affected the supply of LNG from Egypt. Since the overthrow of the government of Hosni Mubarak in 2011, Egypt's LNG output has dropped off markedly and we now expect almost no contribution to global markets from Egypt in 2014-15. In Yemen, exports rose strongly in 2013, but maintenance on one of the country's two trains in June will mean lower output in 2014, before a recovery in 2015. Over the long term there is potential for additional LNG exports from the eastern Mediterranean, with Israel exploring the option of LNG to be fed by offshore gasfields and an export terminal under discussion for Cyprus.

Angola LNG has been shut down until at least 2015

Angola LNG, the only major new export facility to come on line in 2013, has suspended **operations** until at least 2015 as a result of technical issues at the facility. The plant is targeting output of 5.2m t/y and sells directly into the spot market. Angola has also apparently leased out its entire tanker fleet, which should help to ease prices in 2014. As a result of the outage, we have cut our Angola export forecast to flat in 2014, with a recovery expected in 2015.

New projects are unlikely in Nigeria

Supplies of LNG from Nigeria continue to be affected by a difficult operating environment. Output fell sharply in 2013, by more than 15%, and we expect continued disruptions in supply in 2014-15. Persistent security concerns -have hampered plans to expand Nigeria's LNG potential, and the economic rationale for new projects has dissipated, as the US no longer needs LNG imports in the near to medium term.

Elsewhere in Africa, attention is focusing on the potential for East Africa to emerge as a new LNG exporting region. Both Mozambique and Tanzania have discovered large commercial reserves of gas. Eni (Italy) and Anadarko (US) have entered into an agreement to develop a four-train, 20m-t/y facility in Mozambique, which the government expects to be operational by 2018. However, substantial investment in infrastructure will be required to bring the project on line and we do not expect it before the end of the decade. East African gas also faces a risk from impending US exports, where significant **energy** infrastructure is already in place.

Australian projects will **lead** to significant reshaping of global industry

There are currently 61.9m tonnes of new LNG export capacity under construction in Australia. This would represent more than one-quarter of total global supply in 2013, and, if all were completed on schedule by the end of 2017, would make Australia the leading producer of LNG, ahead of Qatar. The first of the new large Australian LNG projects, the 8.5m-t/y Queensland Curtis LNG (QCLNG) facility, is on course to start production in the fourth quarter of 2014, with the first train installed in mid-July. QCLNG is the world's first **coal**-seam gas LNG project and its off-take is geared mainly towards Asian (**China**, Japan and Singapore) buyers. Plans to expand the project have now been put on hold in consideration of the massive capital expenditure required for LNG projects. After QCLNG, the next mega-project due to come on line is the 15.6m-t/y Gorgon facility, operated by Chevron. The giant plant has reportedly secured sales-and-**purchase** agreements, mainly with Asian utilities. Expansion of the project seems unlikely, given the already huge sums that the companies backing the project have had to invest.

There are several additional projects under consideration in Australia that could bring total capacity to nearly 100m t/y, well above Qatar's already huge production. However, substantial cost overruns and competition from the development of export facilities in the US have led some firms to reconsider projects that have longer timeframes. LNG Limited planned to start producing 3.8m t/y by 2017 from its Fisherman's Landing project, but has now reported that it is struggling to secure adequate gas supplies.

Meanwhile, the Browse project (Woodside, Shell BHP Billiton and smaller Japanese partners) is now being reconsidered for conversion to an FLNG vessel.

PNGLNG starts ahead of schedule, meeting demand in Japan

The 6.9m-t/y Papua New Guinea LNG (PNGLNG) has shipped its first LNG to Japan, ahead of schedule, and is now running at full capacity. Buyers for PNGLNG's gas include Tepco and Osaka Gas in Japan, as well as **Chinese** and Taiwan utilities. Elsewhere in PNG, the government has endorsed the **sale** of a majority **stake** in InterOil's licences covering the Elk and Antelope natural gasfields to Total. InterOil has plans to develop an 11m-t/y LNG facility in PNG's Gulf province, although the deal has yet to be signed, given a disagreement over the value of Total's **stake**. The timeline for the project will fall well outside our forecast period, as the appraisal of the Elk and Antelope fields, which would feed the facility, is set to be completed only by 2015. Nevertheless, the deal suggests that new developments in PNG will help to compensate for falling exports from other Pacific basin producers.

Tangguh expansion takes a step closer in Indonesia

Indonesia currently has three operating LNG export terminals, in Arun in Aceh, Bontang in East Kalimantan and Tangguh in Papua. Exports have been declining in recent years as domestic consumption of gas increases and production disruptions have cut supply. New production capabilities are under construction, with the 2m-t/y Donggi-Senoro project set to start **operations** in 2015. Meanwhile, a final investment decision is expected for an additional train at the Tangguh site that would bring total capacity there to 11.4m t/y by 2019. The government has now awarded BP, which is exploring investing in the Tangguh expansion, an environmental permit to carry out the project; 40% of the production will be destined for the domestic market. At the same time, some of Indonesia's existing capacity, 2.5m t/y at Arun, is due to be decommissioned in 2014-15 and the facility will start to serve as an LNG import terminal. The Ministry of **Energy** was able to renegotiate prices successfully with **Chinese** buyers in June, raising export prices from US$3.3/mBtu to US$8/mBtu (and higher if **oil** prices move upwards).

Ukraine-related tensions are unlikely to derail Russia's LNG plans for now

Russia is seeking to increase its share of the global LNG market with plans for further export facilities. Until now Gazprom (which is 50.1% government-controlled) had a monopoly over natural gas exports and shipped LNG from its 10m-t/y Sakhalin plan on the Pacific coast, operated in partnership with Shell (and where a preliminary agreement for a new train has been signed by the project partners). However, a law liberalising LNG exports from 2014 was passed in 2013. Rosneft, a majority state-owned **oil** producer, signed a huge, US$270bn **energy** supply deal with **China**, which includes providing up to 3m t/y of LNG. It has also signed LNG supply contracts with Vitol, an **oil** trader, and Japanese **energy** firms, to be supplied from a facility in eastern Russia from 2019. The most immediate transformation in Russia's LNG capacity will come from the Yamal LNG project, which is under development by Novatek, a Russian **oil** major. Yamal LNG will begin production in 2016 and will have capacity of 16.5m t/y. Novatek has arranged preliminary financing from several **Chinese** banks for its project. Gazprom's Vladivostok LNG, with expected capacity of up to 10m t/y, is expected to become operational in 2018.

The political tensions between the West and Russia over Ukraine pose risks for the long-term development of Russia's LNG ambitions. Already, Novatek has warned that it will have to make use of more of its own capital rather than raising funds in Europe or the US. Meanwhile, international **oil** and gas groups may be wary about heavy investment in Russia at a time of unstable inter-national politics and sanctions.

Liquefied natural gas (LNG):
production
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m tonnes unless otherwise indicated)

	2011	2012	2013	2014	2015
Qatar	75.4	76.4	78.0	78.8	79.5
Malaysia	24.9	23.7	25.1	26.1	28.0
Australia	19.5	20.9	22.4	24.4	28.1
Indonesia	21.9	19.0	18.4	17.2	16.7
Nigeria	18.9	19.6	16.5	15.8	15.5
Trinidad and Tobago	13.0	13.5	13.7	13.8	13.9
Algeria	12.5	11.2	10.8	11.5	12.0
Russia	10.6	10.9	10.7	9.8	10.1
Oman	8.1	8.2	8.4	8.5	8.6
Others	36.1	33.1	33.0	35.0	38.8
World total	240.8	236.3	236.9	241.0	251.1
% change	9.4	-1.9	0.2	1.7	4.2

Exports of LNG.
Sources: International Group of Liquefied
Natural Gas Importers; International Gas Union; The Economist Intelligence
Unit.

Prices

LNG spot prices for delivery into North Asia have eased back sharply from the high levels in the first two months of 2014, when prices hit a record of over US$20/mBtu. In the normally tight summer months, prices have fallen to a little over US$10/mBtu, owing to weak demand in major consumers in Asia. We expect prices for imported LNG into Japan (an average of high prices, contracted long-term and spot prices) to move downwards this year to an average of around US$15.54/mBtu. Prices will continue to slide on average in 2015-16 as new supplies come into the market from Australia and PNG and as Angola resumes exports. The introduction of LNG exports from the US will add further downward momentum to markets. As the LNG market becomes increasingly globalised through the introduction of US, East African and Canadian exports in the latter parts of the decade, we expect to see the development of more futures and exchange-based trading, allowing consumers and producers to take advantage of regional changes in natural gas demand.

Liquefied natural gas:
prices

	2012	2013	2014	2015	2016
Prices					
1 Qtr	16.36	16.21	16.66	15.50	15.20
2 Qtr	17.06	16.34	16.19	15.30	14.80
3 Qtr	17.56	15.58	14.45	14.80	14.20
4 Qtr	15.24	15.69	14.85	15.00	14.00
Year	16.55	15.96	15.54	15.15	14.55
% change	12.9	-3.6	-2.6	-2.5	-4.0

Japan basis,
US$/mBtu.
Sources:
World Bank; The Economist Intelligence
Unit.

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