International Energy Agency
Secure Sustainable Together

13 September 2018

HIGHLIGHTS

- **Global oil demand growth estimates for 2018 and 2019 are unchanged at 1.4 mb/d and 1.5 mb/d, respectively.** The pace of growth slowed sharply in 2Q18, caused by weaker OECD Europe and Asia demand. US gasoline demand growth eased due to higher prices.

- **Non-OECD demand remains resilient but there is a risk to the 2019 outlook from currency depreciation and trade disputes.** Demand in China and India combined will grow by 910 kb/d in 2018, but the pace slows to 640 kb/d in 2019.

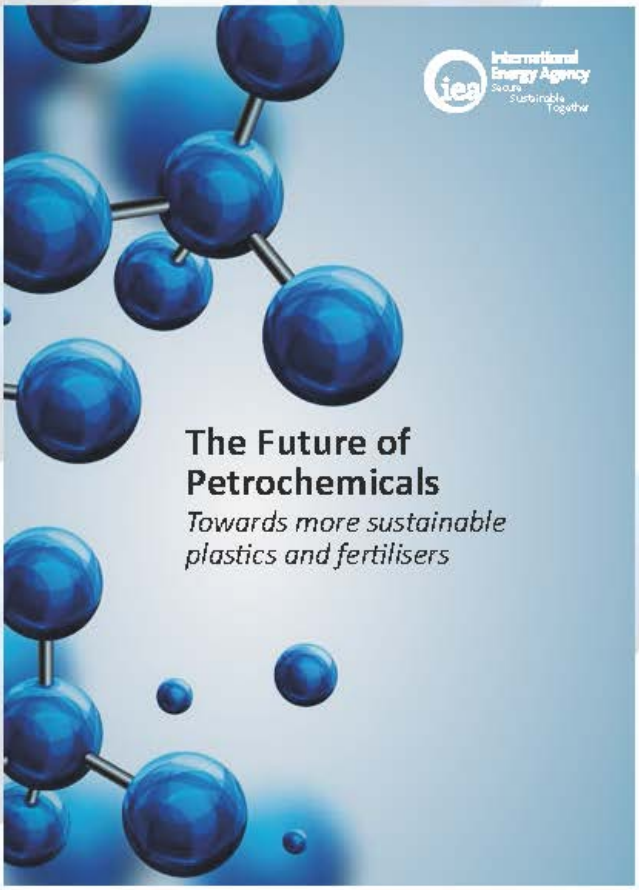
- **Global supply in August reached a record 100 mb/d** as higher output from OPEC offset seasonal declines from non-OPEC. Nevertheless, non-OPEC supply was up 2.6 mb/d y-o-y, led by the US. Non-OPEC production will grow by 2 mb/d in 2018 and 1.8 mb/d in 2019.

- **OPEC crude supply rose to a nine-month high of 32.63 mb/d in August.** A rebound in Libya, near record Iraqi output and higher volumes from Nigeria and Saudi Arabia outweighed a substantial reduction in Iran and a further fall in Venezuela.

- **From August's record rate of 83.5 mb/d, global crude runs decline due to maintenance before surging in December to another record high of 84.5 mb/d.** US refining is booming with runs almost reaching 18 mb/d in August, while Latin American activity continues to fall.

- **OECD commercial stocks rose 7.9 mb in July to 2 824 mb, only the fourth monthly increase in the last year.** Stocks have been stable in a narrow range since March. Preliminary data for August point to significant inventory builds in Japan and the US, and a fall in Europe.

- **ICE Brent prices fell in August but recently have climbed to two-month highs near $80/bbl.** Both ICE Brent and NYMEX WTI futures curves are backwardated. The Brent/WTI differential has widened by $5/bbl since early August due to relatively weaker US prices.



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RELEASE: 5 October 2018

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Found across a vast range of modern products, petrochemicals are part of the fabric of our societies. Clothing, car parts, electronic gadgets, detergents and countless other everyday items are made from petrochemicals. Fertilisers are used to boost agricultural yields, and packaging – much of which is used for food and beverages – accounts for a third of plastic demand.

We live in a world dependent on chemicals, and making these products accounts for a rising share of global consumption of oil, natural gas and other fuels. Chemical feedstock accounts for 12% of global oil demand, a share that is expected to increase in the future driven by increasing demand for plastics, fertilisers and other petrochemical products.

Despite its size, the sector continues to take a back seat in the global energy debate. As part of the IEA on-going examination of energy "blind spots" – major areas of energy demand which fail to attract the level of attention from policy makers that they deserve – *The Future of Petrochemicals* explores the role of the sector in today's global energy system and how its significance for global energy security and the environment is set to increase on the basis of established trends.

The analysis discusses how petrochemical products are engrained in today's society, and what role they could play in the sustainable transformation of the energy system. It also draws a path to an alternative scenario consistent with the UN Sustainable Development Goals, exploring the technologies and strategies required, and assessing the impact on energy demand.

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Tightening up on the way

Since the previous edition of this *Report,* the price of Brent crude oil fell close to $70/bbl and is now flirting with $80/bbl. Two reasons for the swing are that Venezuela's production decline continues, and we are approaching 4 November when US sanctions against Iran's oil exports are implemented. In Venezuela, production fell in August to 1.24 mb/d and, if the recent rate of decline continues, it could be only 1 mb/d at the end of the year. Evidence provided by tanker tracking data suggests that Iran's exports have already fallen significantly but we must wait to see if the 500 kb/d of reductions seen so far will grow. (See *Iran supply tumbles as buyers take heed of US sanctions)*.

If Venezuelan and Iranian exports do continue to fall, markets could tighten and oil prices could rise without offsetting production increases from elsewhere. Supply from some countries has grown since the Vienna meetings in June: last month Saudi Arabia and Iraq combined saw output increase by 160 kb/d. In Iraq's case, *exports* have grown to such an extent that they are greater than Iran's *production*, and there is still about 200 kb/d of shut-in capacity in the north of the country due to the ongoing dispute with the Kurdistan Regional Government. Based on our August estimates of production, OPEC countries are sitting on about 2.7 mb/d of spare production capacity, 60% of which is in Saudi Arabia. But the point about spare capacity is that, having been idle, it is not clear exactly how much, beyond what is widely thought to be "easy" to bring online, will be available to coincide with further falls in Venezuelan exports and a maximisation of Iranian sanctions. It is not just a question of volume; refiners used to processing Venezuelan or Iranian crude will compete to find similar quality barrels to maintain optimal refinery operations. Alternative supplies of lighter crude might not be ideal for this reason. Even before we factor in any further fall in exports from Venezuela or Iran, record global refinery runs are expected to result in a crude stock draw of 0.5 mb/d in 4Q18. Any draw will be from a basis of relative tightness: in the OECD, stocks at end-July were 50 million barrels below the five-year average.

If we are looking for additional barrels from elsewhere to help compensate for further export declines from Venezuela and Iran the picture is mixed. Brazil was supposed to be one of the big production success stories of 2018, but various problems have stymied growth to the extent that output will rise by only 30 kb/d this year versus a first estimate of 260 kb/d. On the upside, the United States continues to show stellar performance with total liquids output expected to grow by 1.7 mb/d this year and another 1.2 mb/d in 2019. However, companies are not adjusting their production plans, despite higher prices, due to infrastructure bottlenecks and this is unlikely to change in the near future. Even so, growth this year has returned to the extraordinary pace seen in 2014 during the first shale boom. Finally, Libyan production surged back in August to 950 kb/d, not far below the 1 mb/d level that was achieved for almost a year prior to the recent disturbances. However, as we have seen in the past few days with attacks on NOC headquarters, the situation is fragile.

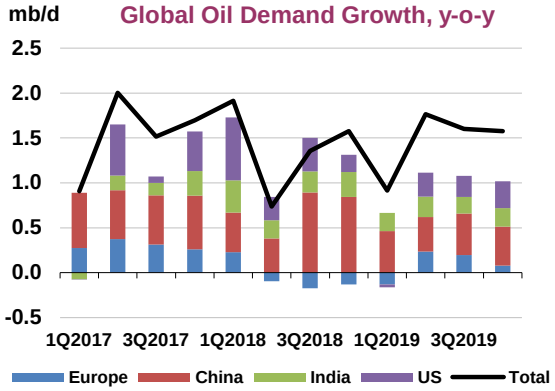
As far as oil demand is concerned, following an increase of 1.4 mb/d in 2018, growth next year will be 1.5 mb/d. Even so, in 2018, we are seeing signs of weaker demand in some markets: gasoline demand is stagnant in the US as prices rise; European demand in the period May-July was consistently below year-ago levels; demand in Japan is sluggish notwithstanding very high temperatures and will be further impacted by the recent natural disasters. As we move into 2019, a possible risk to our forecast lies in some key emerging economies, partly due to currency depreciations versus the US dollar raising the cost of imported energy. In addition, there is a risk to growth from an escalation of trade disputes.

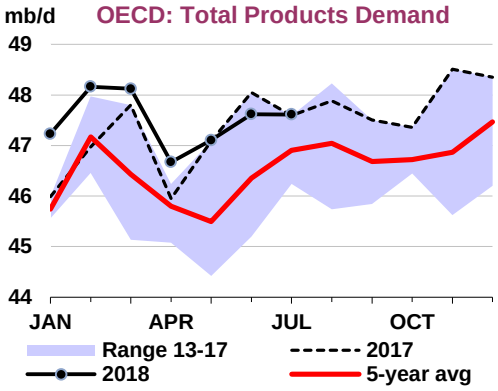
We are entering a very crucial period for the oil market. The situation in Venezuela could deteriorate even faster, strife could return to Libya and the 53 days to 4 November will reveal more decisions taken by countries and companies with respect to Iranian oil purchases. It remains to be seen if other producers decide to increase their production. The price range for Brent of $70-$80/bbl in place since April could be tested. Things are tightening up.

DEMAND

Summary

Data for June and July show a significant slowdown in European oil demand and robust non-OECD demand. US demand growth slowed in June but provisional numbers point to a year-on-year (y-o-y) rebound in 3Q18, as the y-o-y comparison will benefit from a less disruptive hurricane season – although threats from hurricanes are currently increasing. Non-OECD demand has so far been resilient in the face of significant currency depreciations in some countries that amplify the effect of higher dollar oil prices and deterioration in the economic environment. Non-OECD Asia oil demand, supported by China and India, is expected to post strong growth in 2018 and 2019. Global oil demand is expected to grow by 1.4 mb/d in 2018 and by 1.47 mb/d in 2019.





OECD Americas oil demand will post strong growth in 2018, supported by harsh weather conditions in 1Q18 and the start-up of petrochemical projects in the US. The strong y-o-y increase in oil prices is, however, capping growth, in particular for gasoline. OECD Americas oil demand is projected to increase by 330 kb/d in 2018, and in 2019 more ethane crackers coming on stream should support growth at 210 kb/d.

In OECD Europe, after growth of 230 kb/d y-o-y in 1Q18, demand posted a decline of 95 kb/d in 2Q18 and is projected at 175 kb/d below last year in 3Q18. Most of the decline is explained by weak gasoil demand. Heating oil deliveries were impacted by higher prices, persuading households to delay purchases. In addition, diesel deliveries have been very weak since the start of 2Q18, in particular in Germany and France. OECD Europe demand is set to decline by 45 kb/d in 2018, before recovering to show growth of 95 kb/d in 2019.

Global Oil Demand (2017-2019)

(million barrels per day)*

	1Q17	2Q17	3Q17	4Q17	2017	1Q18	2Q18	3Q18	4Q18	2018	1Q19	2Q19	3Q19	4Q19	2019
Africa	4.4	4.3	4.2	4.3	4.3	4.3	4.3	4.2	4.3	4.3	4.4	4.4	4.3	4.4	4.4
Americas	30.9	31.6	31.7	31.8	31.5	31.6	31.7	31.9	32.0	31.8	31.6	32.1	32.3	32.4	32.1
Asia/Pacific	34.1	33.9	33.4	34.6	34.0	35.0	34.6	34.5	35.8	35.0	35.8	35.4	35.3	36.7	35.8
Europe	14.5	15.0	15.5	15.2	15.0	14.8	14.9	15.3	15.1	15.0	14.7	15.2	15.5	15.1	15.1
FSU	4.3	4.5	4.8	4.7	4.6	4.5	4.7	4.9	4.7	4.7	4.5	4.8	5.0	4.8	4.8
Middle East	8.2	8.7	8.9	8.2	8.5	8.1	8.4	8.9	8.4	8.5	8.2	8.6	9.1	8.5	8.6
World	**96.4**	**98.0**	**98.4**	**98.7**	**97.9**	**98.4**	**98.7**	**99.8**	**100.3**	**99.3**	**99.3**	**100.5**	**101.4**	**101.9**	**100.8**
Annual Chg (%)	1.0	2.1	1.6	1.7	1.6	2.0	0.8	1.4	1.6	1.4	0.9	1.8	1.6	1.6	1.5
Annual Chg (mb/d)	0.9	2.0	1.5	1.7	1.5	1.9	0.7	1.4	1.6	1.4	0.9	1.8	1.6	1.6	1.5
Changes from last OMR (mb/d)	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.2	0.1	0.1	0.0	-0.2	0.3	0.2	0.1

* Including biofuels

OECD Asia Oceania oil demand will post small declines in both 2018 and 2019. Overall, total OECD oil demand growth should remain roughly constant, at 250 kb/d in 2018 and 260 kb/d in 2019.

Non-OECD oil consumption should increase by 1.14 mb/d in 2018 supported by growth in Asia. In 2019, the pace will accelerate to 1.21 mb/d. Asia will continue to be the main source of growth (1.05 mb/d in 2018 and then 0.84 mb/d in 2019), most notably China and India.

Global Demand by Product

(thousand barrels per day)

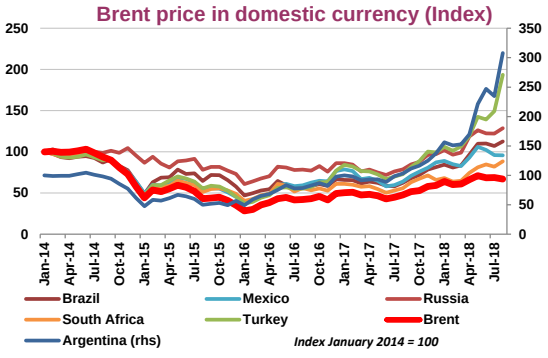
	Demand			Annual Chg (kb/d)		Annual Chg (%)	
	4Q17	1Q18	2Q18	1Q18	2Q18	1Q18	2Q18
LPG & Ethane	12,116	12,849	11,973	699	303	5.8	2.6
Naphtha	6,591	6,442	6,109	-127	-90	-1.9	-1.4
Motor Gasoline	25,779	25,401	26,043	249	-179	1.0	-0.7
Jet Fuel & Kerosene	7,649	7,753	7,671	257	358	3.4	4.9
Gas/Diesel Oil	28,594	27,950	28,402	740	158	2.7	0.6
Residual Fuel Oil	6,952	6,961	6,954	-505	-160	-6.8	-2.3
Other Products	11,032	11,000	11,559	603	345	5.8	3.1
Total Products	**98,713**	**98,356**	**98,711**	**1,916**	**736**	**2.0**	**0.8**

In this *Report*, historical OECD oil demand data have been revised, based on new figures published by the US Department of Energy. Statistics for Nigeria, Indonesia and Iran have also been revised. Overall, new data for these four countries led to an upwards revision to global oil demand of 50 kb/d for 2017 and 1Q18.

Fundamentals

The economic assumptions used in our forecast remain mainly unchanged since last month's report. The oil price assumptions have been revised up, following an increase in Brent futures prices. The baseline for historical demand data is slightly higher, following publication of US revisions for 2017 and the use of new data for some non-OECD countries.

Global economic growth is still expected to be 3.9% in 2018 and 2019. Recent data point to an acceleration of growth in the US, benefitting from tax reductions and higher federal spending, and some deceleration in Europe and OECD Asia. The economic environment in some emerging markets is deteriorating. While worries about emerging markets are mounting, alongside fears of escalating trade disputes, it is currently difficult to assess whether it will lead to a significant economic slowdown in the timeframe of our forecast.

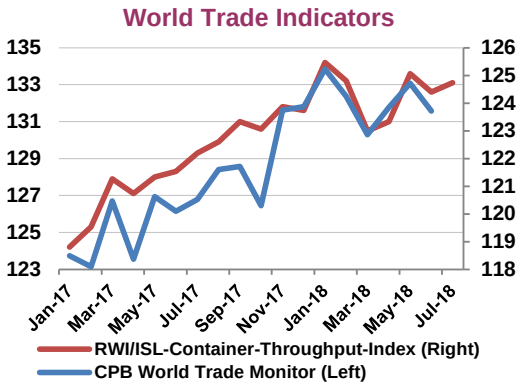


Meanwhile, in the US, prompt indicators point to a very strong economy. Tax cuts of $1.5 trillion and an additional $300 billion of federal spending are providing strong support to the economy. Oil demand growth remains solid, with the exception of gasoline, which is penalised by higher prices. The latest Bureau of Labour Statistics report showed that the US economy added 201,000 jobs in August, with the unemployment rate at 3.9%, Manufacturing employment (in particular in the auto industry) fell slightly in August, however, after 12 consecutive months of increases. Weakness in the manufacturing sector may be an advance signal of the impact of trade tariffs introduced recently. Nevertheless, recent economic indicators remain good, and the Federal Reserve is likely to continue to raise interest rates. For emerging markets, higher US

rates may mean higher borrowing costs and the need to also increase rates to prevent capital outflows and to defend their currencies. Among the countries increasing rates since the start of 2018 are Argentina, Indonesia, Turkey, the Philippines, Malaysia, Pakistan, Romania, Mexico, Tunisia, and several countries with currencies pegged to the US dollar. Many emerging economies have seen oil prices expressed in local currency terms rise significantly.

While the largest sources of growth in oil demand, China and India, continue to show solid economic performance, trade wars could slow Chinese activity in the next few months. Caixin Manufacturing PMI actually fell to 50.6 in July, the weakest since June 2017. The US levied 25% tariffs on the first batch of $34bn of goods in July and the second batch of $16bn in August. Adding to current worries, the US seems likely to impose tariffs of up to 25% on a further $200bn worth of product imports from China, which will likely retaliate with similar measures. For the moment, India's economic growth and oil demand remain very strong: the economy grew by 8.2% y-o-y in 2Q18, supported by strong public investment and private consumption. However tighter financial conditions should slow growth in the next few months.

The current trade disputes are escalating just as world trade was already slowing. Both RWI/ISL container index and CPB world trade monitor show that, after a strong start in January 2018, the volume of world trade is stagnating. The air freight market is also showing signs of weaknesses: the y-o-y growth in freight tonne kilometres reported by the International Air Transport Association (IATA) fell to 2.1% in July, its slowest rate since May 2016. A trade war would slow economic growth and would directly impact bunker fuels and diesel used for the transportation of traded goods.



We updated our oil price assumption using the ICE Brent futures curve as of early September. This assumes that in 2018 the price will average $73/bbl, rising slightly to $75.7/bbl in 2019. This is about $4/bbl above the prices used in our August *Report*, potentially cutting 100 kb/d from our 2H18 demand outlook and 170 kb/d from demand in 2019. However, while higher crude prices in 2018, up typically by 36% y-o-y, negatively impact oil demand this year, the impact of prices increasing by 4% y-o-y in 2019 will be more subdued.

OECD Demand based on Adjusted Preliminary Submissions - July 2018

(million barrels per day)

	Gasoline		Jet/Kerosene		Diesel		Other Gasoil		RFO		Other		Total Products	
	mb/d	% pa	mb/d	% pa	mb/d	% pa	mb/d	% pa	mb/d	% pa	mb/d	% pa	mb/d	% pa
OECD Americas*	**11.41**	**0.0**	**2.12**	**3.5**	**4.56**	**4.8**	**0.47**	**-2.0**	**0.74**	**17.4**	**6.18**	**-2.29**	**25.47**	**0.9**
US50	9.63	0.4	1.80	4.0	3.73	6.0	0.13	6.0	0.37	30.0	4.83	-0.58	20.50	1.9
Canada	0.89	-0.5	0.16	-2.0	0.28	0.8	0.27	-1.8	0.05	1.5	0.81	-2.16	2.46	-1.1
Mexico	0.75	-4.7	0.09	4.3	0.33	-2.5	0.04	-23.5	0.22	12.4	0.41	-19.32	1.84	-6.5
OECD Europe	**2.05**	**3.6**	**1.66**	**0.1**	**5.10**	**0.1**	**1.14**	**-12.5**	**0.86**	**-4.4**	**3.66**	**-0.25**	**14.48**	**-0.9**
Germany	0.48	11.4	0.24	3.6	0.75	-2.7	0.24	-33.1	0.07	-3.8	0.56	-11.56	2.34	-6.3
United Kingdom	0.27	-2.4	0.30	-8.6	0.50	-4.2	0.14	-2.6	0.02	-10.3	0.30	4.83	1.54	-3.1
France	0.21	8.2	0.20	4.0	0.71	-1.4	0.21	-8.2	0.05	-2.1	0.36	5.11	1.74	0.6
Italy	0.18	1.5	0.15	9.7	0.50	4.4	0.08	0.4	0.08	-13.4	0.35	0.40	1.33	2.0
Spain	0.13	4.5	0.17	-0.4	0.52	4.7	0.13	1.0	0.15	-4.4	0.26	6.41	1.36	3.0
OECD Asia & Oceania	**1.61**	**-0.9**	**0.65**	**-6.1**	**1.41**	**0.9**	**0.47**	**-2.5**	**0.57**	**2.2**	**2.95**	**-1.20**	**7.66**	**-1.0**
Japan	0.93	-0.7	0.28	-11.8	0.43	-2.5	0.31	1.7	0.32	16.0	1.26	-3.08	3.54	-1.3
Korea	0.23	-1.0	0.15	-4.2	0.40	-1.4	0.09	-8.9	0.22	-14.1	1.42	0.27	2.51	-2.1
Australia	0.31	-2.3	0.16	-0.4	0.53	5.0	0.00	0.0	0.01	23.1	0.18	1.08	1.20	1.9
OECD Total	**15.07**	**0.4**	**4.43**	**0.7**	**11.08**	**2.1**	**2.08**	**-8.2**	**2.17**	**4.0**	**12.79**	**-1.46**	**47.61**	**0.0**

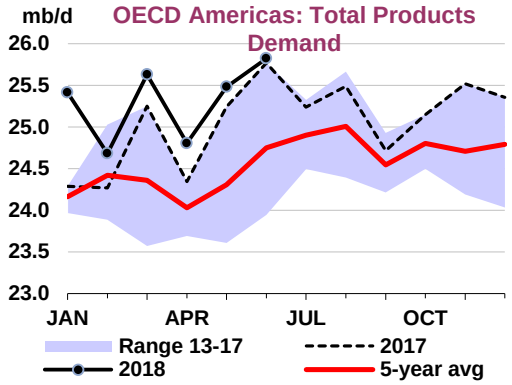
* Including US territories

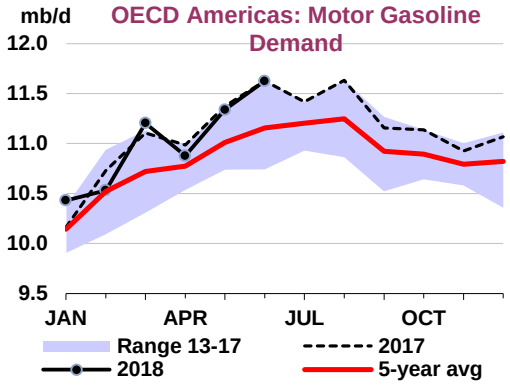
OECD

We have final data for OECD countries for June 2018. Preliminary estimates are available for Mexico, Japan, Korea and some European countries for July 2018. US weekly figures are available to the end of August.

Americas

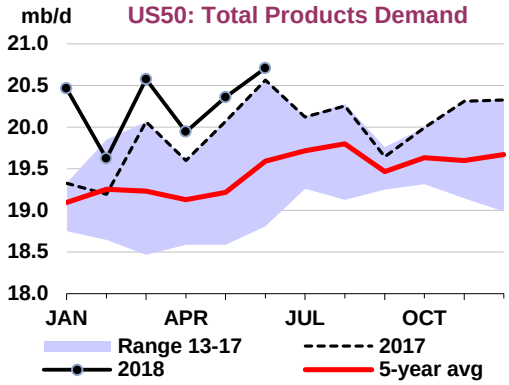
OECD Americas oil demand growth slowed to 250 kb/d y-o-y in 2Q18 after a very strong 1Q18 (650 kb/d). LPG/ethane demand was up 420 kb/d y-o-y in 1Q18 and is estimated to be 170 kb/d higher than last year in 2Q18.

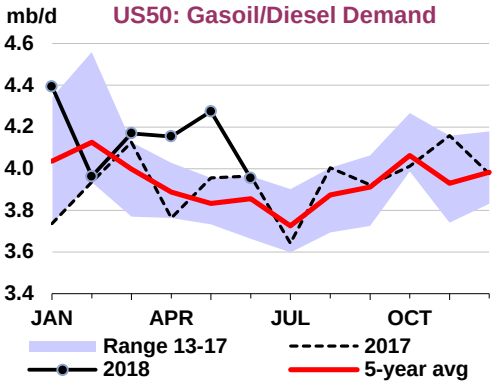




Gasoline demand slowed from growth of 65 kb/d y-o-y in 1Q18 to a decline of 50 kb/d in 2Q18 due to the impact of higher prices. Gasoil demand, benefiting from a strong freight transport sector and severe winter weather, grew by 265 kb/d in 1Q18 and around 280 kb/d in 2Q18. Total oil demand growth is expected at 270 kb/d in 3Q18, of which LPG accounts for 220 kb/d and gasoil 100 kb/d. Gasoline demand is expected to contract by 95 kb/d in 3Q18.

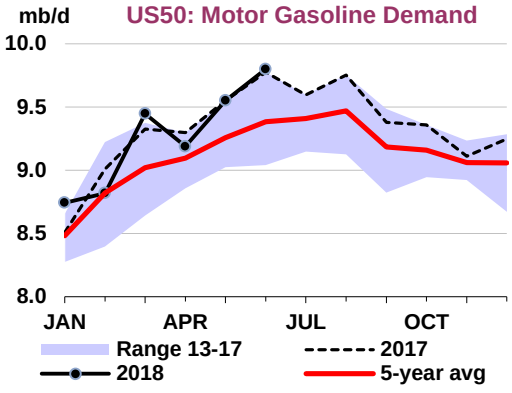
US oil demand increased by 145 kb/d y-o-y in June after growth of 290 kb/d in May. LPG/ethane demand growth slowed to 80 kb/d, but is expected to remain strong in the coming months, thanks to the start-up of new petrochemical projects and a weak year-ago number. Gasoil demand fell to last year's levels in June, down 10 kb/d y-o-y, after very strong growth in April and May but should rebound in July. Diesel demand continues to be supported by growing trade: the CPB World Trade Monitor (Netherlands Bureau for Economic Policy Analysis) shows an increase of 4.2% y-o-y in the volume of US imports in June. Growth in manufacturing production accelerated to 4% in June from 3.8% y-o-y in May, further supporting diesel demand.

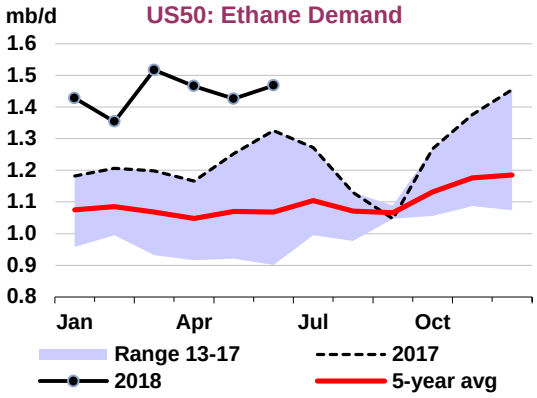




Gasoline demand rose by only 25 kb/d y-o-y in June reflecting the impact of higher prices on drivers. Preliminary weekly data point to an increase of 40 kb/d y-o-y in gasoline consumption in July, but to a drop of more than 145 kb/d y-o-y in August.

LPG/ethane demand growth slowed to 80 kb/d y-o-y in June. The ethane component remained strong, growing 170 kb/d y-o-y, reflecting the start-up of Dow Chemical's 1.5 mt/year ethane cracker at Freeport, Texas in September 2017 and the commissioning of similar facilities in 1Q18 by ExxonMobil at Baytown, and Chevron Phillips at Cedar Bayou.





Jet fuel demand rose by 90 kb/d y-o-y in June, after growth of 45 kb/d in May. IATA reported an increase of 5.3% y-o-y in US domestic air traffic in June and 5.6 % y-o-y in July. Weekly data point to lower growth in jet fuel consumption in July, close to 70 kb/d.

Canada's oil demand dropped by 80 kb/d y-o-y in June, on poor gasoline, naphtha and diesel figures. Gasoline demand in particular dropped by 75 kb/d y-o-y. **Mexico's** oil consumption declined by 130 kb/d y-o-y in July on poor LPG, gasoline and diesel deliveries.

Total North American oil demand, after growing by 335 kb/d in 2018, should increase by 210 kb/d in 2019, with ethane crackers coming on stream accounting for 160 kb/d of the growth.

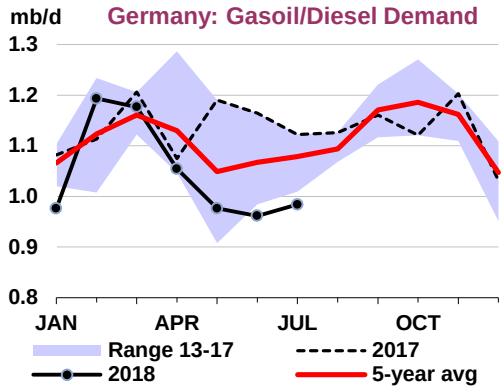
Europe

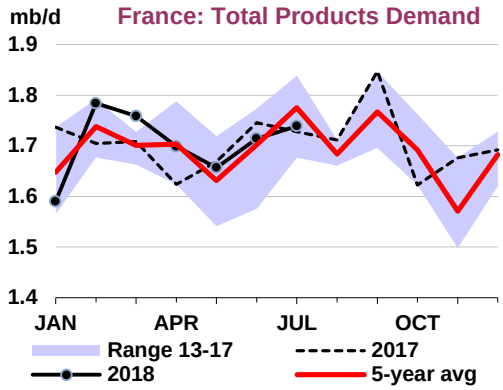
European oil demand fell by 320 kb/d y-o-y in June. For July, preliminary data point to a decline of 130 kb/d. Gasoil was the product the most affected. After a fall of 260 kb/d y-o-y in May, gasoil deliveries declined by 240 kb/d y-o-y in June and dropped by 155 kb/d in July, according to preliminary data. The drop mainly affected off-road gasoil deliveries (down by 180 kb/d on average for May-July).

In **Germany**, gasoil demand fell by 185 kb/d in May-July as consumers continued to delay their annual restocking of heating oil, discouraged by higher prices or in expectation of a drop in prices. In addition, naphtha demand has fallen significantly y-o-y in the past few months. Concerns about pollution and falling resale values have penalised diesel car sales and diesel demand. The share of diesel cars in total vehicle sales in Germany fell from 41.3% in 1H17 to 31.1 % in 1H18. In August, gasoline-powered cars accounted for 62.1% of total sales and diesel 32.6%. Total demand declined by 220 kb/d in June and 155 kb/d in July.

Passenger car sales actually jumped in Europe in August, rising by 24.7 % y-o-y in Germany, 23.1 % in the UK, 40% in France, 9.5% in Italy and 48.7% in Spain. Sales were supported by discounts to clear stocks ahead of a new emissions test introduced in September, forcing carmakers to re-certify vehicles.

Oil demand in **France** fell by 30 kb/d in June on weak diesel and heating oil deliveries. There was further weakness in July. Preliminary data suggest that total demand rose by 10 kb/d in July. In **Italy**, oil demand declined by 30 kb/d in June, but it is believed to have increased by 25 kb/d in July, according to preliminary data.



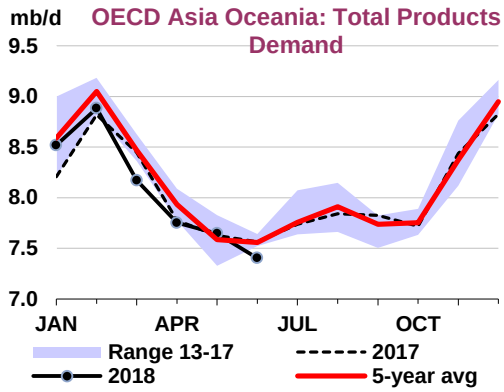


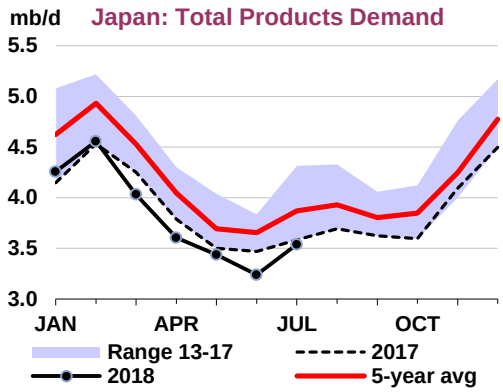
Overall, we expect European oil demand to drop by 175 kb/d in 3Q18, with the year as a whole showing a decline of 45 kb/d. In 2019, we should see a return to growth of 95 kb/d.

Asia Oceania

OECD Asia Oceania demand declined by 160 kb/d y-o-y in June. Preliminary data point to a drop of 80 kb/d in July.

Japanese oil demand fell by 230 kb/d in June, on lower deliveries of almost all products. The decline slowed in July, to 45 kb/d, according to preliminary data. Demand will have increased in August as Japan experienced a heatwave, leading to a jump in air conditioning demand. The high temperatures forced some electricity companies to restart oil-fired power plants that had been mothballed or to increase the use of gas or coal-fired plants. In addition, intensive use of air conditioning in cars is likely to have supported higher gasoline demand.





Japan suffered several natural disasters during the summer period and they will have had a mixed impact on oil demand. In June, a 6.1 magnitude earthquake hit Osaka; on 6-8 July record rainfall caused flooding in Hiroshima and Okayama; on 4 September, the typhoon Jebi was the strongest seen in 25 years, paralysing major cities in the Kansai region. On 8 September, a 6.7 magnitude quake hit Hokkaido, cutting electricity supplies and causing deep cracks in roads. While the disasters will disrupt demand in the short term, reconstruction work will likely boost consumption thereafter.

Japanese oil demand fell by 115 kb/d in 2017 and we expect further declines of 100 kb/d in 2018 and 95 kb/d 2019. **South Korean** demand rose by 45 kb/d in June and dropped by 55 kb/d in July, on lower gasoil and gasoline deliveries. In **Australia**, oil demand rose by 35 kb/d y-o-y in June on strong diesel deliveries

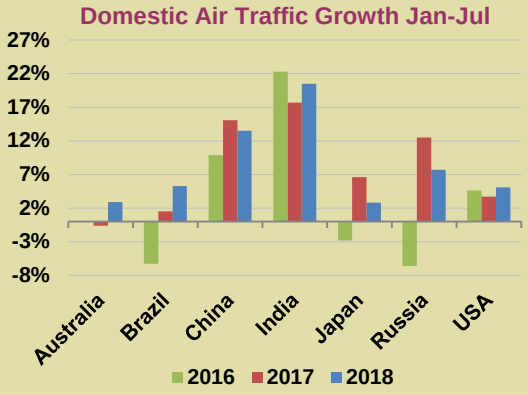
OECD Asia Oceania oil demand declined by 55 kb/d in 2Q18. For the year as a whole, demand in the region should contract by 35 kb/d and by a further 45 kb/d in 2019.

Booming air transport supports jet fuel demand in India and China

Air passenger demand is increasing very fast in India and China, in line with strong economic growth. We usually measure passenger traffic as revenue passenger kilometres (RPKs) reported monthly by IATA. The year-to-date growth in domestic RPKs between January and July was 13.5 % in China in 2018 and 20.5% in India. As a result of the growth in air transport, demand for kerosene rose by roughly 10% in China over the past three years with a similar growth seen in India.

India is the world's fastest growing domestic aviation market. In July 2018, domestic RPK grew by 18.3% y-o-y. The reasons behind the boom are mainly lower airfares since 2014, supported by the oil price drop in mid-2014, an increase in airport connectivity, and strong economic growth leading to the emergence of a growing middle class. The Airports Authority of India owns and manages 125 airports, and the government has ambitious plans to construct around 100 new ones by 2035. The Civil Aviation Ministry is working on "Vision-2035", a plan that will address issues such as congestion at airports and airspace, while developing unserved and under-served airports and increasing connectivity between small cities and towns. India's demand for jet kerosene rose from 510 kb/d in 2015 to 620 kb/d in 2017 and is expected to reach 680 kb/d in 2018.

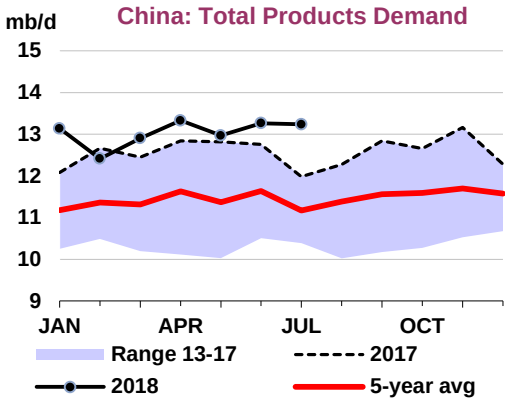
In **China**, growth in air passenger demand has also been astonishing. In July 2018, domestic RPKs grew 14.8% y-o-y. According to IATA, China will be the fastest-growing market in terms of additional passengers, growing from around 500 million in 2016 to 1.5 billion by 2036. The stupendous growth in recent years has been underpinned by the strong economy, as well as new airport infrastructure, and reduced airfares. Looking ahead, China is expected to become the world's largest aviation market by 2022, thanks to an expanding middle class and ongoing government support for airport construction. By 2020, China plans to build 74 new airports bringing the total to 260. It is anticipated that there will be a 28 per cent increase in air passenger turnover by 2020, despite the opening of thousands of kilometres of high-speed rail lines. China's kerosene demand rose from 580 kb/d in 2015 to 710 kb/d in 2017 and it is expected to reach 775 kb/d in 2018.

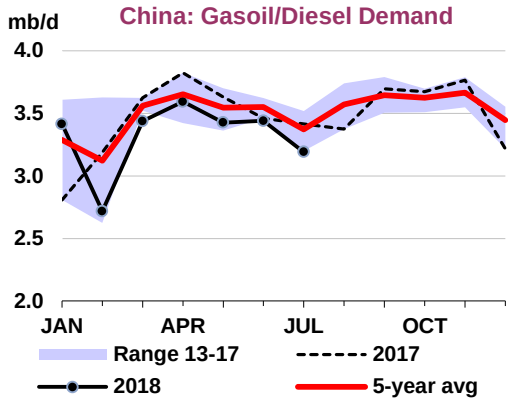


Non-OECD

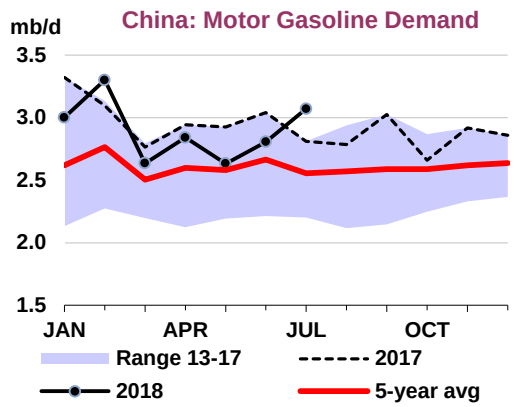
China

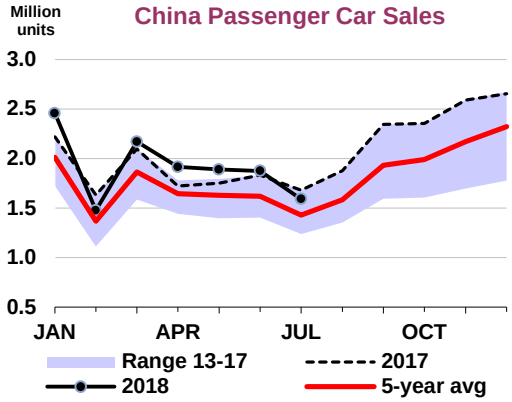
Chinese oil demand is estimated to have increased by 510 kb/d y-o-y in June and by 1 250 kb/d in July. Since April, however, data issues have hampered the calculation of apparent demand. In April, *China Oil Gas and Petrochemical* stopped reporting commercial stock changes, and trade data for some key products (naphtha and LPG) are no longer available. In addition, there is an increasing gap between refinery runs and main product production reported in National Bureau of Statistics data. As a result, the category 'other products', computed as the difference between refinery runs and main product production added to the net trade of other products, is surging in recent statistics. This is worrying: in June, the growth in 'other products' demand was 700 kb/d for a total products growth of 510 kb/d and in July 'other products' growth represented 580 kb/d of the total growth of 1 250 kb/d.





Gasoline apparent demand rose by 260 kb/d y-o-y in July and diesel demand dropped by 225 kb/d. Gasoline demand in 2Q18 is believed to have been 210 kb/d below last year's level. Passenger vehicle sales declined to 1.59 million in July, a 15.2% m-o-m decline and a 5.3% y-o-y decline. A change in some taxes on imported cars and some tax incentive applied to smaller cars (< 1.6 litre) from August may explain part of the decline. Diesel demand in 2Q18 is estimated to be down by 150 kb/d y-o-y. Kerosene demand rose by 100 kb/d y-o-y in 2Q18, supported by a very strong aviation sector. Domestic air traffic rose by 16% y-o-y in June and 14.8% in July, supported by strong economic growth and a significant increase in airport connections.





In this forecast, we revised up our projections for 'other products', as the jump observed in March 2018 appears to be persistent, albeit with reservations as detailed in our earlier paragraph. We expect total oil demand growth to be 640 kb/d in 2018, followed by a slightly slower rate in 2019 of 435 kb/d.

China: Demand by Product

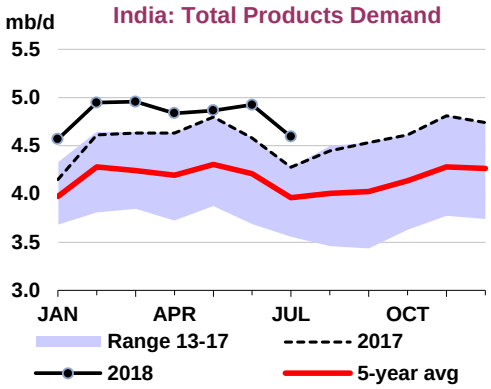
(thousand barrels per day)

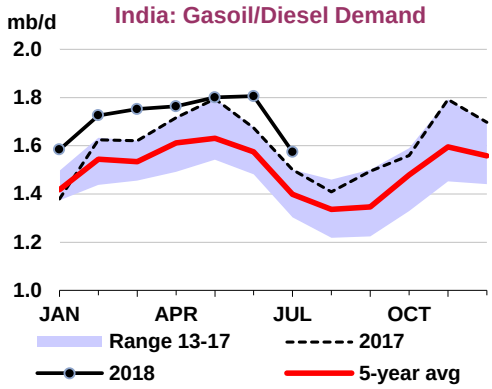
	Demand			Annual Chg (kb/d)		Annual Chg (%)	
	2017	2018	2019	2018	2019	2018	2019
LPG & Ethane	1,523	1,631	1,728	108	97	7.1	5.9
Naphtha	1,171	1,216	1,279	45	62	3.9	5.1
Motor Gasoline	2,927	2,928	3,042	1	113	0.0	3.9
Jet Fuel & Kerosene	710	775	824	65	49	9.2	6.3
Gas/Diesel Oil	3,473	3,451	3,513	-22	62	-0.6	1.8
Residual Fuel Oil	437	423	430	-14	7	-3.2	1.7
Other Products	2,324	2,780	2,826	456	46	19.6	1.7
Total Products	**12,564**	**13,204**	**13,641**	**641**	**437**	**5.1**	**3.3**

Note that Other Products include not identified product demand.

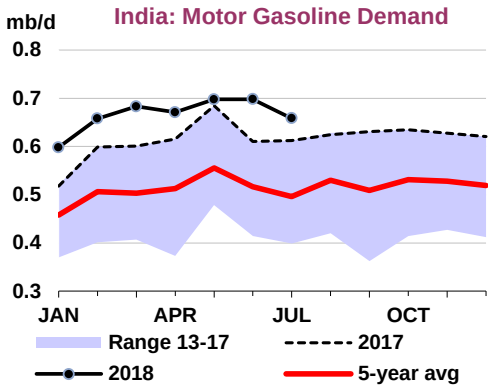
India

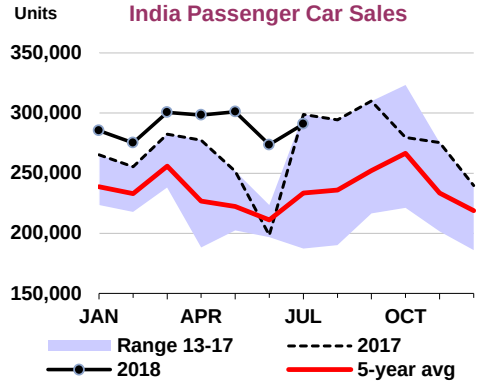
Indian oil demand jumped by 315 kb/d y-o-y in July following growth of 345 kb/d in June. Gasoil deliveries rose 75 kb/d y-o-y in July and gasoline demand growth was 45 kb/d. For 2Q18 as a whole, total demand growth is estimated to be 205 kb/d. LPG demand grew by 45 kb/d in July, as government policies continue to support its replacement of kerosene in the residential sector. Jet kerosene demand growth is boosted by the booming aviation sector: demand rose by 20 kb/d y-o-y in July while other kerosene dropped by 5 kb/d. In June, revenue passenger kilometres travelled rose by 16.1% versus last year, accelerating to 18.3% in July.





Growth in 2018 is expected to be 270 kb/d in 2018, before slowing to 205 kb/d in 2019.





India: Demand by Product

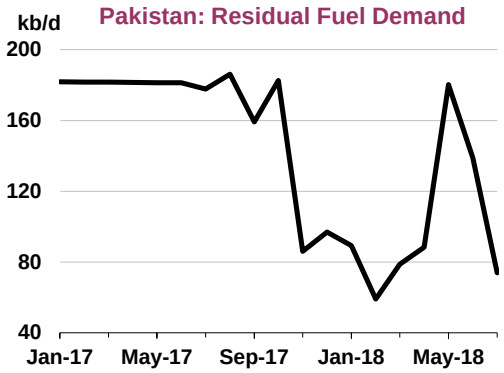
(thousand barrels per day)

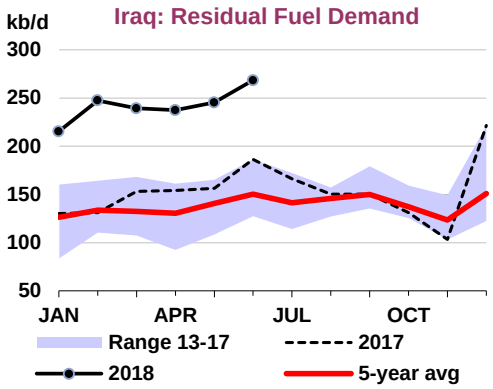
	Demand			Annual Chg (kb/d)		Annual Chg (%)	
	2017	2018	2019	2018	2019	2018	2019
LPG & Ethane	740	809	848	68	39	9.2	4.9
Naphtha	283	297	306	13	10	4.7	3.3
Motor Gasoline	615	662	694	47	32	7.6	4.8
Jet Fuel & Kerosene	242	249	265	7	16	3.0	6.4
Gas/Diesel Oil	1,605	1,701	1,750	97	48	6.0	2.8
Residual Fuel Oil	145	144	149	-1	5	-0.4	3.4
Other Products	938	975	1,030	37	54	3.9	5.6
Total Products	**4,568**	**4,837**	**5,041**	**269**	**204**	**5.9**	**4.2**

Other Non-OECD

In April, **Pakistan's** government lifted the ban on fuel oil imports for the power sector introduced in December to meet summer demand, resulting in a strong jump in fuel oil demand in May. Pakistan's fuel

oil demand declined in June to 140 kb/d and dropped to 75 kb/d in July. Pakistan State Oil Company indicated in July that its stocks of fuel oil were full and that it would not import more material without firm demand from power producers. Monsoon rains reportedly curbed demand for electricity for cooling.





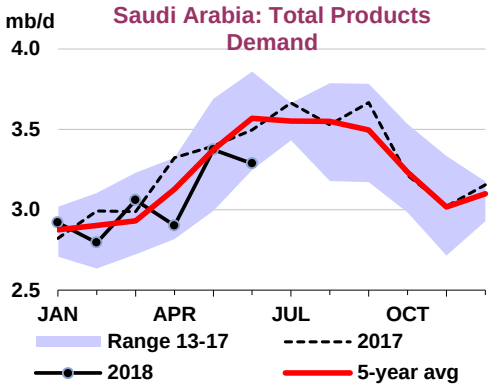
Iraq's fuel oil demand rose by 80 kb/d y-o-y in June. The direct use of oil in power generation fell by more than 200 kb/d. There was reportedly no crude oil used in the power sector in June, with only 30 kb/d used in May. Last year, May and June 2017 saw an average 190 kb/d of crude oil used in power stations. Natural gas imports from Iran and fuel oil have taken its place.

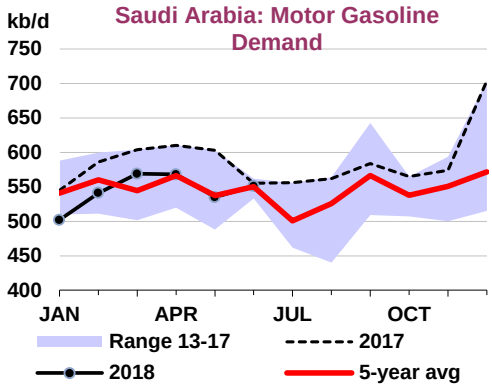
Non-OECD: Demand by Region

(thousand barrels per day)

	Demand			Annual Chg (kb/d)		Annual Chg (%)	
	4Q17	1Q18	2Q18	1Q18	2Q18	1Q18	2Q18
Africa	4,265	4,343	4,303	-17	7	-0.4	0.2
Asia	26,299	26,503	27,044	932	802	3.6	3.1
FSU	4,654	4,511	4,687	209	153	4.9	3.4
Latin America	6,450	6,339	6,367	0	-93	0.0	-1.4
Middle East	8,224	8,103	8,429	-135	-238	-1.6	-2.7
Non-OECD Europe	757	733	752	18	1	2.5	0.1
Total Products	**50,649**	**50,533**	**51,582**	**1,007**	**632**	**2.0**	**1.2**

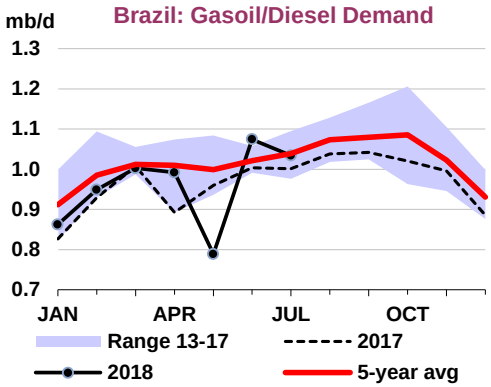
Saudi Arabian oil demand declined by 210 kb/d y-o-y in June, with sharp drops in gasoil and crude oil demand offset by a strong increase for fuel oil. Gasoil demand declined by 95 b/d y-o-y in June, reflecting slowing economic growth and a reduction in its use in power generation. Crude oil direct use was reported at 465 kb/d, a 210 kb/d y-o-y reduction.

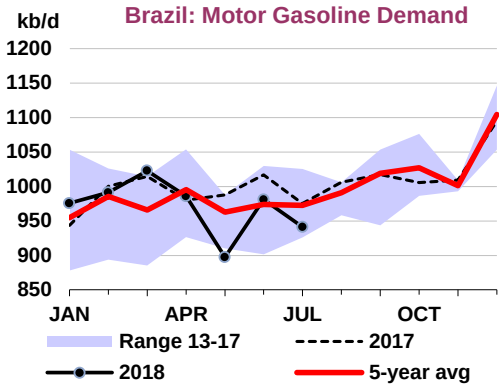




Strong public spending is expected to support economic activity and oil demand at the end of the year and in 2019. In the meantime, we expect oil demand to decline by 35 kb/d in 2018, after a drop of 25 kb/d in 2017. With the boost from government spending gradually taking effect, we do expect to see demand return to growth in 2019 at 85 kb/d.

Brazilian oil demand declined by 20 kb/d y-o-y in July after an increase of 50 kb/d y-o-y in June. Oil demand is returning to normal range after the strong impact of truck drivers' strike in May. Gasoil demand rose by 30 kb/d y-o-y in July. However, gasoline demand remained below last year, contracting by 35 kb/d. Overall, Brazilian oil demand is projected to remain stagnant in 2018 and to increase by 15 kb/d in 2019.





Egyptian oil demand was unchanged in June. Gasoline demand was up 5 kb/d, gasoil was unchanged, and fuel oil was slightly lower. The fall for fuel oil results from the increased use of natural gas in the power sector. Poor growth in oil deliveries overall is a reaction to last summer's cuts to subsidies as part of an IMF-backed reform programme.

Non-OECD: Demand by Product

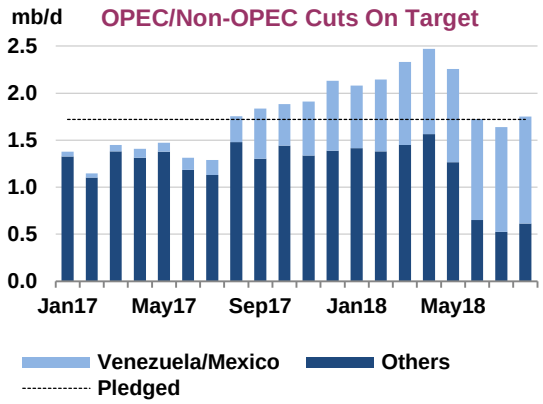
(thousand barrels per day)

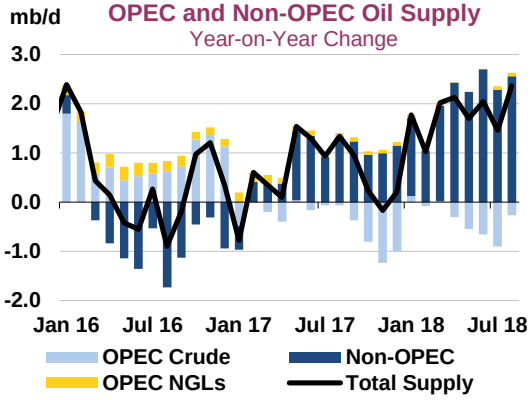
	Demand			Annual Chg (kb/d)		Annual Chg (%)	
	4Q17	1Q18	2Q18	1Q18	2Q18	1Q18	2Q18
LPG & Ethane	6,721	6,800	6,829	252	139	3.8	2.1
Naphtha	2,921	2,963	2,895	70	83	2.4	2.9
Motor Gasoline	11,317	11,347	11,263	99	-155	0.9	-1.4
Jet Fuel & Kerosene	3,165	3,263	3,348	108	200	3.4	6.4
Gas/Diesel Oil	14,727	14,171	14,819	268	-46	1.9	-0.3
Residual Fuel Oil	4,776	4,784	4,905	-411	-138	-7.9	-2.7
Other Products	7,022	7,207	7,524	620	549	9.4	7.9
Total Products	**50,649**	**50,533**	**51,582**	**1,007**	**632**	**2.0**	**1.2**

Historical data for Nigeria, Indonesia and Iran have been revised due to the incorporation of new data source. For **Nigeria**, we now base our monthly estimates on Nigerian Bureau of Statistics (NBS) data, available through June 2018. NBS reports data on gasoline, kerosene and gasoil deliveries. As a result, we revised *down* total product deliveries in Nigeria by 50 kb/d for 2017 and 45 kb/d in 2018. In the case of **Indonesia,** we are now considering (with some modifications) data reported by JODI from January 2017 to May 2018. JODI data for 2015 and 2016 are incomplete, but monthly indications from 2017 seem consistent with annual data from the Indonesia Energy Statistics Yearbook and the IEA World Energy Statistics 2018. As a result, we revised *up* our demand by 10 kb/d for 2017 and by 40 kb/d for 2018. We did a similar exercise with JODI data for **Iran**, filling the gaps or correcting data that seemed to be out of the normal range. As a result, we have *increased* our estimates of Iranian demand by 25 kb/d for 2017 and 10 kb/d for 2018

SUPPLY

Global oil supply rose in August by 80 kb/d to cross the symbolic 100 mb/d mark for the first time as higher output from OPEC more than compensated for a seasonal decline from non-OPEC. The August slip in non-OPEC supply masks the bigger picture, which is one of relentless growth led by record output from the US. Supply from non-OPEC stood 2.58 mb/d above August 2017. For the year as a whole, non-OPEC production is on track to expand by 2 mb/d, its highest in five years. Growth is expected to ease only marginally in 2019, to 1.8 mb/d, as a ramp up in Brazilian, Canadian and Russian supplies mitigates a slowdown in the US.





As for OPEC, crude oil production rose to a nine-month high of 32.63 mb/d, as a rebound in Libyan supply, near record Iraqi output and higher volumes from Nigeria and Saudi far outstripped a significant decline from Iran ahead of US sanctions. Compared with a year earlier, crude oil supply was 270 kb/d lower as higher Saudi, Iraqi and Kuwaiti output helped to offset declines in Venezuela, Angola and Iran.

OPEC / Non-OPEC Output Compliance[1]

(million barrels per day)

	Jul 2018 Supply	Aug 2018 Supply	Supply Baseline[2]	Agreed Cut	August Actual Cut	July Compliance	August Compliance	Average Compliance	Sustainable Production Capacity[6]	Spare Capacity vs Aug Supply
Algeria	1.06	1.06	1.09	-0.05	-0.03	58%	58%	97%	1.08	0.02
Angola	1.47	1.47	1.75	-0.08	-0.28	360%	360%	208%	1.58	0.11
Ecuador	0.53	0.53	0.55	-0.03	-0.02	69%	69%	77%	0.54	0.01
Equatorial Guinea	0.12	0.12	0.14	-0.01	-0.02	167%	167%	120%	0.13	0.01
Gabon	0.18	0.20	0.20	-0.01	0.00	244%	22%	42%	0.21	0.01
Iran[3]	3.78	3.63	3.71	0.09	-0.08	NA	NA	NA	3.85	0.22
Iraq	4.56	4.65	4.56	-0.21	0.09	0%	-42%	37%	4.80	0.15
Kuwait	2.80	2.83	2.84	-0.13	-0.01	29%	6%	92%	2.93	0.10
Qatar	0.62	0.62	0.65	-0.03	-0.03	93%	93%	130%	0.63	0.01
Saudi Arabia	10.35	10.42	10.54	-0.49	-0.12	40%	26%	106%	12.04	1.62
UAE	2.98	2.98	3.01	-0.14	-0.03	24%	24%	70%	3.20	0.22
Venezuela[7]	1.26	1.24	2.07	-0.10	-0.83	849%	871%	344%	1.24	0.00
Total OPEC 12	**29.71**	**29.75**	**31.11**	**-1.18**	**-1.36**	**119%**	**115%**	**113%**		
Libya[4]	0.67	0.95							1.02	0.07
Nigeria[4]	1.52	1.61							1.74	0.13
Congo[4]	0.31	0.32							0.33	0.01
Total OPEC	**32.21**	**32.63**							**35.32**	**2.69**
Azerbaijan	0.77	0.78	0.815	-0.04	-0.04	116%	113%	78%		
Kazakhstan	1.96	1.80	1.805	-0.02	0.00	-767%	23%	-350%		
Mexico	2.09	2.09	2.400	-0.10	-0.31	308%	313%	210%		
Oman	0.98	0.98	1.019	-0.05	-0.04	81%	89%	92%		
Russia	11.60	11.59	11.597	-0.30	0.00	0%	2%	71%		
Others[5]	1.24	1.24	1.253	-0.05	-0.01	20%	17%	44%		
Total Non-OPEC	**18.65**	**18.48**	**18.888**	**-0.55**	**-0.41**	**44%**	**75%**	**81%**		

1 OPEC figures are crude oil only, Non-OPEC figures are total oil supply (including NGLs).

2 OPEC based on Oct 2016 OPEC secondary source figures, except Angola which is based on Sep 2016. Non-OPEC based on IEA Oct total supply estimates. Kazakhstan Nov estimate.

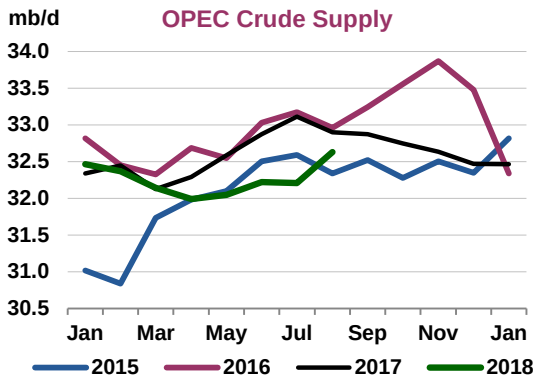
3 Iran was given a slight increase. 4 Libya, Nigeria, Congo are exempt from cuts. 5 Bahrain, Brunei, Malaysia, Sudan and South Sudan.

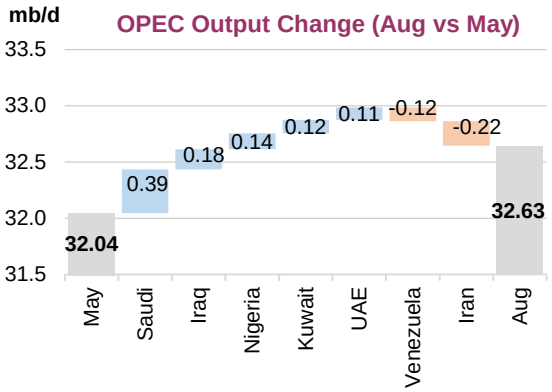
6 Capacity levels can be reached within 90 days and sustained for an extended period. 7 If Venezuelan compliance were 100%, OPEC overall compliance would be 53% in August.

The 24 countries party to the Vienna Agreement posted an overall compliance rate of 103% with a target cut of 1.72 mb/d, according to IEA estimates, compared with 95% in July. Non-OPEC compliance rose to 75%, thanks to maintenance curbs in Kazakhstan, while OPEC's rate eased to 115%.

OPEC crude oil supply

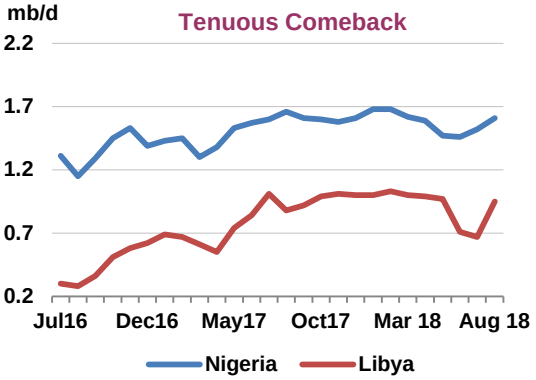
OPEC output rose by 420 kb/d in August after a recovery in Libyan production, near-record Iraqi rates and increases from Nigeria and Saudi Arabia far outweighed losses from Iran ahead of US sanctions. OPEC's biggest month-on-month (m-o-m) increase since June 2016 lifted supply from the 15 members to 32.63 mb/d, a nine-month high. Even as OPEC ramped up, supply was down 270 kb/d on a year ago as Venezuela's decline continued and Iran and Angola supplied far less.





In line with the OPEC/non-OPEC deal reached in June, countries with substantial spare production capacity - Saudi Arabia, Kuwait, the UAE and Iraq - are relaxing output cuts to eliminate over-compliance, in other words, to increase supply. Saudi Arabia and Russia suggested that would translate into an extra 1 mb/d, although the supply boost is proving to be more gradual than expected. For OPEC members taking part in the agreement, the result has been a net output increase of 470 kb/d compared to May, with Saudi Arabia and Iraq ramping up the most. Stronger production from the Middle East (+800 kb/d), along with higher supply from Nigeria – exempt from cuts - has so far more than made up for declines from Iran and Venezuela. Between them, these four Middle East producers (Saudi Arabia plus Iraq, Kuwait and the UAE), held 2.09 mb/d of spare capacity based on August output levels, with Saudi Arabia holding the lion's share. An increase in supply from OPEC members of the Vienna Agreement saw compliance ease to 115% in August from 119% in July.

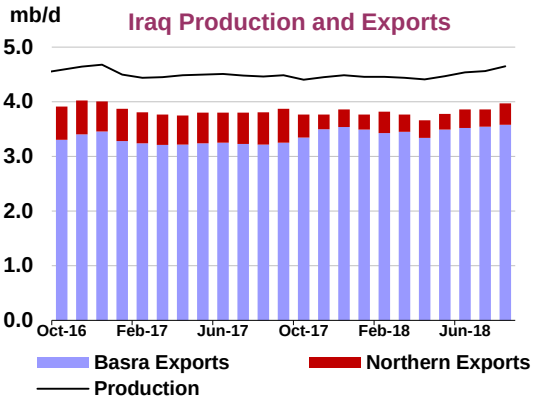
Libya posted the largest output increase during August, with output rebounding by 280 kb/d to 950 kb/d. However, supply remains vulnerable to disruptions due to ongoing unrest and security issues. El Sharara, the country's biggest oil field, ramped up towards full capacity after a kidnapping incident cut production in July and the nearby El Feel field finally restarted, pushing Libya's output above 1 mb/d by the end of August. Underscoring the fragility, less than a week after a truce put an end to fighting between rival groups in Tripoli, armed men attacked the headquarters of the National Oil Corp (NOC) on 10 September. Oil operations were not affected.



Before the disturbances in June, output had been running at around 1 mb/d for nearly a year. Pushing much beyond that mark may prove difficult because of the lack of storage at key eastern export outlets. Several storage tanks at the Ras Lanuf terminal were destroyed during fighting in June.

Nigerian production also recovered, rising 90 kb/d in August to 1.61 mb/d as shipments of Bonny Light and Forcados picked up. Output was 50 kb/d below the August 2017 level, and, as with Libya, flows are susceptible to disruption due to civil strife.

A strong month of loadings saw **Iraq** export more crude in August than neighbouring Iran produced. Combined exports from the Federal Government and the Kurdistan Regional Government (KRG) climbed to nearly 4 mb/d, while crude production rose to 4.65 mb/d – only slightly below the record achieved in December 2016. A m-o-m increase of 90 kb/d pushed Iraq above its supply target, making it the least compliant OPEC member of the Vienna Agreement.

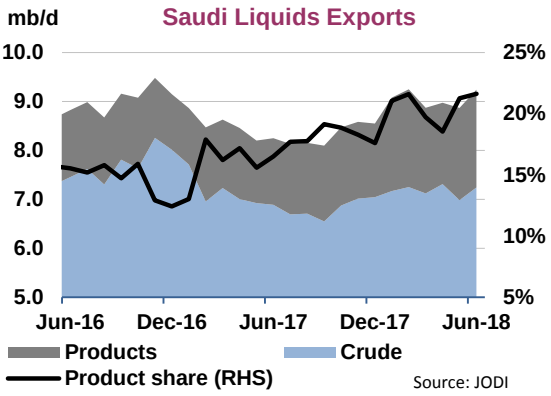


On the export front, shipments of southern Basra crude edged up 40 kb/d in August to an all-time high of 3.58 kb/d, despite protests that have swept across the Basra oil heartland. The bulk of Iraqi crude is sold via terminals in the Gulf, which can ship up to 3.7 mb/d.

Exports of northern crude via the KRG pipeline to Turkey rose 80 kb/d to 400 kb/d in August. Some of the additional barrels are believed to have been released from storage. Iraqi flows could rise substantially if there were a lasting political deal to run the 700 kb/d Kurdish pipeline at full capacity.

In **Saudi Arabia,** a m-o-m increase of 70 kb/d lifted output to 10.42 mb/d, up 460 kb/d on August 2017, but some distance from the 11 mb/d level that Saudi officials initially suggested was on the way. It appears that customer demand has so far not required such high rates of production. According to *Kpler* tanker tracking data, Saudi crude shipments were steady at around 7.2 mb/d in August versus July. Buying interest in Asia appears to be accelerating after Saudi Aramco cut its formula price for October loading Arab Light crude to the region. August marked the third month in row that Saudi compliance with the Vienna Agreement was well below 100%.

The latest data from the Joint Organisations Data Initiative (JODI) show exports of Saudi crude for June rose 260 kb/d m-o-m to 7.2 mb/d and product shipments climbed 110 kb/d to around 2 mb/d. Total oil sales increased 370 kb/d m-o-m to 9.2 mb/d. At home, 470 kb/d of crude was used in power plants, up 55 kb/d from May, but 210 kb/d below the June 2017 level. Higher volumes of crude are likely to be burned during the third quarter, when air conditioning use peaks. Last year, the average amount of crude burned from May to September was 650 kb/d.



The Kingdom is meanwhile pressing ahead with its offshore oil expansion plans in order to maintain its production capacity. Saudi Aramco has hired Baker Hughes to start drilling work to boost capacity at the Marjan field by 300 kb/d to 800 kb/d. It is the first of three major projects to raise offshore capacity by 1 mb/d by 2023 to offset declines elsewhere. The 800 kb/d Zuluf and 300 kb/d Berri fields are also set for expansion.

Elsewhere in the Gulf, production edged up in **Kuwait** and held steady in the **UAE** and **Qatar**. Kuwaiti supply of 2.83 kb/d left only 100 kb/d to spare in August. Capacity could, however, get a boost next year if Kuwait and Saudi Arabia end their four-year disagreement and restart output from the shared 500 kb/d

Neutral Zone. If the green light is given, it could take six to 12 months to raise the fields towards capacity. Apart from the Neutral Zone, Kuwait also intends to start up the Ratqa oil field next spring, with 60 kb/d of heavy crude expected to be online by the end of 2019.

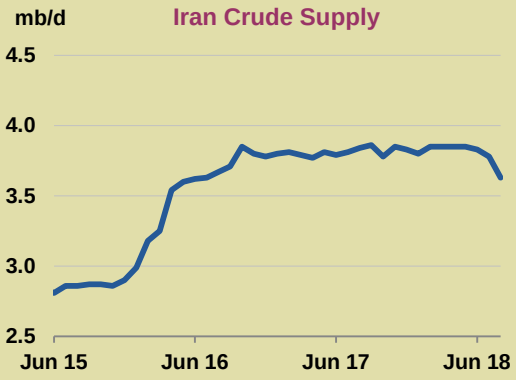
Although production in **Angola** held steady at 1.47 mb/d in August, flows are set to rise thanks to the July start-up of Total's $16 billion ultra-deep water Kaombo project. It will produce 240 kb/d when it reaches capacity in 2020 and by the end of this year it will boost total Angolan capacity to 1.65 mb/d. Steep declines at mature fields have taken a toll on Angolan production in recent years.

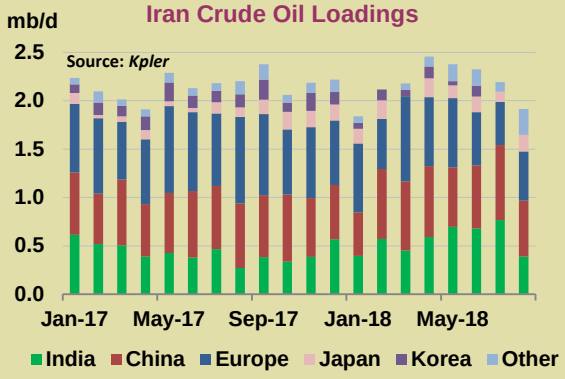
Supply from other African producers was also broadly steady. **Algerian** supply held at 1.06 mb/d, while supply in **Gabon** edged up to 200 kb/d and output in **Congo** inched up to 320 kb/d. Production from OPEC's smallest producer, **Equatorial Guinea,** was unchanged versus July. A new oil and gas exploration round will be launched in 2019 that covers acreage both onshore and in ultra-deep waters.

Iran supply tumbles as buyers take heed of US sanctions

August saw Iran's crude production drop significantly – by 150 kb/d to 3.63 mb/d, the lowest level since July 2016, as more buyers distanced themselves from Tehran ahead of looming US sanctions. Exports of crude fell by more than production, tumbling 280 kb/d from July to 1.9 mb/d as top buyers China and India cut back sharply, according to *Kpler* tanker tracking data. Some production is likely to have moved into on land storage tanks during August. The National Iranian Oil Co (NIOC) may also be starting to store some oil at sea, with three of its own tankers currently sitting off Kharg Island. During the last round of sanctions, crude oil exports fell by 1.2 mb/d and substantial volumes, especially of condensate, were put into floating storage.

From the most recent peak of 2.4 mb/d in April/May, Iranian crude exports have been falling - with shipments in August down nearly 500 kb/d since then. Korea and France have not lifted a drop of Iranian crude since June, according to *Kpler* data. Sales to Europe actually increased in August to 510 kb/d, but they were 200 kb/d lower than in May. Shipments to Asia fell 500 kb/d to 1.14 mb/d in August. China and India, Iran's number one and number two customers, cut back August purchases by 200 kb/d and 380 kb/d, respectively. The final destination of 100 kb/d of exports was still unknown at the time of publishing. As for condensates, exports in August increased by 70 kb/d to 180 kb/d.



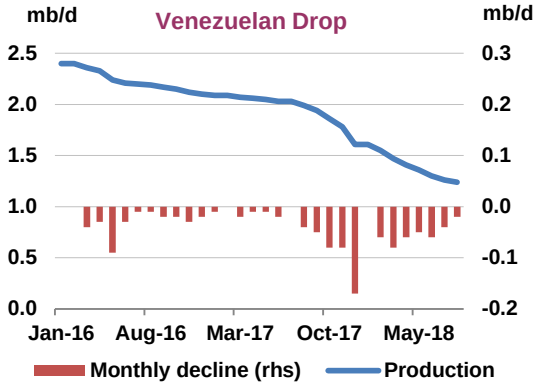


In the run-up to Washington's 4 November deadline for purchasers of Iranian oil to make other arrangements, there will be a further shift in trade flows. Producers of similar-quality oil such as Iraq, Saudi Arabia and Russia have raised output as compliance with the Vienna Agreement has eased. One of NIOC's regular European customers is replacing Iranian crude barrel-for-barrel with Saudi grades. In Asia, some refiners reportedly are requesting more Saudi crude for loading in October. While Iranian exports have fallen by nearly 500 kb/d since May, shipments from Iraq and Saudi Arabia have risen by 200 kb/d and 60 kb/d, respectively (August versus May).

Supply in **Venezuela** dipped a further 20 kb/d in August to 1.24 mb/d, roughly half the level of early 2016. Production is likely to decline further by a significant amount by the end of the year given the

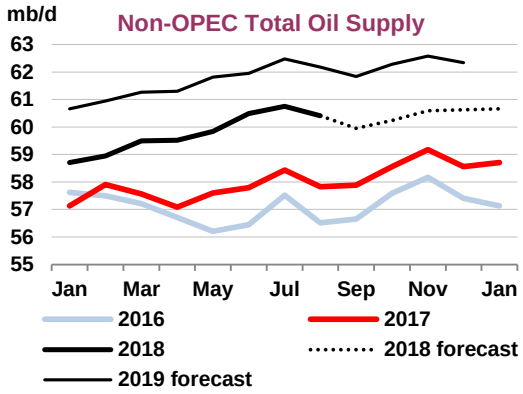
deteriorating state of the oil sector. Skilled workers are leaving in droves, output from mature conventional oil fields is dropping swiftly and upgraders operated by foreign joint venture partners in the Orinoco heavy oil belt are breaking down and running below capacity.

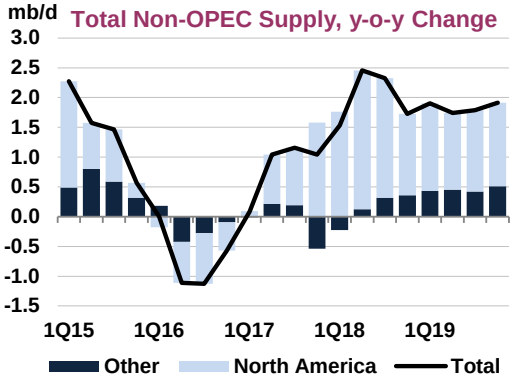
As for exports, shipments were disrupted after a tanker collision at the Jose terminal in late August. Down the road, however, an agreement reached in August with ConocoPhillips over $2 billion owed to it by Petroleos de Venezuela (PDVSA) may at least offer some operational flexibility. PDVSA's ability to ship crude had been set back after ConocoPhillips sought to seize its Caribbean assets under an international court ruling. However, as of early September, ConocoPhillips was still awaiting payment from Venezuela. Output from **Ecuador** was steady m-o-m at 530 kb/d.



Non-OPEC overview

Non-OPEC oil supply is expanding at a rapid pace. Output increased by a lofty 2.5 mb/d year-on-year (y-o-y) in 2Q18 and is on track to increase by 2.3 mb/d in 3Q18. This represents a return to levels reached in 2014 before prices collapsed. As in 2014, the US is driving growth, accounting for roughly 80% of the net figure. Other increases stem from Russia, where production has rebounded after output cuts were relaxed, and from biofuels. Estimates for Brazilian biofuel output have been revised up since last month's *Report*, boosted by higher fuel prices, weak international sugar prices and increased blending mandates (see *Brazil's ethanol production surges to new heights*). In August, non-OPEC supply eased by 340 kb/d, to 60.4 mb/d, on seasonal maintenance and outages in Kazakhstan, the North Sea and Canada. Production was, nevertheless, 2.6 mb/d higher than a year ago.





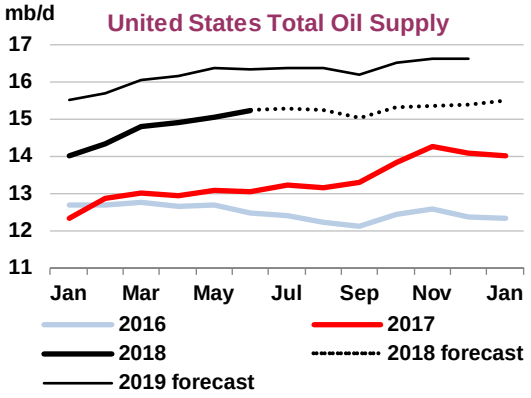
While non-OPEC supplies are forecast to continue rising through 2019, the pace of growth is expected to slow, from 2.0 mb/d in 2018 to 1.8 mb/d next year. Expansions in the Permian Basin, the engine of US growth, may be held back by logistical challenges and rising costs. Service company executives warned at a recent conference of a slowdown in the number of new wells brought into production and in demand for hydraulic fracturing equipment and services. US total oil production is nevertheless expected to grow by more than 1.7 mb/d on average this year, before moderating to 1.2 mb/d during 2019, of which crude oil accounts for 1.3 mb/d and 1 mb/d, respectively. Canadian oil supplies will continue to grow in the near term, although export capacity constraints mean that an increased use of rail capacity will be needed in the near term. Longer-term growth could also be at risk (see *Trans Mountain troubles continue*). By 2019, Brazilian oil output growth, currently reduced by steep declines at mature fields, should resume strongly with a number of new production units coming on-line (see *Field declines reduce Brazil's output growth*).

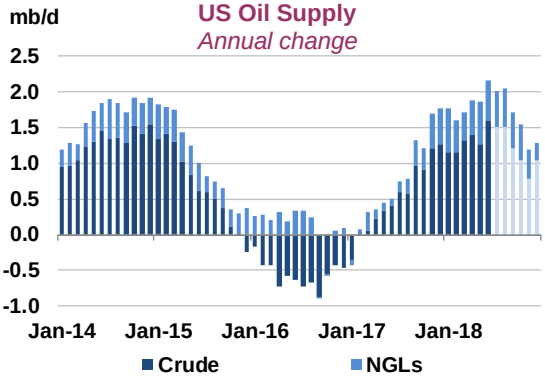
Non-OPEC Supply

(million barrels per day)

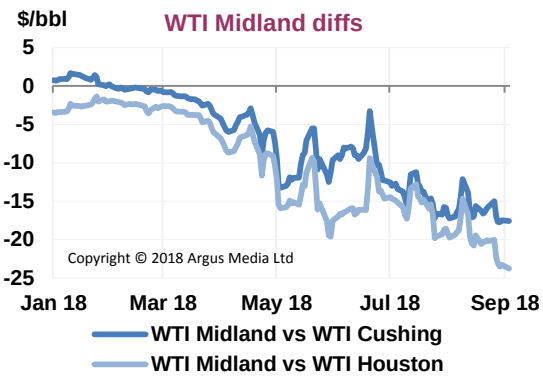
	2017	1Q18	2Q18	3Q18	4Q18	2018	1Q19	2Q19	3Q19	4Q19	2019
Americas	**20.3**	21.7	22.1	22.3	22.6	**22.2**	23.2	23.4	23.6	24.0	**23.6**
Europe	**3.5**	3.5	3.3	3.4	3.5	**3.4**	3.5	3.3	3.3	3.4	**3.4**
Asia Oceania	**0.4**	0.4	0.4	0.4	0.4	**0.4**	0.4	0.5	0.5	0.5	**0.5**
Total OECD	**24.2**	25.7	25.9	26.0	26.5	**26.0**	27.1	27.2	27.5	27.9	**27.4**
Former USSR	**14.3**	14.4	14.5	14.6	14.7	**14.5**	14.8	14.8	14.7	14.8	**14.8**
Europe	**0.1**	0.1	0.1	0.1	0.1	**0.1**	0.1	0.1	0.1	0.1	**0.1**
China	**3.9**	3.8	3.9	3.8	3.8	**3.8**	3.7	3.7	3.7	3.7	**3.7**
Other Asia	**3.5**	3.4	3.3	3.3	3.3	**3.3**	3.3	3.2	3.2	3.2	**3.2**
Latin America	**4.5**	4.5	4.5	4.5	4.7	**4.6**	4.7	4.8	4.9	5.0	**4.9**
Middle East	**1.2**	1.2	1.3	1.3	1.3	**1.3**	1.3	1.3	1.2	1.2	**1.2**
Africa	**1.4**	1.4	1.5	1.5	1.4	**1.5**	1.5	1.4	1.4	1.4	**1.4**
Total Non-OECD	**29.0**	29.0	29.1	29.1	29.2	**29.1**	29.3	29.4	29.3	29.5	**29.4**
Processing Gains	**2.3**	2.3	2.3	2.3	2.3	**2.3**	2.3	2.3	2.3	2.3	**2.3**
Global Biofuels	**2.5**	2.1	2.7	3.0	2.5	**2.6**	2.2	2.8	3.0	2.7	**2.7**
Total Non-OPEC	**58.0**	59.1	59.9	60.4	60.5	**60.0**	61.0	61.7	62.2	62.4	**61.8**
Annual Chg (mb/d)	**0.8**	1.5	2.5	2.3	1.7	**2.0**	1.9	1.7	1.8	1.9	**1.8**
Changes from last OMR (mb/d)	**0.03**	-0.03	0.18	0.24	-0.13	**0.07**	-0.08	-0.01	0.20	0.09	**0.05**

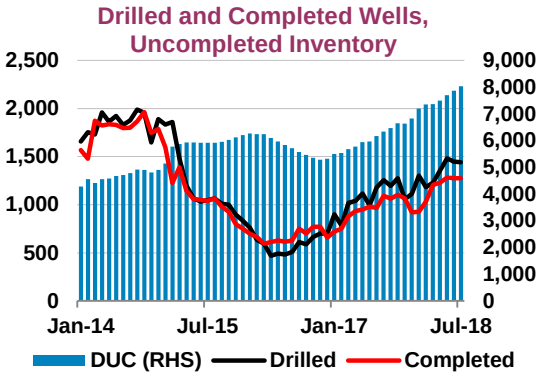
In June, the latest month for which comprehensive production data is available, total oil supply in the **United States** surged to new heights, increasing 190 kb/d m-o-m, and by a record 2.2 mb/d y-o-y. A ramp up of output in the Gulf of Mexico (+154 kb/d m-o-m) following a period of extensive maintenance lifted US crude oil production by 230 kb/d m-o-m to a new all-time high of 10.67 mb/d. Onshore production also rose, led by increased output from the Permian and Eagle Ford that lifted Texas crude supply by 165 kb/d m-o-m. Providing a partial offset, Alaskan crude oil production fell by 45 kb/d on planned summer maintenance at Prudhoe Bay. Marginal declines were also seen in Colorado (-24 kb/d), North Dakota (-16 kb/d) and Oklahoma (-3 kb/d), limited in part by NGL and gas takeaway constraints.





While US oil production will continue to grow, the pace is expected to slow with takeaway capacity out of the Permian reaching its limits. In early September, the discount of WTI priced at Midland versus Houston neared a record $25/bbl. The pipeline constraints, along with rising costs and other bottlenecks, have led some producers to scale back on expansions and delay completing wells. According to Baker Hughes, the US rig count has held largely steady since the end of May, with the number of rigs targeting horizontal wells actually declining recently. The EIA's *Drilling Productivity Report*, meanwhile, shows the number of Drilled but Uncompleted wells rising to more than 800 by July. Nearly half (43%) of these are in the Permian.

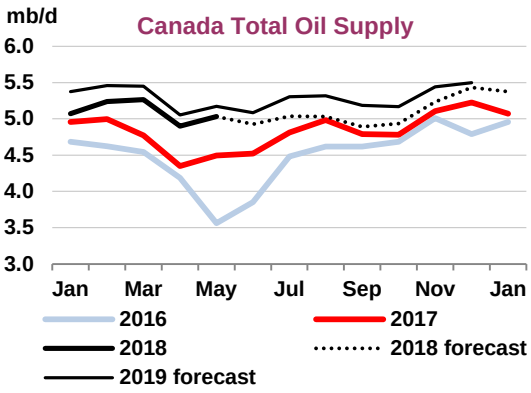


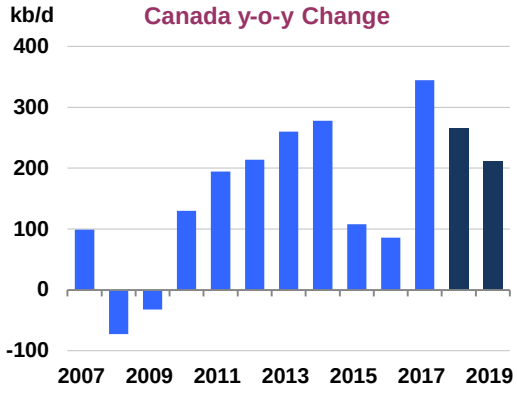


Source: EIA Drilling Productivity Report

As in the US**, Canadian** oil producers are faced with limited takeaway capacity and are increasingly reliant on rail. Rail exports to the US are at record highs and will increase further as output rises. Total oil supply is on track to increase by 265 kb/d this year and a further 210 kb/d during 2019.

In July, supply increased by 110 kb/d, to 5.03 mb/d, despite an outage at the 350 kb/d Syncrude upgrader from mid-month. According to data published by the Alberta Energy Regulator (AER), total synthetic crude production dropped by a smaller than expected 40 kb/d, to 1 mb/d. Output likely declined further in August, however, as the Syncrude facility only partially resumed operations towards the end of the month. The plant is expected to return to full capacity by end-September. The AER data show that un-upgraded bitumen production rose by 125 kb/d m-o-m to 1.89 mb/d – its highest level on record. Smaller gains were also reported by onshore producers, as output from the Terra Nova and White Rose fields recovered after maintenance. Production from the Hebron field that started up last November held steady at just shy of 70 kb/d.





Trans Mountain troubles continue

In late August, Canada's Federal Court of Appeals overturned the approval of the Trans Mountain Expansion Project (TMEP) by the National Energy Board (NEB) and the federal government. The court ruled that the federal government failed to consider adequately aboriginal concerns, while NEB did not fully consider the project-related tanker traffic.

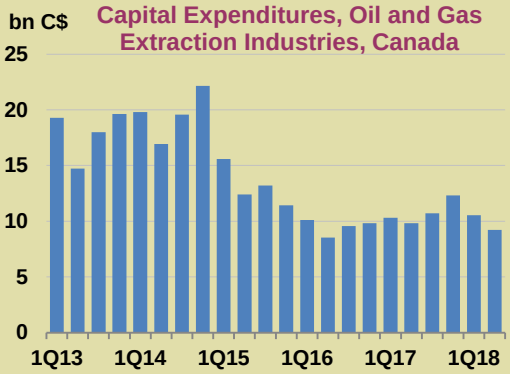
TMEP would expand the capacity of an existing line that runs from Edmonton, Alberta to Vancouver for export. The project, which would lift flow rates from 300 kb/d to 890 kb/d by 2021, was approved by the federal government in 2016. Fierce political and environmental opposition has caused delays and Kinder Morgan, the developers, decided to halt the expansion project. In May, the federal government agreed to buy the pipeline from Kinder Morgan for C$4.5 billion ($3.46 billion).

The court decision is another blow to Canada's oil producers, who say the expanded pipeline is needed to address bottlenecks that have sharply reduced prices for their crude. Two other projects, the 525 kb/d

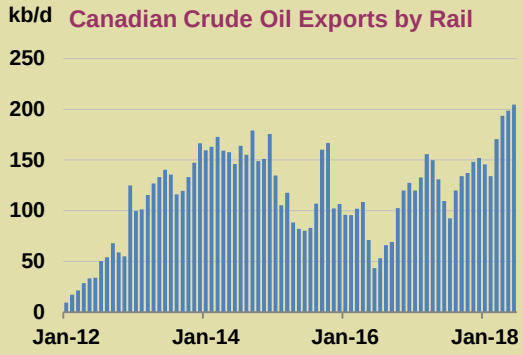
Trans Mountain troubles continue (continued)

Northern Gateway and the 1.1 mb/d Energy East pipelines were already cancelled in 2016 and 2017, respectively. In August, the average discount of WCS to WTI was $28.52/bbl, its highest since December 2013 when it briefly peaked at $37.89/bbl. Canadian crude oil exports by rail have steadily increased this year, reaching a record high of 205 kb/d in June, according to NEB data. Including fuel oil exports, rail shipments reached 360 kb/d according to Statistics Canada, an increase of 110 kb/d on a year earlier.

In the near-term, rail use will rise further. According to news reports, Cenovus Energy recently signed a deal to ship more crude with the Canadian National Railway Company (CN). Together with competitor Canadian Pacific Railway Ltd, CN will be able to move 300 kb/d by the end of the year. A locomotive shortage that restricted rail shipments last year is also being resolved. CN has increased its order from 200 to 260 locomotives while shortening the delivery time from three to two years.



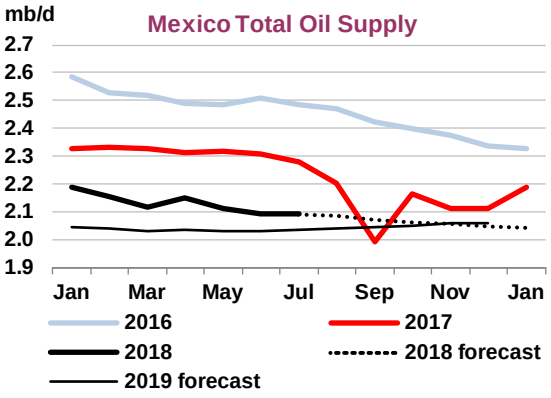
Source: Statistics Canada



Source: National Energy Board, Canda

The TMEP ruling puts a greater emphasis on two other pipeline projects: Enbridge's Line 3 expansion, that will run from Alberta to Wisconsin, and TransCanada Corp's Keystone XL project that will run from Alberta to Nebraska. It is also likely to have a negative impact on Canadian output growth in the longer term. Oil producers, such as Suncor Energy Inc., have announced that they will hold off on further major investments until regulatory challenges abated. Investments have already eased this year: data published by Statistics Canada show capital expenditures by the oil and gas extraction industries dropping to C$9.23 billion during the second quarter, its lowest level since 2Q16.

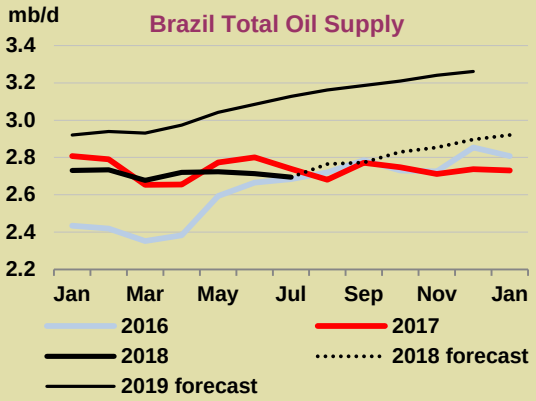
In **Mexico**, production in July was largely unchanged from a month earlier at around 2.1 mb/d, although it was a hefty 190 kb/d lower than a year earlier. Crude oil production fell by 6 kb/d to 1.84 mb/d, while NGLs output inched up to 247 kb/d. Despite the subdued output, crude exports rose by 46 kb/d m-o-m to 1.16 mb/d, on continued domestic refinery woes (see *Refining*). Exports were nevertheless 100 kb/d lower than a year ago.

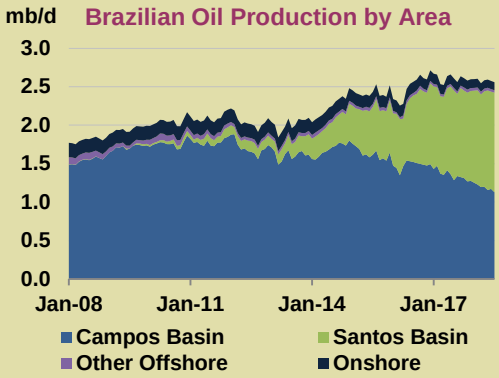


Mexican President-elect Andres Manuel Lopez Obrador (AMLO) has plans to resuscitate flagging output. He announced that 75 billion pesos ($3.9 billion) will be allocated to oil extraction in next year's budget. The objective is to raise crude production to at least 2.6 mb/d by the end of his administration, up from current levels of 1.8 mb/d.

Field declines reduce Brazil's output growth – but rebound in sight

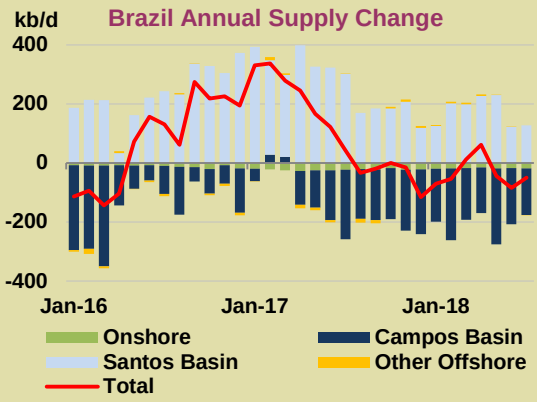
Ten years after first oil flowed, output from Brazil's prolific pre-salt layer has reached 1.5 mb/d - propelling total Brazilian oil output to record highs. While the pre-salt continues to ramp up, declines from mature fields have accelerated, leaving growth stagnant. Total oil output so far this year, is running below 2017. In July, Brazil's total oil production was 2.7 mb/d, 60 kb/d lower than a year ago. A rebound is in sight, however, with Petrobras and its international partners starting up seven new production systems this year followed by another two during 2019.





Two of the Floating Production Storage and Offloading (FPSO) vessels that were set to come on stream this year are already ramping up. The Cidade de Campos dos Goytacazes FPSO, which kicked off production on the Tartaruga Verde field in June, was producing 22 kb/d in July according to data from the national oil, gas and biofuels agency, ANP. The giant Búzios field is also ramping up, with first oil seen in April, and by July output was 30 kb/d. In addition, the Atlanta early production system, that also started up in April, is producing 13 kb/d, while the Mero field that started last December is producing roughly 40 kb/d.

Another two FPSOs arrived in Brazil in August. The 150 kb/d P-75 will be deployed at Búzios, while the P-67, will add 150 kb/d of capacity to the Lula North. A third Buzios unit, the P-76 FPSO, is due to start production by year-end. The fourth Buzios unit, the P-77, is expected to set sail from Quingdao, China in September and go on line in 2019, while the P-69 FPSO, is expected to move to its location in the Lula Far South field in the coming months. The P-68 FPSO that was originally planned to start producing from the Berbigao field before the end of 2018 might not start up until early 2019. The P-70 FPSO is due at the Atapu field in early 2019. Taken together, these new installations have the capability to produce as much as 1.35 mb/d.



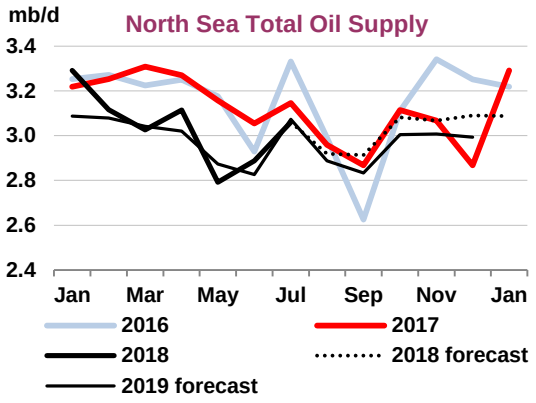
With Petrobras and its international partners funnelling most of their investments into new field developments in the pre-salt area, output from the post-salt layer and onshore operations have suffered. Petrobras plans to allocate 58% of its upstream capex over the 2018-2022 period to pre-salt developments that have a higher profitability. Average annual decline rates from both the Campos Basin and from onshore fields are 14%, meaning that more than 200 kb/d of output is lost to natural decline.

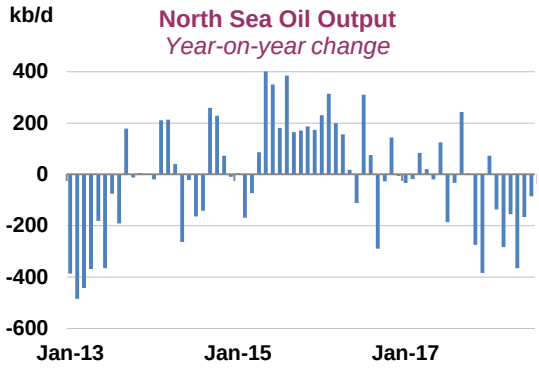
In an effort to stem declines and lower debt, Petrobras has signed strategic partnerships with a number of international oil companies including BP, Total, CNPC, Exxon Mobil and Equinor. In August, Equinor announced it plans to spend $15 billion in Brazil over the next twelve years in order to raise output to 300-500 kboe/d, from 90 kboe/d currently, by developing new discoveries such as the giant Caracara field and by extending the life of already producing assets. In June, Equinor took a 25% stake in the Roncador field, aiming to boost output by around 500 million barrels over the lifetime of production.

Following a hiatus that lasted from 2014-16, output declines have also resumed in the **North Sea** with Norway accounting for the bulk of the fall-off**.** Production contracted by 40 kb/d during 2017, but the pace has accelerated to 160 kb/d so far this year. Despite a m-o-m increase of 170 kb/d in July, regional output, at 3.06 mb/d stood 85 kb/d below a year ago. The year-on-year decline has nevertheless narrowed from recent months.

In July, **Norwegian** oil production rose by 65 kb/d, to 1.9 mb/d, some 90 kb/d lower than a year earlier. June output levels were revised up by the Norwegian Petroleum Directorate (NPD) by 100 kb/d on higher reported NGL supply. The field level data for June show output at Grane jumping 83 kb/d, to 120 kb/d, with smaller gains from Oseberg and Troll.

In order to mitigate declines and boost the recovery rate from its mature fields, Norway's largest producer, Equinor, announced in late August plans to drill up to 3 000 offshore wells in the coming decades: this is nearly as many as it has drilled since its start-up in 1972. The company said it aims to achieve an average recovery rate of 60% and 85% respectively for oil and gas fields, almost twice the average global oil recovery rate of 35%. The plan, which covers the period to 2040, implies that roughly 100-120 production wells will be drilled each year. In addition, Equinor plans to drill between 20 and 30 exploration wells each year off Norway, including both its own and partner-operated wells, to search for new reserves, in particular of natural gas. In the meantime, Norwegian oil production is expected to return to growth from 2020 as the giant Johan Sverdrup oilfield comes on line, followed by the Arctic Johan Castberg and an extension of the Troll gas field.



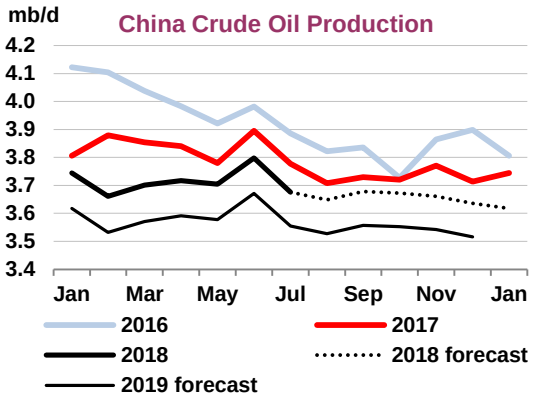


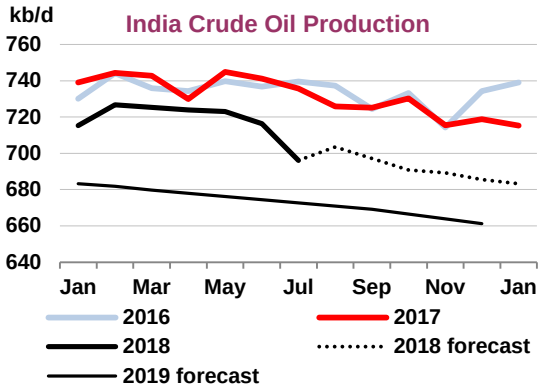
UK production also rose in July, by 90 kb/d, to 1.04 mb/d. Output was largely steady on a year ago, as it has been for the first seven months of the year. Production eased in August due to strikes and September data will show the impact of maintenance work, particularly at Buzzard, the UK's largest oil field. Ineos, operator of the Forties Pipeline system, estimates flows on the line will drop by 40 kb/d from August due to lower Buzzard flows.

Also in Asia, oil production is on a declining trend. **China**'s crude output averaged 3.7 mb/d in July, 120 kb/d lower than an artificially inflated June level and 100 kb/d less than a year ago. As noted in last month's *Report*, some Chinese companies systematically report higher June output levels, possibly adjusting for unreported production during earlier months or bumping up output to meet mid-year targets. Despite the government's call to ramp up domestic output, it is expected to continue falling as increasing water cuts affect well productivity and as companies prioritise gas developments. China's oil production is forecast to decline by roughly 110 kb/d on average in 2018 and 130 kb/d next year.

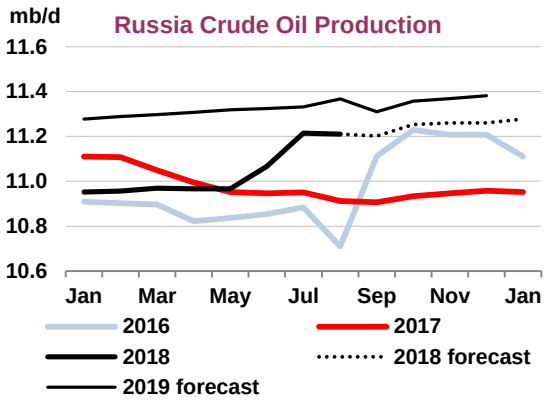
Elsewhere in Asia, **Indian** oil production dropped by 20 kb/d in July to 695 kb/d, the lowest level since September 2009. The output drop came mainly from offshore fields where output, at 341 kb/d, was 17 kb/d lower m-o-m and 38 kb/d lower y-o-y. **Indonesian** crude and condensate production nudged

lower, to 772 kb/d in June, down 27 kb/d on a year earlier. **Malaysian** crude output rose by 20 kb/d to 661 kb/d in June, while supplies from **Vietnam** were unchanged m-o-m at around 240 kb/d in August.

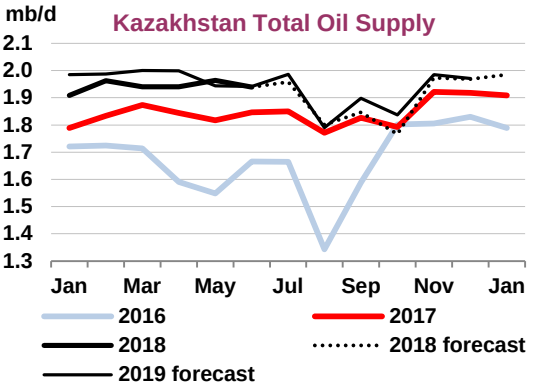


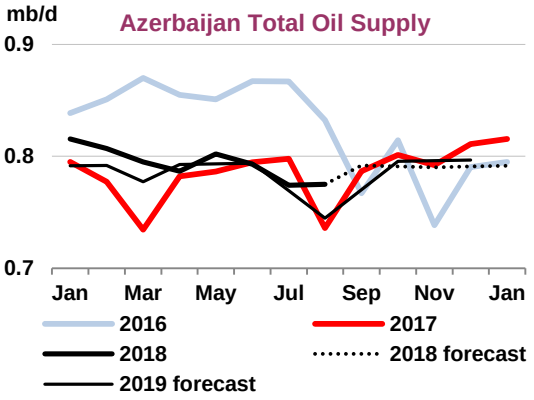


Russian crude and condensate production held steady in August at just over 11.2 mb/d, up 300 kb/d on a year ago. As such, output was on par with that of October 2016, meaning that Russian producers have unwound all but 20 kb/d of the cuts in place under the Vienna Agreement. A 57 kb/d m-o-m drop in output from production sharing agreement operators in August was slightly lower than expected and offset by higher output from elsewhere. Notably, production by Surgutneftegas rose by 28 kb/d m-o-m, while Rosneft hiked output by another 14 kb/d. Output is expected to drop marginally in September as maintenance at the Sakhalin fields in the East intensifies. Russian output is expected to expand by 130 kb/d on average this year and a further 220 kb/d during 2019 as new projects start up.



Kazakhstan crude oil output rose by 20 kb/d in July, to 1.92 mb/d as output from TengizChevroil recovered from unscheduled outages a month earlier. Tengiz produced 651 kb/d in July, compared with 603 kb/d in June. Maintenance likely cut output at Kazakhstan's largest oil field again in August. Volumes loaded at the CPC terminal in August were 110 kb/d lower than in July, with Tengiz loadings dropping by 150 kb/d. So far this year, Kazkah oil production is 110 kb/d higher than the same period in 2017.



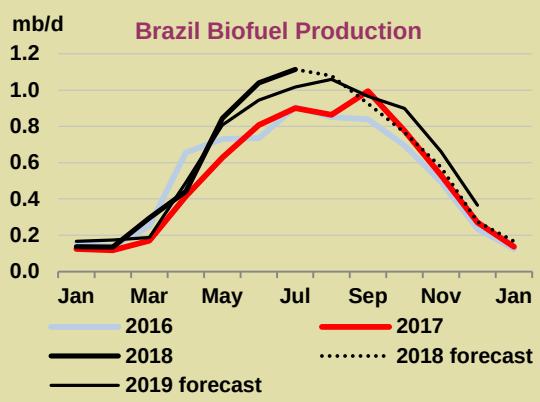


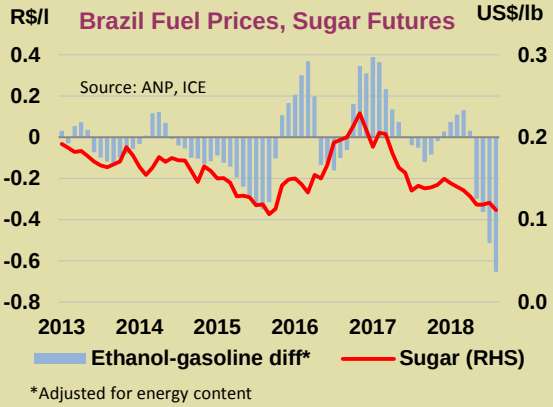
Azeri crude and condensate output fell by 20 kb/d m-o-m in July to a 2018 low of 775 kb/d and registered a y-o-y decline for the first time in six months. This came despite the start-up of the Shah Deniz Phase 2 project during the month. Shah Deniz will ramp up to produce 120 kb/d of condensate, from roughly 55 kb/d currently. In August, Azeri oil output held steady.

Brazil's ethanol production surges to new heights

Brazilian biofuels production is soaring - boosted by higher oil prices, low sugar prices and increased blending mandates for biodiesel. During the first half of the year, ethanol production increased by 28% on a year ago, and in July output set an all-time record at more than 1 mb/d. For the year as a whole, ethanol production is expected to reach a record 550 kb/d, an increase of 75 kb/d on 2017, while biodiesel supply is set to rise to 84 kb/d from 74 kb/d last year – also a new record.

The increase is coming despite a sugar cane crush roughly in line with last year's harvest, as mills are maximising ethanol production at the expense of sugar. The agriculture ministry's crop supply agency, Conab, estimates that sugar production from the 2018-19 harvest will fall by 9% y-o-y, due to low international prices. Sugar futures contracts on the ICE New York Exchange continue to trade at multi-year lows, with October contracts nearing $0.10/lb, down almost 50% from August 2017. Meanwhile, domestic gasoline retail prices have risen steadily in line with international crude oil benchmarks.





At the same time, demand for hydrous ethanol that is used in flex-fuel vehicles is setting new records. Brazilian motorists typically opt to fill tanks with hydrous ethanol when the price at the pump is 70% or less than the price of gasoline, which compensates for the biofuel's lower energy content. The so-called equilibrium point was reached earlier this year and currently the hydrous ethanol price is at its lowest level compared to gasoline in over eight years. About 90% of all new cars, trucks and light vehicles sold in Brazil are flex-fuel vehicles that can run on hydrous ethanol, gasoline or any combination of the two fuels. In comparison, anhydrous ethanol that is blended into gasoline at a rate of 27% has seen both supply and demand decline so far this year as higher gasoline prices cap demand. In August, Petrobras raised ex-refinery gasoline prices to the highest level since July 2017 when it started adjusting them almost on a daily basis. Ethanol also enjoys a reduced level of federal taxation compared to gasoline.

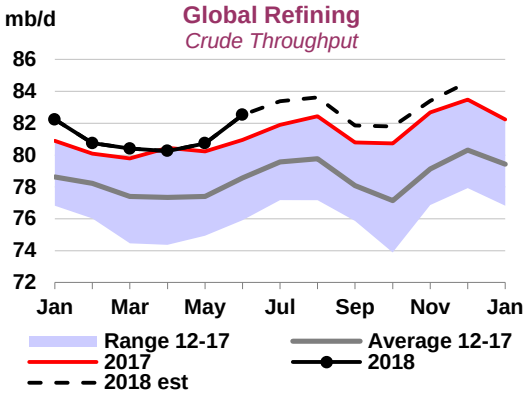
Biodiesel production, meanwhile, has also been increasing after Brazil implemented a new 10% blend with diesel sold at the pump on 1 March. Furthermore, following a strike by truckers in May to protest against higher diesel prices, the government authorised an even higher biodiesel blend for large consumers to use in private vehicle fleets as a way to offset high diesel prices. Transportation companies and municipal bus fleets were authorised to use blends of up to 20%, while blends of up to 30% were approved for agricultural, industrial and railroad use. In July, biodiesel output reached 99 kb/d, a 27% increase on a year ago.

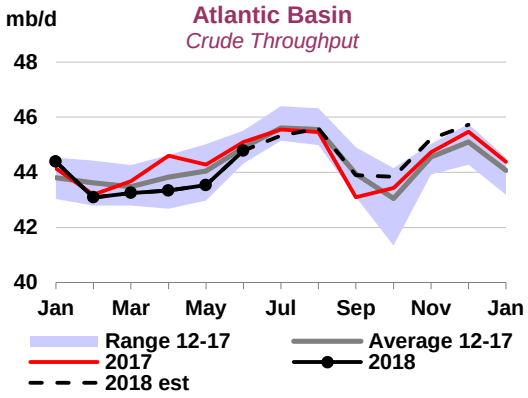
Global biofuel production is expected to rise by roughly 90 kb/d in both 2018 and 2019 and it will reach 2.66 mb/d next year.

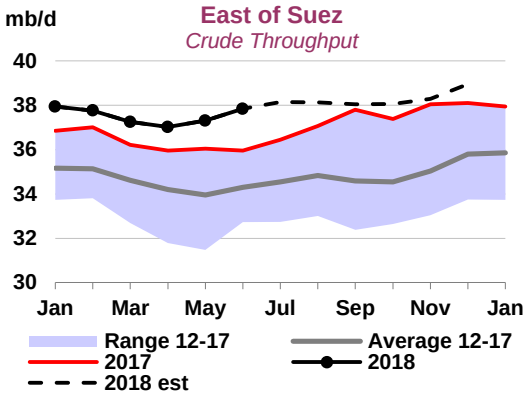
REFINING

Summary

Hurricanes and typhoons in the Gulf of Mexico and North Asia as well as an earthquake in Japan have so far inflicted minimal damage to refineries and have had a very limited impact on operations. Industrial accidents, on the other hand, have caused more serious outages, with major fires disrupting operations at German and Brazilian refineries. Planned seasonal maintenance is also weighing heavily on global refinery throughput. From August's record rate of 83.5 mb/d, runs decline by 1.8 mb/d in September - October before surging 2.8 mb/d in December to another record high of 84.5 mb/d.







East of Suez accounted for essentially all of the global growth in refinery runs in the first eight months of 2018, while Atlantic Basin throughput declined by 0.3 mb/d on average. In the last four months of the year, though, the growth is divided more equally, with each contributing about 0.5 mb/d. In the West, the US drives the growth with its record run rates. In the East, Indian and the Middle Eastern refineries lead the way.

Global Refinery Crude Throughput[1]

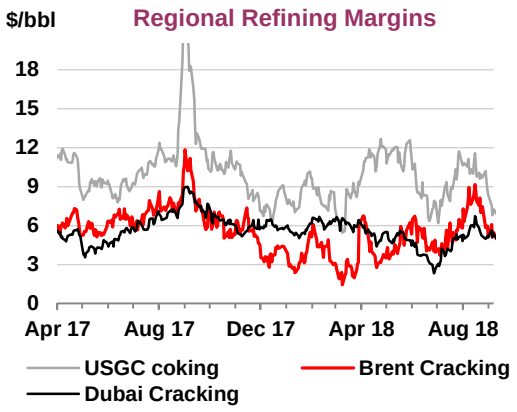
(million barrels per day)

	1Q18	2Q18	Jul 18	Aug 18	Sep 18	3Q18	Oct 18	Nov 18	Dec 18	4Q18	2018
Americas	**18.9**	**19.4**	20.0	20.4	19.4	**19.9**	18.9	19.7	20.1	**19.6**	**19.5**
Europe	**11.9**	**11.7**	12.4	12.5	12.1	**12.4**	12.2	12.6	12.6	**12.5**	**12.1**
Asia Oceania	**7.2**	**6.6**	7.0	7.0	6.8	**6.9**	6.8	7.2	7.4	**7.1**	**7.0**
Total OECD	**38.0**	**37.8**	39.4	39.9	38.3	**39.2**	37.8	39.5	40.1	**39.1**	**38.5**
FSU	**7.0**	**6.9**	7.2	6.9	6.7	**6.9**	6.8	7.0	7.0	**6.9**	**6.9**
Non-OECD Europe	**0.5**	**0.5**	0.6	0.6	0.6	**0.6**	0.6	0.6	0.6	**0.6**	**0.6**
China	**11.9**	**12.1**	11.9	11.9	12.1	**12.0**	12.0	12.0	12.0	**12.0**	**12.0**
Other Asia	**10.7**	**10.5**	10.8	10.8	10.6	**10.7**	10.8	10.6	10.9	**10.8**	**10.7**
Latin America	**3.6**	**3.7**	3.6	3.6	3.5	**3.6**	3.7	3.7	3.6	**3.7**	**3.6**
Middle East	**7.3**	**7.6**	7.8	7.9	7.9	**7.9**	7.8	7.9	8.1	**7.9**	**7.7**
Africa	**2.0**	**2.0**	2.0	2.1	2.0	**2.0**	2.1	2.0	2.2	**2.1**	**2.0**
Total Non-OECD	**43.0**	**43.3**	43.9	43.6	43.4	**43.6**	43.9	43.8	44.3	**44.0**	**43.5**
Total	**81.0**	**81.1**	83.3	83.5	81.8	**82.8**	81.7	83.3	84.5	**83.1**	**82.0**
Year-on-year change	*0.9*	*0.6*	*1.5*	*1.2*	*1.1*	*1.2*	*1.1*	*0.7*	*1.1*	*1.0*	***0.9***

[1] Preliminary and estimated runs based on capacity, know n outages, economic runcuts and global demand forecast

Margins

With global refinery throughput in 3Q18 estimated to be 1.7 mb/d higher than in 2Q18, refined products markets have been better supplied. We expect there to be a small, 0.2 mb/d refined product stockbuild in 3Q18 following a 0.6 mb/d draw in 2Q18. Nevertheless, margins have been generally higher so far in 3Q18, with August seeing even more pronounced month-on-month (m-o-m) gains than July. Volatile crude prices in August eventually resulted in a lower monthly average feedstock cost to refiners. On the other hand, product prices were supported by localised shortages. Gasoline and diesel cracks were higher in Europe and Singapore. In the US Gulf Coast, however, slightly higher diesel cracks could not offset a fall in gasoline cracks, resulting in lower margins. Only heavy sour margins registered a gain, helped by deeper discounts.



IEA/KBC Global Indicator Refining Margins[1]

($/bbl)

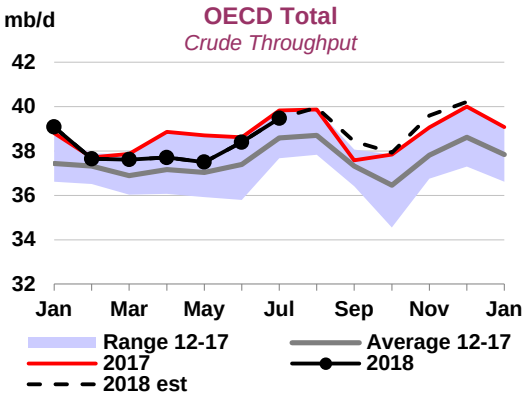
	Monthly Average				Change	Average for week ending:				
	May 18	Jun 18	Jul 18	Aug 18	Aug 18-Jul 18	10 Aug	17 Aug	24 Aug	31 Aug	07 Sep
NW Europe										
Brent (Cracking)	4.65	5.05	5.06	7.39	2.33	7.99	8.46	7.43	5.74	5.56
Urals (Cracking)	5.77	6.01	6.53	7.67	1.14	8.68	8.89	7.41	5.41	5.06
Brent (Hydroskimming)	-0.31	0.82	1.02	2.71	1.69	3.51	3.79	2.56	1.00	0.57
Urals (Hydroskimming)	0.29	1.21	2.09	2.53	0.43	3.76	3.79	2.04	0.14	-0.47
Mediterranean										
Es Sider (Cracking)	6.85	7.54	7.69	9.89	2.19	10.78	10.89	9.65	8.35	7.68
Urals (Cracking)	6.44	5.97	6.86	8.67	1.81	9.70	9.85	8.39	6.74	6.09
Es Sider (Hydroskimming)	2.22	3.69	3.98	5.70	1.71	6.73	6.70	5.35	3.94	2.98
Urals (Hydroskimming)	0.44	0.85	2.09	3.31	1.21	4.52	4.54	2.87	1.06	0.08
US Gulf Coast										
50/50 HLS/LLS (Cracking)	10.44	8.29	11.34	10.45	-0.89	11.19	10.41	10.02	9.15	7.15
Mars (Cracking)	5.62	4.32	7.24	5.43	-1.81	6.21	5.63	4.80	4.12	2.33
ASCI (Cracking)	5.22	3.98	6.91	5.13	-1.78	5.89	5.22	4.54	3.99	2.15
50/50 HLS/LLS (Coking)	12.46	10.03	12.62	12.00	-0.63	12.69	11.99	11.63	10.66	8.91
50/50 Maya/Mars (Coking)	11.48	8.25	9.11	10.16	1.05	10.51	10.62	9.80	9.14	7.17
ASCI (Coking)	10.58	8.44	10.67	10.04	-0.63	10.72	10.27	9.54	8.86	7.20
US Midcon										
WTI (Cracking)	17.65	16.53	14.49	16.73	2.24	17.03	16.76	16.21	16.73	16.84
30/70 WCS/Bakken (Cracking)	18.69	17.46	19.28	22.11	2.83	21.74	22.23	22.44	21.79	21.04
Bakken (Cracking)	20.46	16.30	17.62	20.27	2.65	19.38	20.37	21.16	20.54	19.63
WTI (Coking)	19.96	18.58	16.11	18.62	2.51	18.92	18.65	18.11	18.60	19.03
30/70 WCS/Bakken (Coking)	22.15	20.44	21.87	25.44	3.57	25.08	25.64	25.75	25.09	24.55
Bakken (Coking)	21.34	17.06	18.15	20.93	2.78	20.04	21.03	21.83	21.17	20.43
Singapore										
Dubai (Hydroskimming)	0.21	-0.28	1.05	1.55	0.51	1.83	2.16	1.22	0.53	0.37
Tapis (Hydroskimming)	1.11	1.84	2.23	3.99	1.76	4.72	5.62	3.80	2.27	2.89
Dubai (Hydrocracking)	5.09	3.53	4.25	5.55	1.30	5.49	6.28	5.45	5.09	5.40
Tapis (Hydrocracking)	4.78	4.66	4.78	7.11	2.33	7.60	8.86	7.06	5.76	6.78

1 Global Indicator Refining Margins are calculated for various complexity configurations, each optimised for processing the specific crude(s) in a specific refining centre. Margins include energy cost, but exclude other variable costs, depreciation and amortisation. Consequently, reported margins should be taken as an indication, or proxy, of changes in profitability for a given refining centre. No attempt is made to model or otherwise comment upon the relative economics of specific refineries running individual crude slates and producing custom product sales, nor are these calculations intended to infer the marginal values of crude for pricing purposes.

Source: IEA, KBC Advanced Technologies (KBC)

OECD refinery throughput

After year-on-year (y-o-y) declines of over 1 mb/d observed in April-May, throughput stabilised somewhat in June and July, with the y-o-y deficit narrowing to about 0.3 mb/d. OECD refining intake in August is estimated to be at the highest level since December 2007, just shy of 40 mb/d. In December, runs are expected to move above 40 mb/d, with the US seeing seasonal highs and with new refineries ramping up in Canada and Turkey. Refining throughputs in OECD Europe as a whole, as well as in OECD Asia, will largely stay flat y-o-y in 4Q18.



Refinery Crude Throughput and Utilisation in OECD Countries

(million barrels per day)

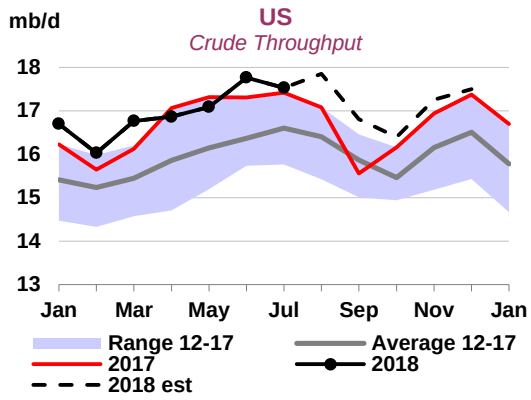
	Feb 18	Mar 18	Apr 18	May 18	Jun 18	Jul 18	Change from *Jun 18*	Change from *Jul 17*	Utilisation rate[1] Jul 18	Utilisation rate[1] Jul 17
US[2]	15.93	16.67	16.77	16.99	17.67	17.43	-0.24	0.11	92%	92%
Canada	1.77	1.74	1.22	1.33	1.55	1.75	0.20	-0.10	87%	95%
Chile	0.20	0.20	0.20	0.16	0.18	0.18	0.00	0.00	80%	80%
Mexico	0.52	0.63	0.76	0.69	0.65	0.64	-0.02	-0.03	38%	40%
OECD Americas[3]	**18.42**	**19.23**	**18.94**	**19.18**	**20.05**	**19.99**	**-0.06**	**-0.02**	**87%**	**88%**
France	1.17	1.03	0.99	0.78	1.04	1.18	0.14	-0.01	95%	96%
Germany	1.93	1.79	1.83	1.83	1.93	1.90	-0.04	0.01	94%	93%
Italy	1.34	1.35	1.38	1.34	1.28	1.33	0.04	-0.15	77%	85%
Netherlands	1.18	1.05	1.12	1.09	1.07	1.11	0.04	0.00	86%	86%
Spain	1.28	1.32	1.38	1.35	1.21	1.30	0.09	-0.09	92%	99%
United Kingdom	0.82	0.93	1.07	0.98	1.07	1.09	0.02	0.00	86%	86%
Other OECD Europe	4.20	3.94	4.00	4.17	4.27	4.51	0.24	0.07	93%	92%
OECD Europe	**11.92**	**11.42**	**11.78**	**11.53**	**11.88**	**12.41**	**0.53**	**-0.18**	**90%**	**91%**
Japan	3.25	3.27	3.16	2.83	2.53	2.97	0.44	-0.18	84%	89%
South Korea	3.12	2.74	2.93	3.13	3.03	3.15	0.12	0.05	100%	98%
Other Asia Oceania	0.84	0.85	0.79	0.73	0.81	0.85	0.04	-0.03	98%	101%
OECD Asia Oceania	**7.21**	**6.87**	**6.89**	**6.69**	**6.37**	**6.97**	**0.61**	**-0.16**	**92%**	**94%**
OECD Total	**37.55**	**37.51**	**37.61**	**37.40**	**38.30**	**39.38**	**1.08**	**-0.36**	**89%**	**90%**

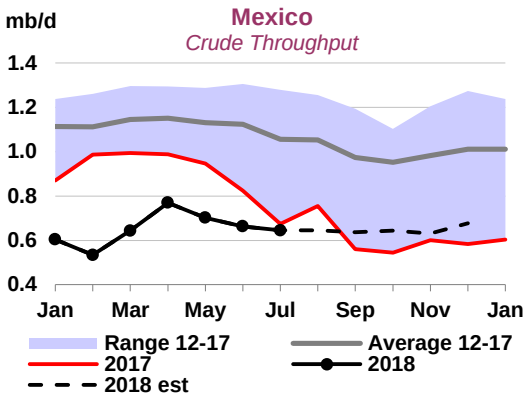
[1] Expressed as a percentage, based on crude throughput and current operable refining capacity

[2] US50

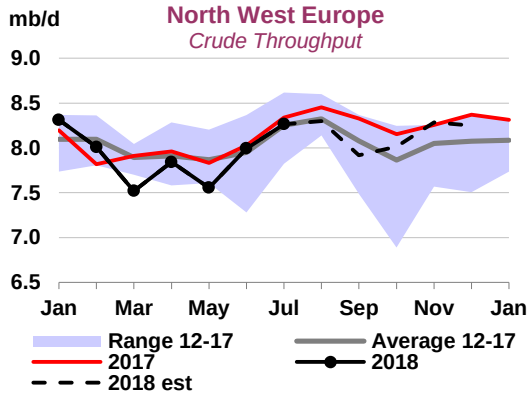
[3] OECD Americas includes Chile and OECD Asia Oceania includes Israel. OECD Europe includes Slovenia and Estonia, though neither country has a refinery

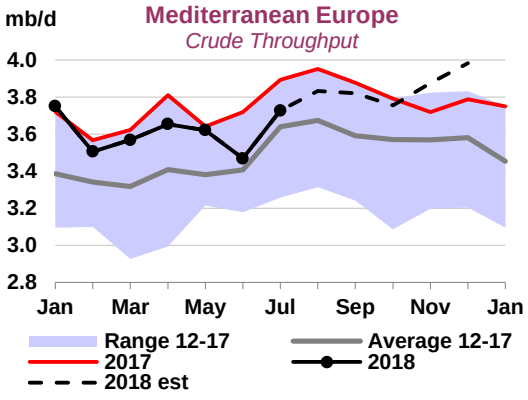
In August, **US** refiners reached a new weekly record of almost 18 mb/d, with the monthly average number also marking a new high at 17.75 mb/d. PADDs 3 and 2 (US Gulf Coast and Midcontinent) saw extremely high weekly utilisation rates of 99.7% and 100%, respectively. Since 2013, these two regions combined have refined more oil than OECD Europe or China, while earning significantly higher margins thanks to discounted Canadian and US grades. Continued underperformance in **Mexico** is yet another reason for the strong runs at US Gulf Coast refineries, offering a large and eager market within easy reach. Mexico's throughput declined yet again in July, to just 635 kb/d, prompting an 80 kb/d downward revision of our 4Q18 forecast. Technical issues at the Mexican refineries are deeply entrenched and would require years of serious investments. The incoming administration has announced ambitious plans for the sector, but financing is yet to be secured.



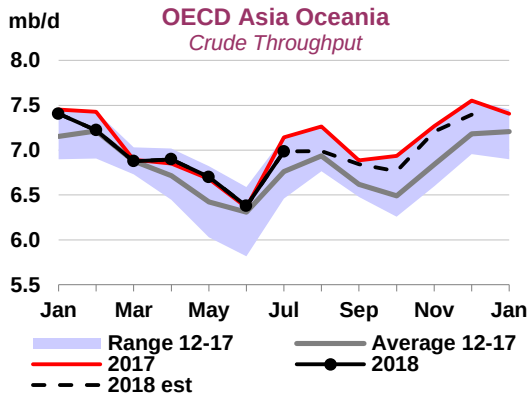


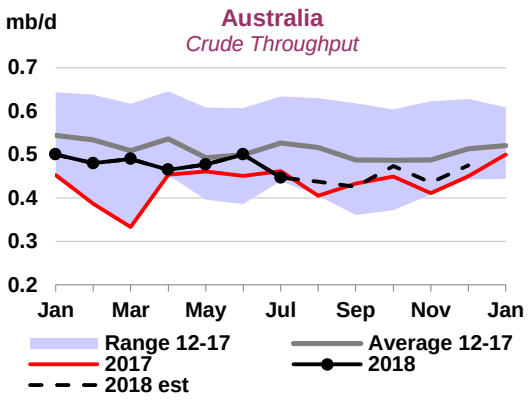
OECD Europe runs climbed some 0.5 mb/d m-o-m in July, but stayed 0.2 mb/d lower y-o-y. North West Europe throughput was almost flat y-o-y in June-July, but planned and unplanned outages cause a 0.4 mb/d decline in September, partly due to a major fire disruption at Germany's Bayernoil refinery, which took a 120 kb/d unit offline. The Mediterranean region was underperforming markedly due to declines in **Spain** and **Italy**, while preliminary **Turkey** data for July confirmed a strong rebound to 580 kb/d after prolonged maintenance at the Izmir refinery. The new 200 kb/d STAR refinery is set to receive its first feedstock in October and ramp up in 4Q18. Crude is reportedly being sourced from Saudi Arabia and Russia, whereas Iranian oil has traditionally accounted for the bulk of Turkish refining intake.





Runs in OECD Asia rebounded by 600 kb/d in July, but are expected to decline in September-October on maintenance and also typhoon- and earthquake-caused shutdowns in Japan. **Australia**, where throughput had declined by a total of 200 kb/d since 2012, has seen a y-o-y growth in refining levels. **Korean** refinery intake is expected to match **Japan's** levels for the first time this year (see *Good chemistry: Korea's refining supported by petrochemicals*).

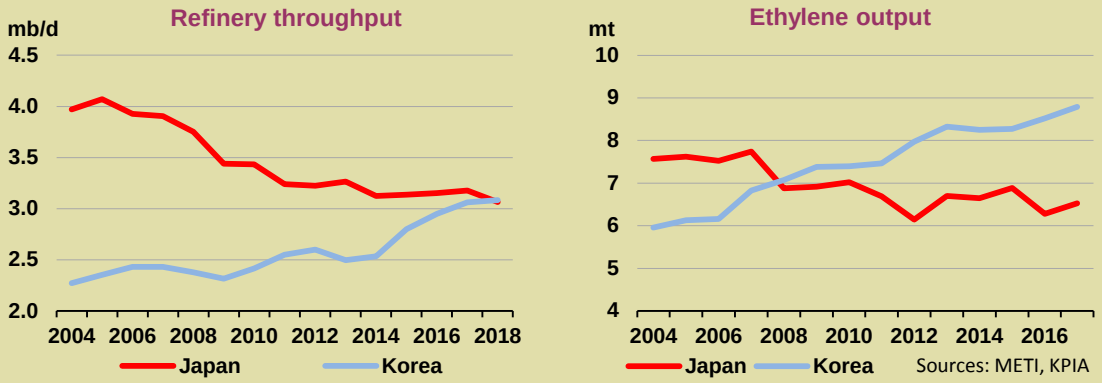




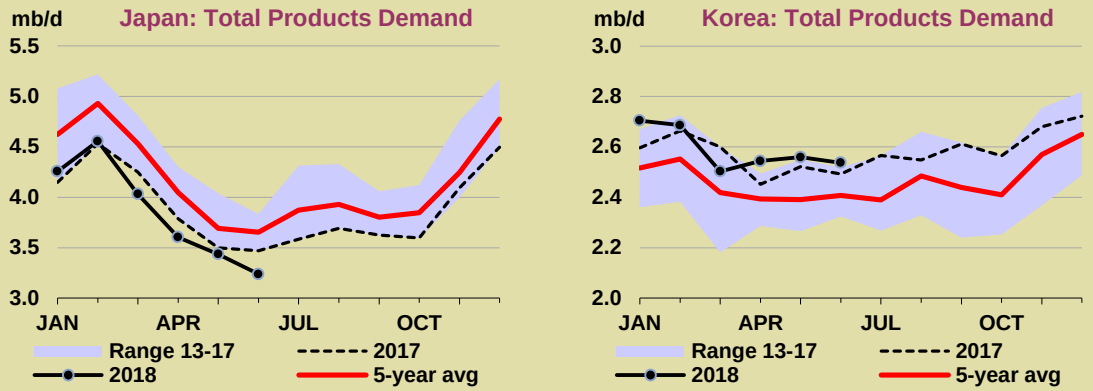
Good chemistry: Korea's refining supported by petrochemicals

Japan and Korea have interesting similarities and differences in the organisation of their oil industry. Both are fully dependent on imported crude oil, and are the world's two largest importers of naphtha, to the tune of 500 kb/d each. They also import significant volumes of LPG, for use in the petrochemical industry and as fuel for heating in Japan and for road transport in Korea.

However, the similarities end there. Japan has shut 1.3 mb/d, or a third, of its refining capacity in the last decade, reducing throughput by 700 kb/d as demand has declined by nearly 1 mb/d. By contrast, Korea has expanded its capacity and throughput by a third, some 600 kb/d. As most of Korea's expansion has come from condensate splitters, which have higher naphtha yields, naphtha output has increased more than the combined output of gasoline, diesel and kerosene. Naphtha is the most important petrochemical feedstock, used to derive the so-called high value chemicals, which serve as building blocks for numerous petrochemical products. Incremental naphtha volumes have been absorbed by Korea's booming petrochemical industry, fuelled by demand from the local manufacturing sector and China's import requirements. Output of ethylene, for example, has increased by half since 2004.



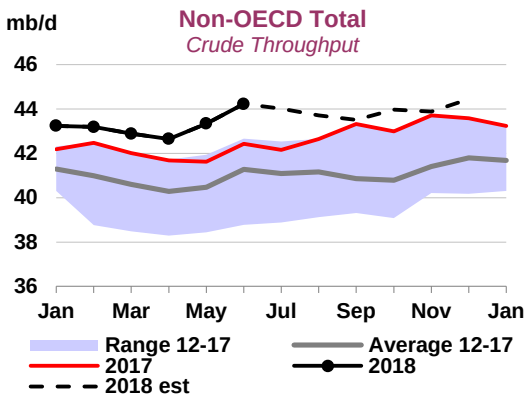
Korean refiners have not only capitalised on petrochemical product exports into China, but also expanded transport fuel sales to growing Asian economies with insufficient refining capacity. Moreover, the country also regularly exports diesel as far as Australia and Europe, both of which have also shut down refining capacity over the last decade. Japanese refiners, meanwhile, are not only geographically more disadvantaged than their Korean counterparts, in terms of expanding fuel exports, but also suffer from an extreme seasonality of domestic demand due to the high share of oil products in heating fuels. In the summer months demand contracts by about 800 kb/d relative to winter (equivalent to 20% of refining capacity), while in Korea the seasonal gap is only 100 kb/d. A stable level of demand, helped in part by the absence of seasonality in the petrochemical sector, helps Korean refiners enjoy relatively steady margins year-round, without having to lower refining activity in the summer months.

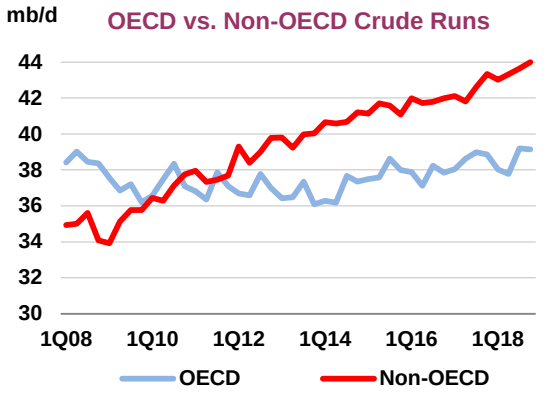


Given the increasingly important role of the petrochemical sector in global oil demand growth, the IEA has prepared a special report on the petrochemicals industry, examining the current state and future developments under two scenarios: a Reference Technology Scenario and the Clean Technology Scenario, which follows pathways consistent with the UN Sustainable Development Goals. *"The Future of Petrochemicals"* report will be available for free download at webstore.iea.org from 5 October.

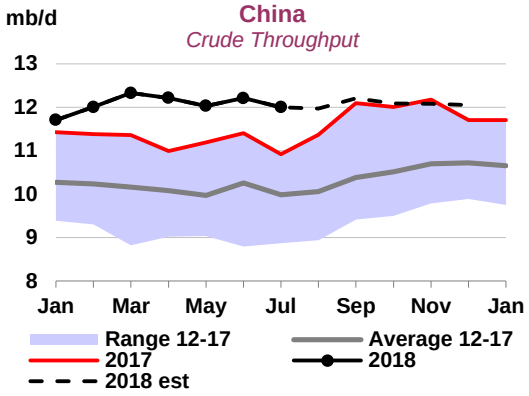
Non-OECD refinery throughput

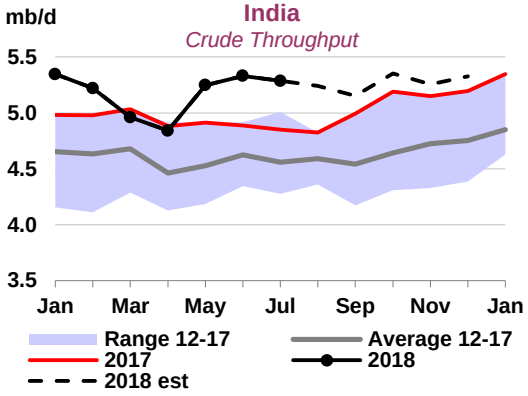
Our assessment of non-OECD historical crude throughput has again been revised upward, this time by about 100 kb/d, due to changes to South African data. The country stopped reporting refinery intake data to JODI in April 2017, and we have researched the corporate reports of the companies that own South Africa's four refineries. Overall, non-OECD throughput is expected to reach 43.5 mb/d in 2018, 5 mb/d above the OECD's level. This means that in the last decade all the increase in global refinery runs has come from non-OECD countries.





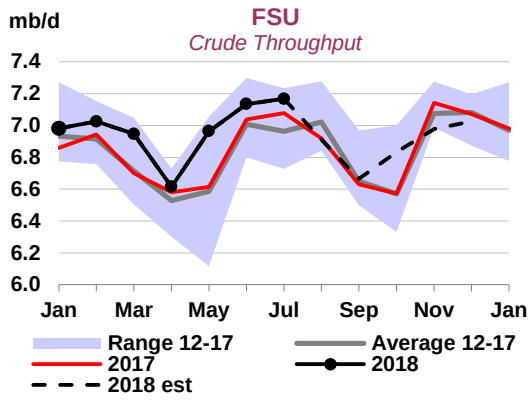
China's reported crude throughput in July was at our forecast level of 11.9 mb/d, some 0.2 mb/d down m-o-m. Our 4Q18 forecast is revised up by 50 kb/d on the expectation of a restart of a condensate splitter that was shut down as a result of an accident in 2015. Two major refineries being built by independents Hengli and Rongsheng Petrochemicals are not expected to start commercial operations this year, although test runs are scheduled for Hengli's Dalian complex. Hengli Group has also been mentioned as a potential bidder for the stake held by financially troubled CEFC China in one of Abu Dhabi's oil fields, emphasising the company's impressive diversification from its core business of textile fabric manufacturing.

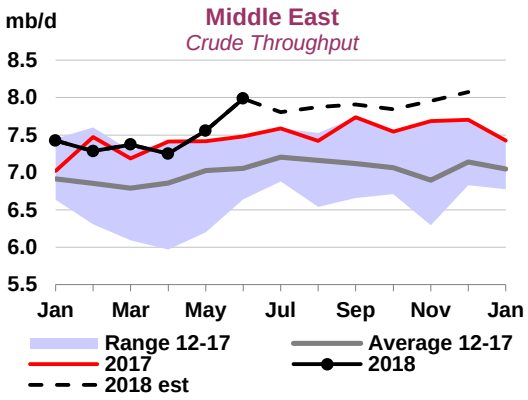




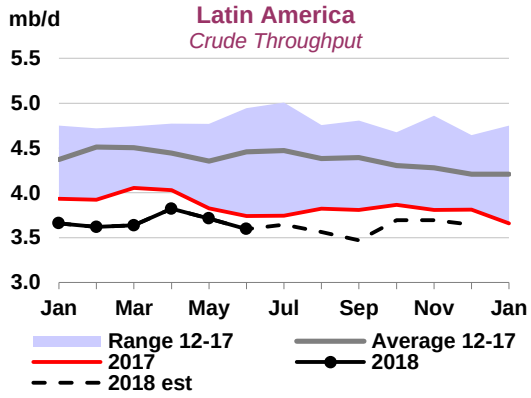
In **India**, July throughput was down a small 40 kb/d from June levels, but up 440 kb/d y-o-y. The annual increase is expected to moderate in 4Q18, with runs at close to 5.3 mb/d throughout. The strong growth rate this year has coincided with both higher crude prices and deteriorating terms of trade, but the government has not yet reintroduced subsidies for transport fuels, helping support refining margins.

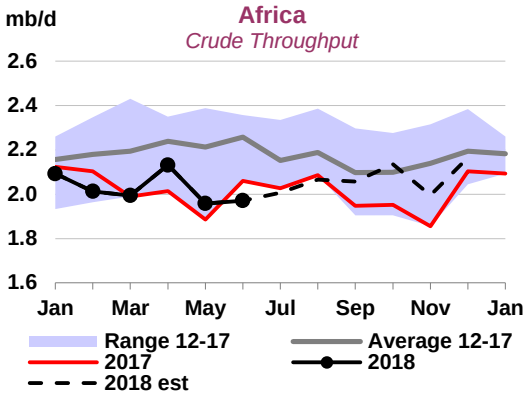
Russian throughput growth in the first half of 2018 has been strong and it is expected that the year as a whole will see the first annual increase in throughput since 2014. Runs in July were 170 kb/d higher than last year and were close to previous summer peaks at 5.9 mb/d. **Kazakhstan** too is expected to see higher runs this year, after completing upgrades at its three refineries.





Middle East refining throughput is estimated to have reached a record 8 mb/d level in June, up some 400 kb/d m-o-m, with higher **Saudi** and **Iraqi** throughput. Iraqi throughput has been on an upward trend this year, as the government has initiated refinery rehabilitation programmes. A 70 kb/d unit at the war-damaged Baiji refinery was reported back online last month. 3Q18 runs in the region are estimated to have slowed down from June's highs, before peaking in December at above 8 mb/d for the first time.





Latin America is the region where the news is regularly negative. **Venezuela's** refineries are reportedly all but idle (we estimate current throughput at only 260 kb/d), and **Curacao's** shutdown is collateral damage. Two other countries in the Caribbean have announced plans to close their sole refineries. In **Jamaica**, the arrival of imported LNG in the power generation sector threatens fuel oil's share of the market and this is forcing the closure of the island's unsophisticated 35 kb/d refinery. **Trinidad and Tobago's** 165 kb/d refinery has become a burden for its operator due to low local demand and tough competition in regional markets from US Gulf Coast exports. On the positive side, we have revised upward the estimate for **Colombian** throughput in 1Q18 by 65 kb/d to 360 kb/d based on Ecopetrol's financial report. **Brazil's** small uptick in July brought throughput to the highest level since October 2016, but a major fire in August at the Replan refinery is a setback, with August and September runs revised 80 kb/d lower.

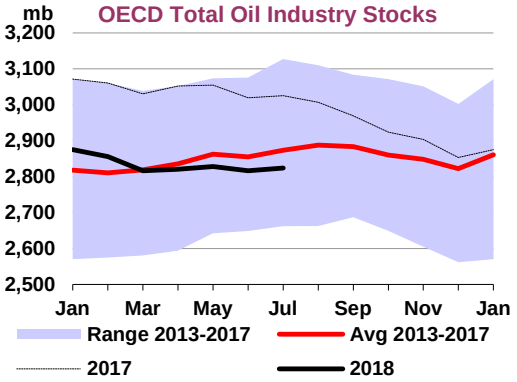
Only three African countries regularly report throughput data to JODI, accounting for about third of the continent's total estimated runs. The June estimate for runs marked the lowest seasonal level in the last few years, despite a 100 kb/d upward revision to the region's throughput. We have changed our method of estimation for the missing numbers of **South Africa's** refining throughput. The continent is expected to see a small growth in 2018 helped by slightly higher runs in **Algeria** and **Egypt**.

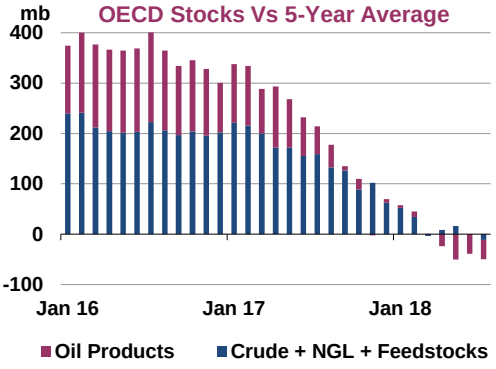
STOCKS

Summary

OECD commercial stocks rose 7.9 mb month-on-month (m-o-m) in July to 2 824 mb, only the fourth monthly increase in the last year. The rise was less than half the typical level, and stocks declined to a 50 mb deficit against the five-year average. Stocks increased in the Americas and Europe, but fell modestly in Asia Oceania. Higher refining activity pressured crude stocks lower, while oil product inventories increased seasonally. Middle distillate inventories increased 13.8 mb m-o-m in July to 528 mb, the second monthly increase in a row. However, stocks of the product remained well below the five-year average. Fuel oil stocks fell 2 mb m-o-m to 115 mb, close to their lowest level in several years. 'Other product' inventories increased seasonally by 14.6 mb to reach 403 mb at end-month.

Overall, total oil stocks in the OECD have remained stable in a very narrow range of 2 816 to 2 828 mb since March. While it took only three to four months at the end of 2017 for stocks to fall from 3 000 mb to below 2 900 mb, the 2 800 mb mark is proving much harder to breach. OECD holdings have not been below 2 800 mb since the beginning of 2015.





For August, preliminary data showed significant stock builds in the US (+18.2 mb) and Japan (+16.5 mb), all but ensuring another monthly increase in OECD stocks. In both countries, the increase was sharper than implied by seasonal trends. Higher US stocks were driven by robust refinery runs which swelled inventories of diesel by 7.9 mb, propane by 7.1 mb and gasoline by 2 mb. US crude stocks fell 6.5 mb m-o-m, but higher domestic production limited the decrease. In Japan, stock builds were shared more equally between crude (+6.3 mb) and oil products (+10.2 mb) and linked to increased crude imports, on the one hand, and steady refinery activity, on the other. By contrast, preliminary data for Europe showed oil stocks declining 7.9 mb m-o-m as refiners drew down crude inventories.

Preliminary Industry Stock Change in July 2018 and Second Quarter 2018

	July 2018 (preliminary) *(million barrels)*				July 2018 (preliminary) *(million barrels per day)*				Second Quarter 2018 *(million barrels per day)*			
	Am	Europe	As. Ocean	Total	Am	Europe	As. Ocean	Total	Am	Europe	As. Ocean	Total
Crude Oil	**-6.3**	**1.7**	**-10.4**	**-15.0**	**-0.20**	**0.06**	**-0.33**	**-0.48**	**-0.14**	**0.12**	**0.01**	**-0.01**
Gasoline	-4.1	-0.3	0.3	-4.1	-0.13	-0.01	0.01	-0.13	-0.07	-0.14	0.00	-0.21
Middle Distillates	5.1	4.0	4.7	13.8	0.17	0.13	0.15	0.45	-0.15	-0.12	0.04	-0.24
Residual Fuel Oil	-0.3	-1.0	-0.7	-2.0	-0.01	-0.03	-0.02	-0.07	-0.06	-0.01	0.03	-0.04
Other Products	13.9	-1.0	1.8	14.6	0.45	-0.03	0.06	0.47	0.34	0.00	-0.03	0.31
Total Products	**14.6**	**1.6**	**6.1**	**22.3**	**0.47**	**0.05**	**0.20**	**0.72**	**0.06**	**-0.28**	**0.04**	**-0.18**
Other Oils[1]	-1.6	0.1	2.0	0.5	-0.05	0.00	0.06	0.02	0.10	0.03	0.06	0.19
Total Oil	**6.6**	**3.5**	**-2.3**	**7.9**	**0.21**	**0.11**	**-0.07**	**0.25**	**0.02**	**-0.14**	**0.11**	**0.00**

1 Other oils includes NGLs, feedstocks and other hydrocarbons.

Revised data showed decreases versus preliminary numbers. May OECD stocks were revised down by 1.8 mb and June holdings by 6.5 mb, with downward adjustments in the Americas and Asia Oceania.

Revisions versus August 2018 Oil Market Report

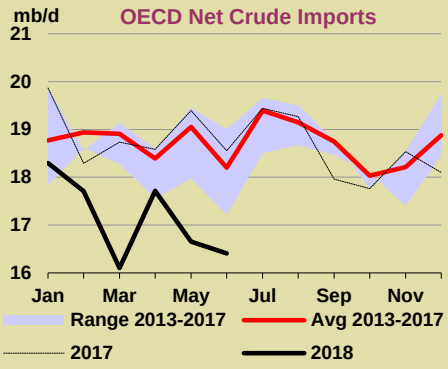
(million barrels)

	Americas		*Europe*		*Asia Oceania*		*OECD*	
	May-18	Jun-18	May-18	Jun-18	May-18	Jun-18	May-18	Jun-18
Crude Oil	**-4.9**	**-3.6**	**3.4**	**-1.0**	**-0.7**	**-1.0**	**-2.3**	**-5.6**
Gasoline	0.0	-2.3	0.2	-0.4	0.1	-0.4	0.2	-3.1
Middle Distillates	-0.2	4.7	-0.4	-3.7	0.0	0.2	-0.6	1.3
Residual Fuel Oil	0.0	1.5	-0.1	-0.1	0.0	1.0	-0.1	2.4
Other Products	0.2	-7.6	0.3	5.6	0.3	-2.9	0.8	-4.8
Total Products	**0.0**	**-3.8**	**0.0**	**1.5**	**0.3**	**-2.0**	**0.4**	**-4.2**
Other Oils[1]	0.1	4.6	0.0	-1.4	0.0	0.2	0.1	3.3
Total Oil	**-4.8**	**-2.8**	**3.4**	**-1.0**	**-0.3**	**-2.7**	**-1.8**	**-6.5**

1 Other oils includes NGLs, feedstocks and other hydrocarbons.

OECD external crude reliance lowest in 27 years

The OECD's reliance on crude from outside the bloc has fallen to its lowest level since 1991 in a boost to energy security. OECD net crude imports – total imports minus exports, excluding flows between OECD countries – amounted to 17.4 mb/d in the first half of 2018, down 1.8 mb/d on 1H17, IEA data showed.



The slowdown in 1H18 can be attributed to higher production in the US and Canada and reduced oil demand growth in the OECD amid higher oil prices as well as structural and demographic changes. Outright crude imports averaged 26.6 mb/d during 1H18, of which 18.8 mb/d (or 71%) came from outside the OECD. Major crude exporters to OECD nations include Russia as well as OPEC members Saudi Arabia, Iraq and Nigeria. While the OECD's reliance on external crude supplies remains high, it has fallen from 77% in the first half of 2013.

OECD crude exports, meanwhile, have risen above the 8 mb/d mark this year, helped by record high volumes from the US linked to rising output in the Permian Basin. The vast majority of OECD exports supply OECD nations, but on average 1.4 mb/d went outside the bloc during 1H18, the highest since 1992, when North Sea crude production was much higher than it is today. Crude exports from the OECD remain dwarfed by its imports, which are more than three times as large, but they have been a visible part of the OECD's reduced reliance on other nations.

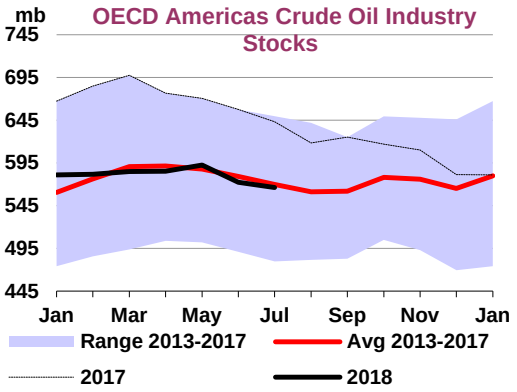
Recent OECD industry stock changes

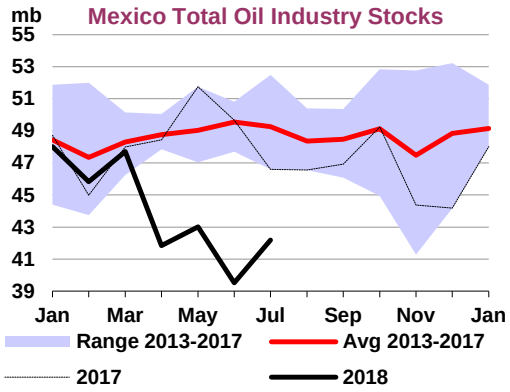
OECD Americas

Commercial stocks in the OECD Americas rose 6.6 mb in July to reach 1 477 mb at end-month. As in June, crude stocks fell and oil product inventories increased because of higher refinery utilisation. Crude inventories decreased 6.3 mb m-o-m to 566 mb and were at their lowest level since January 2015. US crude exports fell 60 kb/d m-o-m from June's record high of 2.2 mb/d, data from the US Census Bureau showed, while imports also declined on the month. The region's crude stocks have followed a downward trend over the last few months on steady refinery runs and exports, despite higher US LTO production.

Oil product holdings increased by 14.6 mb to 723 mb, helped by a stronger-than-seasonal build in 'other products' of 13.9 mb. 'Other product' stocks in the region stood at 229 mb at the end of the month, above the five-year average. Oil products behaved seasonally: gasoline stocks fell 4.1 mb due to higher demand from North American drivers and middle distillates increased 5.1 mb to 197 mb, marking a recovery from the very low levels reached in May. Mexico's oil stocks stood at 42 mb at end-July, up from June's 12-year low of 39 mb. High gasoline consumption and low refinery throughput have pressured stockpiles in the last year.

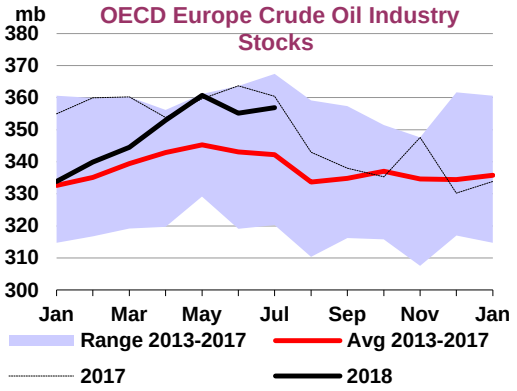
Preliminary data from the US Energy Information Administration for August shows a significant build in total oil stocks of 18.2 mb, much higher than the five-year average. For the third month, refiners ran at near full capacity, contributing to large builds in oil products and a draw in crude. Gasoline stocks increased counter-seasonally by 2 mb and diesel holdings were up a significant 7.9 mb with lower exports and higher refinery output. Moreover, propane stocks continued to build ahead of the winter season, by 7.1 mb. Crude stocks were one of the few categories to show a decrease, of 6.5 mb m-o-m. Crude exports fell by 300 kb/d and imports were down 60 kb/d m-o-m. Crude stocks in the storage hub of Cushing, Oklahoma, rose 2.8 mb from July's near four-year low, to reach 25 mb.

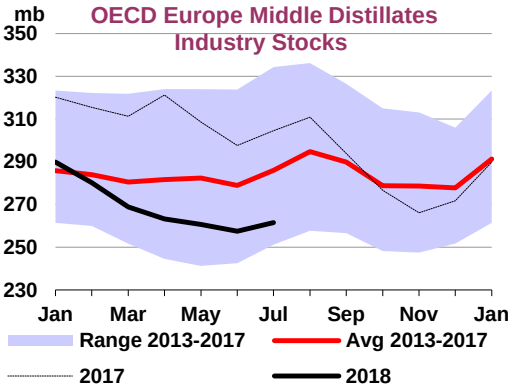




OECD Europe

Commercial holdings in OECD Europe increased seasonally in July, by 3.5 mb to 961 mb. Crude stocks gained 1.7 mb to 356 mb on higher imports and despite increased utilisation at refineries. Crude holdings are well above their five-year average following gains in the first half of 2018 linked to reduced refinery throughput. In July, stocks of oil products increased by a modest 1.6 mb to 522 mb, as higher stockpiles of middle distillates (+4 mb) more than offset losses in gasoline (-0.3 mb), fuel oil (-1 mb) and other products (-1 mb). Middle distillate inventories remain below the five-year average after falling sharply earlier in the year.

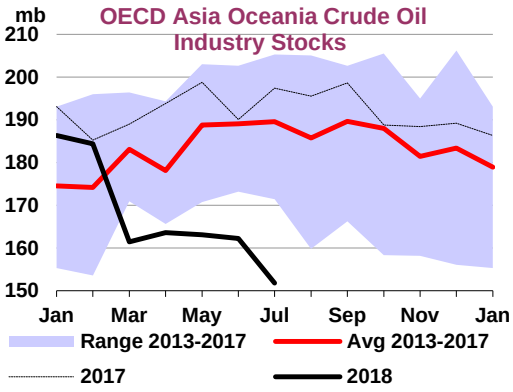


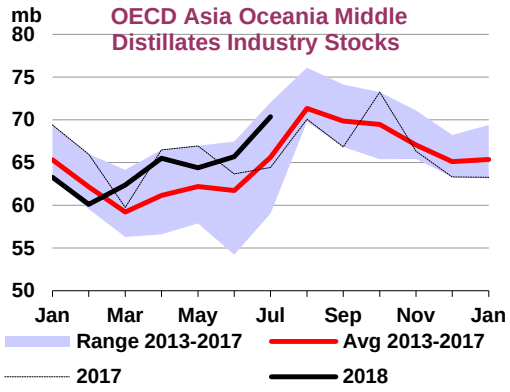


Preliminary data from *Euroilstock* for August showed European oil stocks falling, largely because of crude (-9.1 mb). Oil refineries increased runs during the month by 120 kb/d to 12.5 mb/d. Gasoline (+1 mb) and middle distillate inventories (+1.1 mb) increased, whereas fuel oil (-0.5 mb) and naphtha stocks (-0.4 mb) declined. The volume of oil products in independent storage in Northwest Europe also fell to below year-ago levels, helped by fuel oil exports to Asia.

OECD Asia Oceania

Commercial stocks in OECD Asia Oceania decreased counter-seasonally in July, by 2.3 mb to 386 mb, aided by a significant drop in crude. Crude holdings fell 10.4 mb to 151 mb, thus continuing the downtrend started in March and reaching their lowest level since IEA records began in 1980. The reduction seen in the last few months has not been driven by changes in refining throughput or trade movements, but rather by the expiration of stockpile agreements in Korea. Earlier in the year, a joint stockpiling contract between Korea and some oil producing countries ended. Oil product stocks, by contrast, increased seasonally in July by 6.1 mb to 171 mb. There were gains in middle distillates (+4.7 mb) and other products (+1.8 mb) ahead of the winter season.





Preliminary data from the *Petroleum Association of Japan* (PAJ) for August showed total oil stocks rising sizeably, by 16.5 mb m-o-m. There were large gains in crude (+6.3 mb) prompted by an increase in imports, while higher refining throughput pushed oil product inventories up 10.2 mb. Crude imports averaged 3.5 mb/d during August, the highest level since April 2017, according to *Kpler*. Japan's gasoline inventories recovered 0.5 mb m-o-m after falling in July to their lowest in several years.

Other stock developments

Stockpiles in the 22 non-OECD countries covered by the JODI database fell 8.2 mb m-o-m during June, the latest month for which data is available. Crude stocks were down 3.3 mb with falls registered in Iraq, Nigeria, Brazil, Romania, Saudi Arabia and Ecuador. In addition, oil product inventories decreased 4.6 mb. For 2Q18 as a whole, the JODI database shows a modest build of 4.1 mb in total oil stocks. This is comparable to the OECD where commercial oil stocks moved little during 2Q18.

Short-term crude floating storage hit a near ten-year low of 6.4 mb in August, thanks to reduced volumes in the Middle East and Asia Pacific, according to *EA Gibson*. Northwest Europe was the only region to show a rise during the month (+3.8 mb) as some North Sea crude cargoes went unsold. Figures available from *Kpler* showed a similar fall of 9.2 mb m-o-m to 27 mb. *Kpler* data also showed crude on water (including floating storage) volumes rising 1.8 mb m-o-m to 976 mb.

For the third month in a row, there are no available figures for Chinese stocks from *China Oil, Gas and Petrochemicals*. It is unclear why this data is no longer published. Customs data for July and August showed crude imports of 8.4 mb/d and 9 mb/d, respectively, marking a rise from the low June levels. However, this remains lower than the import levels reached in some months in 1H18. Together with the figures released for refinery runs, crude production and exports, this implies overall stock builds (commercial plus strategic) for July and August. By contrast, satellite figures available from *Kayrros* for 36 locations showed a decrease of around 12 mb in July and a modest build of 4 mb for August.

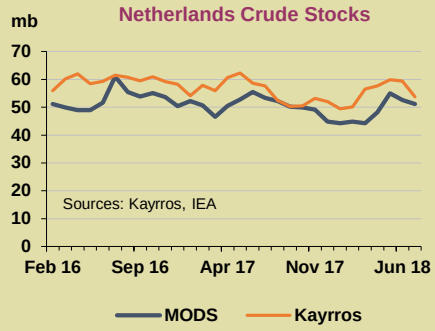
Oil stocks in Fujairah fell 1.7 mb during August to 17 mb, thus reaching their lowest level since March. Stocks of fuel oil and heavy distillates, which decreased 2.9 mb m-o-m to 7 mb, were largely responsible

for the fall, suggesting strong demand for bunkers in the Middle East and Asia Pacific regions. Inventories of fuel oil and bunkers in Singapore, the largest shipping hub in Asia, recovered 1.5 mb to 16 mb in August, but remained close to the nine-year low reached in July owing to strong shipping demand. Overall, Singaporean oil stocks were little changed at 40 mb at the end of the August.

Satellite technology starting to change the game

Over the last year, global oil storage statistics have undergone the biggest transparency push since the launch of the *Joint Organisations Data Initiative* (JODI) database in 2005 with greater availability of data taken by satellites orbiting the earth. Three companies (*Kayrros*, *Orbital Insights*, *Ursa*) are already active in the field and more are likely to launch similar services over the coming years. While this new technology has already proven useful, the expected launch of several new satellites during 2019-20 will make images more numerous, clearer and cheaper.

Oil storage is one of the most opaque fields in oil market analysis. Reliable figures exist for OECD countries and are regularly discussed in this *Report,* while statistics for around 20 to 30 other countries are available in the JODI database. However, data for the rest of the world is hard to obtain. No one knows the true extent of global storage movements, making analysis of global supply and demand fundamentals difficult. We estimate that stock figures available for 2Q18 in the IEA and JODI databases cover countries responsible for 59% of global demand, a large but not overwhelming share. This percentage is likely to fall over the coming years as most new storage capacity is built in countries with less transparency on stocks, such as China.



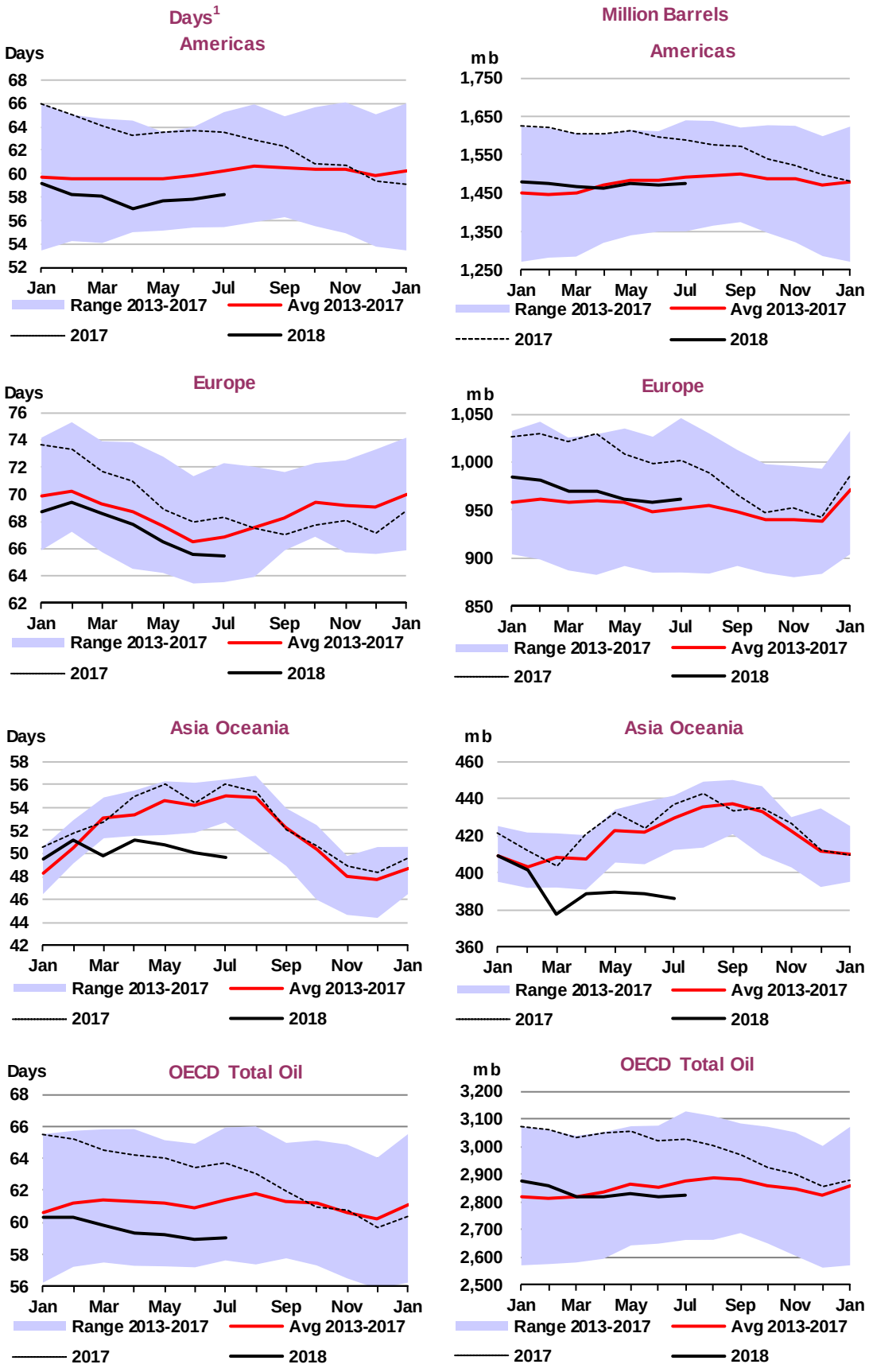
The increased availability of satellites, as well as fast computing and cheap online storage to enable the processing of millions of pictures, has favoured the emergence of this new source of data. Additionally, new players in the space transportation market (such as SpaceX) have significantly reduced the cost of launching satellites, while new miniaturisation techniques mean satellites are much cheaper to build than in the past. It is now possible to measure the height of floating rooftops in tank farms by beaming a signal onto earth that is not disturbed by poor weather or night-time. This is a development of radar. It is currently available in low resolution from two satellites launched by the European Space Agency (ESA) – Sentinel 1A and 1B – in 2014 and 2016, and in medium resolution (i.e. better quality) from other providers. The signals recorded by ESA are mostly free to use and are available every 6 days for Europe and 12 days for most places on earth.

Money has flowed into new companies building cheaper, smaller radar satellites typically weighing less than 100 kilos versus the 1-2 metric tonnes of current models. This is likely to make data gathered from satellites more readily available in coming years. During 2019-20, at least four companies say they aim to launch new radar satellites into space: *Capella* wants to launch a constellation of 36 satellites for hourly visits of every location on earth; *ICEYE* has plans for 18 satellites; *Umbra Labs* is working on high-resolution radar technology and *XpressSAR* has plans for four satellites focused on countries with cloudy conditions.

Assuming proper mapping of existing infrastructure, radar technology allows for better granularity of oil stocks data and should in time make it more difficult for traders to hide their activity from competitors. It is also timelier than official publications, an advantage for people looking to trade on the information. The current data available from providers shows interesting correlations with the IEA's Monthly Oil Data Service (MODS) for OECD crude stocks, but is not yet complete enough to allow for a full comparison. This is expected to change over the coming months as coverage improves. However, underground storage cannot be seen from space, even if there are ongoing experiences to monitor reservoirs injecting water into underground tanks. Additionally, oil products are not covered by current datasets and may never be as they are more commonly stored in fixed roof tank farms, which cannot be monitored by satellites. Globally, *Ursa* says a large majority (75-80%) of floating top tanks contain crude, while a significant majority (85-90%) of fixed top tanks contain oil products, despite exceptions such as Rotterdam. Perversely, it is also possible to imagine a world where operators stop building floating rooftops – typically cheaper to operate for volatile products – to avoid being spied on.

Regional OECD End-of-Month Industry Stocks

(in days of forward demand and million barrels of total oil)



1 Days of forward demand are based on average demand over the next three months

PRICES

Market overview

While benchmark oil futures declined month-on-month (m-o-m) in August, towards the end of the month ICE Brent and NYMEX WTI bounced back. Brent reached a two-month high of $78.17/bbl on 4 September and US prices breached $70/bbl for the first time since July. Subsequently prices eased but in recent days they have returned to growth, with Brent and WTI currently at $79.06/bbl and $69.25/bbl, respectively. Reduced supply of sour crude from Venezuela and Iran saw prices for Mars, Urals and Basra Light and Basra Heavy strengthen. Conversely, an abundance of light, sweet crude continued to weigh on North Sea and West African grades. Strong demand helped middle distillate cracks to improve while fuel oil cracks came down from an early-August peak as power generation demand subsided.

Futures markets

ICE Brent and NYMEX WTI prices fell in the first half of August on increased supplies, in particular from Russia, Libya and the US. However, since 16 August benchmarks have moved up significantly as Iranian sanctions loom and Venezuelan production continues to decline. Meanwhile, equity markets have reached record highs and oil demand continues to be strong with Chinese purchases picking up following refinery maintenance. On 30 August, NYMEX WTI hit $70/bbl for the first time in a month on fears that a hurricane would impact US Gulf Coast oil infrastructure.

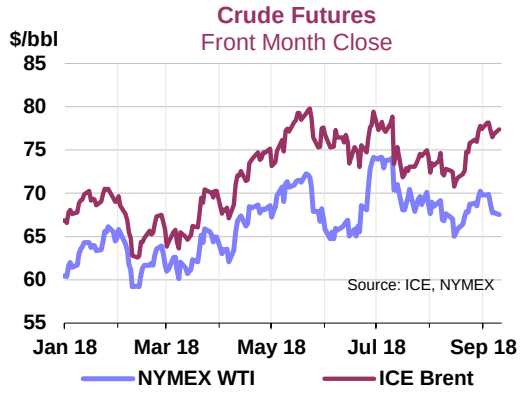
Prompt Month Oil Futures Prices

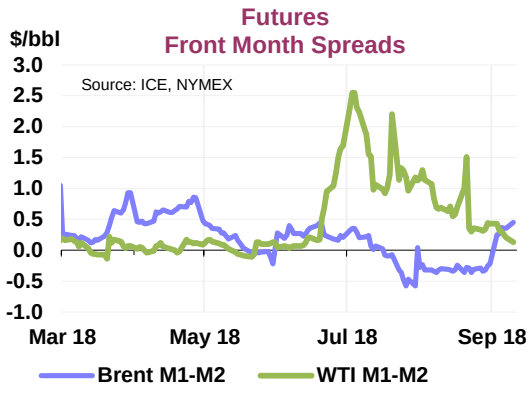
(monthly and weekly averages, $/bbl)

	Jun	Jul	Aug	Aug-Jul Avg Chg	% Chg	Week Commencing: 06 Aug	13 Aug	20 Aug	27 Aug	03 Sep
NYMEX										
Light Sweet Crude Oil	67.32	70.58	67.85	-2.73	-3.9	67.91	66.12	67.64	69.39	68.53
RBOB	87.75	88.24	86.23	-2.01	-2.3	85.91	84.12	86.00	88.72	82.74
ULSD	90.09	89.78	90.43	0.66	0.7	89.68	88.63	90.58	93.73	93.62
ULSD ($/mmbtu)	15.89	15.83	15.95	0.12	0.7	15.82	15.63	15.98	16.53	16.51
Henry Hub Natural Gas ($/mmbtu)	2.94	2.79	2.91	0.12	4.3	2.92	2.94	2.95	2.88	2.79
ICE										
Brent	75.94	74.95	73.84	-1.11	-1.5	73.11	71.82	74.03	76.90	77.38
Gasoil	88.31	88.15	88.45	0.30	0.3	87.40	86.85	88.75	91.95	92.23
Prompt Month Differentials										
NYMEX WTI - ICE Brent	-8.62	-4.37	-5.99	-1.62		-5.20	-5.70	-6.39	-7.51	-8.85
NYMEX ULSD - WTI	22.77	19.20	22.58	3.39		21.77	22.51	22.94	24.34	25.09
NYMEX RBOB - WTI	20.43	17.66	18.38	0.72		18.00	18.00	18.36	19.33	14.21
NYMEX 3-2-1 Crack (RBOB)	21.21	18.17	19.78	1.61		19.26	19.50	19.89	21.00	17.84
NYMEX ULSD - Natural Gas ($/mmbtu)	12.95	13.04	13.04	0.00		12.89	12.69	13.02	13.65	13.72
ICE Gasoil - ICE Brent	12.37	13.20	14.61	1.41		14.29	15.03	14.72	15.05	14.85

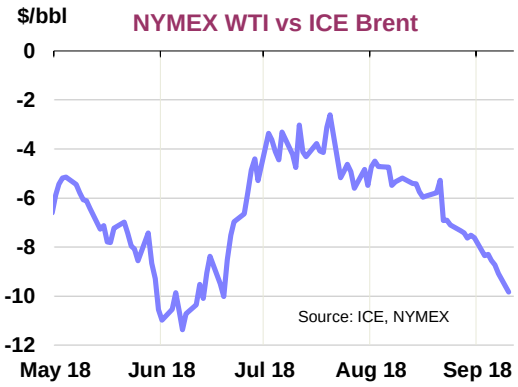
Source: ICE, NYMEX.

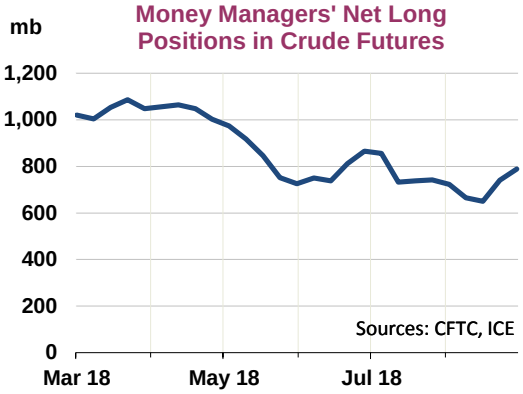
The move to the November contract saw the ICE Brent futures curve flip to a backwardation of $0.25/bbl on 3 September, having been in a shallow contango since 31 July, suggesting increased market tightness. However, for the moment, the price of prompt physical barrels remains below front month futures implying that today there is adequate light sweet crude availability. A *Wall Street Journal* survey of 11 investment banks showed that, on average, analyst predictions for oil prices in 2018 are unchanged from last month. This is the first time in 11 months that forecasts have not been revised upwards.





NYMEX WTI's discount to ICE Brent increased in August, averaging $6.00/bbl, versus $4.37/bbl in July. WTI failed to match the recent gains by Brent due to strong US production growth running into infrastructure constraints and the ramping up of production from Suncor's Syncrude project following last month's outage. While the wider spread should increase the attractiveness of US exports, buyer ability to access the crudes is limited, with pipelines expected to be full for the coming months, and alternatives, such as trucking and rail, also nearing full capacity. The relatively steep increase in Brent prices caused the Brent-Dubai EFS to come up from the 12-month low of $0.95/bbl seen on 27 July.





In August, money manager's holdings of net long positons, which have been falling since April, increased marginally by 2.4 mb. However, net longs are still at historically high levels averaging 750 million barrels for the past few months, compared to an average of 500 and 300 mb in 2016 and 2015, respectively.

Further to last month's analysis on US pricing markers (See *OMR August 2018 – WTI Houston: from local to regional to global benchmark?*), we have recently seen two interesting developments. Firstly, following the move by S&P Global Platts to turn their WTI Houston assessment from a pipeline to a waterborne index, price reporting agency Argus introduced the WTI fob Houston price assessment for cargoes loading in the US Gulf Coast. Since its launch on 3 September, the new marker has traded at an average premium of $0.46/bbl to WTI Houston and $6.92/bbl to WTI Cushing. Secondly, as a prime example of the increasing relevance of Houston pricing, Taiwanese state refiner CPC issued a tender for US crude with the Argus WTI Houston marker as the main pricing component.

Spot crude oil prices

The increasing discount of WTI Cushing to other global benchmarks, Brent and Dubai, has improved the arbitrage economics of US exports. WTI Houston rose by $0.92/bbl m-o-m as Chinese demand picked up following the news that US crude would be exempt from retaliatory tariffs. Louisiana Light Sweet (LLS) prices came up, by $2.75/bbl m-o-m against WTI Cushing, as export demand was strong and as barge

movements of light crude to Louisiana were delayed due to maintenance work on the waterway. Prices of sour crudes Mars and Poseidon have risen due to lower global supplies and both are now trading at a premium to WTI. Increasing production and capacity constraints saw prices in the Permian Basin fall to new lows, with WTI Midland's discount to WTI Houston exceeding $20/bbl in early September. Even alternative export options, such as rail and trucking, are now nearing capacity. On 15 August, outright prices in the Permian dipped below $50/bbl, a key level against which many upstream producers have set their profit targets. Prices in the Bakken have also fallen, down $1.75/bbl m-o-m against WTI Cushing, as producers in North Dakota have had to cut crude production to meet state rules on capturing natural gas.

Spot crude oil prices and differentials

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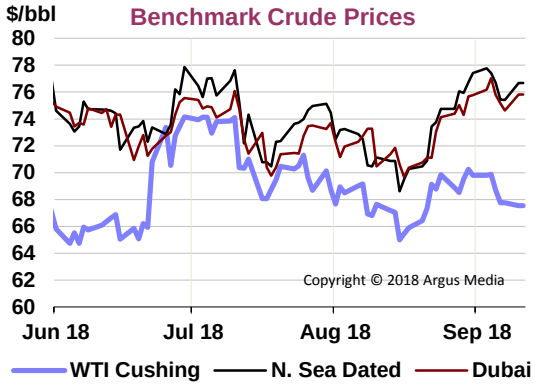
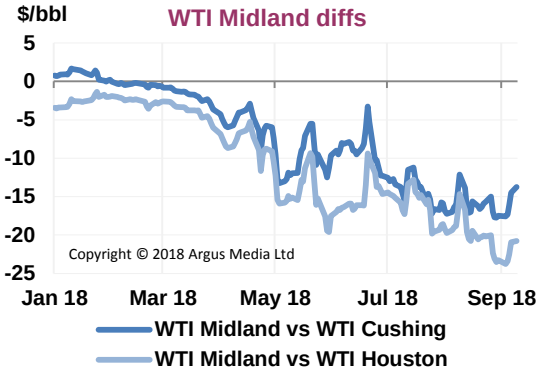
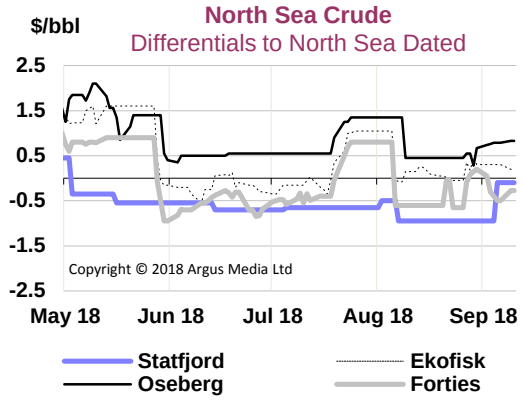
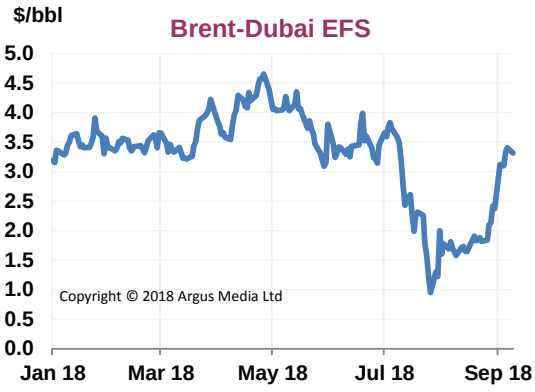




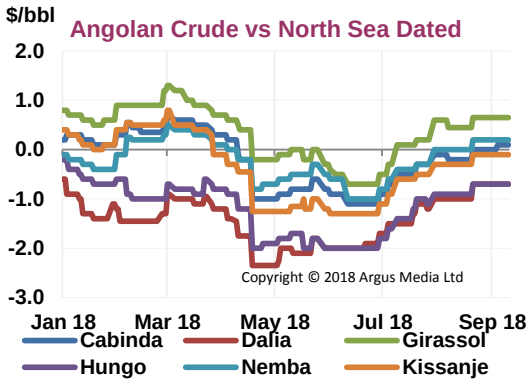
West Canadian Select (WCS) prices in Hardisty, Alberta, were down $5.01/bbl m-o-m, having come up from a four-year low on 6 August when the discount to WTI Cushing reached $31.20/bbl. Canadian output continues to grow, despite export pipelines being full. US refiners with access to pipeline space have been maximising their runs of WCS to take advantage of the price differential and Canadian rail exports reached the highest level since records began in 2012.

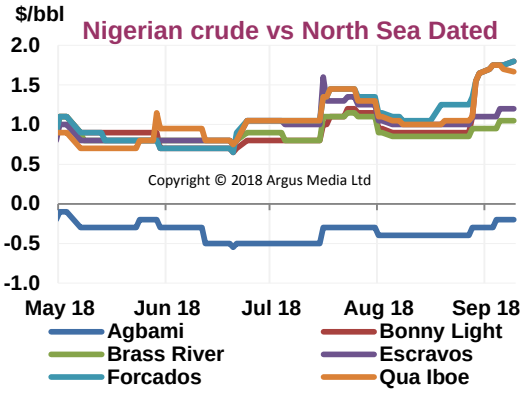
Demand for North Sea crudes continues to be weak and, reportedly, five to seven mb of unsold Forties and Ekofisk were held in floating storage early in August. Prices ticked up slightly later in the month on demand for Forties from Asia Pacific buyers. However, the Brent-Dubai Exchange of Futures for Swaps (EFS) widened again from a low of $0.95/bbl on 27 July and currently stands at $3.31/bbl. This will decrease the competitiveness of crudes linked to Brent prices.



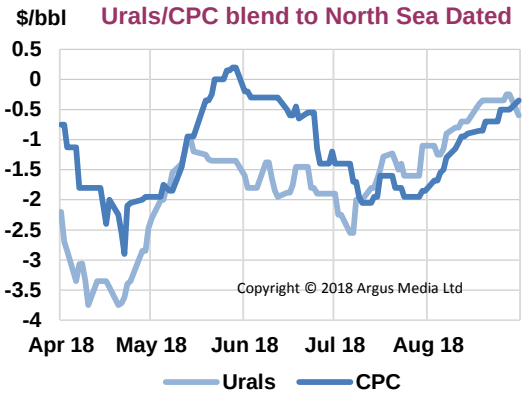


Healthy demand, in particular from China and India saw the price of key Angolan crudes increase against North Sea Dated. Regular purchasers of Nigerian crudes, such as refiners in India and Taiwan, continue to buy cheaper US grades such as LLS and sentiment has not been helped by terminal shutdowns and strikes in Nigeria. However, at the end of August demand for light, sweet Bonny Light, Forcados and Qua Iboe picked up and prices for these grades moved to five-month highs against North Sea Dated.





The narrower Brent-Dubai EFS seen in late July and early August stimulated demand for Urals and CPC Blend. Urals differentials reached a nine-month high of -$0.25/bbl against North Sea Dated on 6 September on strong demand from Chinese refiners, even as loading schedules show a 10% increase in exports for September. Healthy Asia Pacific demand saw the price of CPC Blend against North Sea Dated increase by $1.10/bbl over the month. Again, the loss of Iranian barrels is benefitting CPC Blend, which has a high naphtha yield and is attractive to refiners looking to replace condensate feedstocks.



Price differentials to North Sea Dated for ESPO Blend rose $1.08/bbl over the month on demand from China and South Korea. Independent Chinese refiners, many of which are returning to operations

following maintenance, have shown interest in the medium sweet crude as domestic gasoline margins pick up. Saharan Blend suffered as output from Libya recovered from the recent disruption and the Mediterranean region received increasing US supplies. The discount to North Sea Dated hit a 12-week low of $1.00/bbl on 16 August.

Dubai prices remained in backwardation, which steepened towards the end of the month suggesting increased market tightness. Tightness in sour crude markets saw the differentials for medium and heavy sour grades such as Basra Light pick up. Conversely, lighter Murban crude lost $0.10/bbl over the month, as it faced competition from US, Kuwaiti and Russian supplies. Asia Pacific buyers, looking to take advantage of strong gasoil cracks, preferred to take ESPO and light, sweets from the US.

Spot product prices

Barge quotes for Premium Unleaded gasoline in North West Europe moved up $1.61/bbl m-o-m, even as North Sea Dated fell, on healthy export demand. European gasoline was shipped to the US Gulf Coast where domestic supplies are limited by pipelines that are full. Cracks for US Gulf Coast Super Unleaded and Unleaded came down by $2.51/bbl and $0.72/bbl m-o-m, respectively, as the peak summer demand season comes to an end and as refiners begin to prepare for the switch to winter-specification product. Cracks fell to an eight-month low of $11.26/bbl in early September, despite record Labor Day holiday gasoline demand. On 20 August a fire at a Brazilian refinery saw domestic production fall and increased demand for US exports. Cracks for Premium Unleaded in Singapore were up $2.32/bbl m-o-m as regional production was hampered by refinery outages in Singapore, India and Indonesia and imports from Saudi Arabia and Oman were down due to outages there.

Spot product prices

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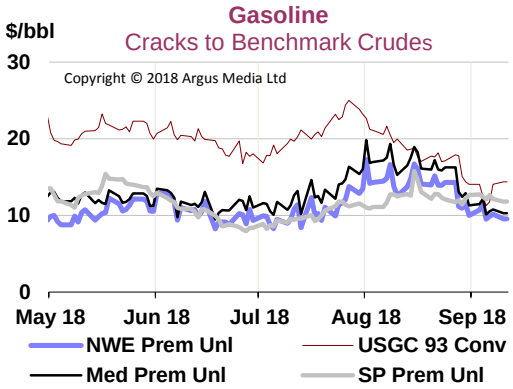
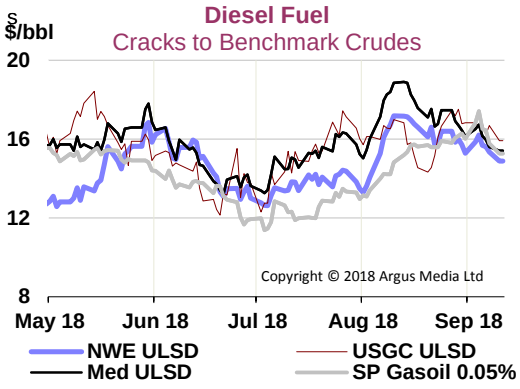
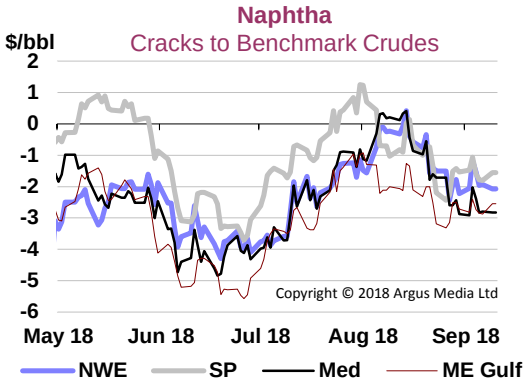
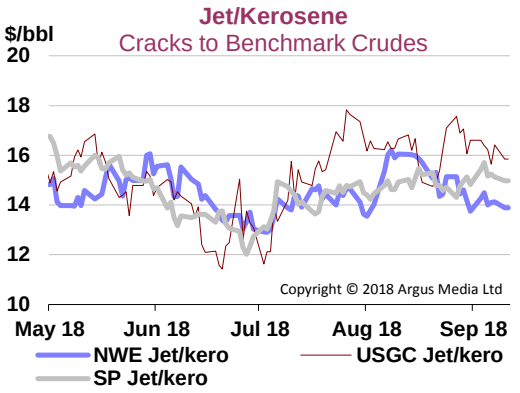




The northern hemisphere summer is drawing to a close and refiners are looking ahead to higher seasonal diesel demand. Cracks for Ultra-Low Suphur Diesel (ULSD) in Europe rose $2.28/bbl m-o-m, despite the region being well supplied by imports. US ULSD prices rose by $0.74/bbl over the month on higher domestic and export demand, particularly from Brazil due to the refinery fire.

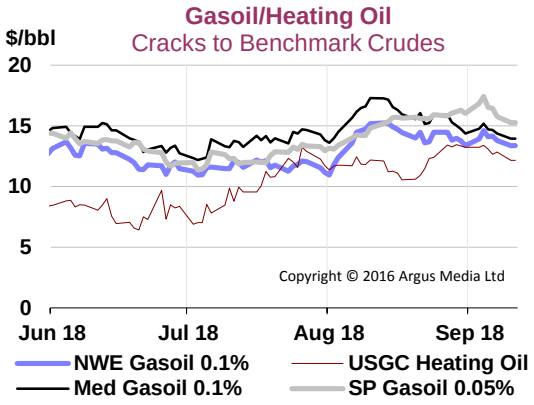
European naphtha markets were supported early in the month thanks to regional demand for gasoline blending and petrochemicals. Later, demand from Asia Pacific fell ahead of maintenance at steam crackers. This also weighed on Singapore naphtha cargos, along with increased supplies from Saudi Arabia where a shutdown at a catalytic converter saw exports rise. Singapore cargoes fell by $0.50/bbl m-o-m but cracks have ticked up in the first week of September as the price of LPG has increased. Global cracks for jet fuel and kerosene were up by between $0.60/bbl and $1.01/bbl m-o-m thanks to strong seasonal demand.

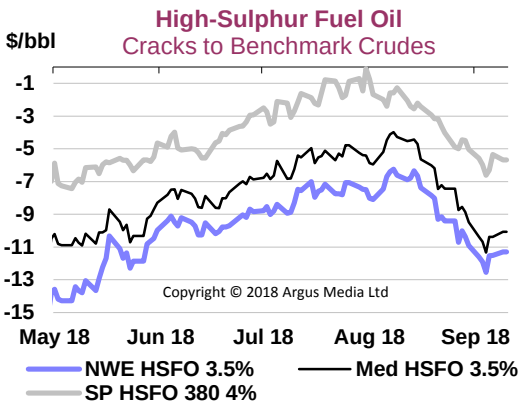




Globally, cracks for gasoil improved. In Singapore, they increased by $2.66/bbl m-o-m on strong demand and reduced regional supplies due to lengthy maintenance at a refinery in Singapore and unplanned refinery outages in India and Japan. Demand is expected to further pick up in India as the monsoon ends, and in China as the seasonal fishing ban is lifted. In early September Singapore gasoil cracks hit $17.41/bbl, the highest since March 2015. The relative strength of gasoil saw the Singapore Regrade spread, which measures the price difference between jet fuel and gasoil, fall to a 4-year low of -$1.65/bbl on 4 September.

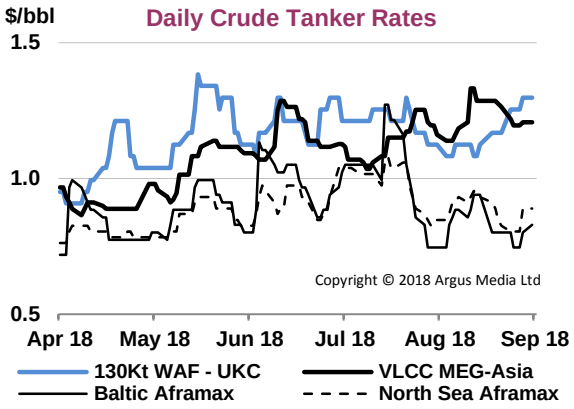
Cracks for High Sulphur Fuel Oil (HSFO) and Low Sulphur Fuel Oil (LSFO) peaked in early August on strong demand for power generation. In the Middle East air conditioner use has been boosted by high temperatures, and in South Korea, some power producers have increased their use of fuel oil, as opposed to coal, to meet tighter government policy tackling air pollution. In addition, bunker fuel demand has been strong. Anticipated reductions in supply from Iran saw fuel oil futures curves move into steep backwardation. However, in the short term we saw m-o-m cracks fall to three-month lows as demand came off and supplies actually increased, leading to stock builds in Singapore and Europe.

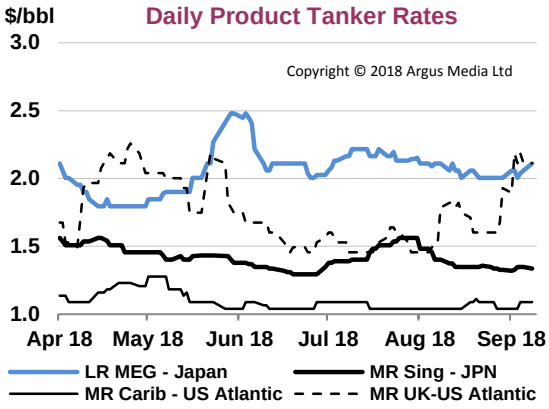




Freight

Low freight rates and the financial pain felt by ship owners has seen the rate of tanker scrapping triple over the past year, resulting in slower net fleet growth. At 1 June the crude fleet stood at 2 013 ships and the product fleet at 2 756 ships, having grown by 5 ships and 25 ships net, respectively, so far this year. The crude fleet is growing by on average one ship per month, down from seven last year, while the product tanker fleet is growing by around five ships per month, down from eight in 2017, according to Barry Rogliano Salles Group.





Persistently low crude freight rates continue to support long haul shipments. Rates for Very Large Crude Carriers (VLCCs) travelling from the Middle East Gulf to Asia reached $1.33/bbl on 21 August, the highest since November 2017, on more enquiries for September voyages. Rates for Suezmaxes travelling between West Africa and the UK continent declined for the first half of the month, due to excess tonnage. Rates improved but remain at low levels. Already low, North Sea Aframax and Baltic Aframax rates dropped on increased tonnage availability. North Sea Aframax rates hit a three-month low of $0.80/bbl on 3 September. Baltic Aframax rates hit a four-month low of $0.75/bbl on 7 August.

In clean freight markets, strong demand to ship product from Europe to the US saw rates for medium range ships increase by $0.47/bbl over the month to a three-month high of $2.18/bbl on 4 September. The upward trend looks set to stabilise as ship availability increases. Freight rates on other routes, such as between the Middle East, Singapore and Japan, were flat in August.

Table 1
WORLD OIL SUPPLY AND DEMAND

(million barrels per day)

	2015	2016	1Q17	2Q17	3Q17	4Q17	2017	1Q18	2Q18	3Q18	4Q18	2018	1Q19	2Q19	3Q19	4Q19	2019
OECD DEMAND																	
Americas	24.6	24.9	24.6	25.1	25.2	25.3	25.1	25.3	25.4	25.4	25.5	25.4	25.2	25.6	25.7	25.8	25.6
Europe	13.8	14.0	13.8	14.3	14.7	14.4	14.3	14.1	14.2	14.5	14.3	14.3	13.9	14.4	14.7	14.3	14.3
Asia Oceania	8.1	8.1	8.5	7.7	7.8	8.3	8.1	8.5	7.6	7.8	8.3	8.0	8.4	7.6	7.7	8.2	8.0
Total OECD	46.5	47.0	46.9	47.0	47.7	48.1	47.4	47.8	47.1	47.7	48.0	47.7	47.6	47.6	48.1	48.4	47.9
NON-OECD DEMAND																	
FSU	4.6	4.5	4.3	4.5	4.8	4.7	4.6	4.5	4.7	4.9	4.7	4.7	4.5	4.8	5.0	4.8	4.8
Europe	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.8	0.8	0.8	0.8
China	11.6	12.0	12.4	12.8	12.4	12.7	12.6	12.8	13.2	13.3	13.5	13.2	13.3	13.6	13.7	14.0	13.6
Other Asia	12.5	13.0	13.2	13.4	13.2	13.6	13.4	13.7	13.9	13.5	14.0	13.8	14.1	14.3	13.9	14.5	14.2
Americas	6.7	6.4	6.3	6.5	6.6	6.5	6.5	6.3	6.4	6.5	6.5	6.4	6.3	6.5	6.6	6.5	6.5
Middle East	8.5	8.5	8.2	8.7	8.9	8.2	8.5	8.1	8.4	8.9	8.4	8.5	8.2	8.6	9.1	8.5	8.6
Africa	4.2	4.3	4.4	4.3	4.2	4.3	4.3	4.3	4.3	4.2	4.3	4.3	4.4	4.4	4.3	4.4	4.4
Total Non-OECD	48.7	49.4	49.5	51.0	50.8	50.6	50.5	50.5	51.6	52.1	52.3	51.6	51.7	52.9	53.3	53.5	52.8
Total Demand[1]	**95.3**	**96.4**	**96.4**	**98.0**	**98.4**	**98.7**	**97.9**	**98.4**	**98.7**	**99.8**	**100.3**	**99.3**	**99.3**	**100.5**	**101.4**	**101.9**	**100.8**
OECD SUPPLY																	
Americas[4]	20.0	19.5	20.0	19.8	20.3	21.2	20.3	21.7	22.1	22.3	22.6	22.2	23.2	23.4	23.6	24.0	23.6
Europe	3.5	3.5	3.7	3.5	3.4	3.4	3.5	3.5	3.3	3.4	3.5	3.4	3.5	3.3	3.3	3.4	3.4
Asia Oceania	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Total OECD	23.9	23.4	24.0	23.7	24.0	25.0	24.2	25.7	25.9	26.0	26.5	26.0	27.1	27.2	27.5	27.9	27.4
NON-OECD SUPPLY																	
FSU	14.0	14.2	14.4	14.3	14.2	14.4	14.3	14.4	14.5	14.6	14.7	14.5	14.8	14.8	14.7	14.8	14.8
Europe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	4.3	4.0	3.9	3.9	3.8	3.8	3.9	3.8	3.9	3.8	3.8	3.8	3.7	3.7	3.7	3.7	3.7
Other Asia[2]	3.6	3.6	3.5	3.4	3.4	3.4	3.5	3.4	3.3	3.3	3.3	3.3	3.3	3.2	3.2	3.2	3.2
Americas[2,4]	4.6	4.5	4.6	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.7	4.6	4.7	4.8	4.9	5.0	4.9
Middle East	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2
Africa[2]	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.4	1.5	1.5	1.4	1.4	1.4	1.4
Total Non-OECD	29.4	29.1	29.2	29.0	28.9	28.9	29.0	29.0	29.1	29.1	29.2	29.1	29.3	29.4	29.3	29.5	29.4
Processing gains[3]	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Global Biofuels	2.3	2.4	2.0	2.5	2.9	2.5	2.5	2.1	2.7	3.0	2.5	2.6	2.2	2.8	3.0	2.7	2.7
Total Non-OPEC Supply	57.8	57.1	57.5	57.5	58.1	58.8	58.0	59.1	59.9	60.4	60.5	60.0	61.0	61.7	62.2	62.4	61.8
OPEC																	
Crude	32.1	33.0	32.3	32.6	33.0	32.6	32.6	32.3	32.1								
NGLs	6.6	6.8	6.9	6.9	6.9	6.9	6.9	6.9	6.9	7.0	7.0	7.0	7.1	7.1	7.1	7.1	7.1
Total OPEC	38.6	39.8	39.2	39.5	39.9	39.5	39.5	39.3	39.0								
Total Supply[4]	**96.5**	**96.9**	**96.7**	**97.0**	**98.0**	**98.3**	**97.5**	**98.3**	**99.0**								
STOCK CHANGES AND MISCELLANEOUS																	
Reported OECD																	
Industry	0.8	0.0	0.3	-0.1	-0.5	-1.3	-0.4	-0.5	0.0								
Government	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	0.1	-0.1								
Total	0.8	0.0	0.3	-0.2	-0.7	-1.4	-0.5	-0.4	-0.1								
Floating storage/Oil in transit	0.3	0.2	0.0	-0.1	0.5	1.0	0.4	-1.0	0.3								
Miscellaneous to balance[5]	0.1	0.4	-0.1	-0.6	-0.3	-0.1	-0.3	1.4	0.1								
Total Stock Ch. & Misc	**1.2**	**0.6**	**0.2**	**-1.0**	**-0.5**	**-0.5**	**-0.4**	**0.0**	**0.3**								
Memo items:																	
Call on OPEC crude + Stock ch.[6]	30.8	32.4	32.1	33.5	33.4	33.1	33.0	32.4	31.8	32.4	32.8	32.3	31.3	31.7	32.2	32.4	31.9

1 Measured as deliveries from refineries and primary stocks, comprises inland deliveries, international marine bunkers, refinery fuel, crude for direct burning, oil from non-conventional sources and other sources of supply. Includes Biofuels.
2 Other Asia includes Indonesia throughout. Latin America excludes Ecuador throughout. Africa excludes Angola, Gabon and Equatorial Guinea throughout.
3 Net volumetric gains and losses in the refining process and marine transportation losses.
4 Comprises crude oil, condensates, NGLs, oil from non-conventional sources and other sources of supply.
5 Includes changes in non-reported stocks in OECD and non-OECD areas.
6 Equals the arithmetic difference between total demand minus total non-OPEC supply minus OPEC NGLs.

Table 1a
WORLD OIL SUPPLY AND DEMAND: CHANGES FROM LAST MONTH'S TABLE 1

(million barrels per day)

	2015	2016	1Q17	2Q17	3Q17	4Q17	2017	1Q18	2Q18	3Q18	4Q18	2018	1Q19	2Q19	3Q19	4Q19	2019
OECD DEMAND																	
Americas	-	-	-	0.1	0.1	0.2	0.1	-	0.1	-	-	-	0.1	-	0.1	0.1	0.1
Europe	-	-	-	-	-	-	-	-	-	-0.1	-0.1	-	-0.1	-	-0.1	-0.1	-0.1
Asia Oceania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total OECD	-	-	-	0.1	0.1	0.2	0.1	-	0.1	-0.1	-0.1	-	-	-	-	-	-
NON-OECD DEMAND																	
FSU	-	-	-	-	-	-	-	0.1	-	-	-	-	0.1	-	-	-	-
Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China	-	-	-	-	-	-	-	-	-	0.3	0.2	0.1	0.1	-0.1	0.4	0.2	0.2
Other Asia	-	-	-	-0.1	-	0.1	-	-	-0.1	-	-	-	-0.1	-0.1	-0.1	-	-0.1
Americas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Middle East	-	-	-	-	-	0.1	-	0.1	-0.1	-	-	-	-	-0.1	-	-	-
Africa	-	-	-0.1	-	-	-0.1	-	-0.1	-	-	-	-	-	-	-	-0.1	-
Total Non-OECD	-	-	-0.1	-0.1	-	0.1	-	-	-0.1	0.3	0.2	0.1	0.1	-0.2	0.3	0.2	0.1
Total Demand	**-**	**-**	**-**	**-**	**-**	**0.2**	**0.1**	**0.1**	**-**	**0.2**	**0.1**	**0.1**	**-**	**-0.2**	**0.3**	**0.2**	**0.1**
OECD SUPPLY																	
Americas	-	-	-	-	0.1	-	-	-	-	0.1	-	-	-0.1	-0.1	0.1	0.1	-
Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-	-
Asia Oceania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total OECD	-	-	-	-	0.1	-	-	-	0.1	0.2	-	0.1	-0.1	-	0.1	0.1	-
NON-OECD SUPPLY																	
FSU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Asia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-0.1	-
Americas	-	-	-	-	-	-	-	-	-	-0.1	-	-	-	-	-	-	-
Middle East	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Non-OECD	-	-	-	-	-	-	-	-	-	-0.1	-0.1	-	-	-0.1	-	-0.1	-
Processing gains	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Global Biofuels	-	-	-	-	-	-	-	-	0.1	0.1	-	0.1	-	0.1	0.1	-	-
Total Non-OPEC Supply	-	-	-	-	0.1	-	-	-	0.2	0.2	-0.1	0.1	-0.1	-	0.2	0.1	0.1
OPEC																	
Crude	-	-	-	-	-	-	-	-	-								
NGLs	-	-	-	-	-	0.1	-	-	-	-	-	-	-	-	-	-	-
Total OPEC	-	-	-	0.1	-	0.1	0.1	-	-								
Total Supply	**-**	**-**	**-**	**0.1**	**0.1**	**0.1**	**0.1**	**-**	**0.2**								
STOCK CHANGES AND MISCELLANEOUS																	
REPORTED OECD																	
Industry	-	-	-	-	-	-	-	-	-0.1								
Government	-	-	-	-	-	-	-	-	-								
Total	-	-	-	-	-	-	-	-	-0.1								
Floating storage/Oil in transit	-	-	-	-	-	-	-	-	-								
Miscellaneous to balance	-	-	0.1	-	0.1	-0.1	-	-	0.3								
Total Stock Ch. & Misc	**-**	**-**	**0.1**	**0.1**	**0.1**	**-0.1**	**-**	**-**	**0.2**								
Memo items:																	
Call on OPEC crude + Stock ch.	-	-	-0.1	-0.1	-0.1	0.1	-	0.1	-0.2	-0.1	0.2	-	0.1	-0.2	0.1	0.1	-

When submitting their monthly oil statistics, OECD Member countries periodically update data for prior periods. Similar updates to non-OECD data can occur.

Table 2
SUMMARY OF GLOBAL OIL DEMAND

	2016	1Q17	2Q17	3Q17	4Q17	2017	1Q18	2Q18	3Q18	4Q18	2018	1Q19	2Q19	3Q19	4Q19	2019
Demand (mb/d)																
Americas	24.88	24.61	25.12	25.15	25.34	25.06	25.26	25.37	25.42	25.51	25.39	25.24	25.62	25.71	25.82	25.60
Europe	13.99	13.82	14.25	14.70	14.40	14.30	14.05	14.16	14.53	14.27	14.25	13.92	14.39	14.72	14.35	14.35
Asia Oceania	8.11	8.48	7.65	7.80	8.33	8.06	8.51	7.60	7.75	8.25	8.03	8.44	7.60	7.66	8.23	7.98
Total OECD	46.97	46.91	47.02	47.66	48.06	47.42	47.82	47.13	47.70	48.03	47.67	47.60	47.62	48.09	48.40	47.93
Asia	24.97	25.57	26.24	25.59	26.30	25.93	26.50	27.04	26.77	27.58	26.98	27.39	27.83	27.62	28.43	27.82
Middle East	8.49	8.24	8.67	8.87	8.22	8.50	8.10	8.43	8.95	8.39	8.47	8.22	8.65	9.07	8.45	8.60
Americas	6.44	6.34	6.46	6.57	6.45	6.46	6.34	6.37	6.51	6.48	6.42	6.33	6.45	6.56	6.54	6.47
FSU	4.51	4.30	4.53	4.77	4.65	4.57	4.51	4.69	4.87	4.69	4.69	4.54	4.76	4.95	4.83	4.77
Africa	4.25	4.36	4.30	4.19	4.26	4.28	4.34	4.30	4.20	4.34	4.30	4.45	4.40	4.29	4.43	4.39
Europe	0.72	0.72	0.75	0.76	0.76	0.75	0.73	0.75	0.78	0.78	0.76	0.75	0.77	0.79	0.79	0.77
Total Non-OECD	49.39	49.53	50.95	50.76	50.65	50.48	50.53	51.58	52.07	52.26	51.62	51.67	52.86	53.27	53.46	52.83
World	**96.36**	**96.44**	**97.98**	**98.41**	**98.71**	**97.90**	**98.36**	**98.71**	**99.77**	**100.29**	**99.29**	**99.27**	**100.48**	**101.37**	**101.87**	**100.76**
of which: US50	19.69	19.54	20.07	20.01	20.21	19.96	20.24	20.33	20.38	20.40	20.34	20.21	20.60	20.62	20.70	20.53
Europe 5*	8.15	8.16	8.28	8.44	8.24	8.28	8.18	8.17	8.28	8.20	8.21	8.12	8.29	8.40	8.23	8.26
China	11.99	12.39	12.80	12.36	12.70	12.56	12.83	13.18	13.26	13.54	13.20	13.29	13.57	13.72	13.97	13.64
Japan	4.01	4.30	3.58	3.63	4.06	3.89	4.27	3.43	3.57	3.91	3.79	4.14	3.38	3.43	3.85	3.70
India	4.44	4.46	4.67	4.42	4.72	4.57	4.82	4.88	4.65	5.00	4.84	5.02	5.10	4.83	5.20	5.04
Russia	3.33	3.15	3.33	3.54	3.39	3.35	3.32	3.44	3.60	3.41	3.44	3.33	3.50	3.66	3.48	3.49
Brazil	2.98	2.92	2.96	3.08	3.04	3.00	2.95	2.91	3.06	3.08	3.00	2.92	2.97	3.08	3.08	3.01
Saudi Arabia	3.30	2.93	3.41	3.62	3.13	3.27	2.93	3.19	3.58	3.24	3.24	3.00	3.39	3.66	3.24	3.32
Canada	2.47	2.37	2.36	2.52	2.52	2.45	2.32	2.35	2.48	2.48	2.41	2.35	2.33	2.49	2.48	2.41
Korea	2.61	2.62	2.49	2.57	2.65	2.58	2.63	2.55	2.57	2.70	2.61	2.68	2.59	2.61	2.73	2.65
Mexico	2.05	2.02	2.03	1.95	1.93	1.98	1.99	2.02	1.90	1.95	1.96	1.98	2.02	1.93	1.96	1.97
Iran	1.96	2.12	2.03	2.00	2.00	2.04	2.01	1.98	1.96	1.97	1.98	2.06	2.01	1.99	1.99	2.01
Total	**66.98**	**66.98**	**68.02**	**68.16**	**68.61**	**67.95**	**68.49**	**68.44**	**69.29**	**69.87**	**69.02**	**69.09**	**69.75**	**70.42**	**70.91**	**70.05**
% of World	69.5%	69.5%	69.4%	69.3%	69.5%	69.4%	69.6%	69.3%	69.5%	69.7%	69.5%	69.6%	69.4%	69.5%	69.6%	69.5%
Annual Change (% per annum)																
Americas	1.1	-0.5	2.1	-0.1	1.4	0.7	2.6	1.0	1.1	0.7	1.3	-0.1	1.0	1.1	1.2	0.8
Europe	1.2	2.0	2.7	2.2	1.8	2.2	1.7	-0.7	-1.2	-0.9	-0.3	-0.9	1.7	1.3	0.6	0.7
Asia Oceania	0.0	-1.4	-0.3	0.0	-0.2	-0.5	0.4	-0.7	-0.6	-0.9	-0.4	-0.8	0.0	-1.2	-0.2	-0.6
Total OECD	1.0	0.1	1.9	0.6	1.3	1.0	1.9	0.2	0.1	-0.1	0.5	-0.5	1.0	0.8	0.8	0.5
Asia	4.0	2.8	3.6	4.4	4.5	3.8	3.6	3.1	4.6	4.9	4.0	3.3	2.9	3.2	3.1	3.1
Middle East	-0.4	1.6	0.4	-0.4	-1.1	0.1	-1.6	-2.7	0.9	2.1	-0.4	1.5	2.6	1.3	0.7	1.5
Americas	-4.1	-0.2	0.0	0.5	0.7	0.3	0.0	-1.4	-0.9	0.4	-0.5	-0.2	1.3	0.8	0.9	0.7
FSU	-1.3	-0.9	4.2	1.6	0.1	1.2	4.9	3.4	2.0	0.7	2.7	0.6	1.5	1.8	3.0	1.7
Africa	1.1	1.8	-0.1	1.1	-0.4	0.6	-0.4	0.2	0.3	1.8	0.5	2.4	2.3	2.0	1.9	2.1
Europe	4.8	1.7	2.2	4.2	4.3	3.1	2.5	0.1	1.7	3.5	1.8	1.9	2.0	2.1	0.8	1.8
Total Non-OECD	1.4	1.8	2.3	2.5	2.2	2.2	2.0	1.2	2.6	3.2	2.3	2.3	2.5	2.3	2.3	2.3
World	**1.2**	**1.0**	**2.1**	**1.6**	**1.7**	**1.6**	**2.0**	**0.8**	**1.4**	**1.6**	**1.4**	**0.9**	**1.8**	**1.6**	**1.6**	**1.5**
Annual Change (mb/d)																
Americas	0.28	-0.11	0.51	-0.03	0.36	0.18	0.65	0.25	0.27	0.17	0.33	-0.02	0.26	0.29	0.32	0.21
Europe	0.16	0.27	0.37	0.31	0.26	0.31	0.23	-0.10	-0.18	-0.13	-0.05	-0.13	0.23	0.20	0.08	0.09
Asia Oceania	0.00	-0.12	-0.02	0.00	-0.02	-0.04	0.03	-0.05	-0.05	-0.07	-0.04	-0.07	0.00	-0.09	-0.02	-0.05
Total OECD	0.45	0.04	0.86	0.28	0.60	0.45	0.91	0.10	0.05	-0.04	0.25	-0.22	0.49	0.39	0.38	0.26
Asia	0.95	0.70	0.92	1.09	1.13	0.96	0.93	0.80	1.17	1.28	1.05	0.89	0.79	0.85	0.85	0.84
Middle East	-0.04	0.13	0.03	-0.04	-0.09	0.01	-0.14	-0.24	0.08	0.17	-0.03	0.12	0.22	0.12	0.06	0.13
Americas	-0.28	-0.01	0.00	0.03	0.05	0.02	0.00	-0.09	-0.06	0.03	-0.03	-0.01	0.09	0.05	0.06	0.05
FSU	-0.06	-0.04	0.18	0.08	0.00	0.06	0.21	0.15	0.10	0.03	0.12	0.03	0.07	0.09	0.14	0.08
Africa	0.05	0.08	0.00	0.05	-0.02	0.03	-0.02	0.01	0.01	0.08	0.02	0.10	0.10	0.08	0.08	0.09
Europe	0.03	0.01	0.02	0.03	0.03	0.02	0.02	0.00	0.01	0.03	0.01	0.01	0.02	0.02	0.01	0.01
Total Non-OECD	0.66	0.87	1.14	1.24	1.10	1.09	1.01	0.63	1.31	1.61	1.14	1.14	1.28	1.21	1.20	1.21
World	**1.11**	**0.91**	**2.00**	**1.52**	**1.70**	**1.54**	**1.92**	**0.74**	**1.36**	**1.58**	**1.40**	**0.92**	**1.76**	**1.60**	**1.58**	**1.47**
Revisions to Oil Demand from Last Month's Report (mb/d)																
Americas	0.00	0.04	0.06	0.08	0.15	0.08	0.00	0.06	-0.01	0.03	0.02	0.08	0.05	0.07	0.11	0.07
Europe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	-0.07	-0.12	-0.04	-0.10	-0.03	-0.09	-0.13	-0.09
Asia Oceania	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	-0.01	0.01	0.00	0.00	-0.03	0.00	0.01	0.00
Total OECD	0.00	0.04	0.06	0.08	0.15	0.08	0.00	0.09	-0.09	-0.09	-0.02	-0.02	-0.01	-0.02	-0.01	-0.01
Asia	0.00	-0.03	-0.06	-0.02	0.08	-0.01	-0.04	-0.02	0.30	0.20	0.11	-0.02	-0.19	0.34	0.19	0.08
Middle East	0.00	0.00	0.02	0.02	0.05	0.02	0.06	-0.10	-0.04	0.01	-0.02	0.03	-0.05	-0.03	0.00	-0.01
Americas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.02	0.03	0.02	0.02	0.03	0.03
FSU	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.03	0.02	-0.01	0.03	0.07	0.03	0.03	0.03	0.04
Africa	0.00	-0.06	-0.02	-0.04	-0.07	-0.05	-0.07	-0.02	-0.01	-0.03	-0.03	-0.05	-0.04	-0.04	-0.06	-0.05
Europe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Non-OECD	0.00	-0.09	-0.06	-0.04	0.06	-0.03	0.05	-0.11	0.30	0.21	0.11	0.06	-0.23	0.32	0.19	0.09
World	**0.00**	**-0.05**	**-0.01**	**0.04**	**0.21**	**0.05**	**0.05**	**-0.02**	**0.21**	**0.12**	**0.09**	**0.04**	**-0.24**	**0.30**	**0.19**	**0.07**
Revisions to Oil Demand Growth from Last Month's Report (mb/d)																
World	0.00	-0.05	0.02	0.07	0.17	0.05	0.10	-0.01	0.17	-0.09	0.04	-0.01	-0.22	0.09	0.06	-0.02

* France, Germany, Italy, Spain and UK

Table 2a
OECD REGIONAL OIL DEMAND[1]
(million barrels per day)

	2016	2017	3Q17	4Q17	1Q18	2Q18	Apr 18	May 18	Jun 18 [2]	Latest month vs. May 18	Latest month vs. Jun 17
Americas											
LPG and ethane	3.32	3.33	3.05	3.55	3.99	3.33	3.54	3.15	3.30	0.15	0.08
Naphtha	0.34	0.34	0.34	0.33	0.28	0.27	0.28	0.26	0.27	0.01	-0.10
Motor gasoline	11.09	11.11	11.40	11.04	10.73	11.28	10.88	11.34	11.62	0.29	0.00
Jet and kerosene	1.90	1.98	2.03	2.03	1.95	2.04	1.93	2.02	2.16	0.13	0.10
Gasoil/diesel oil	5.13	5.14	5.07	5.28	5.39	5.36	5.32	5.57	5.19	-0.38	-0.01
Residual fuel oil	0.63	0.68	0.64	0.67	0.63	0.67	0.73	0.70	0.59	-0.11	-0.13
Other products	2.47	2.47	2.61	2.44	2.31	2.42	2.12	2.44	2.69	0.25	0.11
Total	**24.87**	**25.06**	**25.15**	**25.34**	**25.26**	**25.37**	**24.80**	**25.48**	**25.82**	**0.34**	**0.06**
Europe											
LPG and ethane	1.16	1.12	1.08	1.11	1.24	1.10	1.14	1.10	1.07	-0.02	0.01
Naphtha	1.10	1.18	1.17	1.22	1.16	1.02	1.04	1.01	1.01	0.00	-0.08
Motor gasoline	1.88	1.89	1.98	1.85	1.82	1.99	1.94	1.98	2.05	0.07	0.01
Jet and kerosene	1.37	1.46	1.65	1.41	1.36	1.55	1.47	1.55	1.62	0.08	0.06
Gasoil/diesel oil	6.31	6.48	6.54	6.64	6.45	6.32	6.38	6.21	6.38	0.18	-0.24
Residual fuel oil	0.88	0.89	0.89	0.93	0.89	0.88	0.91	0.87	0.87	0.00	0.02
Other products	1.29	1.28	1.38	1.25	1.14	1.29	1.24	1.26	1.38	0.12	-0.09
Total	**13.99**	**14.30**	**14.70**	**14.40**	**14.05**	**14.16**	**14.11**	**13.97**	**14.39**	**0.42**	**-0.32**
Asia Oceania											
LPG and ethane	0.78	0.75	0.69	0.73	0.82	0.72	0.72	0.73	0.69	-0.04	-0.01
Naphtha	1.98	2.04	2.01	2.13	2.04	1.92	2.03	1.97	1.77	-0.20	-0.15
Motor gasoline	1.55	1.54	1.62	1.56	1.51	1.51	1.49	1.51	1.52	0.01	0.00
Jet and kerosene	0.90	0.91	0.71	1.05	1.18	0.74	0.78	0.76	0.69	-0.07	0.00
Gasoil/diesel oil	1.82	1.89	1.87	1.95	1.95	1.90	1.90	1.87	1.93	0.07	0.01
Residual fuel oil	0.65	0.58	0.54	0.58	0.66	0.49	0.53	0.50	0.45	-0.05	-0.05
Other products	0.42	0.35	0.36	0.32	0.35	0.32	0.30	0.31	0.35	0.05	0.04
Total	**8.11**	**8.06**	**7.80**	**8.33**	**8.51**	**7.60**	**7.75**	**7.65**	**7.40**	**-0.24**	**-0.16**
OECD											
LPG and ethane	5.25	5.20	4.83	5.39	6.05	5.14	5.40	4.98	5.06	0.08	0.09
Naphtha	3.43	3.56	3.52	3.67	3.48	3.21	3.35	3.24	3.06	-0.18	-0.33
Motor gasoline	14.53	14.55	15.01	14.46	14.05	14.78	14.31	14.83	15.20	0.37	0.01
Jet and kerosene	4.17	4.35	4.40	4.48	4.49	4.32	4.17	4.33	4.47	0.14	0.17
Gasoil/diesel oil	13.26	13.51	13.48	13.87	13.78	13.58	13.61	13.64	13.50	-0.14	-0.25
Residual fuel oil	2.16	2.15	2.07	2.18	2.18	2.05	2.16	2.07	1.91	-0.16	-0.16
Other products	4.18	4.10	4.35	4.01	3.79	4.04	3.67	4.01	4.42	0.41	0.05
Total	**46.97**	**47.42**	**47.66**	**48.06**	**47.82**	**47.13**	**46.67**	**47.10**	**47.62**	**0.52**	**-0.43**

1 Demand, measured as deliveries from refineries and primary stocks, comprises inland deliveries, international bunkers and refinery fuel. It includes crude for direct burning, oil from non-conventional sources and other sources of supply. Jet/kerosene comprises jet kerosene and non-aviation kerosene. Gasoil comprises diesel, light heating oil and other gasoils. North America comprises US 50 states, US territories, Mexico and Canada.
2 Latest official OECD submissions (MOS).

Table 2b
OIL DEMAND IN SELECTED OECD COUNTRIES[1]
(million barrels per day)

	2016	2017	3Q17	4Q17	1Q18	2Q18	Apr 18	May 18	Jun 18 [2]	Latest month vs. May 18	Latest month vs. Jun 17
United States[3]											
LPG and ethane	2.47	2.54	2.31	2.73	3.12	2.58	2.75	2.44	2.54	0.10	0.08
Naphtha	0.22	0.23	0.21	0.22	0.21	0.20	0.21	0.20	0.21	0.01	-0.04
Motor gasoline	9.32	9.33	9.58	9.24	9.01	9.51	9.19	9.55	9.80	0.25	0.03
Jet and kerosene	1.62	1.69	1.71	1.73	1.65	1.73	1.64	1.72	1.86	0.14	0.09
Gasoil/diesel oil	3.88	3.93	3.85	4.05	4.18	4.13	4.15	4.27	3.95	-0.32	-0.01
Residual fuel oil	0.33	0.34	0.31	0.34	0.28	0.32	0.41	0.31	0.25	-0.06	-0.10
Other products	1.86	1.90	2.03	1.89	1.78	1.86	1.60	1.87	2.10	0.24	0.09
Total	**19.69**	**19.96**	**20.01**	**20.21**	**20.24**	**20.33**	**19.94**	**20.36**	**20.71**	**0.35**	**0.14**
Japan											
LPG and ethane	0.42	0.39	0.34	0.39	0.46	0.35	0.38	0.36	0.32	-0.04	-0.02
Naphtha	0.75	0.77	0.73	0.79	0.75	0.66	0.74	0.69	0.54	-0.15	-0.18
Motor gasoline	0.90	0.88	0.94	0.89	0.84	0.85	0.84	0.85	0.86	0.01	0.00
Jet and kerosene	0.51	0.51	0.34	0.62	0.73	0.37	0.39	0.38	0.32	-0.07	0.00
Diesel	0.44	0.43	0.43	0.44	0.43	0.44	0.44	0.42	0.46	0.04	0.03
Other gasoil	0.35	0.35	0.31	0.37	0.40	0.29	0.31	0.27	0.29	0.02	-0.04
Residual fuel oil	0.33	0.28	0.27	0.28	0.34	0.23	0.24	0.24	0.21	-0.04	-0.03
Other products	0.32	0.28	0.28	0.28	0.31	0.24	0.25	0.22	0.25	0.03	0.01
Total	**4.01**	**3.89**	**3.63**	**4.06**	**4.27**	**3.43**	**3.60**	**3.44**	**3.24**	**-0.20**	**-0.23**
Germany											
LPG and ethane	0.10	0.13	0.13	0.12	0.11	0.12	0.12	0.12	0.13	0.01	0.01
Naphtha	0.37	0.38	0.37	0.38	0.32	0.30	0.30	0.31	0.27	-0.04	-0.08
Motor gasoline	0.42	0.43	0.44	0.42	0.45	0.45	0.45	0.45	0.46	0.02	0.02
Jet and kerosene	0.20	0.22	0.24	0.21	0.19	0.23	0.21	0.23	0.25	0.02	0.02
Diesel	0.76	0.76	0.78	0.76	0.70	0.74	0.76	0.72	0.74	0.02	-0.05
Other gasoil	0.36	0.37	0.35	0.36	0.41	0.26	0.30	0.25	0.22	-0.04	-0.15
Residual fuel oil	0.09	0.08	0.07	0.10	0.09	0.08	0.09	0.07	0.07	0.00	0.01
Other products	0.09	0.09	0.11	0.09	0.07	0.09	0.08	0.07	0.12	0.04	0.01
Total	**2.38**	**2.46**	**2.49**	**2.43**	**2.33**	**2.27**	**2.30**	**2.23**	**2.27**	**0.04**	**-0.22**
Italy											
LPG and ethane	0.10	0.10	0.09	0.11	0.12	0.09	0.10	0.09	0.08	-0.01	-0.01
Naphtha	0.08	0.09	0.10	0.09	0.09	0.06	0.08	0.06	0.05	-0.01	-0.05
Motor gasoline	0.17	0.16	0.17	0.15	0.15	0.17	0.16	0.16	0.18	0.02	0.00
Jet and kerosene	0.09	0.11	0.13	0.09	0.09	0.11	0.11	0.12	0.12	0.00	-0.01
Diesel	0.47	0.47	0.46	0.48	0.50	0.50	0.49	0.50	0.52	0.02	0.02
Other gasoil	0.08	0.08	0.08	0.09	0.07	0.08	0.08	0.08	0.09	0.01	0.00
Residual fuel oil	0.08	0.08	0.09	0.07	0.08	0.08	0.08	0.08	0.09	0.01	0.01
Other products	0.16	0.15	0.16	0.16	0.15	0.17	0.17	0.18	0.18	0.00	0.02
Total	**1.24**	**1.24**	**1.27**	**1.25**	**1.25**	**1.27**	**1.27**	**1.26**	**1.29**	**0.03**	**-0.03**
France											
LPG and ethane	0.12	0.11	0.10	0.11	0.14	0.10	0.11	0.10	0.09	0.00	0.00
Naphtha	0.11	0.11	0.11	0.08	0.12	0.14	0.14	0.13	0.14	0.00	0.03
Motor gasoline	0.17	0.18	0.20	0.18	0.17	0.20	0.19	0.20	0.20	0.00	0.00
Jet and kerosene	0.15	0.16	0.18	0.15	0.15	0.17	0.16	0.17	0.17	0.00	0.00
Diesel	0.70	0.72	0.73	0.72	0.70	0.71	0.71	0.70	0.73	0.03	-0.02
Other gasoil	0.25	0.25	0.25	0.26	0.27	0.19	0.21	0.18	0.19	0.00	-0.02
Residual fuel oil	0.04	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.04	-0.01	0.00
Other products	0.12	0.12	0.13	0.11	0.10	0.13	0.13	0.12	0.16	0.04	-0.01
Total	**1.65**	**1.71**	**1.76**	**1.66**	**1.71**	**1.69**	**1.70**	**1.66**	**1.71**	**0.06**	**-0.03**
United Kingdom											
LPG and ethane	0.15	0.14	0.13	0.13	0.14	0.13	0.13	0.13	0.13	-0.01	-0.02
Naphtha	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.03	0.02	-0.01	-0.02
Motor gasoline	0.29	0.29	0.29	0.28	0.27	0.29	0.29	0.28	0.31	0.02	0.00
Jet and kerosene	0.32	0.32	0.33	0.33	0.34	0.33	0.34	0.32	0.33	0.01	0.01
Diesel	0.52	0.52	0.52	0.54	0.52	0.54	0.54	0.50	0.57	0.07	0.03
Other gasoil	0.13	0.14	0.15	0.14	0.13	0.15	0.16	0.14	0.15	0.00	0.00
Residual fuel oil	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.03	0.00	0.00
Other products	0.12	0.12	0.13	0.12	0.11	0.12	0.12	0.12	0.13	0.00	0.00
Total	**1.58**	**1.58**	**1.61**	**1.60**	**1.57**	**1.61**	**1.63**	**1.56**	**1.65**	**0.09**	**0.01**
Canada											
LPG and ethane	0.41	0.39	0.35	0.43	0.42	0.33	0.36	0.30	0.34	0.04	-0.02
Naphtha	0.10	0.10	0.11	0.10	0.06	0.05	0.06	0.05	0.05	0.00	-0.04
Motor gasoline	0.84	0.85	0.89	0.84	0.78	0.82	0.79	0.84	0.82	-0.02	-0.08
Jet and kerosene	0.14	0.15	0.17	0.15	0.14	0.16	0.16	0.16	0.16	0.00	0.02
Diesel	0.30	0.29	0.29	0.29	0.26	0.27	0.28	0.26	0.27	0.01	-0.02
Other gasoil	0.28	0.27	0.29	0.30	0.28	0.27	0.21	0.33	0.26	-0.06	-0.01
Residual fuel oil	0.05	0.06	0.05	0.05	0.06	0.08	0.07	0.09	0.09	0.00	0.02
Other products	0.36	0.35	0.37	0.36	0.32	0.36	0.32	0.38	0.38	0.00	0.05
Total	**2.47**	**2.45**	**2.52**	**2.52**	**2.32**	**2.35**	**2.25**	**2.41**	**2.38**	**-0.03**	**-0.08**

1 Demand, measured as deliveries from refineries and primary stocks, comprises inland deliveries, international bunkers and refinery fuel. It includes crude for direct burning, oil from non-conventional sources and other sources of supply. Jet/kerosene comprises jet kerosene and non-aviation kerosene. Gasoil comprises diesel, light heating oil and other gasoils.

2 Latest official OECD submissions (MOS).

3 US figures exclude US territories.

Table 3
WORLD OIL PRODUCTION

(million barrels per day)

	2017	2018	2019	1Q18	2Q18	3Q18	4Q18	1Q19	Jun 18	Jul 18	Aug 18
OPEC											
Crude Oil											
Saudi Arabia	9.96			9.95	10.14				10.46	10.35	10.42
Iran	3.81			3.83	3.84				3.83	3.78	3.63
Iraq	4.47			4.45	4.47				4.54	4.56	4.65
UAE	2.93			2.84	2.88				2.90	2.98	2.98
Kuwait	2.71			2.70	2.71				2.72	2.80	2.83
Neutral Zone	0.00			0.00	0.00				0.00	0.00	0.00
Qatar	0.61			0.60	0.61				0.62	0.62	0.62
Angola	1.64			1.55	1.49				1.45	1.47	1.47
Nigeria	1.53			1.66	1.51				1.46	1.52	1.61
Libya	0.83			1.01	0.89				0.71	0.67	0.95
Algeria	1.05			1.01	1.03				1.05	1.06	1.06
Congo	0.26			0.31	0.32				0.33	0.31	0.32
Gabon	0.20			0.21	0.19				0.20	0.18	0.20
Equatorial Guinea	0.13			0.13	0.12				0.12	0.12	0.12
Ecuador	0.53			0.52	0.53				0.53	0.53	0.53
Venezuela	1.97			1.54	1.36				1.30	1.26	1.24
Total Crude Oil	32.62			32.32	32.08				32.22	32.21	32.63
Total NGLs[1]	6.91	6.98	7.05	6.94	6.95	7.01	7.03	7.05	6.95	7.01	7.01
Total OPEC[2]	**39.52**			**39.26**	**39.03**				**39.17**	**39.22**	**39.64**
NON-OPEC[2,3]											
OECD											
Americas	20.32	22.19	23.57	21.74	22.14	22.26	22.61	23.21	22.25	22.42	22.35
United States	13.27	14.99	16.23	14.38	15.05	15.18	15.34	15.73	15.22	15.28	15.22
Mexico	2.23	2.10	2.04	2.15	2.12	2.08	2.06	2.04	2.09	2.09	2.09
Canada	4.82	5.08	5.29	5.19	4.95	4.99	5.20	5.43	4.93	5.03	5.03
Chile	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Europe	3.49	3.44	3.39	3.55	3.34	3.37	3.49	3.47	3.29	3.47	3.32
UK	1.01	1.07	1.10	1.08	1.04	1.04	1.13	1.12	0.95	1.04	1.01
Norway	1.97	1.85	1.76	1.96	1.79	1.81	1.84	1.83	1.85	1.91	1.81
Others	0.51	0.51	0.52	0.51	0.51	0.51	0.51	0.52	0.50	0.52	0.51
Asia Oceania	0.39	0.39	0.47	0.40	0.39	0.38	0.40	0.43	0.40	0.38	0.38
Australia	0.31	0.32	0.40	0.33	0.31	0.31	0.33	0.36	0.33	0.31	0.31
Others	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Total OECD	**24.20**	**26.02**	**27.43**	**25.69**	**25.86**	**26.01**	**26.50**	**27.11**	**25.94**	**26.27**	**26.05**
NON-OECD											
Former USSR	14.34	14.54	14.78	14.43	14.47	14.58	14.67	14.79	14.52	14.67	14.51
Russia	11.36	11.49	11.71	11.34	11.38	11.59	11.64	11.67	11.45	11.60	11.59
Others	2.98	3.05	3.06	3.09	3.09	2.99	3.03	3.12	3.08	3.08	2.92
Asia[2]	7.34	7.14	6.92	7.24	7.20	7.10	7.03	6.97	7.28	7.12	7.10
China	3.87	3.80	3.70	3.82	3.86	3.78	3.75	3.72	3.92	3.80	3.77
Malaysia	0.72	0.72	0.70	0.74	0.72	0.72	0.71	0.70	0.73	0.72	0.72
India	0.86	0.84	0.80	0.85	0.85	0.83	0.82	0.81	0.85	0.83	0.83
Indonesia	0.84	0.80	0.77	0.81	0.81	0.80	0.79	0.78	0.80	0.80	0.80
Others	1.05	0.98	0.94	1.02	0.97	0.98	0.97	0.96	0.98	0.98	0.98
Europe	0.13	0.12	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Americas[2]	4.54	4.56	4.87	4.50	4.53	4.55	4.67	4.73	4.52	4.48	4.58
Brazil	2.74	2.77	3.12	2.71	2.72	2.75	2.89	2.96	2.71	2.69	2.78
Argentina	0.57	0.57	0.57	0.57	0.58	0.57	0.57	0.57	0.58	0.58	0.57
Colombia	0.86	0.86	0.84	0.86	0.87	0.87	0.86	0.85	0.87	0.87	0.87
Others	0.37	0.35	0.34	0.36	0.37	0.35	0.35	0.34	0.36	0.34	0.35
Middle East[2,4]	1.25	1.25	1.25	1.21	1.26	1.27	1.27	1.26	1.27	1.27	1.27
Oman	0.98	0.98	0.96	0.97	0.98	0.98	0.98	0.97	0.98	0.98	0.98
Syria	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Yemen	0.03	0.04	0.04	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Others	0.21	0.21	0.22	0.18	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Africa	1.41	1.45	1.44	1.44	1.48	1.46	1.43	1.45	1.51	1.47	1.46
Egypt	0.64	0.64	0.61	0.65	0.65	0.64	0.63	0.62	0.65	0.64	0.64
Others	0.77	0.81	0.83	0.80	0.82	0.82	0.80	0.83	0.86	0.82	0.82
Total Non-OECD	**28.99**	**29.07**	**29.37**	**28.96**	**29.06**	**29.08**	**29.20**	**29.32**	**29.22**	**29.14**	**29.03**
Processing gains[5]	2.29	2.32	2.35	2.32	2.32	2.32	2.32	2.35	2.32	2.32	2.32
Global Biofuels	2.47	2.56	2.66	2.09	2.71	2.97	2.47	2.19	3.01	3.03	3.01
TOTAL NON-OPEC	**57.96**	**59.97**	**61.81**	**59.06**	**59.95**	**60.38**	**60.48**	**60.96**	**60.49**	**60.75**	**60.41**
TOTAL SUPPLY	**97.48**			**98.32**	**98.98**				**99.66**	**99.97**	**100.05**

1 Includes condensates reported by OPEC countries, oil from non-conventional sources, e.g. NGLs in Qatar and Nigeria and non-oil inputs to Saudi Arabian MTBE.
2 Latin America excludes Ecuador throughout. Africa excludes Angola, Congo, Gabon and Equatorial Guinea throughout. Asia includes Indonesia throughout.
3 Comprises crude oil, condensates, NGLs and oil from non-conventional sources
4 Includes small amounts of production from Jordan and Bahrain.
5 Net volumetric gains and losses in refining and marine transportation losses.

Table 4
OECD INDUSTRY STOCKS[1] AND QUARTERLY STOCK CHANGES

	RECENT MONTHLY STOCKS[2] in Million Barrels					PRIOR YEARS' STOCKS[2] in Million Barrels			STOCK CHANGES in mb/d			
	Mar2018	Apr2018	May2018	Jun2018	Jul2018*	Jul2015	Jul2016	Jul2017	3Q2017	4Q2017	1Q2018	2Q2018
OECD Americas												
Crude	584.9	585.3	592.7	572.6	566.3	586.6	649.7	643.3	-0.35	-0.48	0.04	-0.14
Motor Gasoline	273.0	271.5	270.9	266.5	262.4	248.0	272.8	262.2	-0.19	0.17	0.06	-0.07
Middle Distillate	205.8	195.2	185.8	191.9	197.1	215.8	230.1	222.2	-0.15	0.09	-0.15	-0.15
Residual Fuel Oil	40.8	38.7	37.6	35.3	35.0	47.4	45.0	36.9	0.01	-0.06	0.06	-0.06
Total Products[3]	703.4	696.9	698.7	708.9	723.5	739.2	794.9	751.8	-0.08	-0.10	-0.35	0.06
Total[4]	1468.4	1461.6	1476.8	1470.4	1477.1	1513.7	1639.7	1588.0	-0.27	-0.79	-0.34	0.02
OECD Europe												
Crude	344.2	352.5	360.3	354.7	356.5	339.3	367.0	360.1	-0.28	-0.08	0.16	0.12
Motor Gasoline	96.5	93.8	85.3	84.0	83.7	83.9	96.9	89.3	-0.06	0.13	-0.03	-0.14
Middle Distillate	268.4	262.9	260.3	257.1	261.1	284.4	333.9	304.2	-0.04	-0.24	-0.03	-0.12
Residual Fuel Oil	62.1	61.4	62.2	60.8	59.8	68.3	75.3	63.0	-0.07	0.00	0.03	-0.01
Total Products[3]	545.8	534.1	518.3	520.5	522.2	528.8	608.7	565.7	-0.09	-0.13	0.03	-0.28
Total[4]	969.9	970.4	961.8	957.6	961.1	936.4	1045.9	1001.0	-0.37	-0.24	0.25	-0.14
OECD Asia Oceania												
Crude	161.1	163.2	162.7	161.8	151.4	204.9	196.2	197.0	0.09	-0.10	-0.31	0.01
Motor Gasoline	24.0	24.4	26.4	24.1	24.5	24.7	24.9	22.8	-0.02	0.00	0.01	0.00
Middle Distillate	62.0	65.1	64.0	65.3	70.0	65.6	71.7	64.1	0.03	-0.04	-0.01	0.04
Residual Fuel Oil	18.2	19.0	19.7	21.3	20.6	19.8	19.4	21.6	-0.02	0.00	-0.01	0.03
Total Products[3]	161.3	164.9	164.8	165.0	171.1	170.2	184.2	175.6	0.03	-0.08	-0.04	0.04
Total[4]	378.0	388.4	389.8	388.4	386.1	438.6	441.6	436.5	0.10	-0.23	-0.38	0.11
Total OECD												
Crude	1090.1	1101.1	1115.7	1089.1	1074.2	1130.8	1213.0	1200.3	-0.54	-0.66	-0.11	-0.01
Motor Gasoline	393.6	389.7	382.6	374.6	370.6	356.6	394.5	374.4	-0.27	0.30	0.05	-0.21
Middle Distillate	536.2	523.2	510.1	514.3	528.1	565.8	635.7	590.4	-0.16	-0.19	-0.19	-0.24
Residual Fuel Oil	121.0	119.1	119.5	117.4	115.3	135.5	139.6	121.4	-0.08	-0.05	0.09	-0.04
Total Products[3]	1410.5	1395.9	1381.9	1394.4	1416.8	1438.2	1587.8	1493.0	-0.15	-0.31	-0.36	-0.18
Total[4]	2816.3	2820.3	2828.4	2816.4	2824.2	2888.7	3127.2	3025.5	-0.54	-1.26	-0.46	0.00

OECD GOVERNMENT-CONTROLLED STOCKS[5] AND QUARTERLY STOCK CHANGES

	RECENT MONTHLY STOCKS[2] in Million Barrels					PRIOR YEARS' STOCKS[2] in Million Barrels			STOCK CHANGES in mb/d			
	Mar2018	Apr2018	May2018	Jun2018	Jul2018*	Jul2015	Jul2016	Jul2017	3Q2017	4Q2017	1Q2018	2Q2018
OECD Americas												
Crude	665.5	664.0	660.2	660.0	660.0	695.1	695.1	678.9	-0.06	-0.12	0.03	-0.06
Products	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.00	0.00	0.00	0.00
OECD Europe												
Crude	207.6	208.7	209.3	208.6	208.5	207.8	205.7	208.3	0.00	-0.02	0.02	0.01
Products	274.2	272.8	272.0	273.5	274.0	257.6	268.7	268.4	-0.06	0.04	0.04	-0.01
OECD Asia Oceania												
Crude	383.4	383.4	383.4	383.4	383.4	384.4	385.4	385.0	0.00	-0.01	-0.01	0.00
Products	38.7	38.7	38.7	38.7	38.7	33.4	35.5	38.0	0.00	0.00	0.00	0.00
Total OECD												
Crude	1256.5	1256.1	1252.9	1252.0	1251.9	1287.3	1286.2	1272.2	-0.06	-0.15	0.04	-0.05
Products	314.9	313.5	312.7	314.2	314.8	293.0	306.2	308.4	-0.05	0.04	0.04	-0.01
Total[4]	1574.7	1573.3	1569.1	1569.6	1569.9	1584.5	1594.9	1583.9	-0.12	-0.11	0.08	-0.06

* estimated

1 Stocks are primary national territory stocks on land (excluding utility stocks and including pipeline and entrepot stocks where known) and include stocks held by industry to meet IEA, EU and national emergency reserve commitments and are subject to government control in emergencies.

2 Closing stock levels.

3 Total products includes gasoline, middle distillates, fuel oil and other products.

4 Total includes NGLs, refinery feedstocks, additives/oxygenates and other hydrocarbons.

5 Includes government-owned stocks and stock holding organisation stocks held for emergency purposes.

Table 5
TOTAL STOCKS ON LAND IN OECD COUNTRIES[1]
('millions of barrels' and 'days')

	End June 2017		End September 2017		End December 2017		End March 2018		End June 2018 [3]	
	Stock Level	Days Fwd[2] Demand	Stock Level	Days Fwd Demand	Stock Level	Days Fwd Demand	Stock Level	Days Fwd Demand	Stock Level	Days Fwd Demand
OECD Americas										
Canada	182.7	72	185.7	74	189.2	81	191.9	82	189.7	-
Chile	11.2	31	12.5	35	11.5	31	10.8	29	12.3	-
Mexico	49.3	25	46.5	24	43.8	22	47.3	23	39.1	-
United States[4]	2011.9	101	1979.8	98	1896.6	94	1863.8	92	1869.2	-
Total[4]	2277.2	91	2246.6	89	2163.2	86	2135.9	84	2132.5	84
OECD Asia Oceania										
Australia	35.4	30	33.7	28	34.2	29	40.3	33	42.5	-
Israel	-	-	-	-	-	-	-	-	-	-
Japan	566.3	156	571.3	141	562.8	132	538.6	157	549.4	-
Korea	236.4	92	243.5	92	230.6	88	213.0	84	209.6	-
New Zealand	9.0	57	8.1	46	7.4	41	8.1	50	8.8	-
Total	847.1	109	856.6	103	835.1	98	800.1	105	810.4	105
OECD Europe[5]										
Austria	21.8	76	22.1	83	21.4	84	23.0	84	21.2	-
Belgium	46.6	73	44.1	66	41.4	59	46.2	75	43.8	-
Czech Republic	21.4	94	21.4	98	21.5	108	22.7	104	21.4	-
Denmark	27.3	172	23.6	146	23.4	152	22.1	137	22.8	-
Estonia	2.7	100	2.2	82	3.0	113	2.5	81	2.6	-
Finland	43.4	194	44.7	213	41.1	186	41.0	190	40.8	-
France	165.4	94	165.2	99	165.7	97	166.0	98	168.5	-
Germany	276.7	111	273.9	113	278.8	119	279.9	123	278.2	-
Greece	32.4	99	32.3	108	32.4	116	33.3	115	32.1	-
Hungary	25.2	148	26.2	150	25.4	152	26.1	147	25.2	-
Ireland	12.1	79	10.1	63	11.0	68	11.4	73	10.0	-
Italy	133.7	105	127.7	102	125.1	100	125.8	99	125.4	-
Latvia	3.3	67	1.5	36	2.5	67	3.1	72	3.6	-
Luxembourg	0.7	12	0.6	11	0.6	10	0.6	9	0.4	-
Netherlands	156.1	163	149.7	163	142.5	154	147.8	159	142.4	-
Norway	22.0	109	22.0	89	23.3	92	27.2	126	26.4	-
Poland	69.5	102	69.2	102	71.8	113	75.0	111	75.7	-
Portugal	24.0	92	24.1	98	22.9	99	24.8	106	23.8	-
Slovak Republic	13.0	145	12.1	126	11.4	146	12.1	132	11.6	-
Slovenia	5.1	92	4.7	88	5.2	99	5.1	92	4.9	-
Spain	128.7	98	127.2	98	119.5	91	124.7	94	117.9	-
Sweden	53.2	160	42.3	131	35.6	127	38.7	115	37.7	-
Switzerland	34.5	161	35.4	148	33.9	159	33.1	158	33.2	-
Turkey	84.0	75	83.9	80	83.2	90	84.1	87	90.1	-
United Kingdom	80.7	50	77.5	48	80.1	51	79.0	49	83.4	-
Total	1483.4	101	1443.9	100	1422.6	101	1455.1	103	1443.1	99
Total OECD	**4607.6**	**97**	**4547.0**	**95**	**4420.8**	**92**	**4391.1**	**93**	**4385.9**	**92**
DAYS OF IEA Net Imports[6]	**-**	**196**	**-**	**192**	**-**	**187**	**-**	**186**	**-**	**190**

1 Total Stocks are industry and government-controlled stocks (see breakdown in table below). Stocks are primary national territory stocks on land (excluding utility stocks and including pipeline and entrepot stocks where known) they include stocks held by industry to meet IEA, EU and national emergency reserves commitments and are subject to government control in emergencies.
2 Note that days of forward demand represent the stock level divided by the forward quarter average daily demand and is very different from the days of net imports used for the calculation of IEA Emergency Reserves.
3 End June 2018 forward demand figures are IEA Secretariat forecasts.
4 US figures exclude US territories. Total includes US territories.
5 Data not available for Iceland.
6 Reflects stock levels and prior calendar year's net imports adjusted according to IEA emergency reserve definitions (see www.iea.org/netimports.asp). Net exporting IEA countries are excluded.

TOTAL OECD STOCKS

CLOSING STOCKS	Total	Government[1] controlled	Industry	Total	Government[1] controlled	Industry
	Millions of Barrels			*Days of Fwd. Demand*[2]		
2Q2015	4467	1587	2880	95	34	61
3Q2015	4538	1581	2957	97	34	63
4Q2015	4577	1588	2989	98	34	64
1Q2016	4633	1595	3039	100	35	66
2Q2016	4668	1592	3076	99	34	65
3Q2016	4679	1596	3084	99	34	65
4Q2016	4602	1600	3002	98	34	64
1Q2017	4630	1600	3031	98	34	64
2Q2017	4608	1588	3019	97	33	63
3Q2017	4547	1578	2969	95	33	62
4Q2017	4421	1568	2853	92	33	60
1Q2018	4391	1575	2816	93	33	60
2Q2018	4386	1570	2816	92	33	59

1 Includes government-owned stocks and stock holding organisation stocks held for emergency purposes.
2 Days of forward demand calculated using actual demand except in 2Q2018 (when latest forecasts are used).

Table 6
IEA MEMBER COUNTRY DESTINATIONS OF SELECTED CRUDE STREAMS[1]
(million barrels per day)

	2015	2016	2017	3Q17	4Q17	1Q18	2Q18	Apr 18	May 18	Jun 18	Year Earlier Jun 17	Year Earlier change
Saudi Light & Extra Light												
Americas	0.63	0.69	0.59	0.44	0.47	0.54	0.79	0.76	0.66	0.95	0.71	0.24
Europe	0.78	0.79	0.69	0.64	0.68	0.58	0.70	0.56	0.73	0.80	0.74	0.06
Asia Oceania	1.25	1.40	1.56	1.56	1.53	1.50	1.42	1.52	1.35	1.40	1.27	0.13
Saudi Medium												
Americas	0.37	0.44	0.33	0.28	0.27	0.20	0.28	0.28	0.29	0.26	0.31	-0.05
Europe	0.03	0.01	0.01	0.01	0.02	0.02	0.01	-	0.02	-	-	-
Asia Oceania	0.44	0.41	0.37	0.41	0.41	0.40	0.42	0.41	0.44	0.42	0.35	0.07
Canada Heavy												
Americas	1.90	2.04	2.23	2.21	2.17	2.33	2.48	2.45	2.40	2.61	2.28	0.32
Europe	0.01	0.01	0.02	0.03	0.04	0.03	0.04	0.08	0.02	0.02	-	-
Asia Oceania	-	-	-	-	-	0.00	0.00	-	0.01	-	-	-
Iraqi Basrah Light[2]												
Americas	0.17	0.42	0.63	0.55	0.75	0.66	0.63	0.88	0.61	0.39	0.63	-0.24
Europe	0.72	0.81	0.76	0.76	0.70	0.65	0.61	0.52	0.63	0.67	0.87	-0.20
Asia Oceania	0.41	0.46	0.40	0.41	0.39	0.42	0.48	0.36	0.53	0.53	0.46	0.07
Kuwait Blend												
Americas	0.13	0.14	0.11	0.04	0.03	0.03	0.04	-	-	0.11	0.30	-0.19
Europe	0.13	0.19	0.20	0.25	0.14	0.13	0.08	0.06	0.07	0.10	0.22	-0.12
Asia Oceania	0.65	0.66	0.68	0.67	0.67	0.68	0.66	0.78	0.62	0.58	0.61	-0.03
Iranian Light												
Americas	-	-	-	-	-	-	-	-	-	-	-	-
Europe	0.09	0.21	0.27	0.25	0.20	0.24	0.26	0.19	0.32	0.26	0.21	0.04
Asia Oceania	0.01	0.01	0.01	0.02	0.01	0.02	0.01	-	0.01	0.01	0.01	0.00
Iranian Heavy[3]												
Americas	-	-	-	-	-	-	-	-	-	-	-	-
Europe	0.02	0.21	0.52	0.59	0.54	0.42	0.44	0.52	0.43	0.39	0.71	-0.32
Asia Oceania	0.27	0.52	0.57	0.57	0.54	0.49	0.36	0.36	0.40	0.32	0.44	-0.11
BFOE												
Americas	0.01	0.02	0.02	0.02	0.01	-	0.00	0.01	-	-	0.00	-
Europe	0.49	0.44	0.45	0.49	0.52	0.47	0.25	0.21	0.21	0.33	0.47	-0.14
Asia Oceania	0.06	0.05	0.10	0.09	0.14	0.09	0.09	-	0.20	0.07	0.14	-0.07
Kazakhstan												
Americas	0.00	0.01	-	-	-	-	-	-	-	-	-	-
Europe	0.64	0.70	0.75	0.74	0.72	0.83	0.73	0.83	0.68	0.68	0.76	-0.08
Asia Oceania	0.06	0.03	0.10	0.15	0.13	0.13	0.19	0.14	0.24	0.18	0.07	0.11
Venezuelan 22 API and heavier												
Americas	0.67	0.63	0.48	0.41	0.39	0.40	0.47	0.48	0.47	0.46	0.61	-0.15
Europe	0.09	0.05	0.04	0.05	0.03	0.02	0.02	0.02	0.01	0.03	0.05	-0.02
Asia Oceania	-	-	-	-	-	-	-	-	-	-	-	-
Mexican Maya												
Americas	0.50	0.53	0.58	0.50	0.67	0.64	0.63	0.54	0.54	0.81	0.68	0.13
Europe	0.15	0.17	0.20	0.17	0.26	0.27	0.22	0.25	0.28	0.14	0.12	0.02
Asia Oceania	0.01	0.05	0.07	0.07	0.10	0.06	0.10	0.09	0.10	0.09	0.06	0.04
Russian Urals												
Americas	-	-	0.01	0.02	0.01	-	-	-	-	-	-	-
Europe	1.61	1.72	1.64	1.68	1.67	1.32	1.43	1.47	1.51	1.30	1.65	-0.34
Asia Oceania	-	-	0.01	0.02	-	-	0.01	0.03	-	-	0.02	-
Cabinda and Other Angola												
North America	0.11	0.16	0.07	0.17	0.07	-	0.10	0.16	-	0.15	-	-
Europe	0.42	0.27	0.11	0.17	0.10	0.14	0.11	0.19	0.10	0.06	0.10	-0.04
Pacific	0.02	0.01	0.01	0.03	-	-	0.00	-	-	0.01	-	-
Nigerian Light[4]												
Americas	0.02	0.07	0.04	0.05	0.06	0.03	0.01	-	0.03	-	-	-
Europe	0.57	0.39	0.39	0.38	0.38	0.47	0.48	0.59	0.49	0.37	0.41	-0.03
Asia Oceania	-	0.01	0.02	0.03	0.01	0.02	0.03	0.01	0.05	0.02	0.03	-0.01
Libya Light and Medium												
Americas	-	-	0.02	0.03	0.03	-	-	-	-	-	-	-
Europe	0.22	0.20	0.54	0.67	0.70	0.65	0.64	0.72	0.58	0.62	0.43	0.18
Asia Oceania	0.01	0.02	0.03	0.01	0.03	0.02	0.01	0.02	0.03	-	0.04	-

1 Data based on monthly submissions from IEA countries to the crude oil import register (in '000 bbl), subject to availability. May differ from Table 8 of the Report. IEA Americas includes United States and Canada. IEA Europe includes all countries in OECD Europe except Estonia, Hungary, Slovenia and Latvia. IEA Asia Oceania includes Australia, New Zealand, Korea and Japan.
2 Iraqi Total minus Kirkuk.
3 Iranian Total minus Iranian Light.
4 33° API and lighter (e.g., Bonny Light, Escravos, Qua Iboe and Oso Condensate).

Table 7
REGIONAL OECD IMPORTS[1,2]
(thousand barrels per day)

	2015	2016	2017	3Q17	4Q17	1Q18	2Q18	Apr 18	May 18	Jun 18	Year Earlier Jun 17	Year Earlier % change
Crude Oil												
Americas	4026	4542	4361	4289	3941	3827	4079	4387	3826	4031	4725	-15%
Europe	9505	9253	9711	9779	9935	9502	9433	9285	9665	9341	9770	-4%
Asia Oceania	6573	6659	6842	6937	6942	6849	6591	6850	6590	6332	5950	6%
Total OECD	20103	20455	20914	21005	20818	20178	20103	20522	20082	19704	20445	-4%
LPG												
Americas	10	20	20	15	25	33	14	19	10	12	11	7%
Europe	418	445	437	421	400	492	465	440	467	488	424	15%
Asia Oceania	518	567	549	468	538	595	566	678	446	578	585	-1%
Total OECD	947	1032	1006	904	963	1120	1044	1137	923	1077	1020	6%
Naphtha												
Americas	14	10	19	18	20	10	5	6	5	3	14	-80%
Europe	345	348	369	363	389	409	368	332	449	320	362	-11%
Asia Oceania	950	908	981	971	991	1031	958	937	1051	883	986	-10%
Total OECD	1309	1266	1369	1353	1399	1450	1331	1276	1505	1206	1362	-11%
Gasoline[3]												
Americas	670	735	727	880	560	559	1045	1008	1087	1038	873	19%
Europe	105	100	162	130	224	155	78	62	31	142	194	-27%
Asia Oceania	91	87	103	96	94	123	123	106	156	105	104	1%
Total OECD	866	922	991	1106	879	838	1245	1176	1274	1285	1171	10%
Jet & Kerosene												
Americas	141	169	171	181	210	131	134	81	151	171	121	41%
Europe	445	504	506	552	535	426	552	542	561	553	485	14%
Asia Oceania	66	73	77	45	87	112	60	63	77	38	52	-26%
Total OECD	651	745	754	779	832	669	746	686	789	763	658	16%
Gasoil/Diesel												
Americas	76	67	77	48	144	179	63	79	79	31	43	-27%
Europe	1161	1340	1381	1394	1360	1403	1406	1302	1426	1489	1426	4%
Asia Oceania	158	196	195	189	179	214	254	266	285	208	193	8%
Total OECD	1395	1602	1654	1631	1684	1795	1722	1647	1790	1728	1662	4%
Heavy Fuel Oil												
Americas	116	149	131	153	128	158	161	138	200	143	133	7%
Europe	537	477	240	299	174	239	227	224	195	262	217	21%
Asia Oceania	173	153	146	106	153	192	157	150	167	154	167	-8%
Total OECD	826	779	517	559	456	589	544	511	562	558	517	8%
Other Products												
Americas	675	652	717	722	745	722	657	649	666	657	785	-16%
Europe	701	774	1009	829	979	1058	982	983	852	1115	1178	-5%
Asia Oceania	345	348	255	238	248	277	250	268	219	265	236	12%
Total OECD	1721	1774	1981	1788	1972	2057	1889	1900	1737	2036	2199	-7%
Total Products												
Americas	1702	1802	1862	2018	1832	1793	2079	1979	2199	2054	1980	4%
Europe	3712	3988	4104	3988	4062	4182	4077	3884	3981	4368	4285	2%
Asia Oceania	2301	2331	2306	2112	2292	2543	2367	2469	2401	2231	2324	-4%
Total OECD	7715	8121	8272	8118	8185	8517	8523	8332	8581	8653	8589	1%
Total Oil												
Americas	5728	6344	6223	6307	5773	5620	6157	6366	6025	6085	6705	-9%
Europe	13216	13241	13815	13767	13996	13684	13510	13169	13646	13709	14055	-2%
Asia Oceania	8874	8991	9147	9049	9234	9392	8958	9319	8991	8563	8274	3%
Total OECD	27818	28575	29186	29123	29003	28695	28625	28854	28663	28358	29034	-2%

1 Based on Monthly Oil Questionnaire data submitted by OECD countries in tonnes and converted to barrels.
2 Excludes intra-regional trade.
3 Includes additives.

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User's Guide and Glossary to the IEA *Oil Market Report*

For information on the data sources, definitions, technical terms and general approach used in preparing the *Oil Market Report (OMR), Market Report Series_Oil* and *Annual Statistical Supplement* (current issue of the Statistical Supplement dated 10 August 2018), readers are referred to the *Users' Guide* at www.oilmarketreport.org/glossary.asp. It should be noted that the spot crude and product price assessments are based on daily Argus prices, converted when appropriate to US$ per barrel according to the Argus specification of products (Copyright © 2018 Argus Media Limited - all rights reserved).

Next Issue: 12 October 2018