

IICEC Energy Market Newsletter

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1. Summary

Oil Market

- Oil prices were volatile for the last few weeks as doubts continued about OPEC output cuts, OECD crude stocks remained fuller than expected, and stocks in the United States remained in the upper-limit average. The Brent benchmark oil price started the month at \$53.13/b, reached a high of \$56.32/b on April 11, and was down to \$51.73 as of April 25. April's average remains \$2.12/b higher than March.
- U.S. weekly crude production grew for the 10th straight week, reaching 9.265 mb/d as of April 21, up more than 300 kb/d since January, according to the Energy Information Administration (EIA). U.S. drilling activity continues to grow, up by 10 rigs this week, and up by 426 rigs from the same time last year.ⁱ
- OECD crude stocks fell by 17.2 mb in March, after a sizeable build in January due to a seasonal drop in refinery runs. Together, this implies a total stock increase of 38.5 mb in 1Q2017. OECD product stocks fell from February to March even as most oil product prices fell in March. Middle distillates were the strongest performers in terms of price due to lower output from refiners and higher seasonal demand.

Natural Gas & LNG

- Russia's Gazprom moved forward last week on Nordstream 2, a massive gas pipeline expansion project, which aims to deliver increased gas supplies to Europe across the Baltic Sea. Meanwhile, Russian gas exports to Turkey increased by 25% in April compared to the same time last year, despite the fact that Turkey continues to diversify its energy mix away from natural gas to decrease reliance on foreign suppliers.
- Growing global liquefied natural gas (LNG) trade could support the development of a gas market hub in Asia, according to EIA.
- Regional gas spot prices remained mixed due, in part, to varied temperatures.

Economics

- The U.S. economy is on track for sluggish first quarter growth as consumers and investors are in "wait and see" mode, following events at the national level. Unemployment rate remains low. The Eurozone economy is thriving and received a recent boost by the results of the first round of the French presidential election. The economies of both Japan and China are strengthening due to domestic investments.

Geopolitics & Supply

- OPEC crude output fell by 365 kb/d in March to 31.68 mb/d, according to the International Energy Agency (IEA). Losses in supply from Nigeria and Libya—both exempt from the group's supply cuts—led the reductions. A joint committee of ministers from OPEC and non-OPEC countries agreed to review extending oil production cuts at the May 25 meeting.

Renewables

- A recent IEA report suggests that economics is not a barrier to some renewable energy for any country. Meanwhile, Fortune 500 companies are increasingly turning to renewable energy and energy efficiency priorities, with nearly half now boasting a climate or clean energy target, according to a recent study from the World Wildlife Fund (WWF).

2. In the News: Turkey's Policies Support Domestic Renewables and Deter Imported Gas

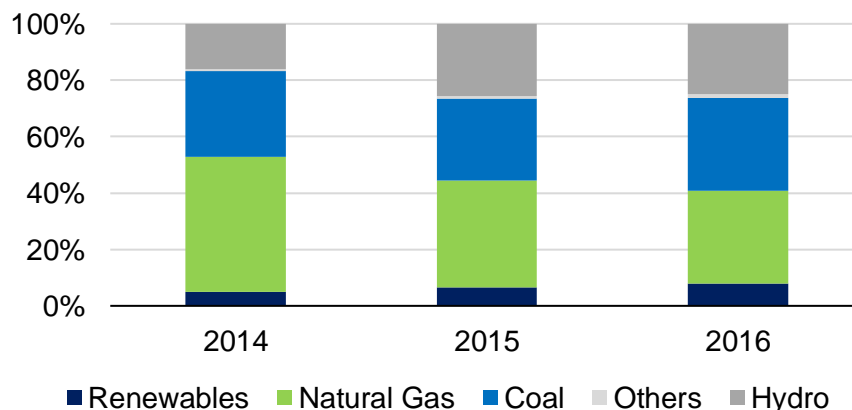
In 2001, Turkey introduced an ambitious program to develop a liberalized, competitive and transparent natural gas market. The *Natural Gas Market Law 4646* contributed to dynamic developments and rapid demand growth. As a result, Turkey's gas consumption increased from 15 bcm in 2000 to 48.7 bcm in 2014. By 2012, however, Turkey's state-owned gas company, BOTAS, was forecasting gas supply shortages by 2030.ⁱⁱ

Rather than increasing its overwhelming dependence on imported gas—from Russia, Iran, Azerbaijan, and LNG—the Turkish government issued multiple policies aimed at reducing the share of gas in the country's energy mix.ⁱⁱⁱ As a result, the share of gas in the power generation sector—the largest gas consuming sector in Turkey—has fallen from 48.12% (23.5 bcm) in 2014 to 33% (15.7 bcm) in 2016. By 2023, Turkey's *Electricity Market and Security of Supply Strategy* expects to see in the primary energy mix the share of renewable energy and coal increase to 30%, up from 26% and 28%, nuclear to 10% from zero, and natural gas to 30%.

Meanwhile, the electricity market began its own liberalization and privatization in 2013, with the distribution sector and most power generation assets, excluding hydro and some coal, now privatized. Privatization has attracted greater investment, which boosted capacity margins and supported electricity demand growth. The government also created a day-ahead and balancing market and reorganized the electricity wholesale market. With imported gas prices significantly higher than other generation options, such as subsidized renewables and coal, gas combustion in electricity fell significantly in 2015 and 2016.

Natural gas is expected to continue to lose share in Turkey's energy mix. In May 2016, the Minister of Energy and Natural Resources issued the *Regulation on Renewable Energy Resources* which issued a new policy to attract more investment in renewable electricity generation, including 1) tax refunds and exemptions for wind and solar, 2) de-licensing producers with less than 5 MWh of renewable energy, and 3) incentivizing generators to use locally produced equipment and workforce, among others.

Figure 1. Turkey's Primary Energy Sources for Electricity Production

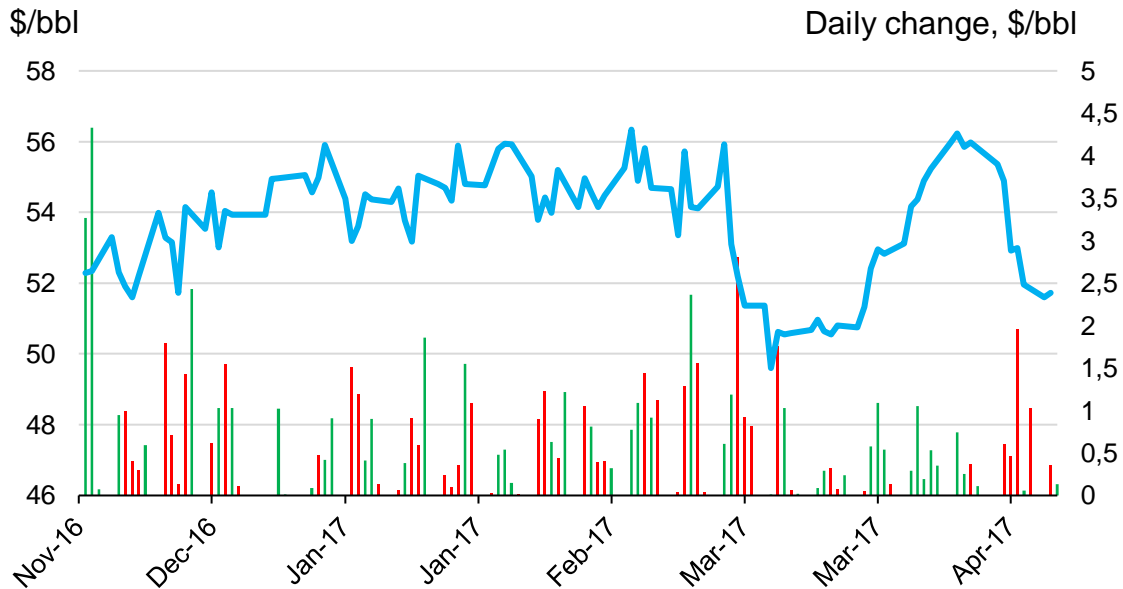


3. Oil Market

Oil Supply and Prices

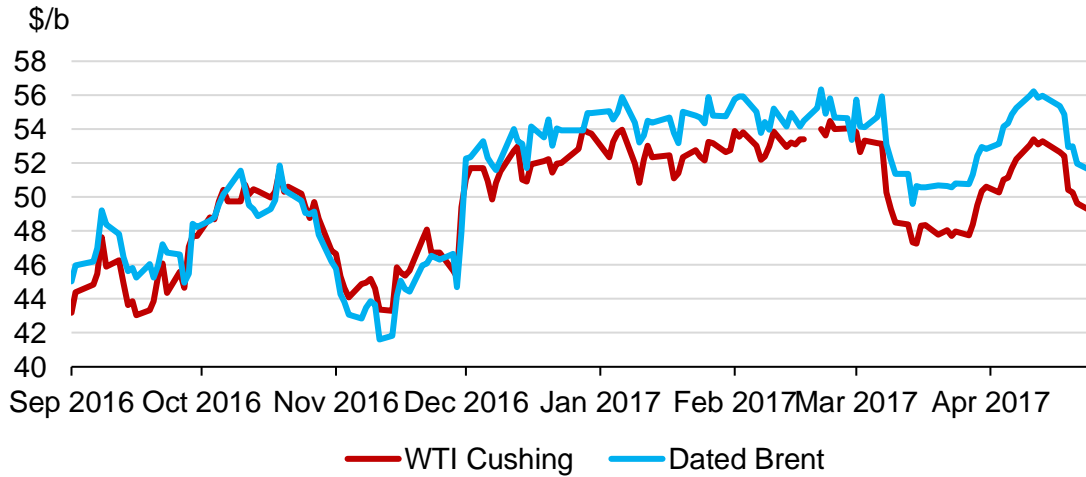
- The Brent oil price fell to \$51.73 on April 25, down more than \$4.50 from April's high of \$56.23, as crude stocks in the OECD failed to draw significantly during the switch to summer driving season. Nonetheless, April's average remains \$2.12 higher than March. Prices remained volatile for the last few weeks as doubts continue about OPEC output cuts, OECD crude stocks remained fuller than expected, and stocks in the United States remained high compared to the five-year average.
- OPEC crude output fell by 365 kb/d in March to 31.68 mb/d, according to the IEA. Losses in supply from Nigeria and Libya—both exempt from the group's supply cuts—led the reductions. U.S. drilling activity continues to grow, up by 10 rigs this week, and up by 426 rigs from the same time last year.^{iv}

Figure 2. Brent Crude Oil Price since OPEC Announced Cut



- During March 2017, the Brent-WTI spread averaged \$2.51 and has since shrunk to \$2.43 as of April 25. It currently stands at \$0.65 higher than the 2017 average of \$1.78. Front-month ICE Brent crude futures showed more volatility in March than in the weeks following the OPEC output deal last November. The spread fell by more than \$4/b early in the month after Saudi oil minister Al-Falih appeared to question the feasibility of renewed production cuts at the end of June. Prices gained by the end of March as draws in U.S. product inventories offset builds in crude.

Figure 3. Benchmark Crude Prices

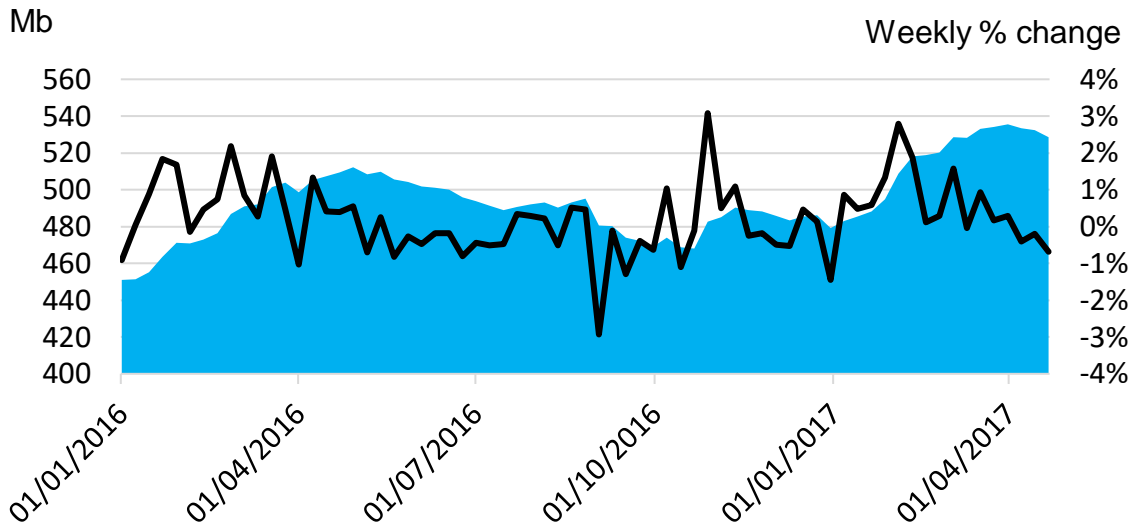


- **U.S. weekly crude production grew for the 10th straight week, reaching 9.25 mb/d as of April 21, up 319 kb/d since January**, according to EIA. U.S. oil production began to grow in the fourth quarter of 2016 after declining over the first three quarters of last year. Average production for 2016 (8.9 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 stocks fell by 17.2 mb in March, after a sizeable build in January due to a seasonal drop in refinery runs, according to IEA.** Together, this implies a total stock increase of 38.5 mb in 1Q2017. The January build, it is important to note, erased around 40% of the cumulative drop in OECD stocks between July and December 2016.
- **Recent data suggest that Chinese commercial stocks fell by 1.4% month-to-month in February, as net crude imports fell 5.4%.**
- **U.S. commercial crude inventories fell by 3.6 mb during the week of April 21 after falling by 1.0 mb during the last report period.** At 528.7 mb, U.S. crude oil inventories are near the upper limit of the five-year average range for this time of year. Crude imports were up by 1.1 mb/d from the previous week, 4.9% above the same four-week period last year. For the week ending April 14, U.S. crude exports dipped by 124 kb/d from the previous week to 565 kb/d. Weekly exports peaked at 1.026 mb/d in mid-February.

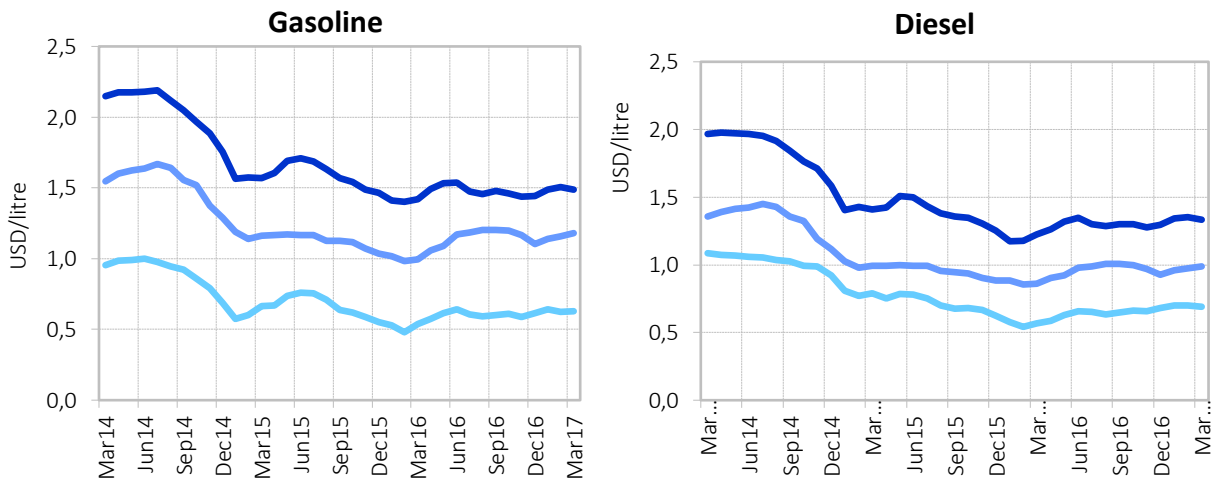
Figure 4. Weekly U.S. Crude Oil Stocks



Select Product Markets

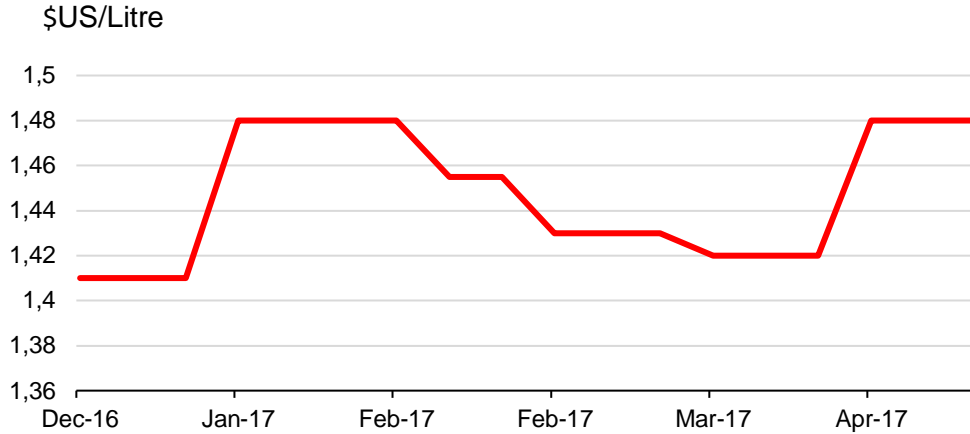
- **Most oil product prices fell in March, reflecting improved supply balances throughout the OECD.** Rotterdam diesel barge prices averaged \$62.21/b, down \$3.91/b from February. European diesel premiums increased in the second half of March after cargo exports from the Middle East and India were sent to Asia, and as refineries entered maintenance. Gasoline prices were higher in the United States, however, due to high export demand. Average gasoline prices there increased to \$2.436 per gallon on April 17, \$0.012 higher than last week's price and \$0.299 higher than a year ago.^{vi}

Figure 5. Select Monthly Product Prices in Europe, Japan, and North America
(Europe top line, Japan second line. North American bottom line)



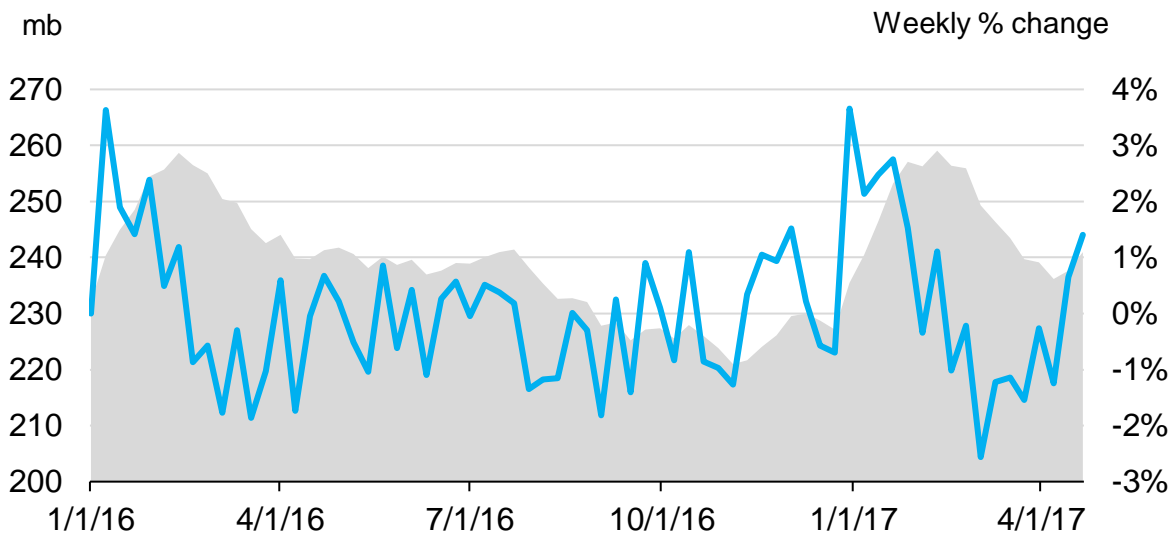
- **Gasoline prices in Turkey** are shown in Figure 6, with prices increasing 4% since March. Since January, average gasoline prices fell by \$0.07. The Turkish Lira was up 0.5% against the dollar last week.

Figure 6. Weekly Average Gasoline Prices in Turkey



- **For the week ending April 21, U.S. crude oil refinery inputs averaged 17.3 mb/d, up 347 kb/d from last week's average.** Gasoline production decreased, however, while gasoline imports increased. The result was a net increase of 3.4 mb in U.S. gasoline stocks from the previous week, which are in the upper limit of the average range.

Figure 7. Weekly U.S. Gasoline Stocks and % Change

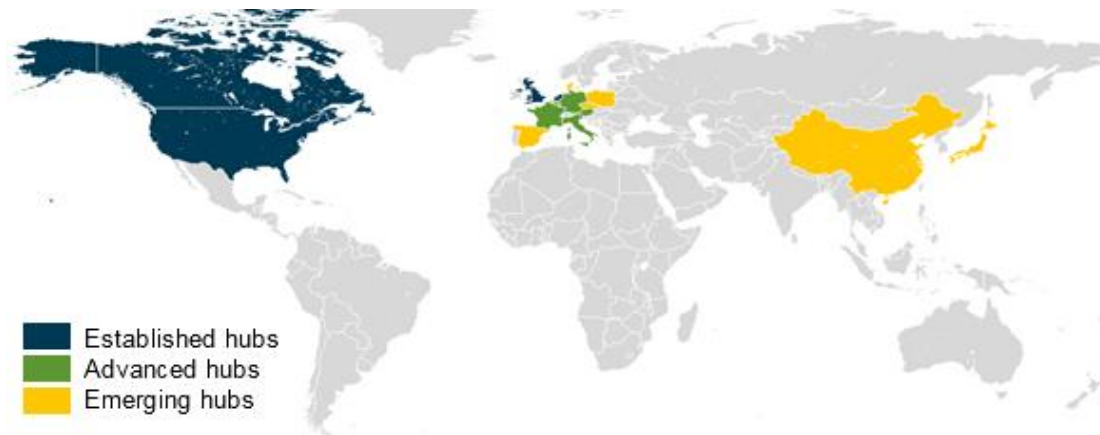


4. Natural Gas & LNG

Supply and Price

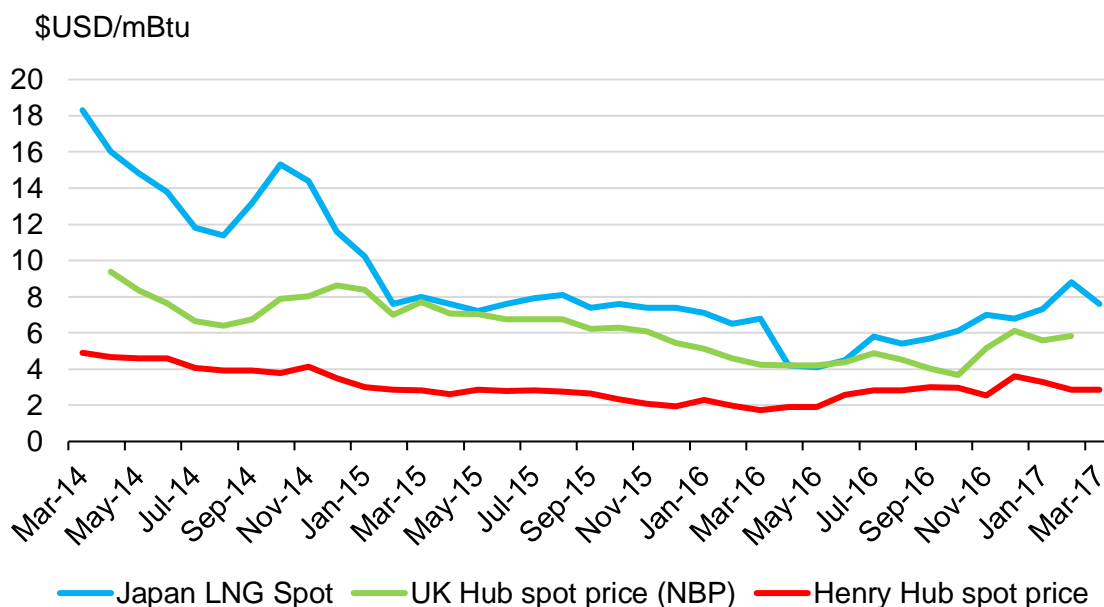
- **Growing global LNG trade could support the development of a gas market hub in Asia, according to the EIA.**^{vii} Asia, which accounts for three-quarters of global LNG trade and one-third of global gas trade, lacks a pricing benchmark that reliably reflects supply and demand changes in Asian markets. Natural gas market hubs, such as the United States' Henry Hub or the United Kingdom's National Balancing Point (NBP), have been a key feature of competitive gas markets in the United States and Europe. In recent years, Japan, China, and Singapore have established benchmark LNG pricing indexes, while Japan has developed a strategy to create a gas trading hub.

Figure 8. Global Natural Gas Trading Hubs



- **The spot trade comprised roughly 18% of total LNG trade in 2016, according to recent industry data.**^{viii} Defined as cargoes delivered within three months of the transaction date, the share for 2016 was up 3% from 2015. The main demand drivers of the spot market remain China, India, and Egypt.
- **Asian LNG spot prices edged \$0.05 higher last week, though the monthly data for April may not show a significant change from March.**^{ix} Recent weekly trading data show that global supplies dipped slightly, though it remains unclear if the dip is due to the timing of data reporting. Extended glitches in recent months in new and existing liquefaction facilities are providing support for spot prices at higher levels than expected.
- **U.S. natural gas prices remained mixed due to varied temperatures and slight declines in supply and demand in the residential/commercial sector.** The Henry Hub spot price increased by \$0.11 in the last week. Four LNG vessels carrying a combined 14.6 Bcf departed Sabine Pass in the United States last week.^x

Figure 9. Select Natural Gas Prices



- **Russia's Gazprom moved forward last week on its massive pipeline expansion project called Nord Stream 2, which aims to deliver increased gas supplies to Europe across the Baltic Sea.**^{xi} Russia's western partners agreed to provide half of the financing for the \$10.32 billion pipeline. The system will increase Russia's share of the European gas market, up from the current share of around 33%.
- **Russian gas exports to Turkey increased by 25% in April compared to the same time last year, according to Gazprom.**^{xii} Exports to other countries in Central and Southern Europe also increased, including Serbia, Bulgaria, and Hungary.

5. Economics

- **Asia: Economies of Japan and China are strengthening.** Japanese companies are ramping up capital spending, encouraged by increased profits. According to the Central Bank, pretax profits at Japanese companies are expected to total \$480 billion, up significantly from previous years.^{xiii} Between October-December 2016, domestic capital investment reached a seven-year high. Meanwhile, economic activity in China picked up pace in early 2017 due mostly to increased construction activity. GDP increased 6.9% year-on-year during the first quarter, up slightly from 2016's average. Industrial production expanded by 7.6%.
- **Europe: Eurozone economy is enjoying its best period of economic activity since 2011, while centrist Emmanuel Macron led in the first French election.**^{xiv} IHS Markit's survey of private sector firms in the 19-country block hit a six-year high in March driven by higher employment, output and new orders. The overall Eurozone PMI accelerated to 56.4 last month from 56, comfortably above the 50 that divides growth from contraction. France and Germany – the bloc's two biggest economies – accounted for the bulk of the growth with their PMIs at 70-month highs. Markit's survey, which closely tracks official GDP numbers, suggest the single currency area is enjoying its best quarter of growth in six years.

Meanwhile, centrist Macron led in the first round of the French Presidential election, which strengthened European and global markets.^{xv}

- **Turkey: Slowdown in economic growth and foreign investment reported in recent months.** The IMF is reporting that first quarter 2017 growth is expected to be about to 3%.^{xvi} The lira has lost more than 22% against the dollar in the last 12 months, however, the constitutional referendum last week lifted the lira and Turkish stocks.
- **United States: U.S. economy is on track for sluggish 0.5% growth for the first quarter of 2017, according to recent estimates.**^{xvii} This would be significantly lower than the 4% growth promised by President Trump. Retail sales declined in February and March, contributing to the slow growth. In the last month, the stock market has lost 500 points (after gaining 2,700 points after the Trump election) as investors are in “wait and see” mode. Meanwhile, the U.S. unemployment rate was 4.5% in March, the lowest level in almost a decade and down 0.2% in February.

6. Geopolitics & Supply

- **OPEC: The producer group maintained output around 31.68 mb/d in March, down 365 kb/d from February.** According to IEA, output fell in most member countries, though the majority of the reduction came from unplanned disruptions in Libya and Nigeria, and from Saudi Arabia. A joint committee of ministers from OPEC and non-OPEC countries agreed to review extending oil production cuts at the May 25 meeting.
- **Non-OPEC: Output declined by nearly 400 kb/d in March from February, mostly due to further production cuts in Russia.**
- **Iran: Production in March fell 20 kb/d to 3.8 mb/d, in line with Iran’s quota under the OPEC production cuts.** Recent tanker data show that the Islamic Republic will likely hit its lowest export level in 14 months in May.^{xviii} As Iran cleared tanker storage and Asian buyers are expected to take less crude, Iran’s exports for May could be 1.66 mb/d, with nearly 100 kb/d of production expected to head to storage. Recent statements from the Oil Minister suggest that Iran is willing to extend the production cuts in May.
- **Iraq: Oil production remained roughly flat from February to March, around 4.5 mb/d.**^{xix} According to tanker data, exports fell by 60 kb/d to 3.77 mb/d, from both the north and the south. Meanwhile, Iraq plans to increase production to 5 mb/d by the end of the year. The ministry is in talks with multiple oil majors to develop two new fields in southern Iraq with potential production around 500 kb/d. So far in 2017, Iraq’s compliance with the production cuts has averaged 65%.
- **Libya: Another oil production recovery was setback after protestors forced the closure of the country’s largest oil field and oil export terminals in the east.**^{xx} Following a week-long disruption, oil production returned to around 660 kb/d in the beginning of April. Output, however, dropped below 500 kb/d after the 220 kb/d Sharara field was shut-in.
- **Russia: Oil production in March was down 250 kb/d from October, as Russia plans to reach its full reduction quota of 300 kb/d by the end of April, according to the Energy Minister.**^{xxi} Much of Russia’s oil upstream oil market is controlled by public

companies, which limits the government's control of production. Oil production averaged 11.42 mb/d in February, representing 58% of its promised cut.

- **Saudi Arabia:** Oil production fell slightly to 9.93 mb/d in March, below the country's production target of 10.06 mb/d. Meanwhile, oil exports have not fallen proportionally as the Kingdom has drawn on crude in storage to feed the export market.^{xxii} Saudi Aramco cut official selling prices to Asia, after reducing prices to Europe last month.
- **Venezuela:** Venezuela remains teetering on the edge of financial collapse after making a \$2.05 billion bond payment in mid-April. Venezuela's foreign reserves stand at roughly \$8 billion, according to central bank data. A further \$3.5 billion in bond payments will be owed by the end of the year. Meanwhile, crude sales to the United States fell in March for the third straight month to 652 kb/d.^{xxiii} Total crude output in 2016 was the lowest level in 23 years.

7. Renewables

- **Global:** A recent IEA report suggests that economics is not a barrier to some renewable energy for any country. A recent study suggests that for any country, adding the first 10-15% of variable renewable energy (VRE) poses no technical or economic challenges, provided that three main requirements are met: uncontrolled local "hot spots" of VRE deployment must be avoided, VRE must contribute to stabilizing the grid when needed, and VRE forecasts must be used effectively.^{xxiv} Currently, only 3% of world electricity generation comes from wind and solar, while the potential exists for significantly more.
- A study from Greentech Media indicates that up to 85 gigawatts (GW) of solar capacity could be installed in 2017, more than double the total installed capacity in 2014.^{xxv} Increased demand from China and Saudi Arabia were described as key drivers of solar demand. With urban energy use growing in these countries, as well as in most others, cities will be key to a sustainable energy transition and renewables can be scaled up and decentralized to meet many needs.
- Fortune 500 companies are increasingly turning to renewable energy and energy efficiency priorities, with nearly half now boasting a climate or clean energy target, according to a recent study from the WWF. The primary action being taken across the Fortune 500 relates to greenhouse gas emissions, with 211 companies offering targets. Meanwhile, 10% Fortune 500 companies have set renewable energy targets as of 2016.



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References

- i <http://phx.corporate-ir.net/phoenix.zhtml?c=79687&p=irol-rigcountsoverview>
- ii <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2017/04/Turkeys-gas-demand-decline-reasons-and-consequences-OIES-Energy-Insight.pdf>
- iii <http://www.platts.com/latest-news/natural-gas/london/turkish-natural-gas-demand-slowdown-set-to-persist-26717679>
- iv <http://phx.corporate-ir.net/phoenix.zhtml?c=79687&p=irol-rigcountsoverview>
- v http://www.chinadaily.com.cn/business/2017-03/27/content_28694105.htm
- vi <https://www.eia.gov/petroleum/supply/weekly/pdf/highlights.pdf>
- vii <https://www.eia.gov/todayinenergy/detail.php?id=30512>
- viii <http://www.platts.com/latest-news/natural-gas/london/spot-lng-trading-makes-up-18-of-total-lng-volumes-26695262>
- ix <http://finance.yahoo.com/news/global-lng-asian-spot-prices-014144602.html>
- x <https://www.eia.gov/naturalgas/weekly/>
- xi <http://www.reuters.com/article/us-russia-gas-europe-idUSKBN17R12M>
- xii <http://russianconstruction.com/news-1/27225-russian-gazprom-increases-gas-supplies-to-turkey-by-25.html>
- xiii <http://asia.nikkei.com/Politics-Economy/Economy/As-Japan-s-economy-upshifts-workers-ask-Where-s-my-raise>
- xiv <https://www.ft.com/content/a9129c93-16b1-3f01-a0eb-2f11f0558647>
- xv <http://www.cnn.com/2017/04/24/italy-finance-minister-french-election-results-good-but-lets-wait.html>
- xvi <http://money.cnn.com/2017/04/17/investing/turkey-economy-referendum-erdogan/>
- xvii <http://money.cnn.com/2017/04/18/news/economy/donald-trump-economic-optimism-versus-reality/>
- xviii <http://oilprice.com/Latest-Energy-News/World-News/Irans-Crude-Oil-Exports-Set-For-14-Month-Low-In-May.html>
- xix <http://www.iraqoilreport.com/news/production-stops-falling-iraq-claims-opec-compliance-22376/>
- xx <https://www.the-american-interest.com/2017/04/12/libyas-oil-surge-lasts-just-one-week/>
- xxi <http://www.platts.com/latest-news/oil/tokyo/russia-cuts-250000-bd-to-comply-with-oil-output-26717617>
- xxii <https://www.rt.com/business/385363-saudi-february-crude-oil-exports/>
- xxiii <http://www.reuters.com/article/us-venezuela-usa-oil-idUSKBN17R1XO>
- xxiv <http://www.iea.org/newsroom/news/2014/february/the-power-of-transformation.html>
- xxv <http://sdg.iisd.org/news/solar-energy-projections-rise-for-2017/>