IICEC Energy Market Newsletter
17 July, 2017

Qatar Plans Gas Build-Out Despite Regional Geopolitical Issues

Despite the continued sanctions from Saudi Arabia, UAE, Bahrain, and Egypt, Qatar announced plans on July 4, 2017 to end a moratorium on all new oil and gas production projects that has been in place since 2005. In the announcement, Qatar Petroleum (QP) signaled its intention to increase its annual natural gas production from the massive offshore North Field (Figure 1) from 77 million to 100 million tons -equivalent to one third of current global supplies- by 2024.[i]

CEOs from Exxon, Royal Dutch Shell, and Total have meet with leadership in Qatar to discuss plans to expand gas production and LNG export capacity[ii] despite the risk this might have on their business interests among the countries imposing sanctions on Qatar.

Qatar plans to boost gas production to feed its LNG exports and to boost liquefaction capacity by 30%, from 10 billion cubic feet per day (Bcf/d) to 13 Bcf/d.[iii] Qatar is already the world's largest LNG exporter, with a market share of 30.4% of global LNG in 2016.[iv] Qatar increased its LNG exports by 5.6% from 2011 to 2016 by running liquefaction trains above nameplate capacity.[v]

Qatar's lifting of the moratorium on new production from the North Field comes at a time when Iran's national oil company -National Iranian Oil Co.- continues development of its South Pars natural gas project. As of 2015, proved natural gas reserves held in the North Field and the South Pars were estimated to total 872 trillion cubic feet (Tcf) and 480 Tcf, respectively.

While the Gulf State sanctions involve trade blockades, Qatar's LNG trade utilizes international waters for shipping, and the majority of Qatar's buyers are in Asia and Europe.[vi] Qatar's gas pipeline exports to Bahrain also remain operational.[vii]

Figure 1. North Field and South Pars Gas Fields

Natural Gas & LNG

(see Technical Appendix for more data)

Russia's Gazprom is entertaining offers from European partners to extend the planned Turkish Stream gas pipeline into Europe.[viii] This comes as Gazprom and Turkey's BOTAŞ agreed to financial terms for the pipeline.

Spot prices for LNG in Asian markets remain low due to increased regional supply and weak demand for key importers, especially Japan. Japanese LNG buyers paid an average of \$5.60/mBtu for spot cargoes in June, down \$0.10/mBtu from May. Political fissures between Qatar -the world's largest LNG supplier- and Saudi Arabia have not appeared to impact regional gas prices.

Weekly U.S. natural gas spot prices fell \$0.11 to \$2.90/mBtu on July 5. Prices are falling slightly as the total gas supply and dry production increased by 1% compared to the previous week.

The EU and Japan -which account for nearly half of global LNG demand- have agreed to push for reliable LNG spot price indices as part of joint efforts to make LNG markets more liquid, flexible and transparent.

In June, Cheniere Energy began a 20-year supply agreement with Korea Gas Corp. Under the deal signed in 2012, Cheniere will make available for delivery 3.5 million tons of LNG annually to one of the world's largest LNG buyers.

This week the Australian government lowered her forecast for the country's fiscal 2017-2018 LNG exports by 3.8 million tons, due mainly to later-than-expected startup of the Ichthys LNG facility.

Oil Market

(see Technical Appendix for more data)

The Brent oil price was \$46.45/b on July 11, down \$1.84/b since this time last month. Prices peaked in May around \$54/b and thus far in July have not been higher than \$49.60/b. Increased production from Nigeria and Libya, as well as increased output from the United States, have weighed on prices. U.S. production growth may be slowing due to investors' re-evaluation of expected returns outside of the most productive tight oil plays.

The Brent-WTI spread in July has averaged \$2.54/b, down from May's \$2.80/b and April's \$2.69/b. The spread tightened this month due to rising WTI prices, as U.S. crude storage experienced higher drops than expected.

According to OPEC data, the producer group's output increased by more than 330 kb/d in June to 32.47 mb/d, driven by increased production in Nigeria and Libya.[ix] In late May 2017, OPEC, Russia, and other partners agreed to extend their cuts through first quarter 2018. Nigeria and Libya are both exempt from the deal, though recent talks in OPEC suggest that this may soon change.

U.S. weekly crude production averaged 9.4 mb/d last week, up from May's 9.3 mb/d. U.S. commercial crude inventories fell by 7.6 mb during the week ending July 9. Crude imports averaged over 7.8 mb/d, 3% below the same four-week period last year. U.S. crude exports increased by 149 kb/d from the previous week to 918 kb/d. Weekly exports reached an all-time high of 1.3 mb/d in late May.

The majority of global product prices fell during May, reflecting lower crude prices and an oversupply situation for most products, according to IEA.

Renewables

Global – The Efficiency and Clean Energy Investment Share is Up while Coal and Upstream Oil Investment is in Decline: The IEA's World Energy Investment 2017 report indicates that total energy investments fell to $1.7 trillion in 2016, marking the second consecutive year of decline.[x] Investments in energy efficiency increased by 9%, accounting for 13.6% of total spending. The share of clean energy investment reached a record high of 43%. The report finds that the biggest driver of the decline was a 25% reduction in investment in coal and upstream oil and gas development.

China: The Qinghai province ran on 100% renewable energy for seven days last month, including from solar, wind, and hydro generating sources.[xi] The week was a trial period conducted by the State Grid Corporation of China, which is testing the reliability of certain renewable generation mixes. During that time, the province generated 1.1 billion kilowatt hours of energy for over 5.6 million residents—the equivalent of burning 535,000 tons of coal.

According to BP's 2017 Statistical Review of World Energy, China has replaced the United States as the world's top producer of renewable energy.[xii] Renewable power (excluding hydro) grew by 14.1% worldwide last year. Wind provided more than half of the growth, with solar contributing a third.

United States: In March, and again in April, U.S. monthly electricity generation from utility-scale renewable sources exceeded nuclear generation for the first time since July 1984, according to U.S. EIA.[xiii] This outcome reflects both seasonal and trend growth in renewable generation, as well as maintenance and refueling schedules for nuclear plants, which tend to undergo maintenance during spring and fall months, when overall electricity demand is lower than in summer or winter.

Economics

Turkey: Turkey's economic growth is expected to reach 6% in 2Q17 and exceed 5% by the end of the year, according to the Turkish Industry Minister.[xiv] Minister Özlü also said current interest rates were too high for the industrial sector to grow, adding that he expected a fall in the unemployment rate in July. According to official statistics, the economy grew by 5.0% in 1Q17.[xv] A rebound in domestic demand and exports played a key role in pushing up growth, according to the Turkish Statistical Institute (TÜİK).

Europe: Economic activity in the Eurozone fell back from its pre-debt crisis highs this month but the manufacturing sector is enjoying its best period in over six years.[xvi] Robust manufacturing activity matches the performance in France and Germany this month, where growth also accelerated. With the Eurozone economy expanding 0.6% at the start of the year, June's performance suggests the rate of GDP growth could average 0.7% in the second quarter once the data is finalized. The Eurozone experienced a growth rate of 0.5% for 1Q17.[xvii] Other signs of a strengthening economy came as official data showed the Eurozone's jobless rate holding at its lowest since 2009, at 9.3% of the workforce, after a 5,000 drop in new jobless claims. A year ago, the jobless rate stood at 10.2%.[xviii]

Asia: The Bank of Japan offered an optimistic view of the country's regional economies this week, describing the six regional zones as "expanding moderately" and stating that "capital expenditure continues to increase steadily as a trend."[xix] Japan's GDP grew markedly less in 1Q17 than pervious thought, though the underlying pace of expansion remained strong, according to government data.[xx] The big issue for the central bank remains inflation, which rose by 0.4% year-on-year in May, while the target remains 2%.[xxi] In China, inflation data for June showed price pressures as CPI increased 1.5% year-on-year, while PPI rose 5.5%. PPI is expected to fall in the coming months due to weak commodity prices. The IMF forecasts China's gross domestic product to grow 6.7% this year -edging up from a previous estimate of 6.6%- in line with government forecasts.[xxii]

United States: In a prepared testimony before Congress, Fed Chair Janet Yellen said the United States is healthy enough to absorb further gradual rate increases and a slowing of the massive bond portfolio accumulated by the Federal Reserve during the financial crisis. The Fed raised short-term interest rates by 0.25% in June, the third rate hike since December.[xxiii]

Last week, the U.S. Bureau of Labor Statistics said the United States added 222,000 new jobs in June, comfortably beating expectations. According to the data, most of those jobs were in low-paying industries and wages are barely keeping pace with inflation. Manufacturing languished while food services and healthcare led the pack.[xxiv]

The U.S. economy grew at an annualized rate of 1.2% in 1Q17. The GDP growth has not exceeded 3% on an annual basis for a record-breaking 11 years.[xxv]

Geopolitics & Supply

OPEC: Crude output from the producer group rose by 330 kb/d in June to 32.47 mb/d, the highest level so far this year, after comebacks in Libya and Nigeria, which are exempt from supply cuts.[xxvi] There have been discussions recently about incorporating Libya and Nigeria into the production quotas, as the two nations added around 450 kb/d of production in May and June.[xxvii] Output from members bound by the production deal edged lower last month, which kept year-to-date compliance strong at 96%.

Iraq: Crude production, including from the Kurdistan Regional Government (KRG), rose 30 kb/d to 4.45 mb/d in May. Compliance with the OPEC cut during the first five months of the year was 55%, with production down 120 kb/d from the October supply baseline. During May, crude oil exports increased by 20 kb/d to 3.79 mb/d. Shipments of Basra crude from southern terminals crept up to 3.24 mb/d. Northern exports along the KRG pipeline to Turkey held steady at 550 kb/d.

Iran: May's production rose by 30 kb/d to 3.78 mb/d and was up 180 kb/d from last year.[xxviii] Crude oil exports leapt 510 kb/d to 2.28 mb/d, according to tanker tracking data. Iran desperately needs new investment in order to even maintain production at some of its more mature fields. For now, Iran appears to remain committed to extending the production cuts to March 2018.

Libya: Production increased to over 1 mb/d in June.[xxix] Output has been below that level for the last four years. Production has fluctuated widely over that time period due to technical and political issues- and the future production level remains uncertain. Libya has remained exempt from the OPEC cuts and will continue to be exempt through March 2018.

Nigeria: Output rose by 250 kb/d to 1.733 mb/d in June after the restart of loadings from the Forcados terminal.[xxx] Nigeria is also exempt from the OPEC coordinated production quotas.

Qatar: A decision by Saudi Arabia, the UAE and Egypt to cut ties with Qatar is causing logistical headaches for lifters of Qatari oil and LNG -the supplies have not yet been disrupted.[xxxi] Qatar is the world's largest exporter of LNG and OPEC's second biggest producer of condensates and NGLs after Saudi Arabia. Kuwait's oil minister said the crisis was unlikely to affect OPEC's supply deal.

Saudi Arabia: Supply eased 40 kb/d to 9.92 mb/d in May, holding below its 10.06 mb/d output target for the fifth straight month. Compared to last year, Saudi output was down 310 kb/d. Exports of crude, already sharply lower, are set to slow further in the coming months as more oil is consumed at domestic power plants to meet demand for summer air conditioning, according to IEA.

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IICEC Energy Market Newsletter
Technical Appendix

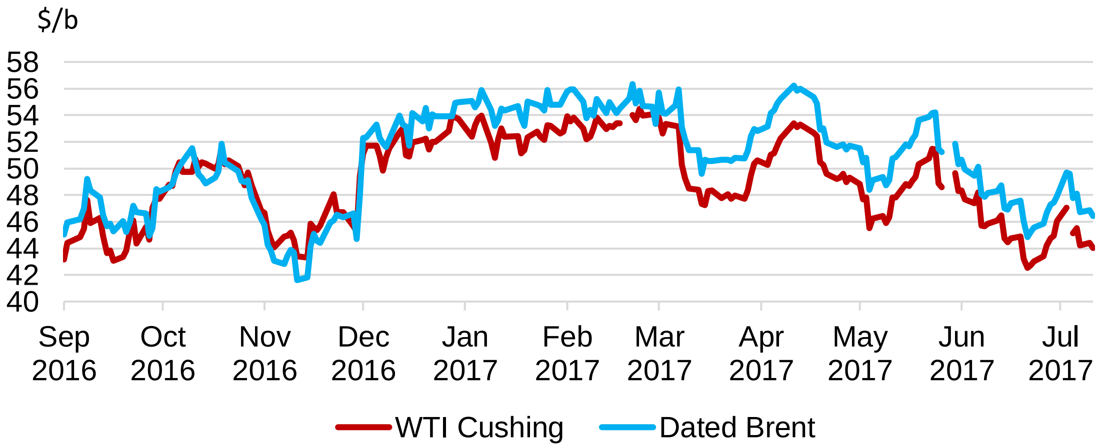
1. Oil Market

Oil Supply and Prices:

- **The Brent oil price has fallen steadily in July, reaching $46.45/b on July 11, down $1.84/b since this time last month.** Increased production from Nigeria and Libya, as well as increased output (albeit lower than expected) from the United States, have weighed on prices. Reports of falling crude inventories in the United States supported prices against further declines. Prices peaked recently at $54/b on May 24.

- **The Brent-WTI spread in July has averaged $2.54/b, down from May's $2.80/b and April's $2.69/b.** The spread tightened this month due to rising WTI prices, as U.S. crude storage experienced higher drops than expected.

Figure 2. Benchmark Crude Prices



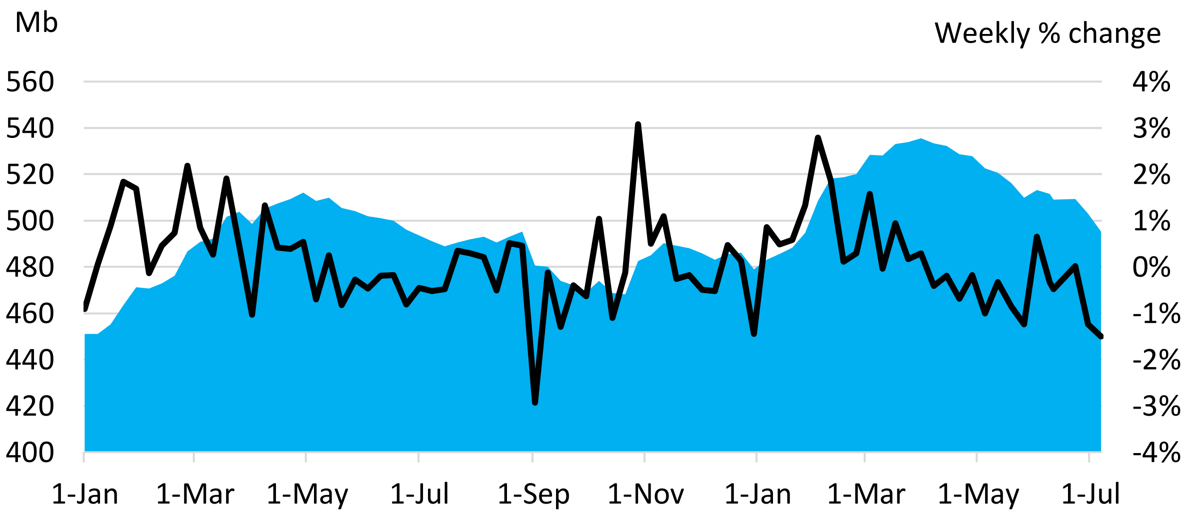
- **U.S. weekly crude production has grown steadily since the end of June.** Weekly production reached 9.397 mb/d for the week ending July 7, up from the previous week's 9.338 mb/d, according to EIA. Based on EIA data, weekly crude production grew 21 out of the previous 27 weeks. U.S. oil production began to grow in the 4Q16 after declining over the first three quarters of last year. Average production for 2016 (8.9 mb/d) was below 2015 (9.4 mb/d), though still 1.3 mb/d higher than the average for 2011-2015.

Crude Storage:

- **OECD commercial stocks rose in May by 18.6 mb (620 kb/d) on higher refinery output and imports, according to the IEA.** They stand 292 mb above the five-year average and are higher than when OPEC decided to cut output. For May, preliminary data suggests stocks falling in Fujairah, Japan, Europe, Singapore and in vessels offshore, but rising in the United States and China.

- **U.S. commercial crude inventories fell by 7.6 mb during the week ending July 7, significantly higher than analysts' expectations of 2.9 mb.**[xxxii] At 495.4 mb, U.S. crude oil inventories are in the upper half of the range for this time of year, based on the five-year average. Crude imports averaged 7.6 mb/d, down by 132 kb/d from the previous week. U.S. crude exports increased by 149 kb/d from the previous week to 918 kb/d. Weekly exports reached an all-time high of 1.30 mb/d in late May.

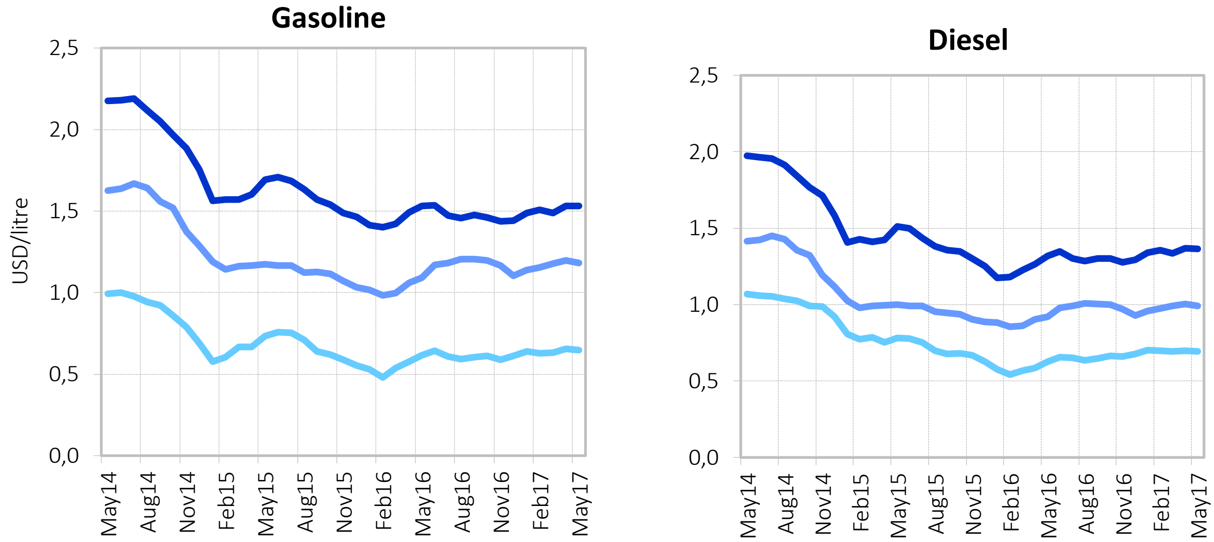
Figure 3. Weekly U.S. Crude Oil Stocks



Select Product Markets:

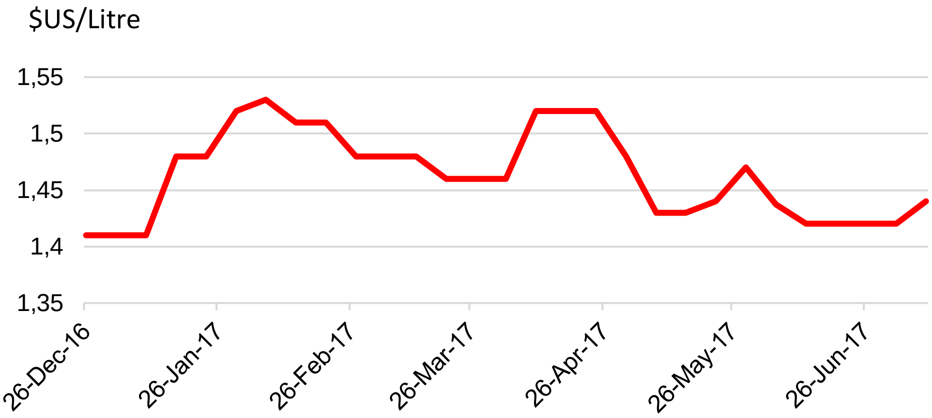
- **Most product prices fell during May, reflecting lower crude prices and an oversupply situation for most products, according to IEA** (Figure 5). Fuel oil prices fell in May, but less than other oil product categories, making it the strongest performer. Prices have been supported in the last few months by OPEC's decision to cut output, which bolstered the price of heavy, sour crudes that yield a lot of fuel oil, and lower production from Russia linked to its refinery modernization program. Gasoline prices fell in all markets, reflecting plentiful supplies ahead of the summer driving season. Rotterdam Eurobob gasoline barge prices were down $3.05/b on the month to $62.86/b. Exports of gasoline components from Europe to the United States rose in May, but remained limited by near-record runs at U.S. refineries and high stocks in the U.S. East Coast.

Figure 4. Select Monthly Product Prices in Europe, Japan, and North America
(Europe top line, Japan second line, North American bottom line)



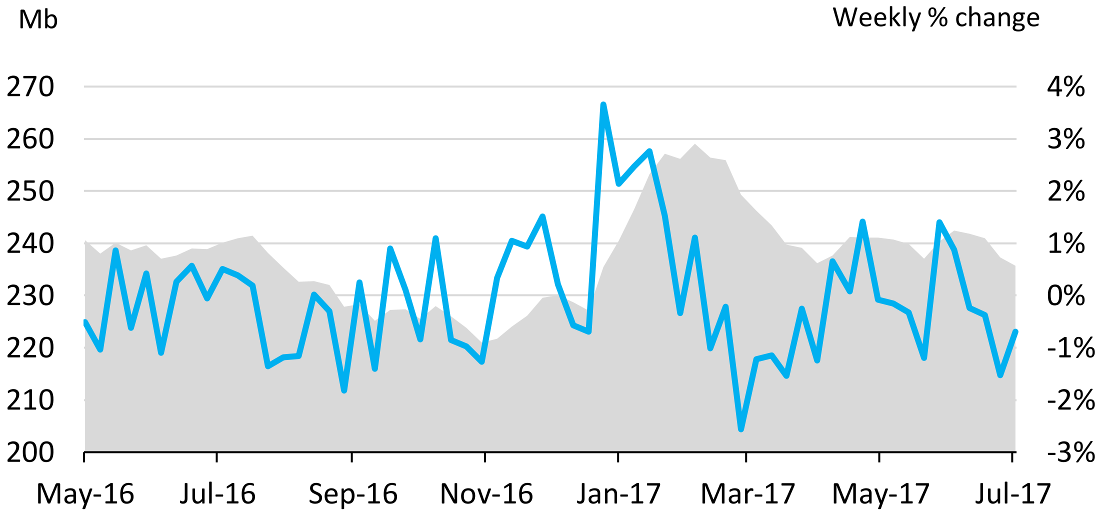
- **Gasoline prices in Turkey** are shown in Figure 6, with prices remaining mostly flat since the beginning of June.

Figure 5. Weekly Average Gasoline Prices in Turkey



- **For the week ending July 7, U.S. crude oil refinery inputs averaged 17.2 mb/d, up 103 kb/d from last week's average.** Gasoline production increased as a result, while refineries operated at 94.5% of their operable capacity. U.S. gasoline stocks increased by 1.6 mb, and they remain in the upper limit of the five-year average for this time of year. The national average retail regular gasoline price decreased to $2.297 per gallon on July 10, $0.037 higher than last week's prices and $0.044 less than a year ago.

Figure 6. Weekly U.S. Gasoline Stocks and % Change



2. Natural Gas & LNG

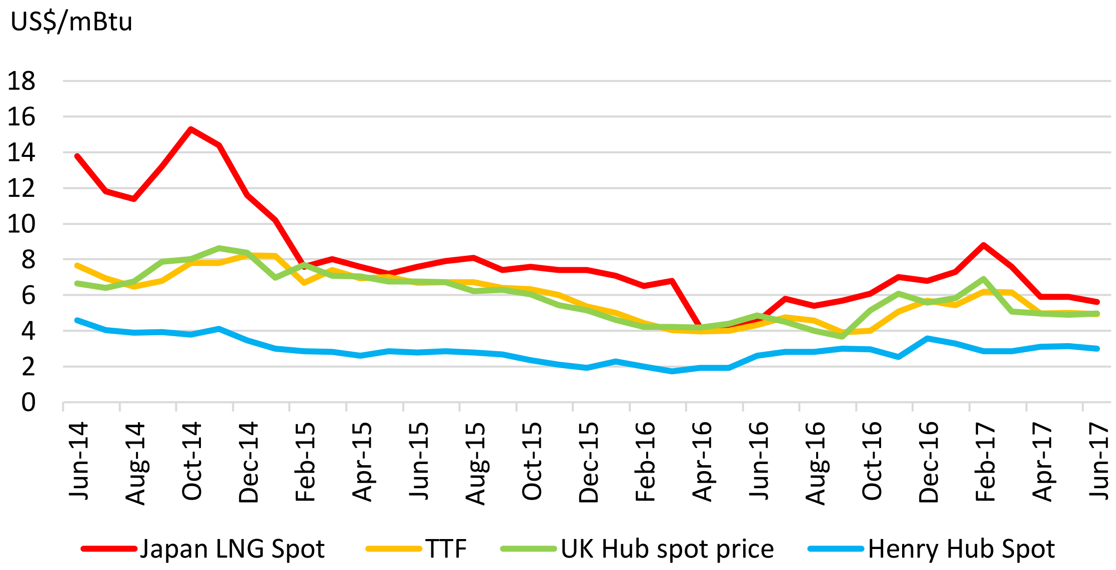
Prices:

- **Spot prices for LNG in Asian markets remain low due to increased regional supply and weak demand for key importers, especially Japan.** Japanese LNG buyers paid an average of $5.60/mBtu for spot cargoes in June, down $0.10/mBtu from May.[xxxiii] However, June's average price is up by 24.4% from June 2016. Political fissures between Qatar -the world's largest LNG supplier- and Saudi Arabia have not appeared to impact regional gas prices.

- **The EU and Japan -which account for nearly half of global LNG demand- have agreed to push for reliable LNG spot price indices as part of joint efforts to make LNG markets more liquid, flexible and transparent.**[xxxiv] According to a memorandum of cooperation signed this week, the EU and Japan agreed to explore cooperation in "establishing reliable LNG spot price indices, reflecting the true LNG demand and supply". The move comes amid a growing global LNG supply glut, likely to increase buyers' demands for LNG prices based on gas market fundamentals, rather than the traditional oil-price link of long-term contracts.

- **Weekly U.S. natural gas spot prices fell $0.11 to $2.90/mBtu on July 5.** Prices are falling slightly as the total gas supply and dry production increased by 1% compared to the previous week, while average net imports from Canada increased by 3%.

Figure 7. Select Natural Gas Prices



Supply:

- **Russia's Gazprom is entertaining offers from European partners to extend the planned Turkish Stream gas pipeline into Europe.**[xxxv] This comes as Gazprom and Turkey's BOTAŞ agreed to financial terms for the pipeline. The pipeline project was agreed to on May 7 between Russia and Turkey to build a 31.5 bcm/y capacity pipeline across the Black Sea. The pipeline's first line is expected to be completed in 2018.

- **In 2016, India and Pakistan were the world's third and fourth fastest growing LNG importers.**[xxxvi] With new investments in LNG import and gas distribution infrastructure -as well as significant potential gas demand growth- South Asia is expected to become one of the world's fastest growing LNG import markets. The global LNG market is expanding by 4-6% per year, compared to around 1-2% for overall gas consumption.[xxxvii]

- **U.S. LNG exports remain the unchanged week over week.**[xxxviii] One of the U.S. LNG export projects, Freeport LNG, filed an application with the Federal Energy Regulatory Commission for authorization to construct the fourth train at the facility, which has a nameplate capacity of 0.67 Bcf/d and a target online date in 2022. Three other trains are currently under construction and are scheduled to come online "sequentially between Q4 2018 and Q3 2019," according to a Freeport LNG announcement.

- **In June, Cheniere Energy began a 20-year supply agreement with Korea Gas Corp.** Under the deal signed in 2012, Cheniere will make available for delivery 3.5 million tons of LNG annually to one of the world's largest LNG buyers.[xxxix] In 2016, Cheniere exported to countries in Asia, Europe, Central and South America, and the Middle East.

- **This week the Australian government lowered its forecast for the country's fiscal 2017-2018 LNG exports by 3.8 million tons, due mainly to later-than-expected startup of the Ichthys LNG project.**[xl] The report also flagged intensifying global competition and federal government LNG export restrictions as casting uncertainty over the outlook. Two other LNG projects are scheduled to start production in the current fiscal year: the 8.9 mt/year Wheatstone LNG project and 3.6 mt/year Prelude floating LNG facility.

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