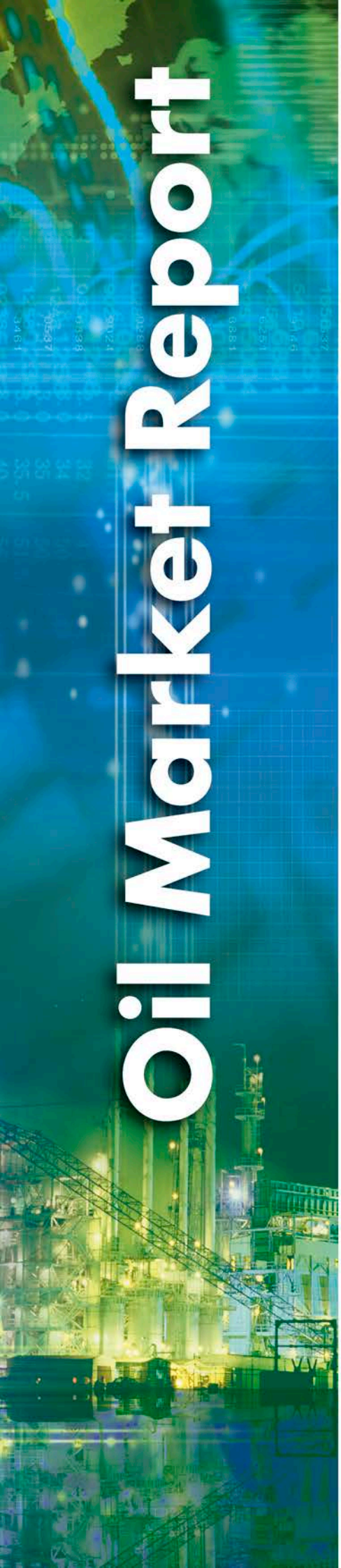

International Energy Agency
Secure Sustainable Together

14 December 2017

HIGHLIGHTS

- **Our forecast for global demand growth remains unchanged at 1.5 mb/d in 2017 (or 1.6%) and 1.3 mb/d in 2018 (or 1.3%).** Revisions have been made to data for Nigeria, Germany and Iraq. The baseline for oil demand has been raised by roughly 0.2 mb/d.

- **Global oil supply rose 0.2 mb/d in November to 97.8 mb/d, the highest in a year, on the back of rising US production.** Output was nonetheless down 1.1 mb/d on a year ago when Russia and Middle East OPEC producers pumped at record rates. Non-OPEC supply is set to rise by 0.6 mb/d in 2017 and 1.6 mb/d next year.

- **OPEC crude supply fell in November for the fourth consecutive month to 32.36 mb/d, down 1.3 mb/d on a year ago.** Output was lower in Saudi Arabia, Angola and Venezuela. Compliance with agreed cuts rose to 115%, the highest this year, and lifted the 2017 average to 91%.

- **OECD commercial stocks fell 40.3 mb in October to 2 940 mb, their lowest level since July 2015.** They are now 111 mb above the five-year average. Chinese crude stocks likely fell in October for the first time in a year. Preliminary global stocks data for November shows a mixed picture.

- **Benchmark crude prices rose by $4-5/bbl on average in November and traded at their highest level in more than two years in early December.** The extension of the OPEC/non-OPEC output cuts and, latterly, the closure of the Forties pipeline system were factors.

- **Global refinery throughput in 3Q17 reached a record high at 81.2 mb/d, even including the impact of Hurricane Harvey, but has fallen back in 4Q17 due to maintenance.** Global margins declined in November, losing almost $1/bbl.

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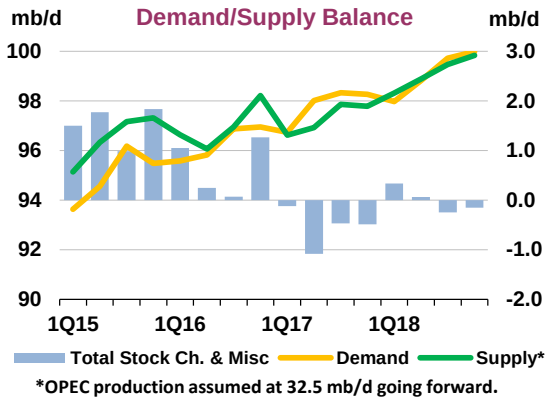
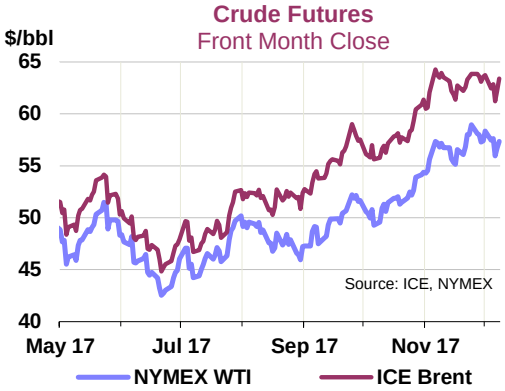
Happy New Year?

This week's closure of the Forties pipeline network that carries about 400 kb/d of North Sea oil added momentum to Brent crude oil prices that have settled above $60/bbl since the end of October. For the time being, in response to the Forties pipeline incident, we have reduced our estimate for UK production in December by 300 kb/d, and we will revisit this as the situation becomes clearer. After the initial surge that understandably accompanies such a major supply disruption, the market has settled down again and, unless another dramatic event occurs in what remains of 2017, it looks as if the Brent crude price will average about $54/bbl for the year, an increase of twenty percent on 2016. For the producers at least, 2017 has been encouraging. Will this carry over into the New Year?





In trying to answer the question, we have been given an important signal by OPEC's decision on 30 November to extend their production cuts – assisted by ten non-OPEC producers led by Russia – until the end of 2018. In compiling our outlook, we assume that crude production from OPEC and its non-OPEC partners remains flat. This assumption is then laid alongside our forecast that the growth in global oil demand will be 1.3 mb/d, slightly down on the 1.5 mb/d we see in 2017.

On considering the final component in the balance – non-OPEC production – we see that 2018 might not be quite so happy for OPEC producers. Just as the OPEC oil ministers were sitting down in Vienna, our colleagues at the US Energy Information Administration released data showing that for September US crude oil output increased month-on-month by 290 kb/d to reach 9.48 mb/d, the highest monthly average since April 2015 and 928 kb/d above a year ago. Preliminary weekly data suggests that US production increased further into early December. Recently, US drilling activity and well completion rates have picked up again, suggesting higher production to come in a few months. Consequently, we have raised our annual growth forecast for total US crude oil to 390 kb/d this year and 870 kb/d for 2018. Impressive though this seems, according to recent investor updates, the new mantra in the US shale regions is "moderation", reflecting a desire to greet stronger prices as an opportunity to consolidate rather than to launch yet more headlong expansion. The flexibility and ingenuity of the shale sector raises challenges to forecasters. Even so, when our US outlook is added to expectations for the other producers, output from non-OPEC countries could rise by 1.6 mb/d in 2018, an increase of 0.2 mb/d to our forecast in last month's *Report*.

So, on our current outlook 2018 may not necessarily be a happy New Year for those who would like to see a tighter market. Total supply growth could exceed demand growth: indeed, in the first half the surplus could be 200 kb/d before reverting to a deficit of about 200 kb/d in the second half, leaving 2018 as a whole showing a closely balanced market. A lot could change in the next few months but it looks as if the producers' hopes for a happy New Year with de-stocking continuing into 2018 at the same 500 kb/d pace we have seen in 2017 may not be fulfilled.

DEMAND

Summary

- In this *Report*, we have adjusted a number of demand assumptions. OECD economic growth and oil prices have been updated and historical data for Nigeria and Germany plus changes to our projections of Iraq's direct crude use have been incorporated. While the historical and forecast baselines have been raised by roughly 200 kb/d, growth in 2017 and 2018 is unchanged compared to last month. **We continue to forecast growth of around 1.5 mb/d in 2017 (or 1.6%) and 1.3 mb/d in 2018 (or 1.3%).**

- After growth of **+1.5 mb/d in 3Q17, world oil demand is expected to grow by 1.3 mb/d in 4Q17**. Provisional data for Europe in October point to a slowdown and growth in 4Q17 is also expected to be restrained by lower direct crude use in Iraq.

- **US demand continued to contract in September, by 175 kb/d year-on-year (y-o-y), reflecting the impact of the hurricanes that hit the country.** Gasoline demand fell 155 kb/d below last year's level and ethane demand dropped by 115 kb/d y-o-y.

- **German oil consumption declined by 200 kb/d y-o-y in October, on lower naphtha and gasoil deliveries.** French deliveries also dropped by 70 kb/d in October but Italian demand rose by 25 kb/d.

- **Chinese apparent demand rose by 725 kb/d y-o-y in October - a slight slowdown compared with September's strong growth of 970 kb/d.** Gasoline demand contracted, however, by 25 kb/d.

- **Indian oil demand growth slowed to 65 kb/d y-o-y in October** after September's strong growth of 350 kb/d. Gasoil demand declined by 35 kb/d y-o-y.

Global Oil Demand (2016-2018)

(million barrels per day)*

	1Q16	2Q16	3Q16	4Q16	2016	1Q17	2Q17	3Q17	4Q17	2017	1Q18	2Q18	3Q18	4Q18	2018
Africa	4.4	4.4	4.2	4.3	4.3	4.5	4.3	4.3	4.4	4.4	4.5	4.4	4.3	4.5	4.5
Americas	31.1	31.1	31.7	31.4	31.3	30.9	31.5	31.7	31.7	31.4	31.1	31.6	32.0	31.8	31.6
Asia/Pacific	33.4	32.8	32.2	33.3	32.9	34.2	33.9	33.2	34.4	33.9	35.0	34.5	34.0	35.4	34.7
Europe	14.3	14.7	15.2	14.9	14.8	14.6	15.1	15.5	14.8	15.0	14.6	15.0	15.5	15.1	15.0
FSU	4.6	4.6	4.9	4.9	4.8	4.6	4.7	5.0	4.9	4.8	4.7	4.8	5.1	5.0	4.9
Middle East	7.9	8.4	8.7	8.1	8.3	7.9	8.5	8.7	8.1	8.3	8.1	8.5	8.8	8.2	8.4
World	**95.6**	**95.8**	**96.9**	**97.0**	**96.3**	**96.7**	**98.0**	**98.3**	**98.3**	**97.8**	**98.0**	**98.8**	**99.7**	**100.0**	**99.1**
Annual Chg (%)	2.1	1.3	0.7	1.5	1.4	1.2	2.3	1.5	1.4	1.6	1.3	0.8	1.4	1.8	1.3
Annual Chg (mb/d)	1.9	1.3	0.7	1.5	1.3	1.2	2.2	1.5	1.3	1.5	1.2	0.8	1.4	1.7	1.3
Changes from last OMR (mb/d)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.1	0.1	0.3	0.3	0.2

* Including biofuels

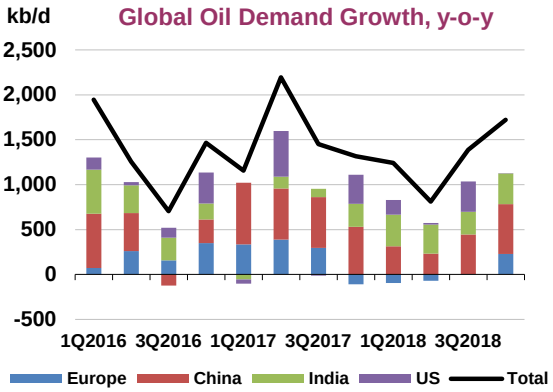
Global overview

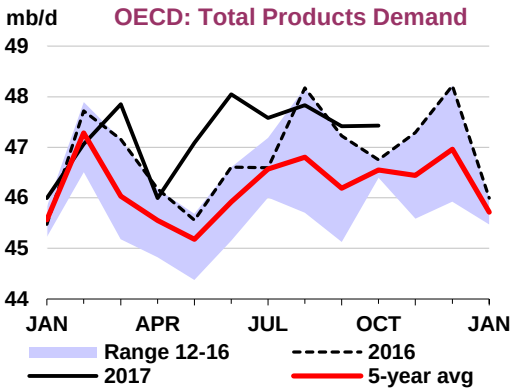
We have revised up global oil product demand since 2016 by roughly 200 kb/d compared to last month, reflecting mainly an upward revision to our estimates of gasoline and gasoil demand in Nigeria. World demand is estimated at 96.3 mb/d in 2016 and 97.8 mb/d in 2017.

Recent changes in fundamentals appear to roughly offset each other. In our forecast, we use the Brent forward curve as a price assumption. The price for 2017, at $54.30/bbl, is 1.2 % higher than in last month's *Report* and that for 2018, at $62.50/bbl, is 5.7 % higher. The impact of higher prices is, however,

partially offset by stronger GDP projections. OECD GDP forecasts have been revised: growth for the Euro Area has been raised by 0.3 percentage points for 2017 and 0.2 percentage points for 2018 to 2.4% and 2.1%, respectively. US GDP growth is now forecast at 2.2% in 2017 and 2.5% in 2018, an increase of 0.1 percentage point compared to last month's assumptions.

Our assumptions about the pattern of the northern hemisphere winter season are largely unchanged. After two very warm winters, US temperatures are expected to be cooler than last year but warmer than the historical average. Heating Degree Day data show that temperatures in October-November were warm in Europe, Japan and the US and roughly in line with our assumption of heating degree-days at 90% of their historical average.





OECD

This month we have data through September for all OECD countries. For October, preliminary estimates are available for the US, Mexico, Japan, Korea and some European countries and they point to a slowdown in oil demand in Europe and a strong rebound in the US.

OECD Demand based on Adjusted Preliminary Submissions - October 2017

(million barrels per day)

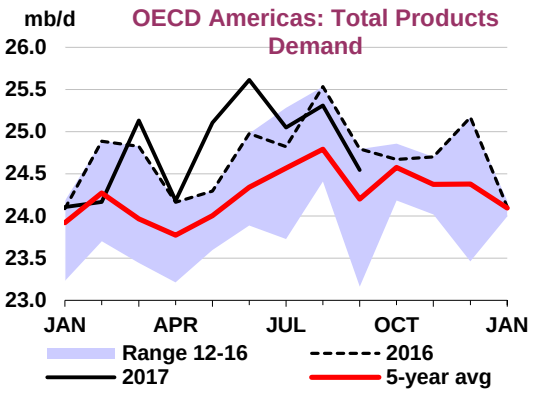
	Gasoline		Jet/Kerosene		Diesel		Other Gasoil		RFO		Other		Total Products	
	mb/d	% pa	mb/d	% pa	mb/d	% pa	mb/d	% pa	mb/d	% pa	mb/d	% pa	mb/d	% pa
OECD Americas*	**11.11**	**2.3**	**1.99**	**3.9**	**4.95**	**6.1**	**0.51**	**0.5**	**0.66**	**4.4**	**6.17**	**1.44**	**25.39**	**2.9**
US50	9.36	3.0	1.70	4.6	4.11	7.8	0.18	2.4	0.32	-6.7	4.78	3.86	20.45	4.1
Canada	0.83	0.8	0.14	-3.0	0.30	3.5	0.26	3.1	0.04	12.3	0.80	0.21	2.37	1.1
Mexico	0.76	-3.8	0.07	4.9	0.33	-8.2	0.04	-20.3	0.19	33.2	0.47	-16.11	1.86	-5.6
OECD Europe	**1.89**	**1.8**	**1.44**	**0.8**	**5.04**	**2.0**	**1.40**	**-9.2**	**0.91**	**0.6**	**3.48**	**-5.01**	**14.16**	**-1.2**
Germany	0.42	0.3	0.21	-3.6	0.77	-0.4	0.36	-6.6	0.09	1.1	0.42	-28.52	2.26	-8.1
United Kingdom	0.28	0.2	0.31	-1.3	0.51	-1.6	0.14	1.1	0.03	-9.0	0.29	-4.37	1.57	-1.7
France	0.17	1.6	0.16	2.4	0.69	-1.7	0.24	-22.3	0.04	-0.7	0.30	0.37	1.59	-4.3
Italy	0.17	-0.7	0.10	8.8	0.46	2.3	0.10	5.9	0.09	37.5	0.34	-5.97	1.26	2.0
Spain	0.11	4.1	0.14	0.7	0.47	7.2	0.16	6.0	0.16	-3.8	0.28	-2.75	1.31	2.5
OECD Asia & Oceania	**1.51**	**-0.9**	**0.84**	**1.1**	**1.37**	**2.3**	**0.46**	**-3.0**	**0.54**	**-7.1**	**3.10**	**3.41**	**7.82**	**1.0**
Japan	0.86	-4.0	0.43	-0.3	0.42	-4.5	0.31	-4.1	0.31	1.7	1.35	-2.59	3.68	-2.7
Korea	0.22	4.7	0.19	0.7	0.39	-1.0	0.09	-4.7	0.20	-19.3	1.54	10.46	2.63	4.0
Australia	0.32	1.8	0.16	2.7	0.50	10.4	0.00	0.0	0.02	0.5	0.15	-3.50	1.14	4.6
OECD Total	**14.51**	**1.9**	**4.26**	**2.3**	**11.36**	**3.8**	**2.37**	**-6.1**	**2.11**	**-0.3**	**12.75**	**0.05**	**47.37**	**1.3**

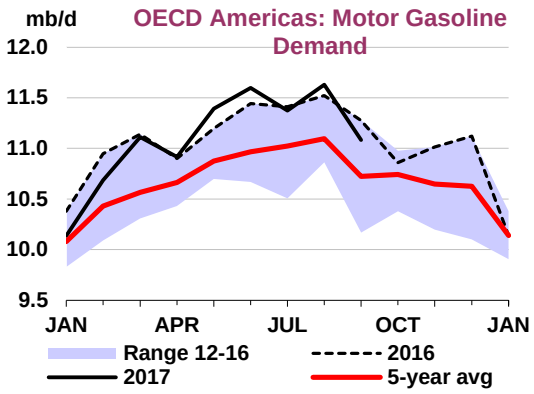
* Including US territories

Americas

US oil demand contracted in September, down 175 kb/d y-o-y after a drop of 110 kb/d in August. Both declines are largely caused by the impact of the series of hurricanes. Canada's oil demand remained

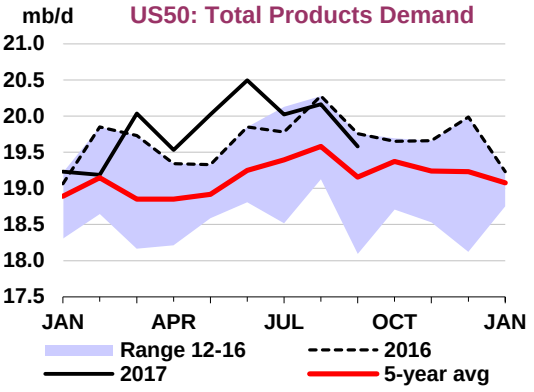
roughly unchanged in September. Mexican demand continued to decline, by 95 kb/d y-o-y in September after a drop of 150 kb/d in August.

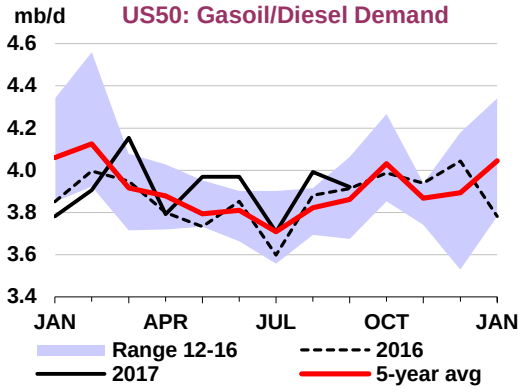




US gasoil demand rose slightly in September (10 kb/d) and is expected to jump by 305 kb/d in October, according to weekly data. Gasoil demand actually benefited from hurricane disruptions, as cleaning and reconstruction work led to higher demand. In addition, the emergency generation of electricity from gasoil-fired generators supported demand. More generally, diesel demand remains supported by the y-o-y growth of US manufacturing production and higher freight transportation.

CPB world trade monitor (Netherland Bureau for Economic Policy Analysis) shows an increase of 3.6% y-o-y in the volume of US imports in September. It represents a significant acceleration compared to August's growth of 2.5%. Trade contributes to support diesel demand because imported goods are mostly dispatched through the country by trucks. In addition, diesel demand benefited from strong industrial production, reflected in the US index of Industrial Production rising by 2.1 % y-o-y in September.

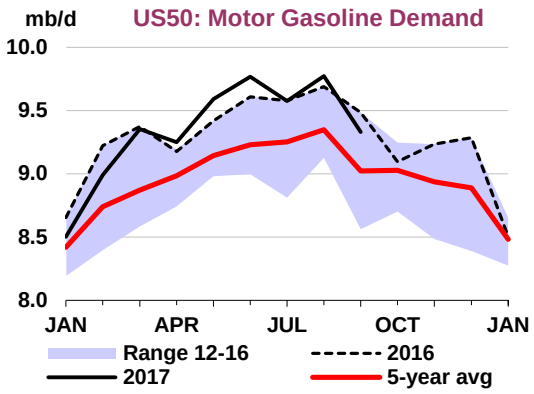


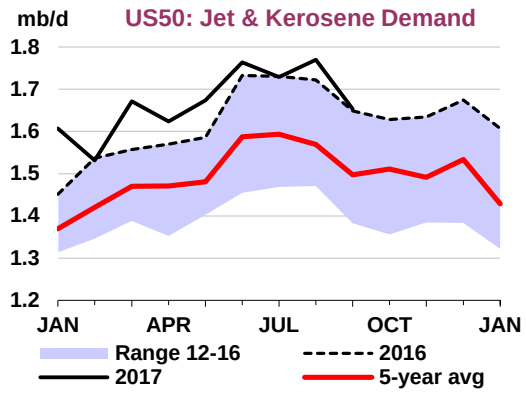


Department of Energy data for September shows a drop of 155 kb/d in US gasoline demand, likely resulting from traffic disruptions after the hurricanes. The Department of Transportation reported growth in travel demand of only 0.3% y-o-y for September compared with a cumulative gain of 1.3% for the first nine months of 2017. Traffic in the South Atlantic region, impacted by the hurricanes, declined by 0.5% y-o-y in September. US weekly data point to a strong rebound in gasoline demand in October, up 270 kb/d y-o-y.

Jet fuel demand remained roughly flat y-o-y in September, after growth of 50 kb/d in August. September's weak deliveries reflect the slowdown in air travel due to the hurricanes, with the International Air Transport Association reporting growth in North American international revenue passenger kilometres (RPK) of 3.0% y-o-y in September, sharply down from 5.6% in August. October jet

fuel demand bounced back by 75 kb/d y-o-y, supported by robust passenger demand. After a drop of 1% in domestic traffic in the US in September, domestic RPK rose by 5.3% in October.



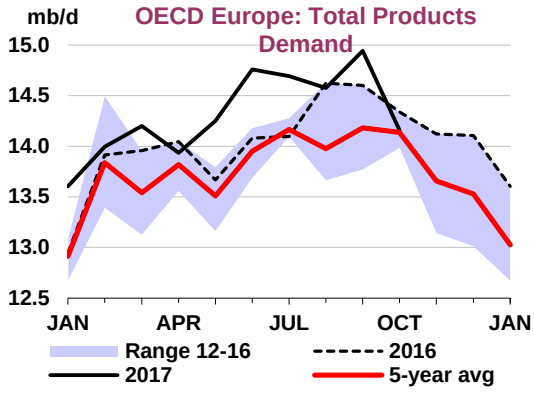


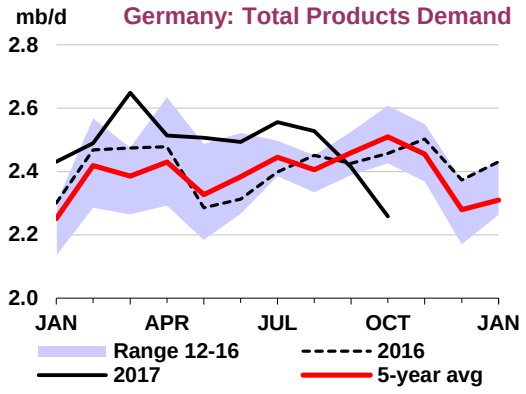
LPG/ethane demand contracted by 190 kb/d y-o-y in August and 115 kb/d in September as Hurricane Harvey closed half of the US Gulf Coast petrochemical facilities at the start of the month. Ethane demand is expected to bounce back in October, reaching y-o-y growth of 160 kb/d.

After a very strong 2Q17, when US demand increased by 515 kb/d y-o-y, demand in 3Q17 was 10 kb/d below last year. Gasoline demand was 25 kb/d lower, reflecting the impact of the hurricanes. LPG/ethane demand was also down by 70 kb/d y-o-y in 3Q17. Gasoil demand benefited from reconstruction work, increasing by 80 kb/d y-o-y in 3Q17. US oil demand is expected to bounce back in October with strong growth of 805 kb/d y-o-y, with gasoil and ethane in the lead. In addition, US oil demand will benefit from the comparison with weak demand in October 2016 when Hurricane Matthew struck. For 4Q17, US oil demand in expected to bounce back to growth of 325 kb/d y-o-y. In 2017 total US demand will grow by 200 kb/d, falling back by 135 kb/d in 2018.

Europe

European oil demand rose by 340 kb/d y-o-y in September after a small decline (50 kb/d) in August. Preliminary data point to a y-o-y decrease of 180 kb/d in October.





German oil demand declined by 10 kb/d y-o-y in September, as slightly higher gasoil deliveries failed to offset poor gasoline and naphtha deliveries. Historical data for Germany has been revised up by 60 kb/d on average for the first eight months of 2017. The revisions mainly concern LPG/ethane, up by 30 kb/d, and naphtha, up by 35 kb/d. Preliminary data point to a 200 kb/d drop y-o-y in October as weak naphtha and gasoil demand are expected to lower German demand.

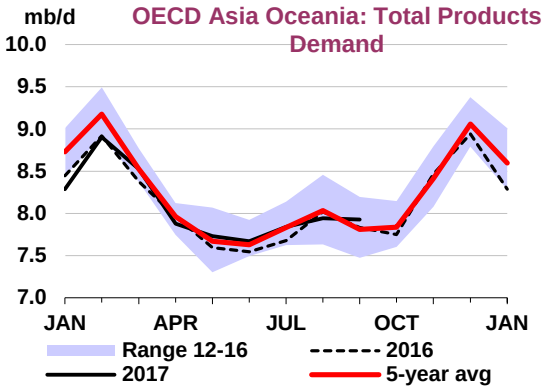
French oil demand rose by 110 kb/d in September, on strong gasoil (up 65 kb/d) and gasoline (up 20 kb/d) deliveries. For October, however, there was a decline of 70 kb/d y-o-y in total French demand, largely due to lower gasoil deliveries (down 80 kb/d y-o-y).

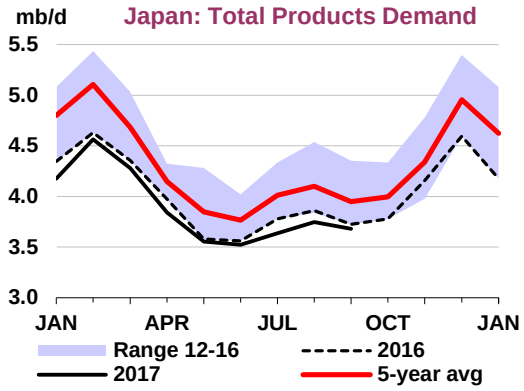
Italian oil demand increased by 10 kb/d in September, supported by strong naphtha deliveries. Gasoline and gasoil demand contracted, however, by 25 kb/d and 50 kb/d respectively. Preliminary data point to growth of 25 kb/d y-o-y in October.

For Europe overall, we expect growth of 300 kb/d in 3Q17 followed by a fall of 110 kb/d in 4Q17, in line with the recent monthly slowdown in demand. For 2017 as a whole, demand will grow by 225 kb/d but this will slow dramatically in 2018 to only 20 kb/d

Asia Oceania

Demand in Asia Oceania rose by 95 kb/d y-o-y in September. Gasoil demand, in particular, increased by 110 kb/d while gasoline demand remained unchanged. Preliminary data point to a gain of 75 kb/d in OECD Asia oil demand in October.





Japanese oil demand dropped by 45 kb/d y-o-y in September and is expected to contract by 100 kb/d in October. Transport fuel demand is believed to have fallen y-o-y in October, with both gasoline and gasoil demand 35 kb/d lower. South Korean demand rose by 40 kb/d y-o-y in September and 100 kb/d in October, supported by strong naphtha deliveries. South Korea naphtha deliveries rose by 75 kb/d y-o-y in September and 185 kb/d in October.

Australian gasoil demand rose by 70 kb/d y-o-y in September, continuing a pattern of increases in 2017, partly supported by the restart of coal mines at the end of 2016.

OECD Asia oil demand is expected to increase by 60 kb/d in 3Q17 and to resume a slow contraction in 4Q17. For 2017 as a whole, demand is projected to rise by 20 kb/d, and to fall by 150 kb/d in 2018.

Non-OECD

Data regarding non-OECD countries were mixed for September and October, showing strong growth in some countries and a significant slowdown in others. In China, oil demand grew by 725 kb/d y-o-y in October after growth of 970 kb/d in September. India's growth slowed to 65 kb/d in October from 355 kb/d in September. Russian oil demand dropped by 35 kb/d in October while Brazil's demand jumped by 100 kb/d y-o-y.

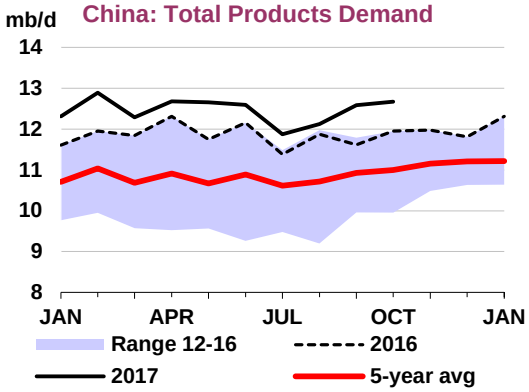
Non-OECD: Demand by Product

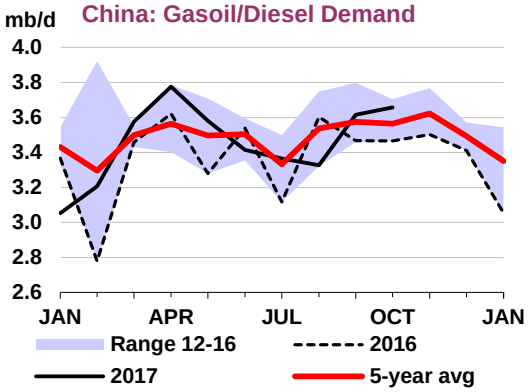
(thousand barrels per day)

	Demand			Annual Chg (kb/d)		Annual Chg (%)	
	1Q17	2Q17	3Q17	2Q17	3Q17	2Q17	3Q17
LPG & Ethane	6,390	6,471	6,274	343	148	5.6	2.4
Naphtha	2,809	2,728	2,652	13	41	0.5	1.6
Motor Gasoline	11,195	11,388	11,311	369	374	3.4	3.4
Jet Fuel & Kerosene	3,184	3,128	3,218	58	76	1.9	2.4
Gas/Diesel Oil	14,098	14,946	14,604	287	237	2.0	1.7
Residual Fuel Oil	5,450	5,364	5,400	9	21	0.2	0.4
Other Products	6,650	6,952	7,268	179	279	2.6	4.0
Total Products	**49,774**	**50,977**	**50,729**	**1,258**	**1,175**	**2.5**	**2.4**

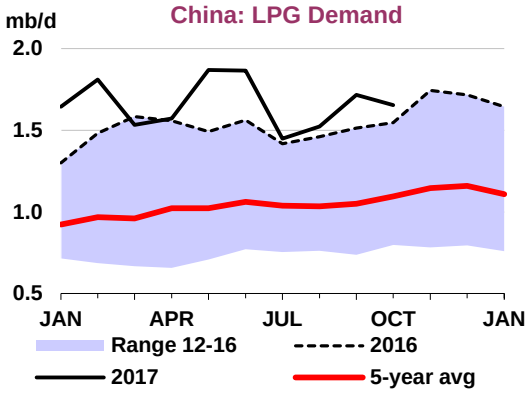
China

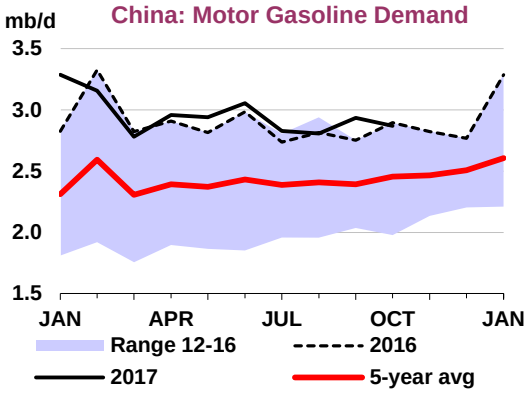
China's oil demand rose by 725 kb/d in October after growing by an exceptionally strong 970 kb/d in September. Gasoil and kerosene posted strong growth.





Gasoline demand declined by 25 kb/d y-o-y in October, after posting a growth of 180 kb/d in September. On average, gasoline demand has been 75 kb/d above last year in the first ten months of 2017. Gasoil demand rose by 190 kb/d in October, after growth of 150 kb/d in September.





Kerosene demand continued to be very strong, increasing by 105 kb/d in October after 165 kb/d in September. Since the start of the year, kerosene demand has increased by 65 kb/d y-o-y on average on strong air travel. China domestic Revenue Passenger Kilometres grew by 10% y-o-y in October after 11.1% in September. We expect Chinese oil demand growth to continue, roughly unchanged from 565 kb/d in 3Q17 to around 530 kb/d in 4Q17. For 2017 as a whole, demand growth should average 590 kb/d, slowing to 385 kb/d in 2018.

China: Demand by Product

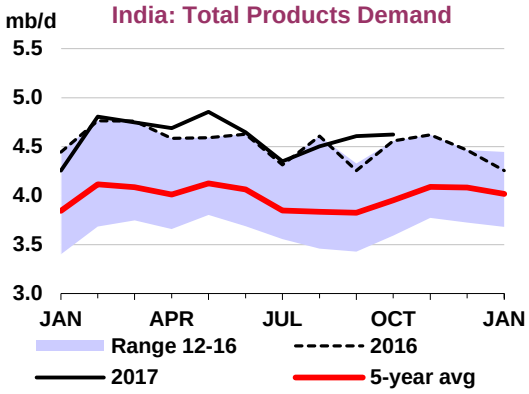
(thousand barrels per day)

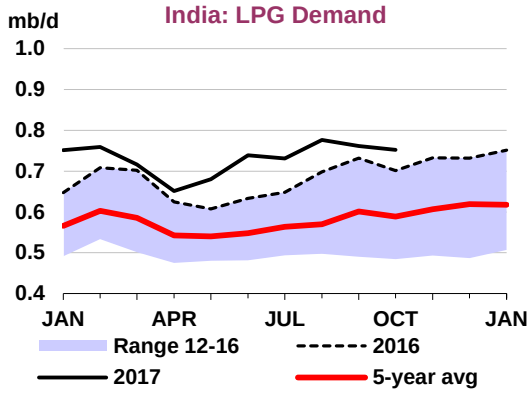
	Demand			Annual Chg (kb/d)		Annual Chg (%)	
	2016	2017	2018	2017	2018	2017	2018
LPG & Ethane	1,531	1,679	1,728	148	50	9.6	3.0
Naphtha	1,093	1,120	1,158	27	38	2.5	3.4
Motor Gasoline	2,870	2,964	3,053	94	89	3.3	3.0
Jet Fuel & Kerosene	656	720	756	65	36	9.8	5.0
Gas/Diesel Oil	3,386	3,460	3,566	75	106	2.2	3.1
Residual Fuel Oil	339	363	370	25	7	7.3	2.0
Other Products	1,977	2,134	2,193	157	60	7.9	2.8
Total Products	**11,851**	**12,440**	**12,826**	**589**	**386**	**5.0**	**3.1**

Other Non-OECD

Following a review of several data sources, we have revised upwards our estimates for oil demand in Nigeria. We had estimated gasoline demand at 170 kb/d in 2015, 190 kb/d in 2016 and 240 kb/d in 2017. For these years, we had estimated gasoil demand at roughly 15 kb/d. By contrast, estimates based on Nigeria National Bureau of Statistics (NBS) data put gasoline demand in 2015 at 305 kb/d and gasoil demand at 55 kb/d. Demand in January to September 2016 is reported by the same institute at 325 kb/d for gasoline and 80 kb/d for gasoil. The NBS "State distribution of truck out volume report" point to gasoline demand of 335 kb/d in 1Q17. These estimates are more in line with market reports on Nigerian trade of oil products.

We have therefore revised up our estimate of gasoline and gasoil demand for Nigeria, resulting in an upward revision to demand of 165 kb/d for 2015, 180 kb/d for 2016 and 140 kb/d for 2017. Total Nigerian oil demand is estimated at around 450 kb/d in 2017.





India's oil demand rose by 65 kb/d in October, after growth of 350 kb/d in September. The comparisons with particularly weak or strong demand in 2016 (a base effect) explains a large part of both September strength and October weakness.

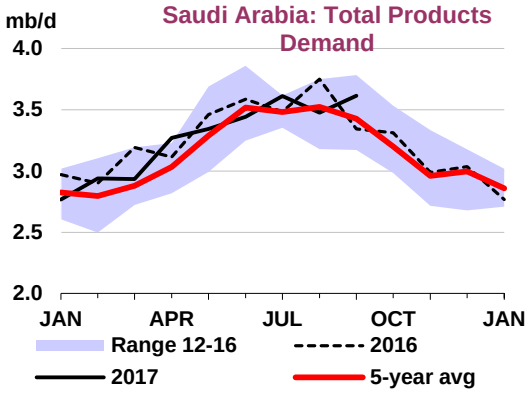
Gasoline demand rose by 35 kb/d during the month, on strong vehicle sales. LPG demand rose by 50 kb/d in September, benefiting from government policies pushing LPG into the domestic sector at the expense of kerosene. Jet kerosene demand was stagnant in September as a drop in domestic demand offset an increase in jet demand. Jet kerosene demand rose by 16 kb/d in October while kerosene demand dropped by 18 kb/d. Air travel demand is booming, with domestic air traffic (RPK) jumping by 20.4% y-o-y in October. In spite of a strong growth in jet kerosene demand, total kerosene use has declined by 30 kb/d on average over the first ten months of 2017.

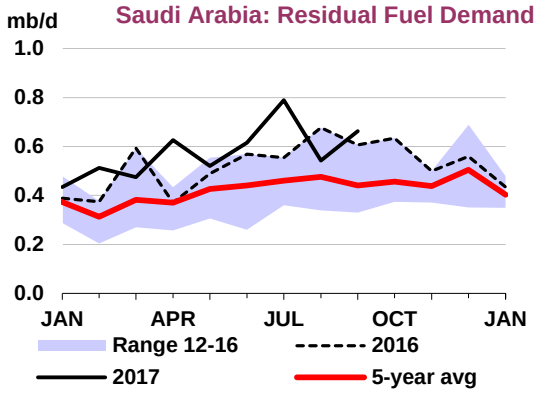
As Delhi was facing an unprecedented air pollution, the Indian Supreme Court banned from 1 November the use of petroleum coke in and around New Delhi. India uses roughly 23 Mt of petroleum coke per year and imports 14 Mt, mainly from the US. Petroleum coke is largely used in cement manufacturing. The government is reportedly considering banning imports of petroleum coke, and this could have very significant impact on the country's fuel mix.

In total, we expect India's oil demand to increase by 255 kb/d in 4Q17. Oil demand growth should average 105 kb/d in 2017, and then accelerate to 320kbd in 2018.

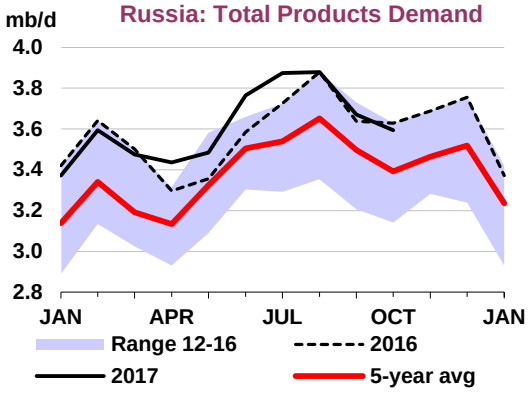
Saudi Arabian oil demand rose by 270 kb/d y-o-y in September, on strong other product deliveries, which increased by 275 kb/d. Part of this is direct use of crude oil, which rose by 170 kb/d due to a base effect. Crude burning remained at 660 kb/d in September, roughly unchanged from August, while it fell below 500 kb/d in September 2016. Gasoil demand remained weak, down 105 kb/d y-o-y. Gasoil demand is penalised by a sharp drop in construction activity and a switch to fuel oil and natural gas in the power sector.

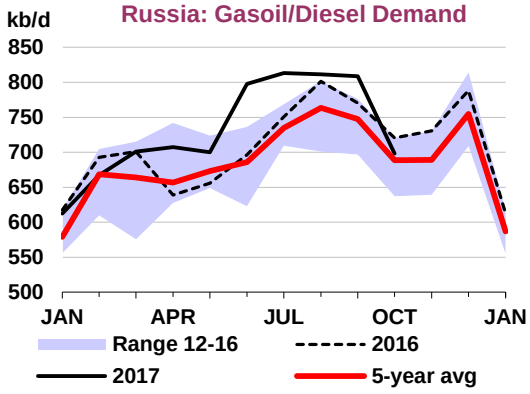
Overall, we expect Saudi oil demand to contract by 35 kb/d in 2017 and to bounce back to growth of 80 kb/d in 2018. In 2016 and 2017, gasoil demand has been particularly affected by the slowdown in construction projects, but in 2018, demand should benefit from an improved economic environment even if it will continue to be penalized by the switch to natural gas and fuel oil in the power sector.





Russian oil product demand contracted by 35 kb/d in October due to low gasoline and diesel deliveries, contracting by 25 kb/d and 20 kb/d, respectively. Weather forecasts currently point to a warm winter in Russia, reducing demand for heating fuels. Overall, Russian oil product demand is forecast to increase by 40 kb/d in 2017 and 60 kb/d 2018.





Brazil's oil demand rose strongly by 100 kb/d in October, with strong gasoil and gasoline deliveries. Oil product sales have been increasing y-o-y in the past six months, supported by the ongoing economic recovery. Demand is expected to increase by 35 kb/d in 3Q17, 20 kb/d in 4Q17 and 50 kb/d in 2018.

Iraq's direct crude use has been dropping very fast in recent months, according to data reported to JODI. Crude burn dropped from 210 kb/d in June to 110 kb/d in July, 75 kb/d in August and zero in September. As Iraq develops its domestic gas resources and begins to import from Iran (as of 21 June), it would be tempting to attribute the drop in crude oil use to a switch to natural gas. That appears to be the case. General Electric started a new gas power plant (2 x 180 MW gas turbines) that was due in July to receive Iranian gas at Mansuriya in Diyala province. On the other hand, Iranian exports started at only 7 million cubic meter (mcm)/d and are due to rise gradually. According to Iraq's oil minister, gas imports should increase to 16-18 mcm/d in 2H18 and 35 mcm/d from 2019. For now the increase in gas sales to the power sector remains limited. In our forecast, we factored in a decline to 50 kb/d in crude oil direct use through 2Q18 and a larger drop of 100 kb/d thereafter.

Egypt is another country planning to replace oil with natural gas. Recent data show a significant decline in fuel oil demand, probably linked to a lower utilisation of fuel oil-fired generating capacities benefiting natural gas. Fuel oil consumption dropped from 200 kb/d in the start of 2017 to 170 kb/d in recent months. Egypt's policy is to replace oil with natural gas whenever possible, and the recent drop in fuel oil demand is in line with improving natural gas availability.

Non-OECD: Demand by Region

(thousand barrels per day)

	Demand			Annual Chg (kb/d)		Annual Chg (%)	
	1Q17	2Q17	3Q17	2Q17	3Q17	2Q17	3Q17
Africa	4,475	4,348	4,267	-14	65	-0.3	1.5
Asia	25,639	26,120	25,342	1,031	993	4.1	4.1
FSU	4,590	4,734	5,010	174	88	3.8	1.8
Latin America	6,448	6,572	6,679	-8	21	-0.1	0.3
Middle East	7,918	8,464	8,679	61	-21	0.7	-0.2
Non-OECD Europe	705	740	751	15	29	2.0	4.0
Total Products	**49,774**	**50,977**	**50,729**	**1,258**	**1,175**	**2.5**	**2.4**

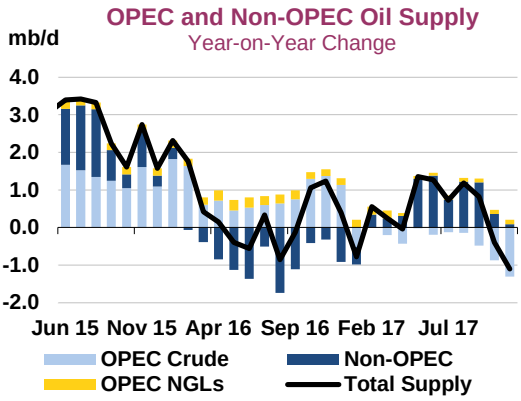
SUPPLY

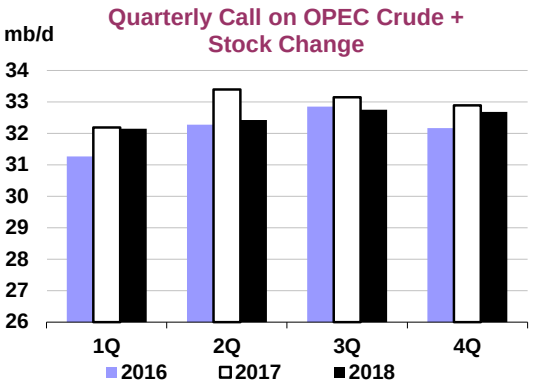
Summary

- **Global oil supply climbed 170 kb/d in November to 97.8 mb/d, the highest in a year, on the back of rising US production.** Output was nonetheless down 1.1 mb/d on a year ago when Russia and OPEC's Middle East producers were pumping at record rates.

- **OPEC crude output fell 130 kb/d in November due to lower output from Saudi Arabia, Angola and Venezuela as well as tighter all-round compliance with supply cuts.** A fourth straight month of declines left output at 32.36 mb/d, down 1.3 mb/d on a year ago when OPEC produced at its highest ever level. Compliance rose to 115% in November, the highest since the agreement came into force in January, and lifted the 2017 average to 91%.

- **OPEC and non-OPEC participants agreed to extend supply cuts through 2018, with an option to review the policy in June.** Output restraint has reduced the overhang in inventories and a 4Q17 requirement of 32.9 mb/d for OPEC crude implies a continued stock draw. In 1Q18, however, the call drops to 32.2 mb/d, around 200 kb/d below current output.





- **Non-OPEC oil supplies rose by 300 kb/d in November, to 58.5 mb/d, largely on higher US output.** Following a sharper than expected increase in September, and accelerated well completions, the outlook for US oil production growth has been marginally lifted since last month's *Report*, to 530 kb/d and 1.1 mb /d for 2017 and 2018, respectively.

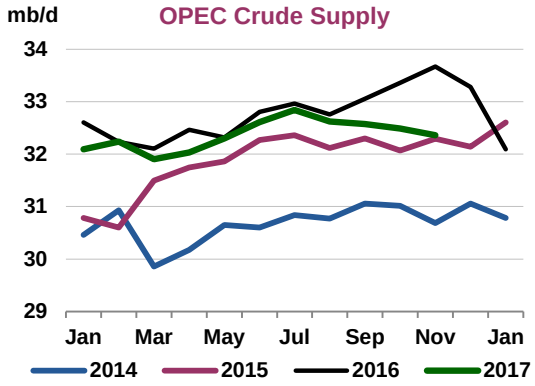
- **Higher US oil output underpins around 75% of total non-OPEC supply growth in 2017 and 2018.** Supply is forecast to rise by 630 kb/d on average this year and a further 1.6 mb/d in 2018, to reach 59.6 mb/d. Brazil, Canada, UK and Kazakhstan are other sources of growth.

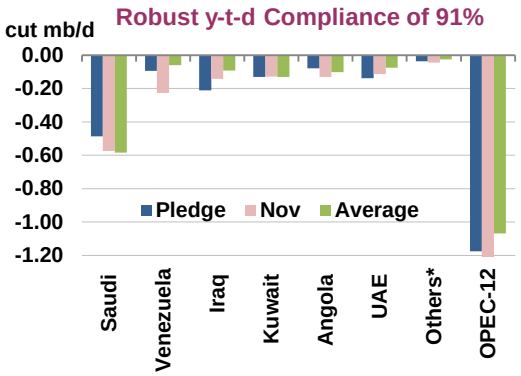
- **Adherence to agreed output cuts from ten non-OPEC producers slipped to 96% in November,** from 111% a month earlier and has averaged 83% for 2017 as a whole. Shipping data suggest production problems at Kashagan were partly resolved, boosting output in both November and December.

All world oil supply data for November discussed in this report are IEA estimates. Estimates for OPEC countries, Alaska, Azerbaijan, Mexico, Peru, Vietnam and Russia are supported by preliminary November supply data.

OPEC crude oil supply

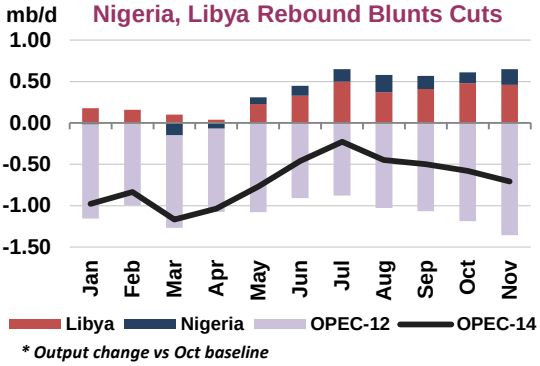
OPEC supply fell 130 kb/d in November to 32.36 mb/d, the lowest since May, as flows declined in Saudi Arabia, Angola and Venezuela and overall compliance with supply cuts strengthened. Lower production from six members boosted compliance to 115%, the highest so far in 2017, raising the average rate this year to 91%. OPEC and non-OPEC participants have agreed to extend the output pact through the end of next year, with an option to review the strategy when they meet on 22 June.





For November, Saudi Arabia posted the largest decline – with production dropping below 10 mb/d. In Angola, supply fell by 60 kb/d to 1.62 mb/d, the lowest since May, mostly due to scheduled maintenance on a Floating Production Storage and Offloading (FPSO) unit, according to industry sources. Though unintentional, financially beleaguered Venezuela posted the strongest compliance rate (239%) in November, after production slid a further 50 kb/d. Supply from the UAE eased 30 kb/d, taking its compliance to the best rate this year. Output from Libya, spared from supply cuts, eased a touch to 970 kb/d after protests affected a Wintershall-operated field.

The biggest increase during November was in Nigeria, also exempt from cuts, where production rose 60 kb/d month-on-month (m-o-m). Combined output from Nigeria and Libya was up 760 kb/d from springtime lows, thus blunting the overall effectiveness of OPEC's reduction.



Production from Iraq, including the Kurdistan Regional Government (KRG), crept up after Baghdad boosted southern shipments to record rates to compensate for lower northern flows. The core Bai Hassan and Avana fields have been off-line since Iraqi forces regained control of oil fields from Kurdish fighters in mid-October. In Algeria, output inched up 10 kb/d after the completion of scheduled oil field maintenance. Production from Iran edged up along with higher crude oil exports.

Output from OPEC's 14 members was down 1.3 mb/d on a year ago, when Middle East producers pumped at record levels. The largest year-on-year (y-o-y) declines were posted by Saudi Arabia (670 kb/d), Venezuela (280 kb/d), the UAE (250 kb/d) and Iraq (230 kb/d). Libyan output was up 390 kb/d y-o-y while Nigerian flows were up 110 kb/d.

As for the market balances, the call on OPEC crude drops to 32.9 mb/d in 4Q17, but is more than 500 kb/d above November output - suggesting a continued draw down in inventories. However, the requirement falls further in the first quarter of next year - to 32.2 mb/d. The average call on OPEC for 2018 is 32.5 mb/d, roughly 100 kb/d above average production so far this year of around 32.4 mb/d.

OPEC Crude Production

(million barrels per day)

	Oct 2017 Supply	Nov 2017 Supply	Supply Baseline[1]	Agreed Cut	November Actual Cut[2]	October Compliance	November Compliance	2017 Average Compliance
Algeria	1.00	1.01	1.09	-0.050	-0.08	178%	158%	82%
Angola	1.68	1.62	1.75	-0.078	-0.13	91%	168%	129%
Ecuador	0.53	0.54	0.55	-0.026	-0.01	69%	31%	62%
Equatorial Guinea	0.14	0.13	0.14	-0.012	-0.01	0%	83%	111%
Gabon	0.21	0.20	0.20	-0.009	0.00	-89%	22%	27%
Iran[3]	3.78	3.80	3.71	0.090	0.09	NA	NA	NA
Iraq	4.40	4.42	4.56	-0.210	-0.14	77%	67%	44%
Kuwait	2.70	2.71	2.84	-0.131	-0.13	105%	98%	100%
Qatar	0.61	0.61	0.65	-0.030	-0.04	127%	127%	133%
Saudi Arabia	10.05	9.97	10.54	-0.486	-0.57	102%	118%	120%
UAE	2.93	2.90	3.01	-0.139	-0.11	60%	81%	54%
Venezuela	1.89	1.84	2.07	-0.095	-0.23	186%	239%	63%
Total OPEC 12	**29.92**	**29.75**	**31.11**	**-1.176**	**-1.36**	**101%**	**115%**	**91%**
Libya[4]	0.99	0.97						
Nigeria[4]	1.58	1.64						
Total OPEC	**32.49**	**32.36**						

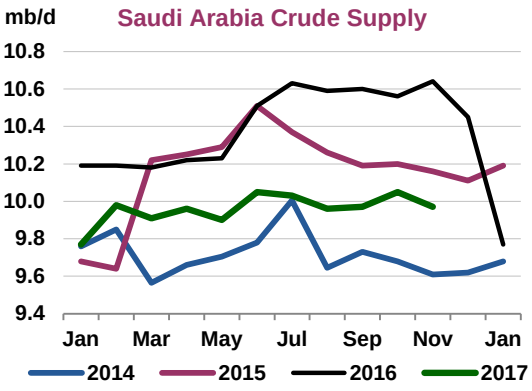
1 Based on October 2016 OPEC secondary source figures, except Angola which is based on September 2016.

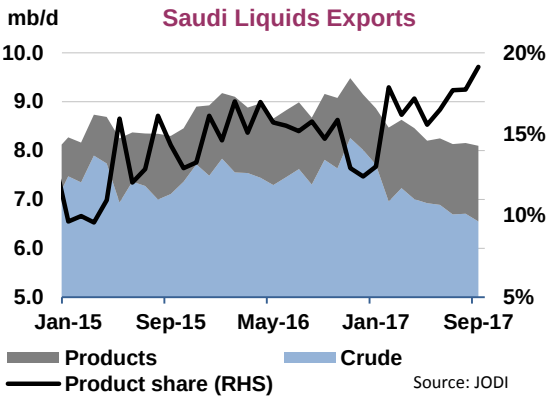
2 From OPEC supply baseline.

3 Iran was given a slight increase.

4 Libya and Nigeria are exempt from cuts.

Crude production from **Saudi Arabia** declined by 80 kb/d in November to 9.97 mb/d. The Kingdom has remained below its supply target since January, cutting nearly 600 kb/d on average. It has vowed to lead by example and keep overall supply levels at recent low levels at the start of 2018.





The end of this year may see a rise in exports as refiners buy more crude after completing scheduled maintenance. Preliminary tanker data show Saudi shipments rose m-o-m in November after increasing in October. The latest official data from the Joint Organisations Data Initiative (JODI) show shipments of crude fell in September to 6.55 mb/d (down 160 kb/d m-o-m) – the lowest level since March 2011. September may have marked the low point for crude oil sales in 2017: Riyadh signaled previously that November export allocations would run at 7.15 mb/d (versus nominations of more than 7.7 mb/d).

To stay below its OPEC target, Saudi Aramco has cut exports sharply to the US but held supplies relatively steady to buyers in Asia. Its monthly formula prices for Asia have been rising since summer and were further increased for January loadings of Arab Light. Aramco plans to reduce exports to the Far East by more than 100 mb/d relative to December, but keep shipments steady to the US and Europe.

The Kingdom has meanwhile slightly offset sharply lower crude oil exports by ramping up sales of refined products that are not subject to OPEC output cuts. Of total liquids exports of 8.1 mb/d during September, products accounted for 19% - the highest ever share. Overall sales were 1.06 mb/d below September 2016: products were up 200 kb/d on a year ago, while crude exports were down 1.26 mb/d.

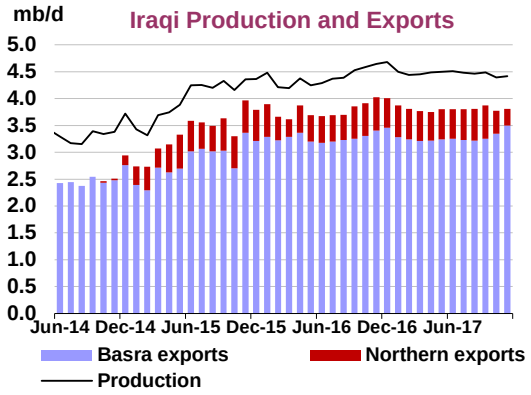
On the domestic market, the amount of crude burned in power plants was unchanged compared to August at 660 kb/d but up 170 kb/d versus a year ago. Roughly 610 kb/d of crude was used during the peak 2Q-3Q period, only 20 kb/d down on the same period last year.

Output in neighbouring Gulf countries was relatively stable. Production in **Kuwait** inched up to 2.71 mb/d, while supply in **Qatar** held at 610 kb/d. Flows in the **UAE** dipped 30 kb/d to 2.9 mb/d, enabling it to post its best compliance rate this year.

Production from **Iraq** edged up 20 kb/d in November to 4.42 mb/d after Baghdad ramped up southern exports of Basra crude to record rates to compensate for losses in the north. Iraqi forces regained control over the northern oil fields of Kirkuk in mid-October and production at core fields (over 250 kb/d) has been shut since then. Compared to a year ago, output was down 230 kb/d.

Shipments from the south rose by 150 kb/d m-o-m to 3.5 mb/d in November, the highest ever, after output increased from Basra area fields and domestic consumption fell. The amount of crude burned in power plants has been declining since the summer, thanks mostly to imports of gas from neighbouring Iran as well as to a slow, but steady, increase in gas output from the Basra Gas Co. This has helped free up more oil for export (see *Demand*). Accordingly, our estimates for Iraqi production have been revised slightly lower from July through October.

Total crude exports in November were up 30 kb/d to 3.81 mb/d. Baghdad earned $6 billion in revenue on sales of 3.5 mb/d, the second highest federal monthly export average (including Kirkuk shipments). Iraq's crude export capacity from its southern loading facilities was raised to 4.6 mb/d after a new 900 kb/d single point mooring (SPM) was brought on line and Basra exports briefly touched 3.9 mb/d in November.



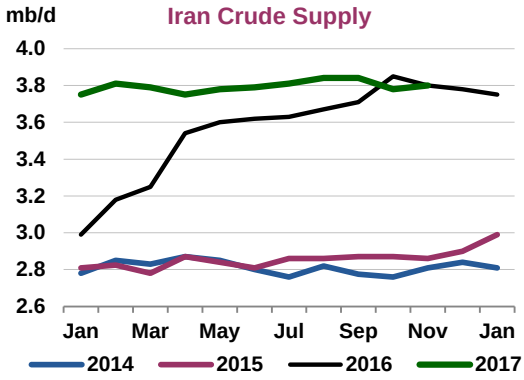
Sales of northern crude via the KRG's pipeline to Turkey were running at just 280 kb/d – the lowest in three years – with another 30 kb/d trucked to Turkey. For a fifth month in a row, there were no federal exports from Turkey's Ceyhan terminal. An export agreement has yet to be reached between Baghdad and Erbil, hence the core fields of Bai Hassan and Avana remain shut in. In the meantime, the federal government is looking for ways to get the stranded crude to market.

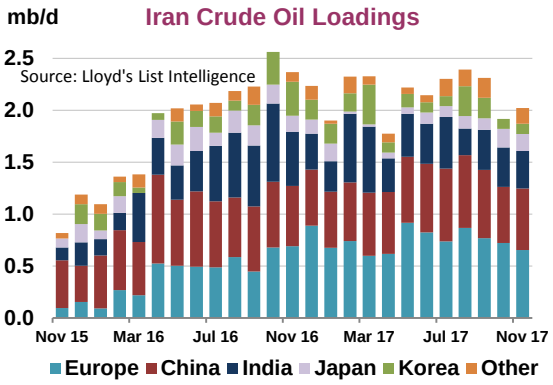
Apart from the re-claimed Bai Hassan and Avana fields (with combined capacity of 280 kb/d), the federal North Oil Co (NOC) is producing roughly 150 kb/d from the Baba Dome of the Kirkuk field, as well as the fields of Jambour and Khabbaz. Much of that output has been routed into refineries in federal and Kurdish territory. A deal with Tehran has also been agreed that will swap up to 60 kb/d of Kirkuk crude with Iranian oil.

In the longer term, Baghdad plans to build a new oil pipeline linking the fields of Kirkuk to Ceyhan and bypassing Kurdistan. Iraq halted use of an older pipeline in 2014 after the so-called Islamic State swept through the region and badly damaged sections of the line.

As for the KRG, its export stream now consists primarily of the 100 kb/d Khurmala dome of the Kirkuk field as well as Tawke and Taq Taq, which has been in sharp decline.

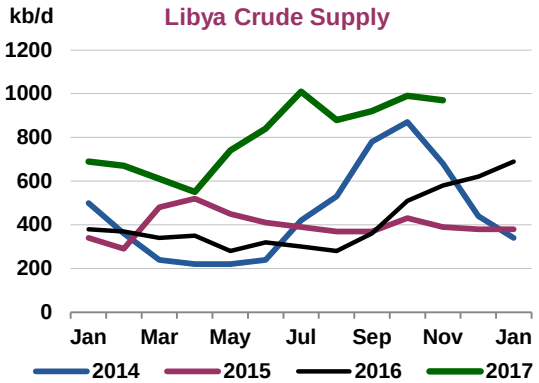
Production in **Iran** crept up in November to 3.8 mb/d, steady on a year ago. Shipments of crude appeared to rise above 2 mb/d, according to preliminary tanker tracking reports, after sinking to 1.9 mb/d in October. Exports of crude this year have run at an average 2.15 mb/d compared to 1.96 mb/d in 2016. During November, China stepped up purchases to 590 kb/d. Exports to Europe fell by 70 kb/d to 650 kb/d. Japan and India appeared to buy a touch less during November, while loadings to Korea held steady. Iran had no oil stored at sea at the end of November.

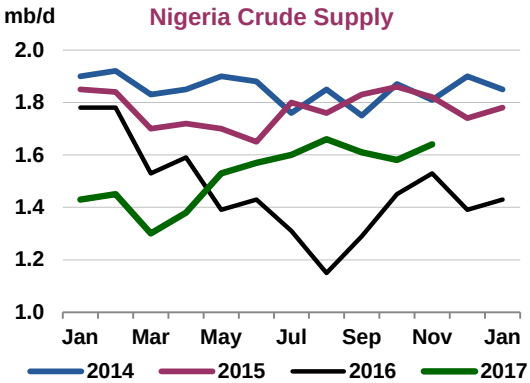




On the upstream front, Iran is seeking to award a contract to develop the onshore Azadegan oil field by mid-2018. International and Iranian companies are working to establish consortia to bid for a project that aims to raise output to 650 kb/d. Pre-selected companies have until the end of January to submit bids for the field that straddles the border with Iraq's Majnoon. The neighbouring fields of Yadavaran, Ab Teymour and Mansouri are also on offer. Together with Azadegan, these fields in the southeastern Khuzestan province could produce 2 mb/d, according to Iranian officials.

Libyan production dipped in November to 970 kb/d after protests hit operations at the as-Sarah oil field. Financial, technical and security challenges are making it difficult to sustain output at July's rate of just over 1 mb/d. A case in point is the Waha Oil Co, where capacity expansion is being frustrated by a lack of investment. Vital to Libya's production recovery, Waha is producing roughly 260 kb/d - up more than 100 kb/d from this summer. Some of Waha's infrastructure and oil fields have suffered extensive damage from militant attacks. The joint venture between Libya's National Oil Corp and Hess, Marathon and ConocoPhillips operates the Waha, Samah, Dahra and Giaolo fields in the northeastern Sirte basin. Its oil is shipped via the Es Sider terminal, which resumed operations in late 2016 after an armed group that was blockading the port was forced out. At Es Sider, 12 of 19 storage tanks remain out of use. Waha hopes to rebuild two of the tanks next year, adding capacity of 1 mb.

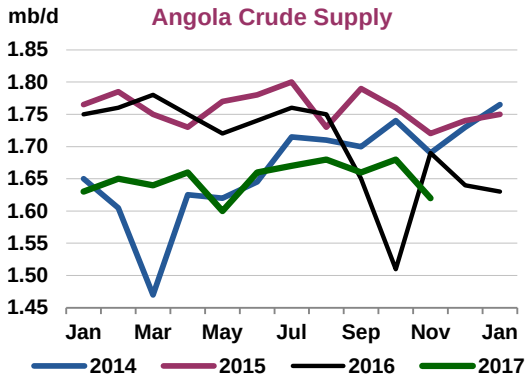


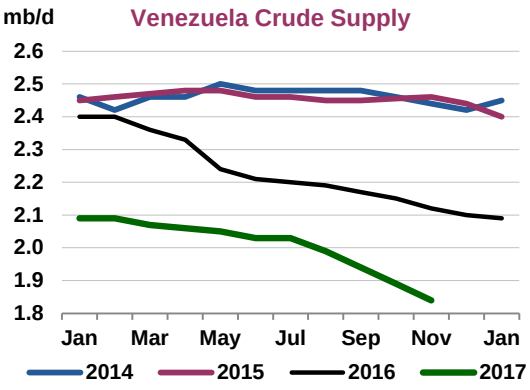


Nigerian production rose 60 kb/d in November to 1.64 mb/d after exports of Bonny Light recovered following the lifting of *force majeure*. A break in the militant attacks that sank output to 30-year lows last summer has allowed flows to rise and to stand 110 kb/d above November 2016. Nigeria, exempt from OPEC cuts, plans in 2018 to support fellow members that have reduced supply. "Without any definitive obligation, we are going to try as much as we can to keep to our 2017 highest production level," Nigerian Oil Minister Emmanuel Kachikwu was reported as saying following the 30 November OPEC meeting.

Algerian production inched up 10 kb/d to 1.01 mb/d in November after scheduled maintenance at the El Merk oil field ended. Scheduled repairs at the 140 kb/d field, run by Sonatrach and Anadarko, had cut supply by roughly 50 kb/d since October. Output is expected to rise gradually during December. Crude oil production from **Gabon** dipped 10 kb/d in November to 200 kb/d, while supply from **Equatorial Guinea** eased to 130 kb/d.

Output in **Angola** fell to 1.62 mb/d in November, an m-o-m decline of 60 kb/d, mostly due to scheduled maintenance on an FPSO. Higher exports during October were mostly drawn down from storage. The country's oil sector has been shaken up by Angolan President Joao Lourenco who replaced Isabel dos Santos as CEO of Sonangol with Carlos Saturnino, a veteran of the company.





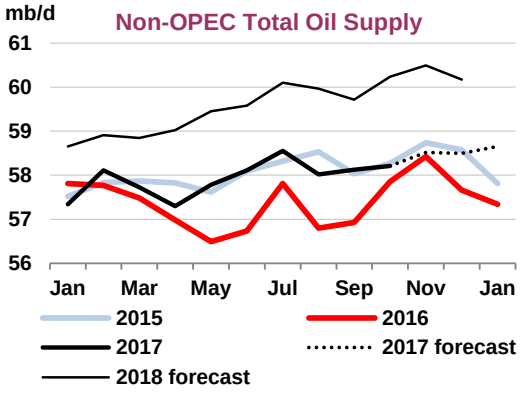
Output from **Venezuela** slid 50 kb/d to 1.84 mb/d, nearly a three-decade low, as Petroleos de Venezuela (PDVSA) – in partial default on bond debt – is pumping, refining and selling less oil. Production in November was down 250 kb/d from January. Meanwhile President Nicolas Maduro has gained more control over Venezuela's oil contracts amid a deepening purge of the energy sector that has led to the arrest of senior oil executives, including former energy minister Eulogio del Pino. PDVSA's new head, Major General Manuel Quevedo, has said that Maduro was due to evaluate all oil service contracts and senior positions. Supply from **Ecuador** crept up to 540 kb/d. Ecuador has ditched a plan to ask for an exemption from OPEC's cuts as oil prices are responding positively to the cutbacks.

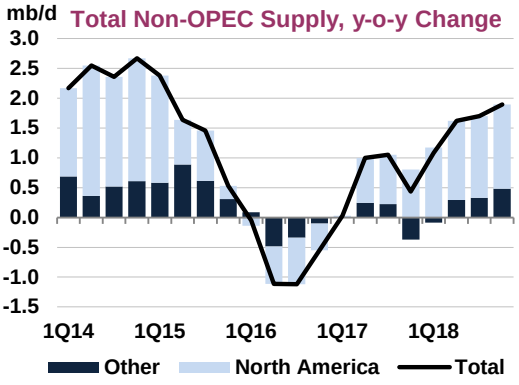
Non-OPEC overview

Non-OPEC oil supply rose another 300 kb/d month-on-month in November, largely on higher US output. A recovery in Kazakhstan's production also contributed. In contrast, Brazilian and Canadian production likely slipped, limiting the overall gain. Total non-OPEC production is estimated to have averaged 58.5 mb/d in November, a mere 90 kb/d higher year-on-year and its lowest rate of growth since the start of 2017. For the year as whole, non-OPEC output is expected to expand by 630 kb/d, followed by an increase of 1.6 mb/d during 2018, a slight upwards adjustment on last month's *Report*.

Following a sharper than expected rebound after Harvey-related shut-ins, in September US oil output stood 1.1 mb/d higher than a year earlier. With US crude oil prices firmly above the $55/bbl mark since early November, producers have accelerated drilling and completion activity. Since the start of November, 22 new oil rigs have been put into service, while completion rates have also picked up.

According to Rystad Energy data, nearly 1 000 horizontal wells were completed in October, the highest number since March 2015, supporting strong growth into year-end and through 2018. As a result, we have slightly revised upwards our US production forecast for 2017 and 2018, by 20 kb/d and 60 kb/d respectively. Output is now seen expanding by 530 kb/d this year and a further 1.1 mb/d during 2018, of which crude oil accounts for roughly 75%.





The shutdown of the Keystone pipeline for two weeks during November reportedly only had a minimal impact on Canadian production as oil piled up in inventories. Lower synthetic crude output did cause a downward adjustment to production for November with both Syncrude and Shell warning customers of lower deliveries.

The closure of the Forties Pipeline System in early December for repairs could significantly curb UK production in December, depending on the duration of the shutdown. Initial reports suggested repairs will last “no less than two”, possibly up to four weeks. The pipeline carries around 450 kb/d of North Sea crude to Hound Point in the UK, where it is loaded onto tankers, stored or piped to the 200 kb/d Grangemouth refinery. As a consequence, we have lowered our forecast for UK production for December by roughly 300 kb/d from last month’s *Report*.

Non-OPEC Supply

(million barrels per day)

	2016	1Q17	2Q17	3Q17	4Q17	2017	1Q18	2Q18	3Q18	4Q18	2018
Americas	**19.5**	19.9	19.8	20.2	20.5	**20.1**	21.1	21.1	21.5	21.9	**21.4**
Europe	**3.5**	3.7	3.5	3.4	3.4	**3.5**	3.6	3.6	3.5	3.6	**3.6**
Asia Oceania	**0.4**	0.4	0.4	0.4	0.4	**0.4**	0.4	0.4	0.4	0.5	**0.4**
Total OECD	**23.4**	24.0	23.6	23.9	24.3	**24.0**	25.2	25.1	25.4	25.9	**25.4**
Former USSR	**14.2**	14.5	14.4	14.3	14.4	**14.4**	14.4	14.4	14.4	14.5	**14.4**
Europe	**0.1**	0.1	0.1	0.1	0.1	**0.1**	0.1	0.1	0.1	0.1	**0.1**
China	**4.0**	3.9	3.9	3.8	3.8	**3.9**	3.8	3.7	3.7	3.7	**3.7**
Other Asia	**3.6**	3.5	3.5	3.4	3.4	**3.5**	3.4	3.4	3.4	3.3	**3.4**
Latin America	**4.5**	4.6	4.5	4.5	4.6	**4.6**	4.6	4.7	4.7	4.8	**4.7**
Middle East	**1.3**	1.2	1.2	1.2	1.3	**1.2**	1.3	1.3	1.3	1.3	**1.3**
Africa	**1.7**	1.7	1.7	1.8	1.8	**1.7**	1.8	1.8	1.8	1.8	**1.8**
Total Non-OECD	**29.4**	29.5	29.3	29.2	29.3	**29.3**	29.3	29.4	29.4	29.6	**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	**2.3**	1.9	2.4	2.8	2.5	**2.4**	2.0	2.5	2.8	2.5	**2.5**
Total Non-OPEC	**57.4**	57.7	57.7	58.2	58.4	**58.0**	58.8	59.4	59.9	60.3	**59.6**
Annual Chg (mb/d)	**-0.7**	0.0	1.0	1.1	0.4	**0.6**	1.1	1.6	1.7	1.9	**1.6**
Changes from last OMR (mb/d)	**0.0**	0.0	0.0	0.1	-0.2	**0.0**	0.0	0.1	0.1	0.3	**0.1**

Output in Brazil disappointed once again in October, due to maintenance and unscheduled shutdowns. Tanker tracking data suggest production fell further in November, though supplies should return to growth from December onwards as maintenance ends and new facilities ramp up.

Compliance with agreed output cuts by the ten non-OPEC producers slipped to 96% in November, down from 111% in October. Higher crude shipments from Kazakhstan suggest production problems related to flooding and gas reinjection may have been partly resolved. If confirmed, Kazakhstan would have slipped back into non-compliance last month. Due to steep field decline and maintenance, Mexican production in November was nearly 230 kb/d lower than the October baseline, compared with a pledged cut of 100 kb/d. Russian supply held largely steady, near agreed levels. Adherence to targets for the group as a whole has averaged 83% since the start of the year.

Non-OPEC Supply Reduction Commitments

thousand barrels per day (kb/d)

Country	IEA October Oil Output[2]	IEA November Oil Output[2]	IEA Supply Baseline[3]	Agreed Cut	Actual Cut[3]	October Compliance	November Compliance	2017 Average Compliance
Azerbaijan	802	792	815	-35	-23	37%	65%	98%
Kazakhstan	1,794	1,870	1,805	-20	66	54%	-328%	-120%
Mexico	2,169	2,172	2,400	-100	-227	231%	227%	149%
Oman	984	987	1,020	-45	-33	79%	73%	91%
Russia	11,305	11,313	11,597	-300	-284	97%	95%	81%
Others[1]	1,201	1,199	1,223	-46	-24	48%	53%	22%
Total	**18,254**	**18,333**	**18,858**	**-546**	**-526**	**111%**	**96%**	**83%**

1 Bahrain, Brunei, Malaysia, Sudan and South Sudan

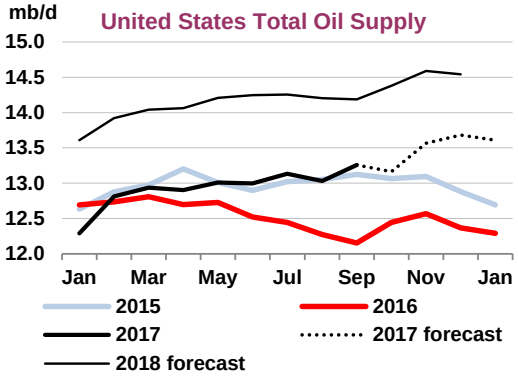
2 November total oil supply (including NGLs), based on market intellience sources and tanker tracking data. Azerbaijan, Mexico and Russia based on preliminary country statistics.

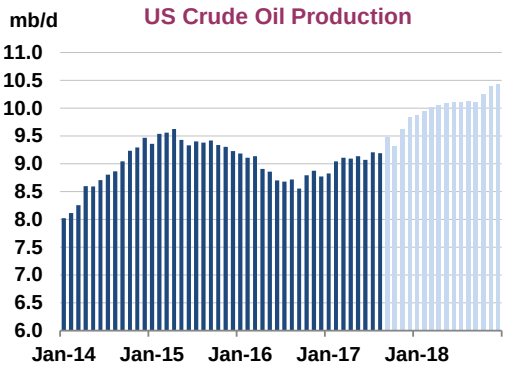
3 Based on IEA October total supply estimates. Kazkahstan November estimate.

OECD

North America

US – September actual, Alaska November actual: US total oil production rose by 230 kb/d m-o-m in September, on a faster than expected recovery from Hurricane Harvey-related outages and higher light tight oil output from key basins. According to the Energy Information Administration's *Petroleum Supply Monthly,* crude oil production in September surged by 290 kb/d, on particularly strong growth in Texas. NGLs output dropped by only 10 kb/d despite reports of widespread shutdowns of gas processing facilities in southern Texas, while other supplies (including additives and oxygenates) dropped by 50 kb/d m-o-m. At nearly 13.3 mb/d, total US oil output was 1.1 mb/d higher than in September 2016, the recent low for US production.



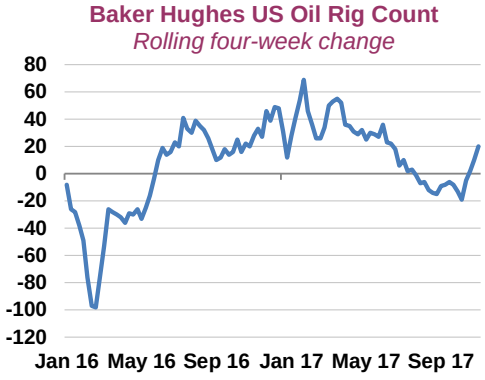


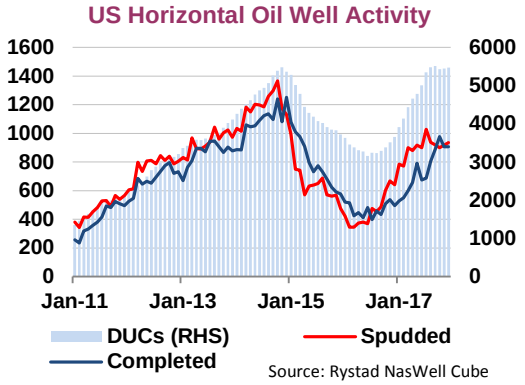
Lower 48 onshore crude oil output grew by 275 kb/d m-o-m, and despite reports of widespread flooding and production shut-ins at Eagle Ford, Texas oil production increased 193 kb/d from August, to 3.57 mb/d. Production in New Mexico grew 43 kb/d to a record 505 kb/d as producers ramped up

activity in the Delaware Basin, while Colorado output increased by 22 kb/d to a new record of 397 kb/d. Elsewhere, Alaskan production increased by 31 kb/d m-o-m, while the Gulf of Mexico declined by 15 kb/d and fell again in October, as Hurricane Nate shut as much as 300 kb/d of output on average during the month. A fire at Shell's Enchilada platform in November forced the closure of four offshore installations, with a combined output of 75 kb/d.

After having shed 36 rigs since mid-July, US producers brought 22 rigs back to active service over the past five weeks, the highest rate of growth since the start of July. As expected, the majority of the increase was in the Permian Basin, which added 20 rigs. Another 7 rigs were added in the Cana Woodford Basin, as investors are ramping up activity in the South Central Oklahoma Oil Province (SCOOP) and Sooner Trend Anadarko Basin Canadian & Kingfisher Counties (STACK) formations.

According to data from Rystad Energy, completion rates across the US tight oil regions have picked up. In October, 978 horizontal oil wells were completed, compared with 900 drilled. As such, the number of wells brought on stream exceeded those spudded for the first time since mid-2016, so that the drilled but uncompleted (DUC) well count declined marginally. Rystad estimates that the number of DUCs stood at around 5 400 in October, compared with 3 400 a year earlier. Based on a Standard Chartered sample of 66 companies, US independent oil producers significantly increased their hedges for 2018 production during 3Q17. Permian Basin producers had hedged 72% of their 2018 output, while Bakken producers increased hedges to 69% of their production. Standard Chartered said that the average 2018 oil swap was struck at a WTI price of $52.15/bbl.



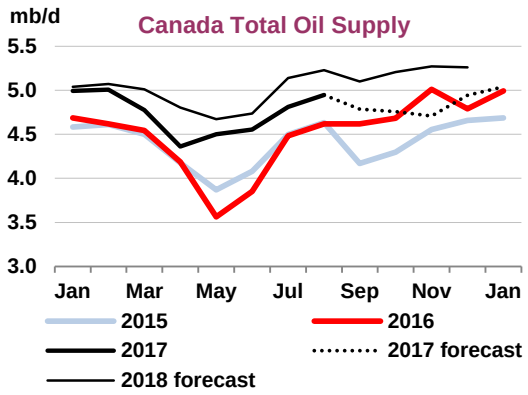


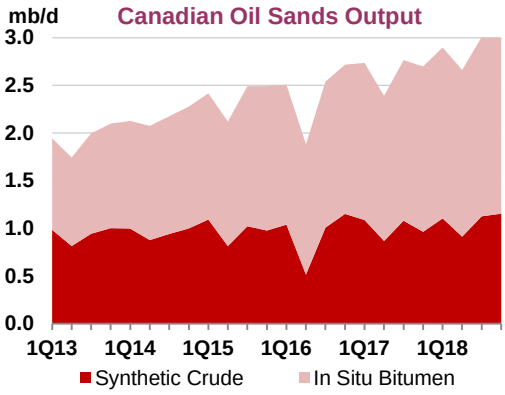
As a result, estimated US oil production growth has been revised up slightly since last month's Report, to 530 kb/d in 2017 and 1.1 mb/d in 2018. Crude oil accounts for 390 kb/d and 870 kb/d, respectively.

Canada – Alaska, Newfoundland October actual, others August actual: Canadian oil production held largely steady in October, averaging around 4.75 mb/d. A 80 kb/d m-o-m drop in synthetic crude oil output was partly offset by a 60 kb/d increase in offshore production. Suncor's Terra Nova oil field, offshore Newfoundland and Labrador, shut for maintenance for most of August and September, recovered to around 40 kb/d during October. The White Rose and North Amethyst fields also restarted following maintenance shutdowns in September. Offshore oil production is on track to rise further as ExxonMobil announced first oil from its Hebron heavy oil field on 28 November. Hebron, which Exxon has developed with Chevron, Suncor, Statoil and Nalcor Energy, is estimated to hold more than 700 mb of recoverable reserves of 20 degrees API crude. According to Exxon, the project will reach its 150 kb/d capacity in 18-24 months.

Canadian oil supplies likely fell in November, on lower synthetic crude oil output. Shell Canada warned customers that output from its 255 kb/d Scotford upgrader may be reduced in November and possibly in December. Syncrude separately announced to customers it would cut output from its 350 kb/d oil sands project by around 5% in November. According to producers, the shutdown of the 590 kb/d Keystone oil

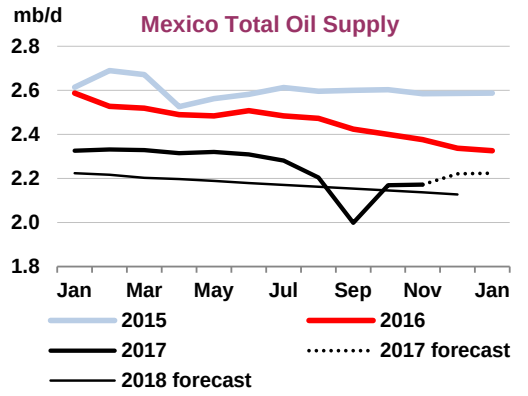
pipeline for nearly two weeks in November due to an oil spill had no material impact on output, as storage capacity was adequate. The line re-started at reduced utilisation rates of 70-80% at the end of November.

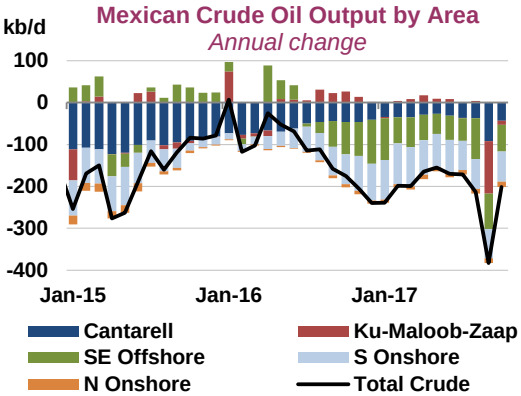




Final Canadian production data for August came in 55 kb/d higher than preliminary estimates, at just shy of 5 mb/d. For the first eight months of 2017, supplies were 425 kb/d higher than a year earlier, boosted by new production and a strong rebound in May and June from last year's wildfires. For the year as a whole, supply is expected to be 290 kb/d higher than last year followed by a gain of 285 kb/d in 2018. Gains will primarily come from Hebron but also from Suncor's 194 kb/d Fort Hills bitumen project.

Mexico - October actual, November preliminary: Mexican crude oil production was 1.9 mb/d in November, largely unchanged from a month ago but 170 kb/d lower than a year earlier. While output at both the Ku-Maloob-Zaap and Cantarell fields rose marginally, production at other fields dropped. Including NGLs, oil output was 2.17 mb/d, 205 kb/d less than last October, which is used to calculate compliance with agreed cuts. Mexico had pledged to reduce supply by 100 kb/d from the baseline, but the impact of hurricanes, an earthquake and heavy maintenance has seen output drop much more sharply since August so that year-to-date production is 150 kb/d lower than the October baseline on average. Output is nevertheless expected to rise marginally towards year-end and declines are expected to ease in 2018, when output is seen 75 kb/d lower year-on-year, compared with 2017's 220 kb/d drop.





North Sea

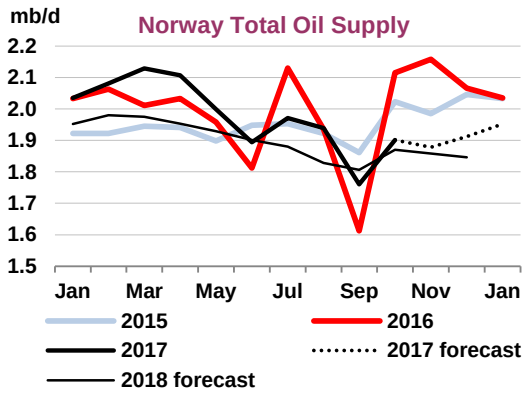
Norway – September actual, October provisional: Following a 180 kb/d month-on-month decline in September, Norwegian oil output bounced back by 140 kb/d in October. At 1.9 mb/d, total oil supply was 215 kb/d lower than a year ago. According to the Norwegian Petroleum Directorate, the increase stemmed mostly from the Snorre and Ivar Aasen fields. Output at Snorre had fallen to only 50 kb/d in August and September, compared with an average 87 kb/d over the first half of the year. The Ivar Aasen

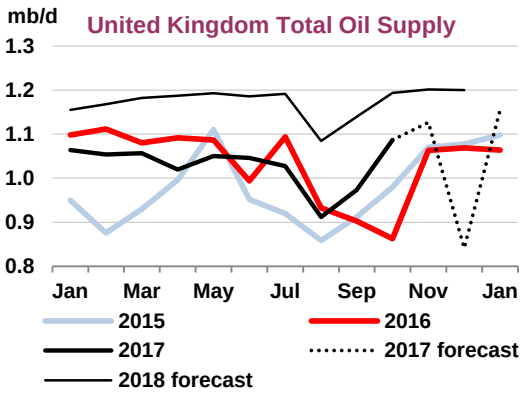
field, which was commissioned last December, had seen output drop to 30 kb/d in September, from a peak of 44 kb/d in April. Total output was nevertheless lower than expected as the Goliat field was closed for most of the month and on lower than expected output from the Gina Krog facility – due in part to loading problems caused by bad weather. The Norwegian Petroleum Authority (PSA), which had ordered Eni to halt production on 6 October due to electrical faults, announced on 8 December that Eni could resume operations. Final data for September show average daily production of around 1.76 mb/d.

Separately, in November the Norwegian Petroleum Directorate granted consent for start-up of production from the Maria field in the Norwegian Sea. It is estimated to hold total recoverable reserves of 180 mb of oil, 1.32 million tonnes NGL and 81 billion cubic feet of gas and will come on stream this month almost one year ahead of the original plan, and at reduced cost.

On 27 November, Statoil announced it had agreed to buy Total's equity share in the Martin Linge oil and gas field (51%) and the Garantiana discovery (40%) on the Norwegian continental shelf (NCS) for $1.45 billion. Statoil will take over both operatorships. After having faced numerous delays and cost overruns, the field, which holds estimated recoverable resources of more than 300 mboe, is now expected to start production in the first half of 2019.

On 5 December, Statoil announced it will move ahead with the development of the Arctic Johan Castberg field, which holds reserves of 450-650 mboe. Statoil plans to spend around 49 billion NOK ($5.9 billion) on its development, which is roughly half of the original investment plan. The development now includes an FPSO rather than a land based facility and costs have come down sharply. Johan Castberg is expected to produce peak output of 190 kb/d shortly after start-up in 2022.





UK – September actual, October provisional: In line with expectations, UK oil output shot up by 110 kb/d in October, to 1.09 mb/d, according to preliminary data submitted to JODI. Total oil supplies were as much as 225 kb/d higher than a year earlier, albeit versus a low base. Final production data for September came in 30 kb/d lower than preliminary estimates.

While output is set to post significant growth in 2018, the shutdown of the Forties Pipeline System in early December poses a serious risk to near-term supply. The pipeline system is Britain's largest, carrying around 450 kb/d of Forties crude oil from more than 80 fields to the Kinneil processing terminal in Scotland, where it is loaded onto tankers, stored or piped to the 200 kb/d Grangemouth refinery. The duration of repair works is still not known, but according to Ineos, the pipeline operator, it expects the outage to last "no less than two", possibly up to four weeks. As a working assumption, we have lowered our UK oil production forecast for December by roughly 300 kb/d since last month's *Report*.

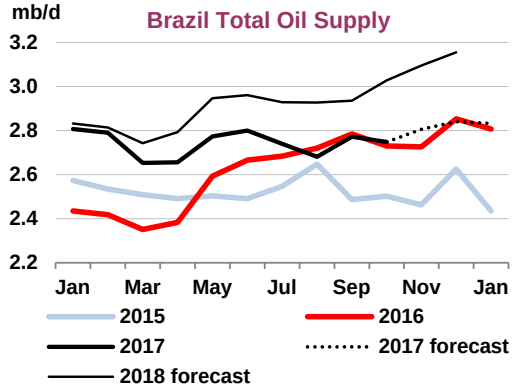
UK oil supply is nevertheless expected to grow by around 150 kb/d next year. Quad 204, which started up in May, produced 54 kb/d in August, the last month for which field level data is available, and will continue to ramp up towards its 120 kb/d capacity. Further gains will come from the 110 kb/d Clair Ridge

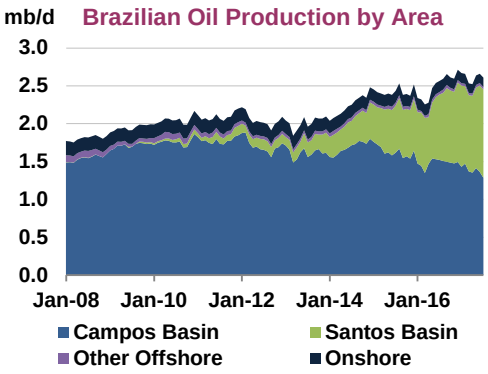
project, which will start up next year. On 15 November, oil also started flowing from Dana Petroleum's Western Isles development east of the Shetlands. Western Isles, which is now producing from the Harris and Barra oil fields, is expected to produce up to 44 kboe/d when fully on line. Premier Oil is also set to start up its 60 kb/d Catcher field in December.

Non-OECD

Latin America

Brazil – October actual: Contrary to expectations, Brazilian oil output dropped by 25 kb/d in October due to maintenance shutdowns of the Cidade de Anchieta and Cidade de Caraguatatuba FPSOs deployed in the Baleia Azul and Lapa fields, respectively. Tanker tracking data suggest that Brazil's output dropped further in November. Lapa, which started producing in December 2016, had ramped up output to 58 kb/d by August, but Petrobras shut in production in mid-September after cracks were noticed in the flare tower of the FPSO. Development drilling at the field, which had been suspended following a court injunction preventing Petrobras from handing over a 35% share and the operatorship of the field to Total, are back on track after the injunction was suspended in early November.





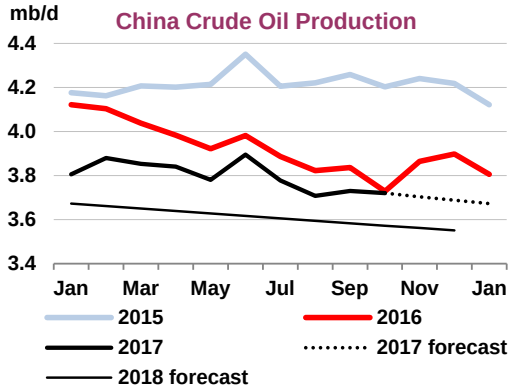
At the end of November, Petrobras and partners, Total, Shell, CNOOC and CNPC, announced that oil was flowing from the major Libra field, which has recoverable volumes estimated of between 8-12 billion barrels and is located in the prolific pre-salt Santos Basin. The consortium has deployed the 50 kb/d Pioneiro de Libra FPSO at the field. The initial production is a one-year production test, designed to evaluate the behaviour of the reservoir and to study the field characteristics. The next phase of development will see the commencement of production from the 150 kb/d Libra 1 FPSO, around 2020/2021. A final investment decision on another 150 kb/d FPSO is expected in early 2018, and a third unit is to follow soon thereafter.

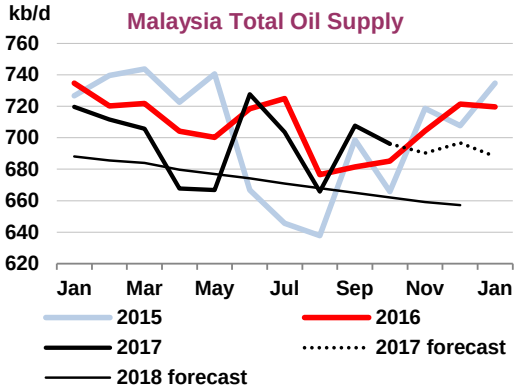
Petrobras also announced in November that it might yet be able to bring the Tartaruga Verde field in the Campos basin on stream before the end of this year. First oil from the 150 kb/d Cidade de Campos dos Goytacazes FPSO planned for the field had been postponed from a planned start-up in 3Q17 to the first half of 2018. In 2018, Petrobras plans to start production from another five FPSOs; one in Lula extreme South, one for Berbigão and three for the Buzios field.

In **Colombia**, oil production inched marginally higher in October, to 867 kb/d, to stand 17 kb/d (2%) higher than a year earlier. After declining precipitously in 2015 and 2016, output has largely stabilised following an increase in upstream investments and drilling. By November, there were 24 active rigs operating in Colombia, compared with only two in April last year.

Asia

China – October actual: Chinese crude oil output was largely unchanged from both a month and a year earlier in October, at just over 3.7 mb/d. After seeing output fall by as much as 475 kb/d, or 11%, y-o-y in October last year, declines have eased over the course of 2017. The three major producers, PetroChina, Sinopec and CNOOC, nevertheless reported annual declines of 5.2% and 3.99% and 2.07%, respectively, in their crude oil production during 3Q17, while at the same time increasing natural gas output. CNOOC announced in early December it had started up production at its Weizhou 12-2 field in the South China Sea, which is reportedly producing around 6 kb/d with peak production of 12 kb/d expected next year. The field is CNOOC's final upstream addition this year, following the Enping field and the Penglai 19-9 expansion in China as well as the BD gas field in Indonesia and the Hangingstone project in Canada.

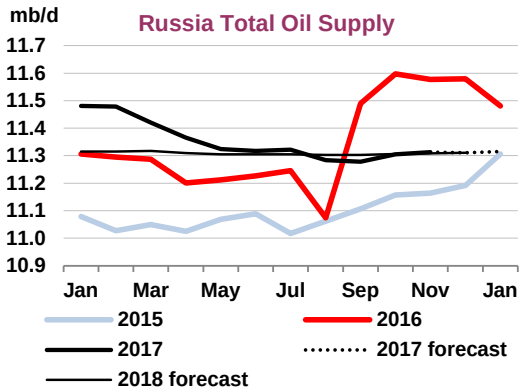


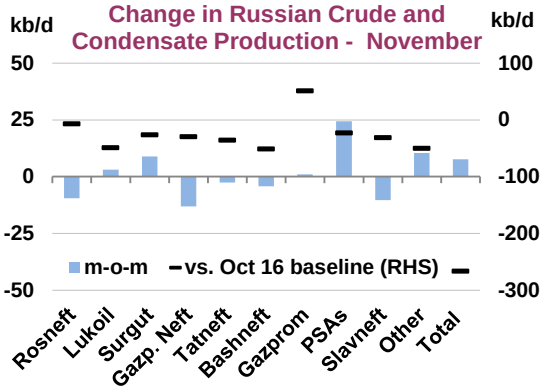


Malaysian crude and condensate production recovered to 642 kb/d in September, from 619 kb/d a month earlier and 7 kb/d higher than a year ago. Malaysia had pledged to cut output by 20 kb/d from the October 2016 baseline but has struggled to do so as output from Shell's deep-water Malikai project is ramping up towards its 60 kb/d capacity. Malikai is Shell's second deep water project in Malaysia, following the start-up of the 148 kb/d Gumusut field in 2014. **Indian** oil output inched up by 7 kb/d to 860 kb/d in October, up 11 kb/d y-o-y, while **Vietnam**'s production held steady at around 275 kb/d in November, a 8% decline y-o-y.

Former Soviet Union

Russia – October actual, November provisional: Russian crude and condensate production inched up by 8 kb/d in November, to reach 10.94 mb/d, as output at Sakhalin 1 remained subdued due to maintenance for a third consecutive month. Even though the field's output had recovered to 125 kb/d by November, from 57 kb/d in September, supplies were 80 kb/d lower than in 1H17.

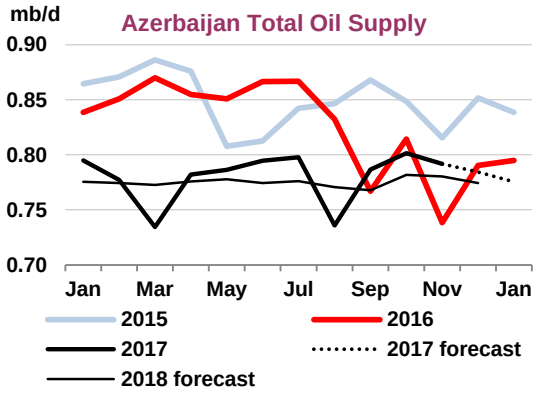


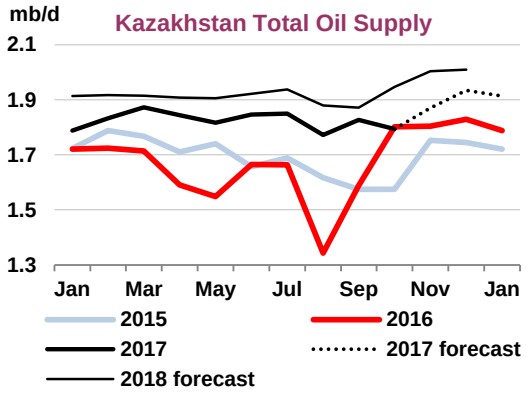


A small month-on-month increase was also seen for Surgutneftegas (+9 kb/d) and Lukoil (+3 kb/d), while Rosneft and Gazpromneft's output dropped by 10 kb/d and 13 kb/d, respectively.

Including NGLs from gas processing plants, total Russian oil output was 11.3 mb/d last month, 265 kb/d lower than a year earlier and 284 kb/d below the October baseline, against which is calculated compliance with agreed output cuts. The biggest declines made up from Rosneft (-66 kb/d or 2%), Bashneft (-47 kb/d or 11%), Lukoil (-39 kb/d or 2%) and Slavneft (-32 kb/d or 11%). Gazprom's liquids output, meanwhile, has risen by 57 kb/d to 417 kb/d over the same period. Russia had committed to cut supplies by 300 kb/d, and has so far achieved an average compliance of 245 kb/d or 81%.
Output is likely to hold around current levels following the recent decision by OPEC and non-OPEC producers to extend the cuts to the end of 2018.

Azerbaijan – October actual, November preliminary: Azeri oil production eased by 10 kb/d in November, to 790 kb/d, according to preliminary data published by the Ministry of Energy. Output had risen over the two preceding months, by 50 kb/d and 15 kb/d, respectively, as supplies from the Azerbaijan International Operating Company's Azeri-Chirag-Guneshli (ACG) development was restored after maintenance. In a recent business update, BP, who operates the field, announced ACG output averaged 585 kb/d during the first nine months of the year, roughly 50 kb/d lower than the same period a year earlier. Condensate output from the Shah Deniz gas field, added another 50 kb/d to AIOC production over the period. AIOC are on track to launch the Shah Deniz Stage 2 project during 2018, lifting the field's liquids output by a further 120 kb/d. While total Azeri output was 50 kb/d higher than a year earlier, it stood 23 kb/d below the October baseline compared with a pledged cut of 35 kb/d.





Kazakhstan – October actual: Kazakhstan's oil production dropped by 33 kb/d in October, to 1.79 mb/d, as lower output from Kashagan and Tengiz more than offset rising volumes from the Karachaganak gas condensate field. Output at Kashagan dropped by 18 kb/d to 177 kb/d, reportedly due to water problems at a well and a slower than anticipated ramp up following the start-up of gas injections since August. Field operator North Caspian Operating Company said last month that Kashagan will reach its 370 kb/d target during 2018, rather than by the end of 2017 as previously announced.

Preliminary loading and tanker tracking data nevertheless suggest Kazakh oil production rose in November and again in December with loadings from both Tengiz and Kashagan seen higher. CPC shipments increased by roughly 175 kb/d in November while a revised loading schedule for December suggested a 30% increase in Kashagan shipments and a 4% increase in Tengiz supplies, to 650 kb/d. In October, the latest month for which consolidated data is available, Kazakh oil production was 8 kb/d lower than a year earlier, compared with a pledged output cut of 20 kb/d. If production did rebound in November as suggested by loading schedules and tanker tracking data, then Kazakhstan slipped further into non-compliance.

STOCKS

Summary

- **OECD commercial stocks fell 40.3 mb in October to 2 940 mb, their lowest level since July 2015.** Robust refinery runs and oil product exports to non-OECD countries contributed.

- **OECD crude stocks fell counter-seasonally by 19.7 mb as US and Korean refineries increased runs month-on-month** (m-o-m), and despite maintenance work in other countries.

- **Chinese crude stocks likely fell in October for the first time in a year**, before rebounding by some 22 mb in November. Overall, builds have slowed down noticeably from 1H17.

- **Preliminary data for November shows a mixed picture, with lower stocks in the US** and Singapore, but higher inventories in Europe, Japan and Fujairah. Oil in transit likely fell.

Global Overview

OECD commercial stocks in October fell to 2 940 mb, their lowest level since July 2015. Crude stocks fell thanks to robust refinery runs in the US and Korea and oil products also drew, though by less than the five-year average decline for the month, with continuing high exports to non-OECD countries. The slowdown in crude imports seen in China during the month makes it likely that total crude stocks – including oil held at commercial tank farms, independent refineries, for strategic purposes and in the Commercial Petroleum Reserve – fell in October for the first time in a year. The global picture is more mixed in November as, even if oil stocks drew in the US and Singapore, they likely rose in other locations, including China, Europe, Japan, and Fujairah. Crude oil held in floating storage declined during October-November but not by as much as in 3Q17. Going into 1Q18, our balances imply that global oil stocks will increase by 300 kb/d, assuming stable OPEC crude production of 32.5 mb/d.

Oct17 v Sep17 Stock Estimate

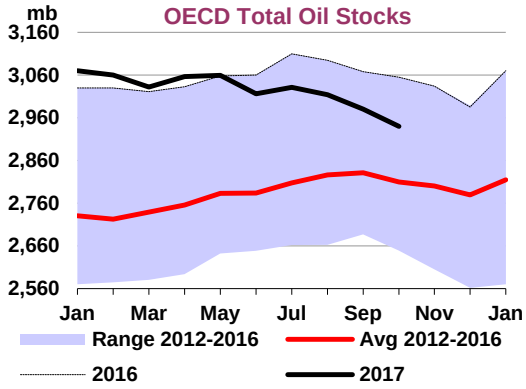
	mb	mb/d
Americas Commercial	-28.0	-0.9
Asia Oceania Commercial	-1.4	0.0
Europe Commercial	-10.9	-0.4
Government Stocks	-3.5	-0.1
Total OECD	**-43.8**	**-1.4**
Crude in Transit	36.3	1.2
Product in Transit	2.9	0.1
Fujairah (FEDCom/S&P Global Platts)	-1.5	0.0
Singapore (International Enterprise)	3.8	0.1
China Commercial Stocks (OGP)	-15.4	-0.5
Total exc China Balance	**-17.7**	**-0.6**
China Crude Balance	-13.0	-0.4
Total	**-30.6**	**-1.0**

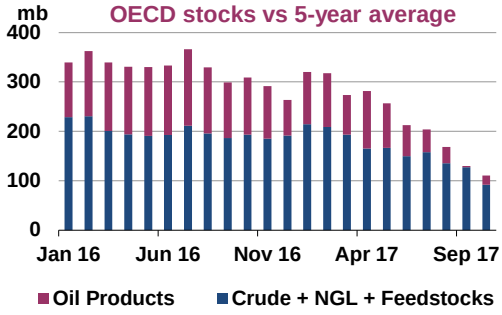
OECD inventory position at end-October and revisions to preliminary data

OECD commercial stocks fell for the third straight month in October by 40.3 mb (1.3 mb/d) to 2 940 mb. While stocks typically fall at this time of year, the month-on-month drop in October was almost twice as large as the five-year average. Unlike previous years, there was a large crude oil draw thanks to higher refinery throughput. Refinery maintenance typically boosts crude stocks in the OECD in October, but this year higher monthly runs at US refineries following the end of Hurricane Harvey and lower US offshore production due to Hurricane Nate depressed crude stocks. Korean refineries also increased runs in October, exacerbating the trend, while refiners in Europe and other OECD countries conducted maintenance. Crude stocks fell in Asia Pacific (-12.3 mb), the Americas (-6.1 mb) and Europe (-1.3 mb).

Oil product holdings also drew by a combined 22.4 mb, on robust exports to non-OECD economies (diesel from the US to Latin America; naphtha from Europe to Asia; gasoline from Europe to the Middle East). While the direction was in line with seasonal trends, products typically draw by more in October. Middle distillate inventories fell 13.7 mb in October, versus a 23.5 mb five-year average fall, and 'other products' reduced 1.2 mb, versus a 9.5 mb average fall. This discrepancy was in part driven by

higher refinery runs in the OECD and by refiners switching to diesel rather than gasoline production due to the very high cracks seen during August-September. Warmer-than-usual temperatures in Europe and North America also contributed. Fuel oil stocks reached a new historical low of 120 mb with lower Americas stocks.





Note: Adjustments to Australian, Belgian and Swedish stocks from January 2017 have been excluded.

On a regional basis, oil stocks drew sharply in the Americas (-28 mb) and there were falls in Europe (-10.9 mb) and Asia Pacific (-1.4 mb) too. The surplus of OECD stocks to the five-year average – taking into account stock adjustments in Australia, Belgium and Sweden made at the start of 2017 – declined for the sixth month in a row, to 111 mb. By comparison, the surplus stood at 291 mb at the end of November 2016, when OPEC decided to reduce its production. As highlighted previously, the reduction in the surplus has been driven both by the lagged effect of rising stock levels over the last few years as well as an underlying reduction in stock levels due to tighter global supplies. On the basis of forward demand, commercial stocks covered 62.5 days at the end of October, the lowest level since July 2015.

Preliminary Industry Stock Change in October 2017 and Third Quarter 2017

	October 2017 (preliminary) *(million barrels)*				October 2017 (preliminary) *(million barrels per day)*				Third Quarter 2017 *(million barrels per day)*			
	Am	Europe	As. Ocean	Total	Am	Europe	As. Ocean	Total	Am	Europe	As. Ocean	Total
Crude Oil	**-6.1**	**-1.3**	**-12.3**	**-19.7**	**-0.20**	**-0.04**	**-0.40**	**-0.64**	**-0.26**	**-0.26**	**0.09**	**-0.43**
Gasoline	-7.0	0.9	0.3	-5.8	-0.22	0.03	0.01	-0.19	-0.18	-0.05	-0.02	-0.24
Middle Distillates	-9.8	-9.4	5.5	-13.7	-0.31	-0.30	0.18	-0.44	-0.13	-0.04	0.03	-0.14
Residual Fuel Oil	-4.2	0.4	2.1	-1.7	-0.14	0.01	0.07	-0.06	0.02	-0.05	-0.02	-0.06
Other Products	-0.8	-2.1	1.7	-1.2	-0.03	-0.07	0.06	-0.04	0.25	0.09	0.04	0.38
Total Products	**-21.7**	**-10.3**	**9.6**	**-22.4**	**-0.70**	**-0.33**	**0.31**	**-0.72**	**-0.04**	**-0.06**	**0.03**	**-0.07**
Other Oils[1]	-0.2	0.6	1.4	1.9	-0.01	0.02	0.05	0.06	0.12	0.01	-0.02	0.11
Total Oil	**-28.0**	**-10.9**	**-1.4**	**-40.3**	**-0.90**	**-0.35**	**-0.04**	**-1.30**	**-0.17**	**-0.31**	**0.10**	**-0.39**

1 Other oils includes NGLs, feedstocks and other hydrocarbons.

Preliminary data for November show oil stocks drawing further in the US (-10.9 mb) and Singapore (-2.9 mb), but rising in Europe (+5.9 mb), Japan (+2.2 mb) and Fujairah (+1.5 mb). China's net crude imports rebounded, implying a net crude stock build of 22.3 mb. Even if data were not yet available at the time of publication, it is also highly likely that Canadian crude stocks went up sizeably following the outage between 13-28 November of the Keystone pipeline, which links Alberta with the US Midwest. Crude stocks at Cushing, where the pipeline ends, fell 8.3 mb in November.

OECD oil inventories were revised up by 3.8 mb for August and 10.6 mb for September as new data were received. The September revision was largely down to higher crude and product stocks in the US.

Revisions versus November 2017 Oil Market Report

(million barrels)

	Americas		*Europe*		*Asia Oceania*		*OECD*	
	Aug-17	Sep-17	Aug-17	Sep-17	Aug-17	Sep-17	Aug-17	Sep-17
Crude Oil	**5.8**	**11.8**	**-0.2**	**-2.9**	**0.0**	**-4.0**	**5.6**	**4.9**
Gasoline	-0.7	4.0	-0.2	-1.0	0.0	-0.7	-0.9	2.3
Middle Distillates	-1.6	3.0	0.0	-3.9	0.0	0.3	-1.6	-0.5
Residual Fuel Oil	-1.2	-1.2	0.0	1.0	0.0	0.0	-1.2	-0.2
Other Products	-0.4	5.7	0.1	1.3	0.0	-0.4	-0.4	6.7
Total Products	**-3.8**	**11.5**	**-0.1**	**-2.6**	**0.0**	**-0.8**	**-4.0**	**8.2**
Other Oils[1]	2.2	-4.5	0.0	1.5	0.0	0.4	2.2	-2.5
Total Oil	**4.1**	**18.9**	**-0.4**	**-4.0**	**0.0**	**-4.3**	**3.8**	**10.6**

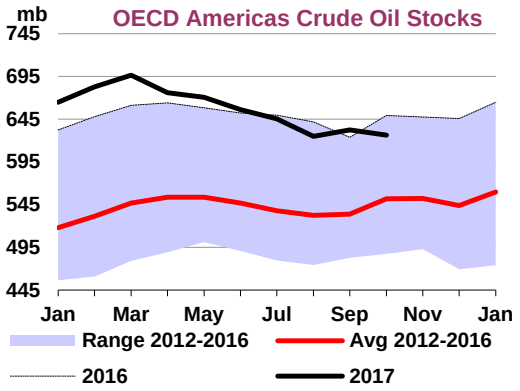
1 Other oils includes NGLs, feedstocks and other hydrocarbons.

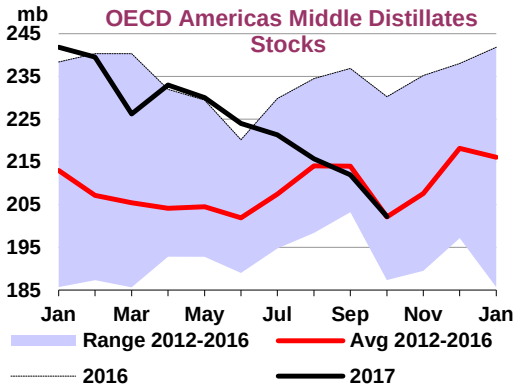
Recent OECD industry stock changes

OECD Americas

Commercial stocks in the OECD Americas fell by a larger-than-seasonal 28 mb in October to 1 551 mb, thus reaching their lowest level in two years. The region's inventories remain above the five-year average, but the surplus has dropped from around 222 mb at the end of 2016 to 103 mb in October. The impact of Hurricane Harvey on US stocks faded with the restart of all affected refineries in the Gulf Coast, except for a few that went into seasonal maintenance.

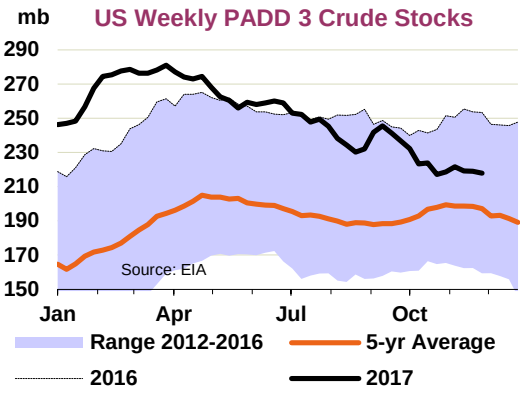
Crude stocks fell counter-seasonally, by 6.1 mb to 626 mb at end-October. There were three major factors: first, the return of more refinery capacity on the US Gulf Coast after Harvey. US runs normally fall between September and October, but this year they increased by over 500 kb/d month-on-month, thus using up more crude and depleting stocks. Secondly, Hurricane Nate shut a substantial portion of US offshore fields for several days at the start of the month. Thirdly, US crude exports continued to increase due to higher demand from Asian and European refiners, reaching a historical record of 2.1 mb/d in the week ending 27 October. Oil product stocks fell seasonally, by 21.7 mb to 728 mb. While lower refinery runs are typically to blame for lower product inventories at this time of year, high product exports to Latin America was the chief reason this time. Middle distillate stocks fell 9.8 mb to 202 mb, gasoline inventories reduced 7 mb to 245 mb and fuel oil stocks decreased 4.2 mb to 38 mb. Other product stocks (largely US LPG) also fell, by 0.8 mb to 241 mb, but the decrease was less than usual, likely because of moderate crop drying requirements and a late start to the winter heating season.

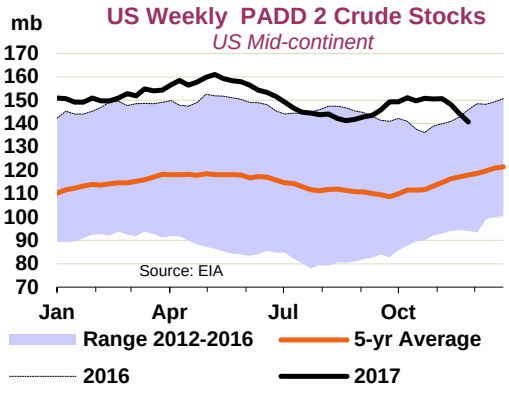




Preliminary data from the EIA for November show US oil stocks falling by a further 10.9 mb on the month, thus continuing the recent downtrend. Crude stocks drew 7.3 mb as US refiners increased runs further and with the interruption of flows on the Keystone pipeline during 13-28 November due to a leak. The pipeline restarted in late November, but as it is one of only two major conduits for Canadian crude into the US, it led to substantial drawdowns at Cushing, Oklahoma. US crude exports eased to an

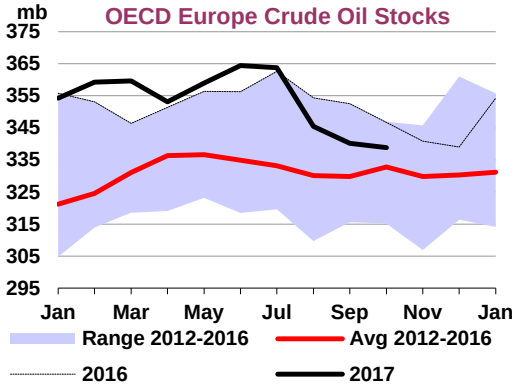
average 1.4 mb/d in November following an increase in US crude prices and imports fell slightly. US oil product stocks fell by 3.6 mb during the month thanks to seasonal draws in propane (-3.4 mb) and other product stocks. However, diesel (+3 mb) and gasoline inventories (+9 mb) increased with higher refinery output and seasonally lower demand. Imports and exports of both gasoline and diesel changed little on the month. The US Strategic Petroleum Reserve drew by 7.2 mb in November to 663 mb and has fallen by 32.1 mb since December 2016.

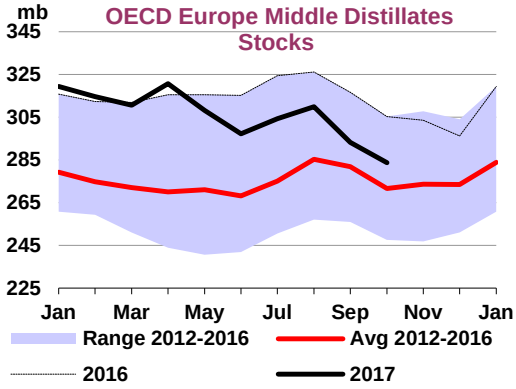




OECD Europe

OECD Europe commercial stocks drew seasonally by 10.9 mb in October to reach 957 mb, their lowest level since July 2015. Taking into account the upward revision made to Belgian and Swedish baseline stock figures from January 2017, total oil stocks in the OECD Europe region stood 10 mb above the five-year average, down from 35 mb at the end of 2016. Crude stocks declined 1.3 mb to 339 mb. They stood at their lowest level since July 2015. Figures from *Kpler*, the cargo tracking company, showed European crude imports rising 17 mb in October.



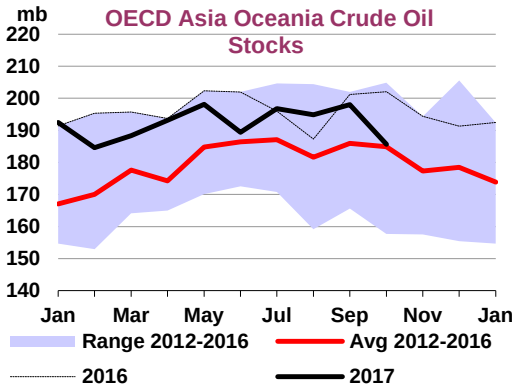


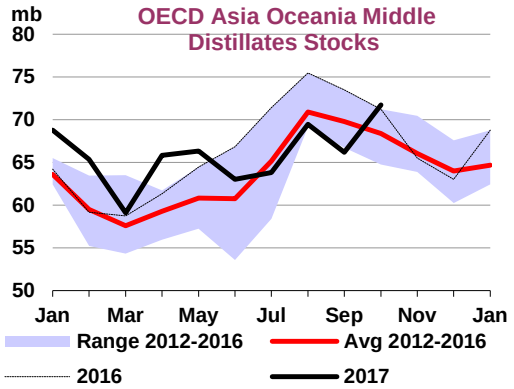
Oil product stocks declined in line with seasonal patterns by 10.3 mb to 545 mb, as maintenance took place at some refineries. Middle distillate inventories fell 9.4 mb to 284 mb. Diesel and jet fuel cargo arrivals reduced during the month and fell further in November as prices declined amid lower seasonal demand. Other product stocks also decreased 2.1 mb, to 112 mb. By contrast, gasoline inventories built 0.9 mb to 89 mb and fuel oil increased 0.4 mb to 60 mb. Oil products have made up the bulk of overall inventory falls in OECD Europe so far this year even as refinery runs have increased year-on-year. This is largely due to higher demand from end-consumers and a fall in diesel and jet imports.

Preliminary data from Euroilstock showed most product categories building during November. Crude stocks went up 4.4 mb, gasoline rose 1.1 mb and fuel oil gained 0.3 mb. Stocks of middle distillates and naphtha were both unchanged. Overall, stocks were higher by 5.9 mb.

OECD Asia Oceania

Commercial stocks in OECD Asia Oceania fell by a modest 1.4 mb in October to reach 432 mb. The largest movement occurred in Korea, where crude stocks drew sharply and products increased by nearly the same amount. When taking into account the upward revision made to Australian baseline figures from January 2017, total oil stocks in OECD Asia Oceania stood 2 mb below the five-year average in October. Crude stocks dropped by 12.3 mb from September to 186 mb as imports eased. Kpler data showed that total crude imports into Australia, Israel, Japan, Korea and New Zealand fell to a four-month low of 203 mb. Oil product stocks increased counter-seasonally by 9.6 mb to 182 mb, with gains registered across all major categories, likely driven by higher runs at Korean refineries. Stocks of gasoline (+0.3 mb), middle distillates (+5.5 mb), fuel oil (+2.1 mb) and other products (+1.7 mb) were up.



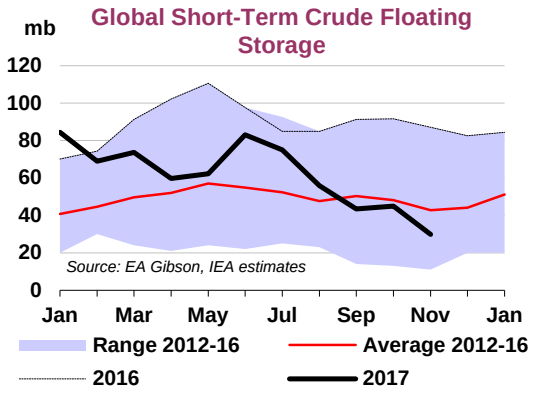


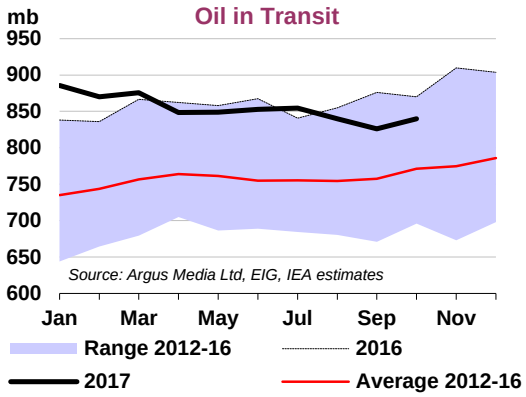
Preliminary data from the *Petroleum Association of Japan* (PAJ) show total oil stocks rising 2.2 mb in November, with a 2.4 mb build in crude stocks and a 0.2 mb draw in product stocks. Kerosene stocks increased above year-ago levels for the first time since March, as warmer-than-usual temperatures suppressed demand for heating. Refinery runs increased during the month. Most product inventories stand below the five-year average as tepid demand and the closure of some refining capacity has led to destocking.

Other stocks developments

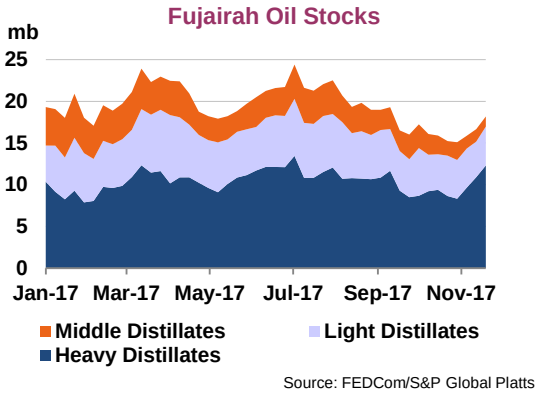
After pausing in July and August, stock draws in the 17 non-OECD countries covered by the JODI database (Nigeria, Saudi Arabia, India, Thailand, Romania, Iraq, Cyprus, Croatia, Slovenia, Chinese Taipei, Papua New Guinea, Bahrain, Bulgaria, Angola, Hong Kong, Lithuania, Qatar) resumed in September. Total oil stocks drew by a combined 13.9 mb month-on-month and were down 55 mb (150 kb/d) year-on-year. In September, the largest draws were seen in crude in countries such as Nigeria (-10.8 mb), Saudi Arabia (-2.4 mb) and India (-2.2 mb). Saudi Arabia's crude stocks stood at 253 mb, their lowest level since December 2011. They have been falling in eight out of 10 months since OPEC's agreement to cut production at the end of 2016. The Kingdom's crude holdings are kept in national tank farms, pipelines and refineries as well as in overseas tanks and offshore, on oil tankers.

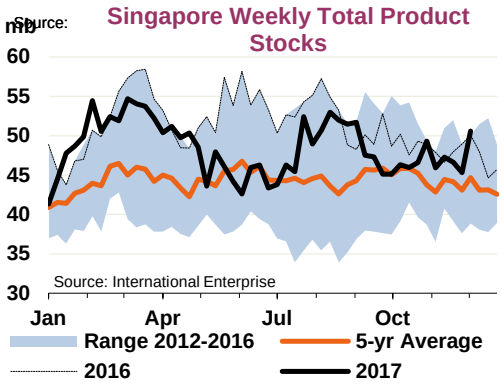
Crude oil held in floating storage during October-November failed to repeat the steep falls seen in 3Q17, but declined nonetheless. Offshore stocks rose by 1.5 mb in October and fell by 15.1 mb in November to a near three-year low, according to *EA Gibson*. Estimates available from other data providers showed the opposite, but over October-November the consensus is for a moderate fall of between 3-15 mb in crude floating storage. Volumes of clean oil products and fuel oil held on floating storage rose modestly during October-November, the same data showed. Finally, crude in seaborne transit rose sharply in October as refineries prepared to increase runs to a historical high level during November-December. Crude transit volumes then fell in November.





Data from *China Oil, Gas and Petrochemicals* (China OGP) covering Chinese oil majors indicate that commercial stocks fell 15.4 mb in October to their lowest level since December 2011. This was the fourth straight month of stock falls. Crude stocks dropped 20.3 mb to below the 200 mb mark, whereas stocks of gasoline (+1.6 mb), gasoil (+3.4 mb) and kerosene (-0.1 mb) saw smaller changes. Net crude imports also fell sharply during the month amid continuing high refinery runs resulting in an overall stock fall in China for the first time since October 2016. In November, however, preliminary customs data, together with our estimate for lower refinery runs (-300 kb/d) on the month, imply a net stock build of 22.3 mb for crude.

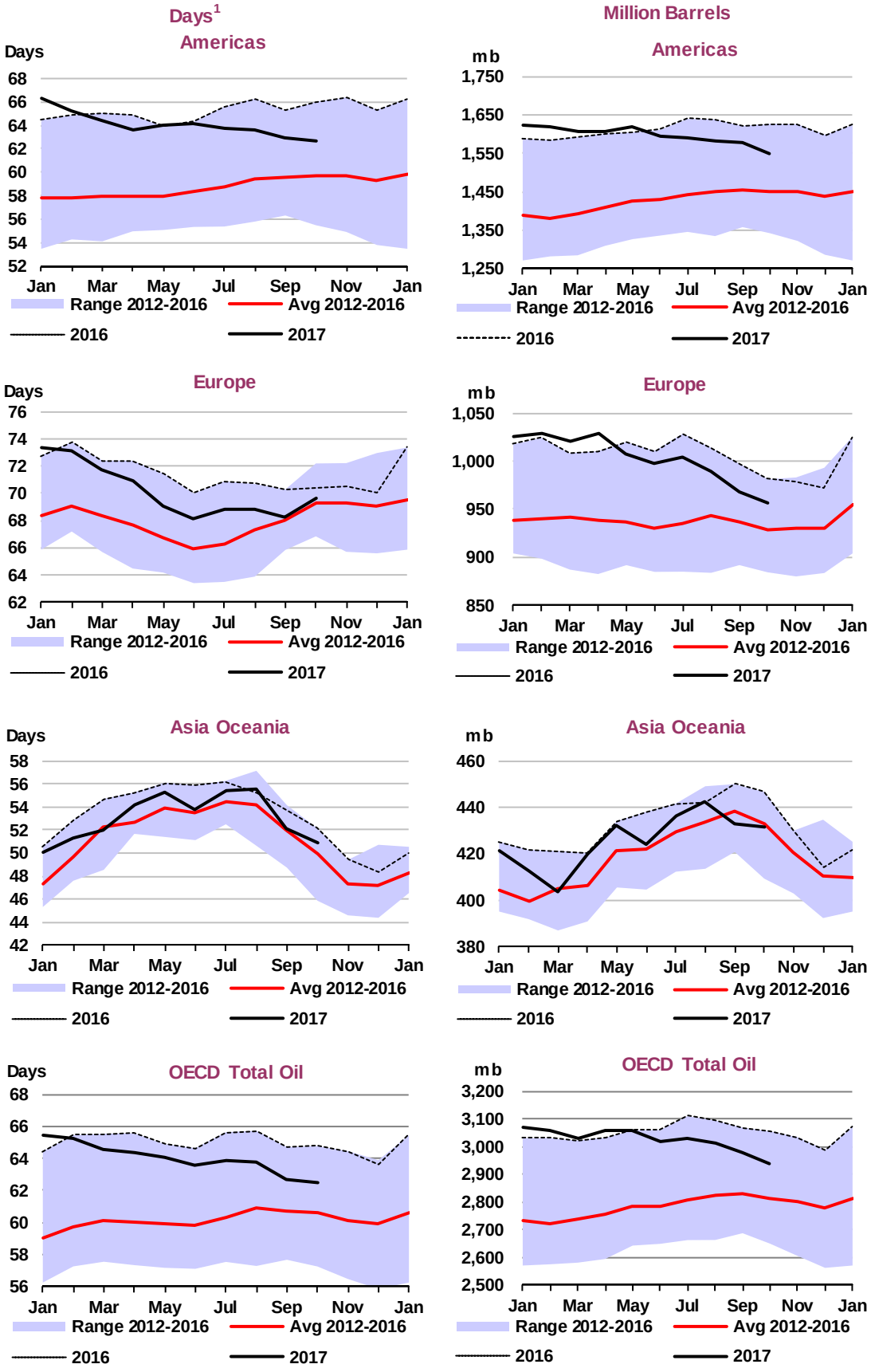




Oil inventories in Fujairah returned to growth in November, rising by 1.5 mb m-o-m to 17.3 mb. Heavy distillates (fuel oil and residual fuels), in particular, gained 2.2 mb on the month to reach 11.5 mb, making up two-thirds of all oil held. Overall, stocks in Fujairah have been on a downtrend trend since July as the tensions between Qatar and other Middle Eastern countries reduced bunkering demand in Fujairah and led to some destocking. Singaporean stocks fell 2.9 mb in November, largely due to a 2.5 mb drop in fuel oil and residues.

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

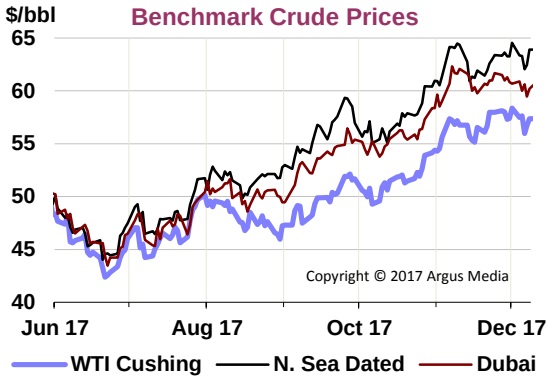
PRICES

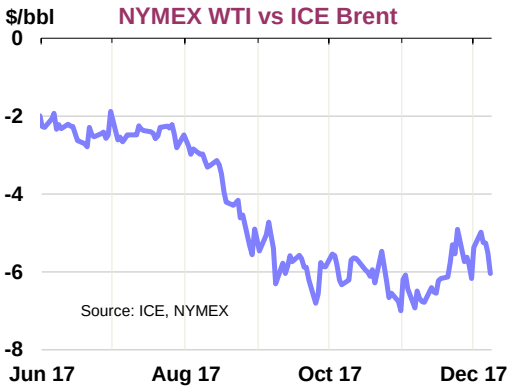
Summary

- **Benchmark crude prices rose by $4-5/bbl on average in November and traded at their highest level in two years in early December**, helped by geopolitical tensions, extended output cuts from OPEC and the closure of a key pipeline in the North Sea.

- **Money managers boosted net long positions in crude futures to a new record, underscoring continued optimism about the oil price** but setting up prices for a fall if fundamentals disappoint.

- **Product prices rose in November, but less than crude due to higher refinery production**. Naphtha increased more than any other oil product on strong petrochemical demand.





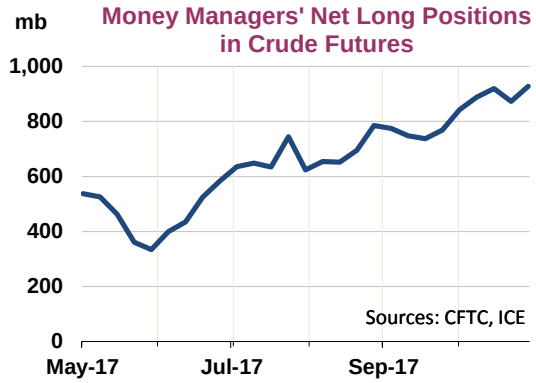
Market overview

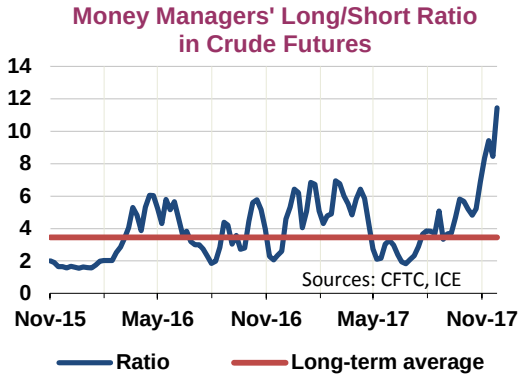
Outright Brent crude futures reached $65.50/bbl intraday on 12 December, their highest level since June 2015, after OPEC agreed to extend production cuts and following the shutdown of the Forties pipeline in the North Sea. Meanwhile, total OECD oil stocks fell to 2 940 mb at the end of October, their lowest since July 2015 (*See Stocks*). There has been a clear relationship between falling oil stocks and rising prices in recent months. Money managers had built record long positions in crude futures by the end of November, underlying strong optimism about oil prices among this category of traders, but also setting prices up for a fall should supply/demand fundamentals disappoint in the coming months. In the physical markets, crude oil prices increased by $4-5/bbl on average in November. The gains were relatively broad-based and shared almost equally between regional grades. Canadian crude prices fell following the shutdown of the Keystone pipeline, whereas US crudes benefitted. Global product prices rose, but less than crude due to higher refinery production and reduced demand. Naphtha prices increased sharply with strong runs at Asian petrochemical crackers. In early December, refining margins came under further pressure. Tanker rates remained in the doldrums, close to the lows reached earlier this year.

Futures markets

Crude futures in November rose for the fifth straight month, buoyed by geopolitical tensions in the Middle East and confidence that OPEC would maintain output cuts in 2018. Front-month Brent futures increased above $62/bbl in early November and traded over that threshold for most of the month. In late November, prices eased immediately after the OPEC meeting as the outcome had been widely anticipated by traders, before rising once again in early December. Brent futures briefly traded above $65/bbl on 12 December, its highest level in more than two years, following the closure of the Forties pipeline system that carries the grade used to price the North Sea Dated benchmark, before retracing.

Money managers continued to build long positions in crude futures during the month as they grew increasingly optimistic about the outlook for oil prices. Combined net long positions in Brent and WTI, defined as the difference between long and short positions, reached a historical record of 928 mb on 28 November. In early December, a growing number of analysts warned that builds in long positions had gone out of hand with supply fundamentals potentially leaving the oil market vulnerable to a price fall.





The Month 1-Month 2 NYMEX WTI futures spread was stable in a contango of $-0.20/bbl in the first half of November, before strengthening noticeably in the second half of the month following the closure of the Keystone pipeline due to a leak. The price spread moved up following news of the outage and traded at parity for several days in a row. Longer-dated spreads, such as February-March 2018, moved to backwardation in the last days of November, before easing in early December. The Keystone shutdown also led to a narrowing of the Brent-WTI futures spread from $6.40/bbl on 13 November to $4.91/bbl on 24 November, making US crude exports less economic. The pipeline was reopened at the end of November and in early December the spread was trading at $6.50/bbl, close to its level before the leak.

Prompt Month Oil Futures Prices

(monthly and weekly averages, $/bbl)

	Sep	Oct	Nov	Nov-Oct Avg Chg	% Chg	Week Commencing: 06 Nov	13 Nov	20 Nov	27 Nov	04 Dec
NYMEX										
Light Sweet Crude Oil	49.88	51.59	56.66	5.07	9.8	57.05	55.90	57.47	57.83	57.02
RBOB	69.85	69.19	74.49	5.31	7.7	76.43	73.51	74.26	73.60	71.30
ULSD	75.21	75.55	80.67	5.11	6.8	81.21	80.61	81.41	81.10	79.76
ULSD ($/mmbtu)	13.27	13.33	14.23	0.90	6.8	14.32	14.22	14.36	14.30	14.07
Henry Hub Natural Gas ($/mmbtu)	3.01	2.91	3.06	0.15	5.0	3.18	3.10	2.96	3.05	2.87
ICE										
Brent	55.51	57.65	62.87	5.22	9.1	63.78	62.26	63.10	63.57	62.43
Gasoil	71.33	71.55	75.18	3.62	5.1	76.03	74.91	75.33	75.60	74.34
Prompt Month Differentials										
NYMEX WTI - ICE Brent	-5.63	-6.06	-6.21	-0.15		-6.73	-6.36	-5.63	-5.74	-5.41
NYMEX ULSD - WTI	25.33	23.96	24.01	0.04		24.16	24.71	23.94	23.27	22.74
NYMEX RBOB - WTI	19.97	17.60	17.83	0.24		19.38	17.61	16.79	15.77	14.28
NYMEX 3-2-1 Crack (RBOB)	21.76	19.72	19.89	0.17		20.97	19.98	19.18	18.27	17.10
NYMEX ULSD - Natural Gas ($/mmbtu)	10.26	10.41	11.17	0.76		11.15	11.12	11.40	11.25	11.20
ICE Gasoil - ICE Brent	15.82	13.90	12.31	-1.60		12.25	12.65	12.23	12.03	11.91

Source: ICE, NYMEX.

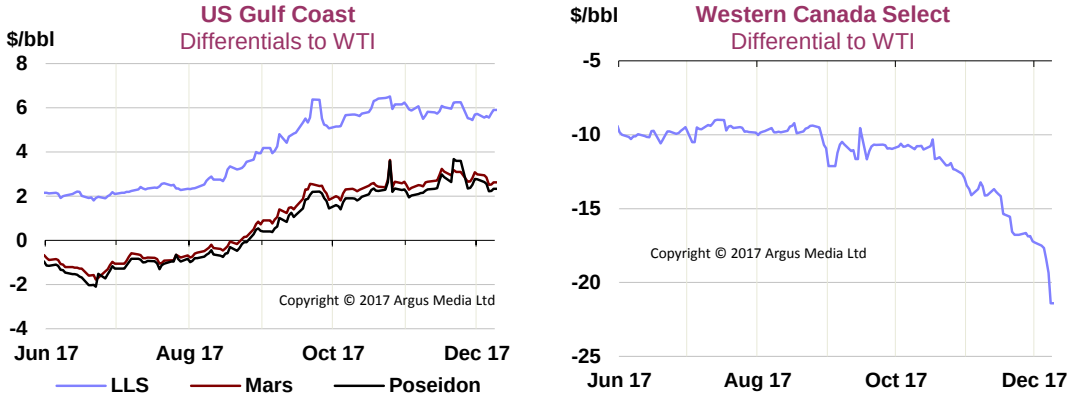
The Month 1-Month 2 ICE Brent futures spread traded in backwardation throughout November. It eased in the first half of November, before strengthening following the Keystone pipeline shutdown, which meant supply fundamentals were seen as tighter in the Atlantic Basin during December-January. The spread shot up to $0.69/bbl on 11 December, its highest since June 2014 (excluding expiry days when the spread can spike), following the closure of the Forties pipeline system that carries the grade used to price

the North Sea Dated benchmark. The Brent-Dubai Exchange of Futures for Physical (EFP) spread – which measures the relative price difference between European and Middle Eastern crude – continued to rise, reaching $3.45/bbl in late November, the highest since July 2016. The EFP had narrowed considerably following OPEC's deal to cut production in late 2016 and the fact it now trades above the level of a year ago suggests that Asian refiners have reduced their crude purchases going into the year-end.

In oil products, the Month 1-Month 2 ICE low sulphur gasoil futures curve eased in November, reflecting higher production from refineries following maintenance. It returned to contango on 10 November after it had spent September and October in backwardation, and was $-0.07/bbl at the time of writing. Lower seasonal demand and higher refinery production also pushed the NYMEX diesel and Reformulated Gasoline Blendstock for Oxygen Blending (RBOB) curves lower.

Spot crude oil prices

Global crude oil prices increased by $4-5/bbl in November, buoyed by geopolitical tensions and OPEC's decision to extend its output cuts. However, unlike in previous months, the increase was relatively broad-based and shared almost equally across regional grades. Canadian crude prices fell following the shutdown of the Keystone pipeline for almost two weeks, whereas US crudes benefitted.



North American crude prices fluctuated significantly in November with the outage of the Keystone pipeline between Canada and the US during 16-28 November, and production issues at some Canadian synthetic crude upgraders and in the Gulf of Mexico. The Keystone outage backed out Canadian crude exports, leaving them solely reliant on the Mainline system, which reached full capacity, thus depressing prices. West Canadian Select, produced in Alberta, traded at a discount to NYMEX WTI futures of $21.72/bbl on 30 November, the widest since August 2015. By contrast, WCS for delivery in the US storage hub of Cushing traded as much as $10.48/bbl above the Canadian price following the outage, up from less than $5/bbl beforehand. WCS delivered in the US Gulf Coast traded even higher as heavy crude volumes on the Marketlink pipeline between Cushing and the Gulf Coast fell and were replaced by lighter crudes. Heavy, sour grades, such as Mars and Poseidon, also gained in price after the outage and with lower availability in the US Gulf. Plentiful capacity to export crude from the Permian Basin as well as strong demand from US Gulf Coast refiners pushed the price of WTI in Midland above that in Cushing.

North Sea Dated averaged $62.63/bbl, up a strong $5.35/bbl on the month. However, physical prices remained volatile throughout, rising, then easing in the first half of November before gaining strongly in the last part of the month and in early December. Shipments to Asia became less economic due to the relative fall in price of Middle Eastern grades – via the wider Brent-Dubai spread – and thus began to decline. Three VLCCs laden with Forties crude and one of Ekofisk sailed for Asia in November, down from October's record high. Exports are likely to fall further in December, even if several cargo loadings are on the cards. Leftover demand from Asia and firm interest from European refineries were enough to support price differentials in late November. Statoil bought a large amount of crude in the Platts Market

on Close assessment process. Forties crude traded at North Sea Dated plus $0.90/bbl on 30 November, up from $0.28/bbl at the end of October, and at its highest since September. Heavy crudes Captain and Kraken were exported from the North Sea to the US Gulf Coast and arrived in early December, after WCS flows fell due the Keystone pipeline outage. The Forties differential shot up on 11 December following the closure of the Forties pipeline due to a leak. The North Sea benchmark is likely to be set at the price of Ekofisk crude during the duration of the shutdown instead of the normally cheaper Forties grade.

West African crude prices moved up in November; however, they underperformed North Sea and other crudes for the second straight month. Nigeria's Qua Iboe changed hands at an $0.80-0.90/bbl differential to North Sea Dated, down from above $1/bbl during October. Bonny Light also traded below the $1/bbl threshold and Agbami changed hands below North Sea Dated during most of the month. The wider Brent-Dubai spread rendered West African crude exports to Asia less economic. There were around 20 cargoes of January-loading Angolan crude left on sale by the end of November, a relatively high level. Loadings from both Angola and Nigeria are expected to remain mostly unchanged in January. Forcados loadings are scheduled to increase to their highest level in several months.

Spot crude oil prices and differentials

Table Unavailable

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Russian Urals crude continued to rise relative to North Sea Dated in November as higher than expected refinery runs in Russia reduced crude exports. Urals for delivery in Northwest Europe averaged $61.76/bbl, up $5.86/bbl on the month. The differential to North Sea Dated was $-0.70/bbl at the end of November, up from $-1.10/bbl at the end of October. Russian crude exports are expected to fall by up to 10% in December versus November. The CPC Blend price rose strongly in the early part of the month due to production issues at the Kashagan field, strong interest from Asian refiners and high naphtha cracks, but then eased, albeit remaining above North Sea Dated.

Middle Eastern crudes were supported in November by robust refining margins, increasing interest from Asian refiners as well as statements from OPEC ministers that supply cuts would be extended through 2018. Dubai gained $5.21/bbl on the month to average $60.81/bbl. Physical prices also increased throughout the month relative to forward swap prices, indicating increasing supply tightness. The UAE's Murban fell relative to the Dubai benchmark with an expected increase in production. It was assessed $0.20/bbl above the benchmark in late November, down $0.30/bbl on the month. Iraq's Basrah Light and Heavy prices also fell with higher expected loadings from the country's southern ports.

Spot product prices

Global product prices rose in November, but less than crude due to higher refinery production and reduced demand. Naphtha prices increased sharply with strong runs at Asian petrochemical crackers. Diesel, gasoline and fuel oil saw higher supplies than in recent months.

Spot product prices

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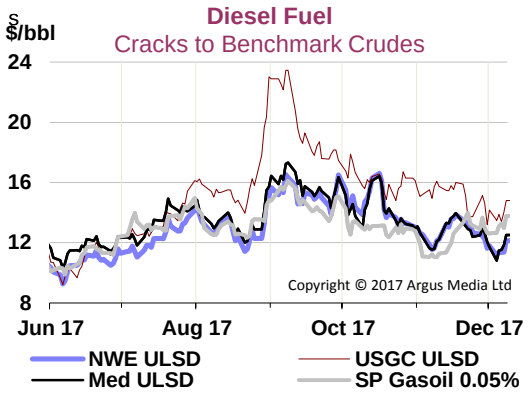
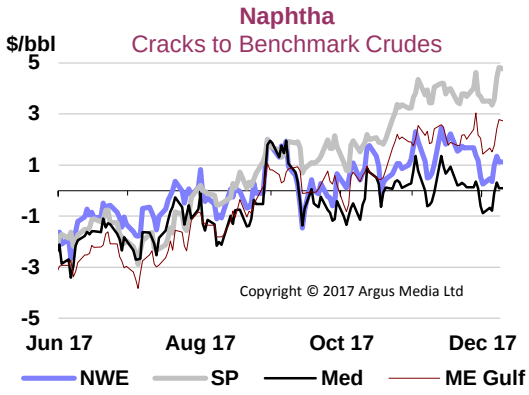
Diesel prices increased by $3-4/bbl in November; however, they lagged behind crude benchmarks and other oil products. Higher seasonal demand linked to colder temperatures was largely offset by higher expected supplies from refineries in China, India and Russia. NYMEX diesel futures and ICE gasoil futures both flipped to contango during the month and physical diesel differentials eased. Diesel exports from the northern Russian port of Primorsk will rise to an 11-month high of 9.7 mb in December following the partial expansion of the Sever pipeline. This is likely to lead to a fall in volumes sent by the US and the Middle East to Europe, which had gone up substantially in recent months. Market sources estimated the volume of diesel set to reach Europe from the US in December at 6.3 mb, only just above the minimal volume guaranteed under long-term contracts. In parallel, prices in the US Northeast rose to incentivise imports from Russia, the Middle East and even Brazil, which has been a net importer. Temperatures fell below seasonal averages in Europe and the US in late November after they had been warmer-than-usual in October and early November. In Asia, the Singapore 500-ppm gasoil curve flipped to contango in the first part of November with higher scheduled exports from China and India, however it strengthened in the second half with steady demand in Southeast Asia.

Gasoline prices rose by $4-6/bbl in most regions in line with crude prices. Higher demand and planned maintenance in the Middle East towards the end of the year and the beginning of 2018 pushed refiners to import large amounts to stockpile. Cargo loadings in Europe destined for the Middle East amounted to 10.9 mb in November, a monthly record. Europe's exports to West Africa stayed muted, but picked up

towards the end of the month with higher demand in Nigeria, amid panic buying and product shortages. The Europe to US gasoline arbitrage stayed largely closed in the first half of the month, but later more cargoes departed. Reformate exports from Europe to China also remained higher than they have been historically. Lower seasonal demand in the US limited price gains and pushed 87 RON prices below benchmark NYMEX RBOB futures.





For the second month in a row, naphtha prices saw larger gains than other oil products, buoyed by strong demand from petrochemical crackers in South Korea, Japan, Taiwan and China, and high LPG prices. Singapore naphtha cargoes averaged $64.67/bbl, up $6.88/bbl, and Rotterdam naphtha barges increased $6.05/bbl to $64.15/bbl. The Asian and European naphtha markets were both trading in backwardation at the time of writing, and the Asian naphtha differential on 23 November hit its highest level since March 2015. Benchmark Mont Belvieu propane prices reached a three-year high during the month, boosting global propane prices and creating a floor under naphtha prices. Naphtha cargo arrivals into Asia, where global prices are set, were expected to be roughly stable in December and to be of largely heavy specification, which is shunned by crackers. Towards the end of November, more naphtha cargoes left the US Gulf Coast for Asia, helped by a reformer outage and seasonally lower gasoline demand.

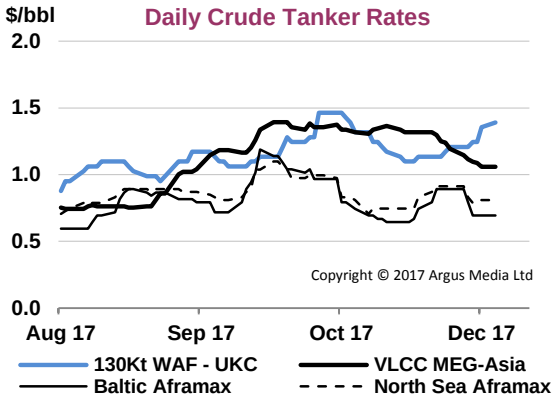
Fuel oil prices joined crude and other oil products on the way up in November, however higher supplies from refiners dampened price rises. Singapore 380-centistoke high sulphur fuel oil cargoes averaged $57.59/bbl, up $5.03/bbl, while Rotterdam 3.5% fuel oil barges increased $4.47/bbl to $53.27/bbl. Arrivals into Asia rose to 44 mb in November, their highest in nine months, and were likely to gain further in December. While the Northwest Europe to Asia arbitrage route was less economic than in recent months, export flows from the Middle East and Asia into Singapore rose sharply. As a result, the backwardation on the 380-cst fell in late November. A shortage of higher quality blendstocks and finished bunker grades pushed the viscosity spread – the price spread between 380-cst and 180-cst fuel prices – to $6.70/bbl in early December, its highest since June.

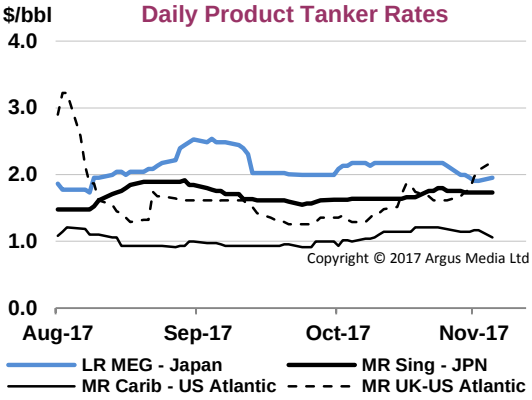
Freight

Freight for **VLCCs** on the Middle East Gulf (MEG) to Asia route eased in late November as Asian refiners reduced purchases. On average, the rate went from $1.29/bbl in October to $1.27/bbl in November. It was down more than a fifth since November 2016, when OPEC decided to cut production. By contrast, freight on the route between West Africa and the US Gulf Coast was up due to higher imports.

Suezmax rates on the West Africa to Northwest Europe route were little changed at $1.21/bbl on average. Cargo loadings remained steady; however, Asian refiners showed less interest for Angolan and Nigerian crudes. In early December, weather delays and firmer demand pushed the rate up.

Aframax rates declined from $0.94/bbl in October to $0.75/bbl in November with a scheduled fall in Russian Urals loadings in December and as mild temperatures in the Baltic region prevented shippers from charging price premiums. The relative oversupply of Aframaxes also weighed on prices in the Mediterranean. In the Caribbean, higher demand combined with weather delays supported rates.





Clean product freight on the UK Continent-US Atlantic Coast increased $0.16/bbl to $1.59/bbl. Rates firmed in the second half of the month with higher gasoline exports from Europe to the US as well as steady export demand to the Middle East which limited the supply of Medium Range tankers.

East of Suez, the Long Range MEG-Japan rate eased to $2.13/bbl on average with steady demand but also ample availability of tankers. Freight rates for Medium Range tankers delivered to Australia firmed with higher demand.

REFINING

Summary

- **Our estimate for 3Q17 global refinery intake is now largely finalised at 81.2 mb/d**, up by 1.3 mb/d year-on-year (y-o-y). This is the highest rate observed historically, and marks a peak in our current forecast period.

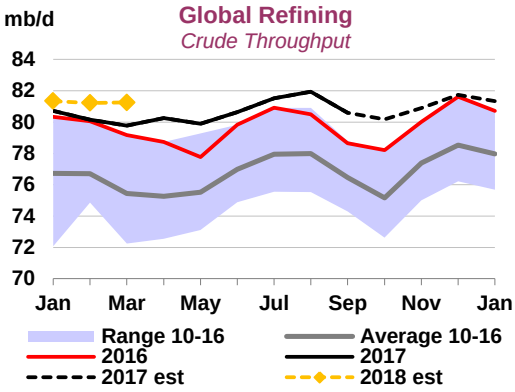
- **The forecast for 4Q17 throughput remains unchanged, seasonally declining 0.4 mb/d to 80.8 mb/d,** but up 1 mb/d y-o-y. Most of the decline, however, has already materialised in the October-November maintenance, with December global throughput expected close to August's record rates.

- **In 1Q18, runs are forecast to climb back up again to 81.2 mb/d, up 1.1 mb/d y-o-y,** as refiners are expected to build stocks prior to the demand ramp-up in the second quarter.

Global refinery overview

Even Hurricane Harvey's massive impact on the US refining industry in September did not stand in the way of 3Q17 throughput reaching a historical record at 81.2 mb/d. The 0.5 mb/d quarterly loss due to the hurricane was more than offset by higher throughput in China, Europe and the Middle East.

In October, global throughput declined even further from September levels on seasonal maintenance, but it has been recovering since then and is expected to reach the second-highest level ever recorded in December. The average quarterly throughput is estimated to fall by 0.4 mb/d from 3Q17, to 80.8 mb/d.



In 1Q18, refiners are expected to ramp up throughput again. Our analysis of refined product balances shows that the oversupply of 2014-2015 has largely been consumed, and refiners are back to a normal operational environment. In 1Q18, they are expected to increase throughput above nominal demand to stock products before the seasonal demand growth in summer 2018.

Global Refinery Crude Throughput[1]

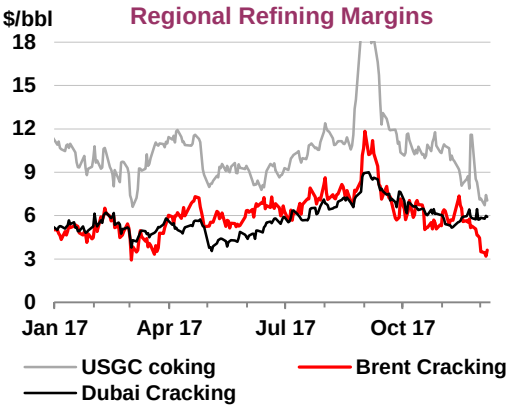
(million barrels per day)

	Sep 17	3Q17	Oct 17	Nov 17	Dec 17	4Q17	2017	Jan 18	Feb 18	Mar 18	1Q18
Americas	18.0	**19.2**	18.5	19.4	19.6	**19.2**	**19.3**	19.2	19.0	19.3	**19.2**
Europe	12.7	**12.7**	12.4	12.2	12.5	**12.4**	**12.3**	12.3	12.0	12.1	**12.1**
Asia Oceania	6.8	**7.0**	6.8	7.0	7.4	**7.0**	**7.0**	7.4	7.4	7.2	**7.3**
Total OECD	37.5	**38.9**	37.8	38.6	39.5	**38.6**	**38.5**	38.9	38.5	38.6	**38.6**
FSU	6.6	**6.8**	6.5	7.1	6.9	**6.8**	**6.8**	6.9	7.0	6.9	**7.0**
Non-OECD Europe	0.6	**0.6**	0.6	0.6	0.6	**0.6**	**0.5**	0.6	0.6	0.6	**0.6**
China	11.9	**11.3**	11.8	11.5	11.5	**11.6**	**11.3**	11.3	11.3	11.5	**11.4**
Other Asia	10.5	**10.4**	10.6	10.3	10.5	**10.5**	**10.4**	10.5	10.6	10.5	**10.6**
Latin America	3.9	**3.8**	3.8	3.7	3.8	**3.7**	**3.8**	3.8	3.8	3.8	**3.8**
Middle East	7.5	**7.4**	7.2	7.0	6.9	**7.0**	**7.2**	7.2	7.3	7.2	**7.2**
Africa	2.0	**2.0**	1.9	2.0	2.1	**2.0**	**2.0**	2.0	2.0	2.0	**2.0**
Total Non-OECD	43.0	**42.3**	42.3	42.1	42.1	**42.2**	**42.1**	42.4	42.7	42.6	**42.5**
Total	80.5	**81.2**	80.1	80.8	81.6	**80.8**	**80.6**	81.2	81.1	81.2	**81.2**
Year-on-year change	*1.9*	*1.3*	*2.0*	*0.9*	*0.1*	*1.0*	*1.0*	*0.6*	*1.1*	*1.5*	*1.1*

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

Margins

Global margins declined further in November, losing almost $1/bbl on average as refinery throughput started recovering from the September-October peak outages, gaining 700 kb/d m-o-m. Weaker diesel cracks were the main reason for lower margins, as undersupply concerns eased. However, hydroskimming margins still remain positive globally.



In the US Gulf Coast, most margins are down to single-digits. In the US Midcontinent, margins saw the largest m-o-m losses partly due to the Keystone crude pipeline outage, but still remain the highest in the world. A further increase in throughput is forecast for December, and this has already been reflected in the margins.

IEA/KBC Global Indicator Refining Margins[1]

($/bbl)

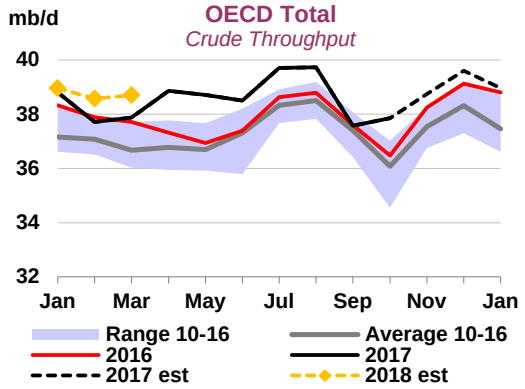
	Monthly Average				Change		Average for week ending:			
	Aug 17	Sep 17	Oct 17	Nov 17	Nov 17-Oct 17	10 Nov	17 Nov	24 Nov	01 Dec	08 Dec
NW Europe										
Brent (Cracking)	7.79	8.17	5.92	5.77	-0.15	5.70	6.65	5.48	4.46	3.42
Urals (Cracking)	7.54	9.09	6.85	5.80	-1.05	5.65	6.49	5.78	4.44	3.22
Brent (Hydroskimming)	3.57	3.52	1.94	1.40	-0.54	1.32	2.32	1.09	0.10	-0.71
Urals (Hydroskimming)	2.95	3.98	2.26	0.91	-1.35	0.66	1.61	0.94	-0.42	-1.45
Mediterranean										
Es Sider (Cracking)	8.66	8.79	7.18	6.68	-0.50	6.55	7.39	6.41	5.73	4.82
Urals (Cracking)	7.80	9.14	6.99	5.59	-1.39	5.22	6.17	5.33	4.96	4.19
Es Sider (Hydroskimming)	4.98	4.67	3.47	2.93	-0.54	2.97	3.73	2.50	1.74	1.01
Urals (Hydroskimming)	3.17	3.95	2.10	0.63	-1.47	0.40	1.26	0.22	-0.25	-0.84
US Gulf Coast										
50/50 HLS/LLS (Cracking)	13.37	14.38	9.27	8.80	-0.47	10.10	7.93	8.45	7.37	6.36
Mars (Cracking)	9.56	9.92	5.89	5.30	-0.59	6.67	4.60	4.88	3.45	2.64
ASCI (Cracking)	9.14	9.53	5.53	4.99	-0.54	6.38	4.35	4.59	3.11	2.46
50/50 HLS/LLS (Coking)	15.30	16.53	11.17	10.48	-0.69	11.73	9.54	10.28	9.03	8.00
50/50 Maya/Mars (Coking)	12.90	14.25	10.68	9.38	-1.31	10.06	8.70	9.66	7.78	7.06
ASCI (Coking)	14.21	15.48	10.81	9.63	-1.18	10.70	8.83	9.71	7.79	7.14
US Midcon										
WTI (Cracking)	16.84	17.86	18.97	17.39	-1.58	21.15	16.86	12.64	10.95	11.20
30/70 WCS/Bakken (Cracking)	15.09	14.98	15.59	15.85	0.26	18.66	14.83	11.88	11.38	11.51
Bakken (Cracking)	17.30	16.75	17.17	16.21	-0.96	19.52	15.05	11.41	10.95	10.74
WTI (Coking)	18.92	20.02	21.41	19.43	-1.97	23.38	18.84	14.43	12.60	12.89
30/70 WCS/Bakken (Coking)	18.40	18.62	19.64	19.07	-0.57	22.00	17.90	14.96	14.16	14.32
Bakken (Coking)	18.16	17.59	18.18	17.02	-1.15	20.42	15.83	12.08	11.54	11.36
Singapore										
Dubai (Hydroskimming)	2.89	3.38	2.09	1.61	-0.48	1.37	1.62	1.76	1.56	1.51
Tapis (Hydroskimming)	3.96	3.22	2.60	2.02	-0.57	0.89	2.83	2.65	1.57	1.64
Dubai (Hydrocracking)	7.11	7.80	6.41	5.73	-0.68	5.27	5.70	6.07	5.91	5.90
Tapis (Hydrocracking)	7.28	6.77	6.15	5.59	-0.56	4.32	6.39	6.35	5.32	5.40

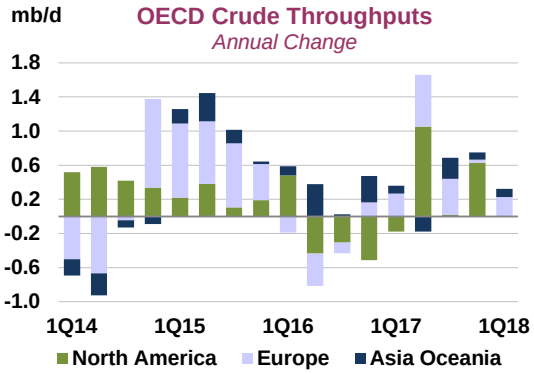
1 Global Indicator Refining Margins are calculated for various complexity configurations, each optimised for processing the specific crude(s) in a specific refining centre. Margins include energy cost, but exclude other variable costs, depreciation and amortisation. Consequently, reported margins should 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

Both September finalised and October preliminary throughput data for OECD countries were higher than previous estimates, with stronger numbers in Canada, Europe and South Korea. Despite the Harvey impact on US refining in September, OECD 3Q17 throughput reached the highest quarterly average rate in nine years, at 38.9 mb/d, up 0.7 mb/d y-o-y. In 4Q17, we will see a seasonal decline due to European maintenance. In 1Q18, total throughput is expected to be flat compared to 4Q17.





Refinery Crude Throughput and Utilisation in OECD Countries

(million barrels per day)

	May 17	Jun 17	Jul 17	Aug 17	Sep 17	Oct 17	Change from *Sep 17*	Change from *Oct 16*	Utilisation rate[1] Oct 17	Utilisation rate[1] Oct 16
US[2]	17.21	17.21	17.32	16.98	15.46	16.07	0.61	0.62	89%	85%
Canada	1.77	1.81	1.84	1.76	1.78	1.77	-0.02	0.38	92%	72%
Chile	0.19	0.20	0.18	0.18	0.19	0.17	-0.02	0.00	77%	76%
Mexico	0.94	0.81	0.67	0.75	0.55	0.53	-0.02	-0.27	32%	49%
OECD Americas[3]	**20.10**	**20.02**	**20.01**	**19.67**	**17.99**	**18.55**	**0.56**	**0.73**	**84%**	**81%**
France	1.11	1.16	1.19	1.23	1.24	1.20	-0.04	-0.03	97%	99%
Germany	1.74	1.77	1.89	1.99	2.03	1.99	-0.05	0.04	98%	96%
Italy	1.29	1.41	1.48	1.51	1.45	1.45	0.00	0.21	83%	70%
Netherlands	1.13	1.03	1.06	0.96	1.10	0.95	-0.16	-0.15	73%	85%
Spain	1.25	1.23	1.39	1.43	1.41	1.30	-0.11	-0.13	91%	99%
United Kingdom	1.08	1.13	1.09	1.15	1.15	1.12	-0.03	0.01	88%	88%
Other OECD Europe	4.24	4.30	4.45	4.52	4.32	4.42	0.10	0.37	91%	83%
OECD Europe	**11.83**	**12.03**	**12.55**	**12.78**	**12.69**	**12.41**	**-0.28**	**0.32**	**90%**	**87%**
Japan	2.91	2.76	3.15	3.33	3.16	2.86	-0.29	0.09	83%	75%
South Korea	2.95	2.79	3.10	3.11	2.89	3.16	0.27	0.29	100%	94%
Other Asia Oceania	0.81	0.80	0.81	0.74	0.75	0.76	0.01	-0.06	88%	95%
OECD Asia Oceania	**6.67**	**6.35**	**7.06**	**7.18**	**6.80**	**6.79**	**-0.01**	**0.33**	**91%**	**85%**
OECD Total	**38.61**	**38.40**	**39.61**	**39.63**	**37.48**	**37.75**	**0.27**	**1.38**	**87%**	**84%**

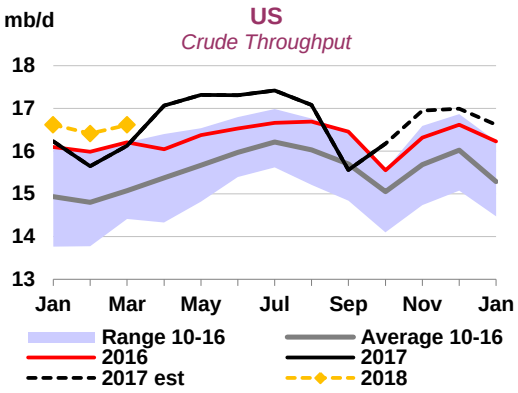
[1] Expressed as a percentage, based on crude throughput and current operable refining capacity

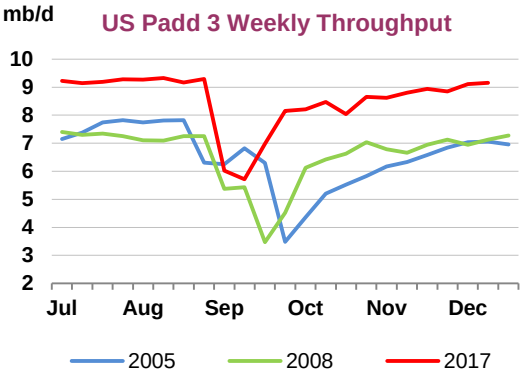
[2] US50

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

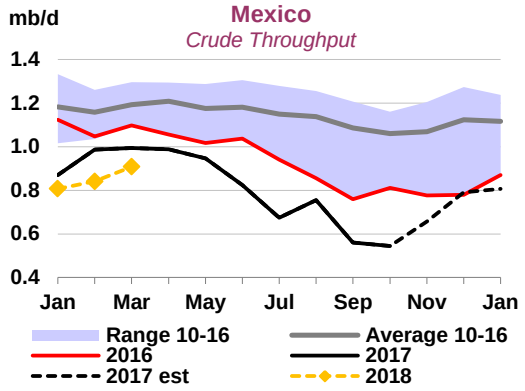
OECD Americas September throughput was finalised higher on revisions in the US and Canada, of 100 kb/d and 90 kb/d respectively. In the **US**, final data for September shows that Hurricane Harvey was the main factor in throughput falling 1.5 mb/d m-o-m and 0.9 mb/d y-o-y, to just 15.5 mb/d. The October recovery was slightly slower than what we originally forecast, but PADD 3 throughput reached pre-

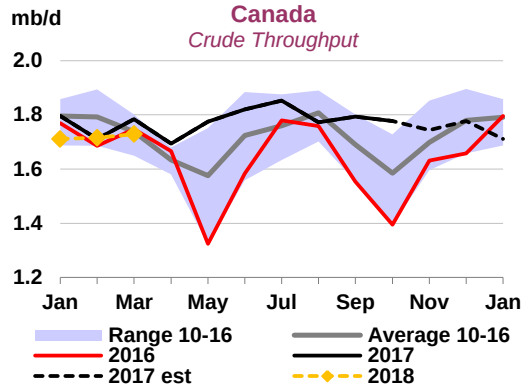
hurricane levels in late November, with some allowance for a normal seasonal slowdown. Total US throughput in 1Q18 is forecast to decline from 4Q17.



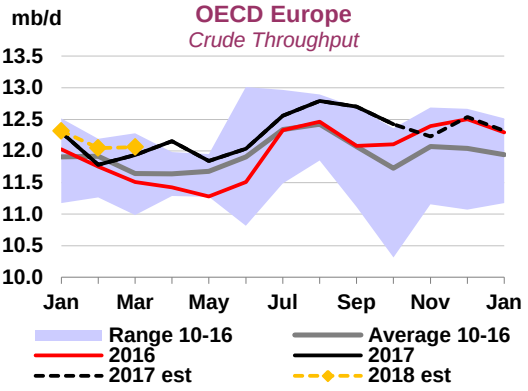


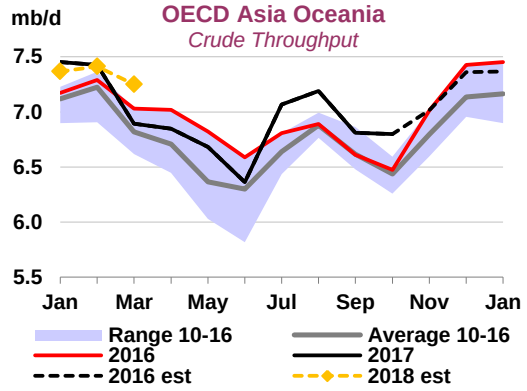
The forecast 1Q18 decline in the US is also the result of a more optimistic view on **Mexico**. Despite refinery intake there reaching yet another low in October, at just 530 kb/d, we have revised upward our forecast for Mexico by 35 kb/d on average. Salina Cruz, the biggest refinery, reportedly restarted operations in mid-November, and is expected to return to commercial production later. Maintenance is expected to finish at two other refineries before year-end. Pemex hopes that throughput will reach 1 mb/d next year, up from this year's 800 kb/d. If achieved, that would mark the first y-o-y growth since 2013, and reverse half of the cumulative 400 kb/d decline seen since 2014.





Canadian refiners in September operated at the top of the seasonal range, while October preliminary data indicate runs marking new seasonal highs, helped by tight product supply in the Atlantic Basin. Throughput is forecast to grow by 150 kb/d this year, the first annual growth since 2012.

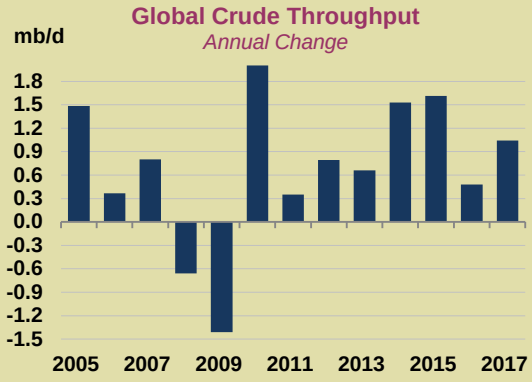


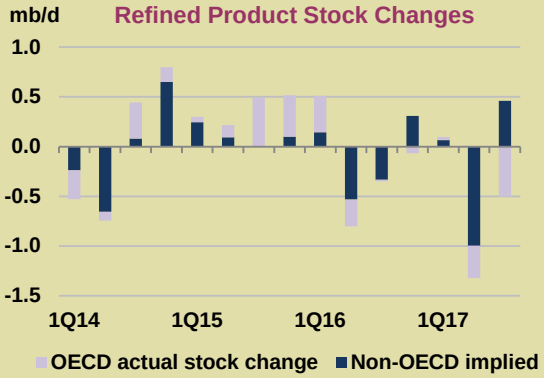


Fifty shades of silver

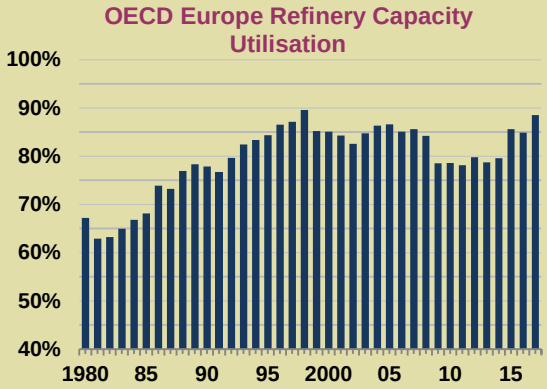
The recent boom in refining margins has been widely touted as the silver age of refining. The golden age refers to the years of 2004-2007 when tightening specifications for road fuels drove ultra-low sulphur product cracks to historical highs as refining capacity investments lagged. The golden age ended somewhat abruptly in 2008-2009 as capacity additions came online en masse and the global recession affected demand.

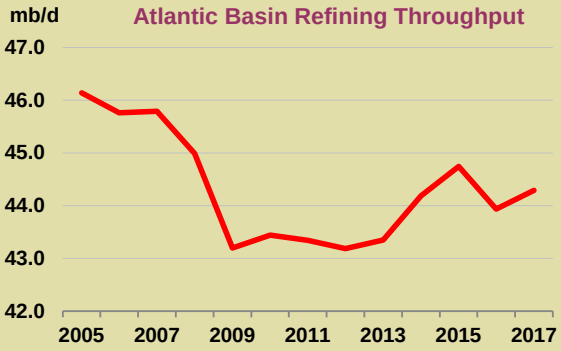
In the current cycle, margins have seen a few ups and downs. In 2014-2015, they surged as crude oil prices fell sharply. These high margins, true to classical theory, contained the seeds of their own destruction as they incentivised refineries to overproduce. In 2016, margins declined and refining activity slowed, with annual intake growth barely reaching 500 kb/d. The refined product inventory overhang started clearing. 2Q17 saw the largest product stock draw since 2013, when demand for refined product reached a record 83.8 mb/d (the total products demand peak was in 3Q17, at 98.3 mb/d), while refinery intake was slow to pick up.





This year, the US refining system reached record activity levels, running above 17 mb/d for three months prior to Hurricane Harvey's landfall. European refining throughput, up in 2015, but down y-o-y in 2016, increased again this year, reaching the highest annual average since 2011. What's more, utilisation rates in the US are at record highs, holding above 92% outside disruption months, while in Europe, they are close to their historical peak, at 88.5%.





However, most of the support for such an impressive performance in the US and Europe has come from the dire state of refining activity elsewhere in the Atlantic Basin. From Mexico to Brazil, with some "help" from Africa (the closure of Morocco's sole refinery, and continued upsets in Nigeria), the southern Atlantic has become a huge market for US and European product exporters. Atlantic Basin refining throughput is 2 mb/d below its peak of a decade ago. In Europe, the permanent closure of 2 mb/d of capacity in recent years has also boosted utilisation rates just as it did in the 1980s, when some 7 mb/d of capacity was shut down.

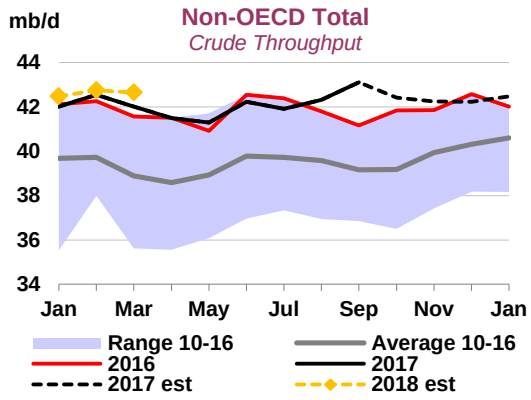
Rather than manifesting a genuine, secular silver age of refining, the current margin boom is thus a symptom of global problems, and more akin to the silver lining of a dark cloud that has enveloped certain refining systems worldwide.

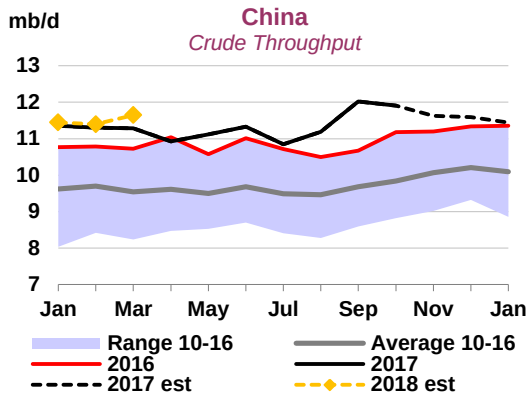
OECD Europe's refining throughput was finalised higher in September, showing growth of 600 kb/d y-o-y, with very little seasonal decline from August as refiners responded to higher margins. In October and November, runs are expected to drop further on maintenance, but rebound in December. In 3Q17, European refiners recorded their highest quarterly throughput, at 12.7 mb/d, since 3Q10 (see *Fifty shades of silver*).

OECD Asia's refineries are now past the peak autumn turnaround period, with September finalised and October preliminary throughput both at 6.8 mb/d. Runs are forecast to climb m-o-m reaching 7.4 mb/d in December-January. Despite the recent boom in Chinese refined product exports, Korean and Japanese refiners are expected to process more crude oil to meet the increased winter demand for heating fuels at home.

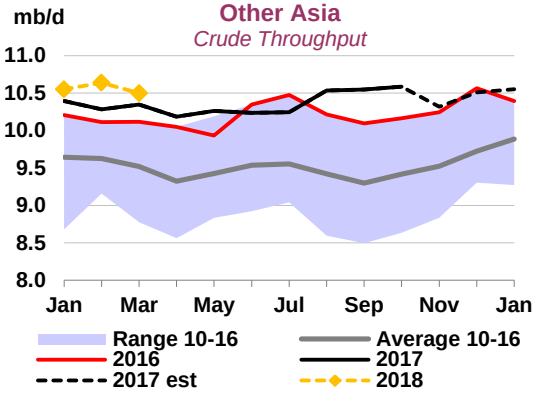
Non-OECD refinery throughput

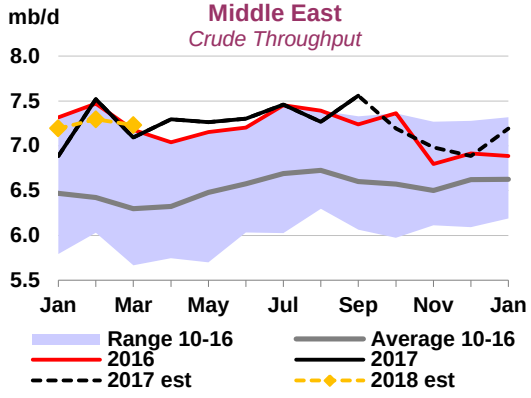
Our estimate for September non-OECD throughput has been revised up by 100 kb/d on higher Middle East data. The forecast through 1Q18, though, is mostly revised lower on the worsening situation in Latin America and a stronger maintenance programme in the Middle East. This year, non-OECD runs are expected to average around 42 mb/d, a historical high, but the y-o-y growth is the lowest since the recession-impacted 2009, at just 300 kb/d. In 1Q18, throughput is expected to reach a record high 42.5 mb/d.





China's October throughput edged down from September's record level, but not by as much as we had expected, with throughput at 11.8 mb/d, 200 kb/d higher than our forecast. Throughput further increased in Guangdong where a new unit recently came online at CNOOC's Huizhou refinery. In Hebei, a refinery came back from maintenance. In all other provinces throughput declined m-o-m (see *Dissecting Chinese refining statistics - 2*). We have revised our forecast for November-December up by 150 kb/d, to 11.5 mb/d, but left our 1Q18 forecast unchanged at 11.4 mb/d.

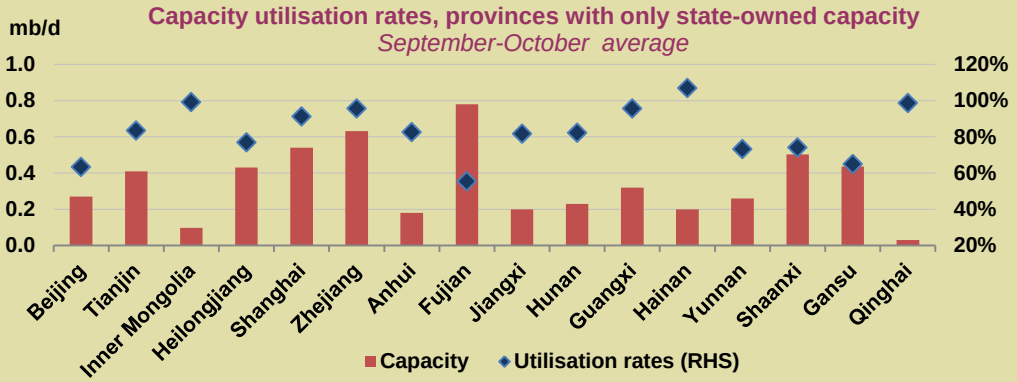




Dissecting Chinese refining statistics - 2

Chinese refining throughput has seen accelerated gains in September-October, reaching just below 12 mb/d, up significantly from the January-August average 11.1 mb/d. Even with this higher throughput, some 4.3 mb/d of distillation capacity remains unused in China. We repeated our exercise of analysing refining throughput by province, first published in the August *Report,* to see where the unused capacity is located.

Of 31 provinces (including Beijing and Shanghai), four have no refineries. Sixteen have refineries belonging either only to Chinese majors, or to companies affiliated with local governments (ChemChina, Norinco, Sinochem, and Yanchang Petroleum). Utilisation rates in these provinces vary widely. From very low rates in Fujian, Beijing and Gansu (under 70%) to 100% in Hainan and Guangxi. These 16 provinces have installed capacity of 5.5 mb/d, of which 1.2 mb/d is unused. They have increased combined crude processing by 330 kb/d compared to average levels since the start of the year.



In seven provinces with mixed refinery ownership (Liaoning, Guangdong, Jiangsu, Sichuan, Hubei, Jilin, Xinjiang), processing rates are in a normal operating range, between 75% and 100%. They account for another 5.5 mb/d of installed capacity, of which about 800 kb/d is not used. This group of provinces has increased throughput by 270 kb/d compared to pre-September levels.

The remaining three provinces have lower utilisation rates. Ningxia, a province with just two refineries, one belonging to CNPC and one independent, has recently registered a large increase in throughput, indicating that the independent refinery is running at about 40-50% of capacity. This is a landlocked province with logistical difficulties to source crude. Hebei has 700 kb/d of total capacity, of which 500 kb/d belongs to the three state majors. Capacity utilisation rates are 30-40%, and if we remove all independent capacity the run rates improve to only 50%. It seems underutilisation is a chronic issue here as historical throughput has never exceeded 400 kb/d. Hebei and Ningxia together contribute some 600 kb/d of idle capacity.

In Shandong, we currently estimate about 4 mb/d of distillation capacity, of which 2.6 mb/d is owned by independents, 740 kb/d by Sinopec, and 600 kb/d by three other state-affiliated companies (CNOOC, ChemChina, and Sinochem). The current utilisation rate for the whole province stands at 63%, which is an improvement compared to pre-September levels, but implies 1.4 mb/d of unused capacity (or use of other feedstocks).

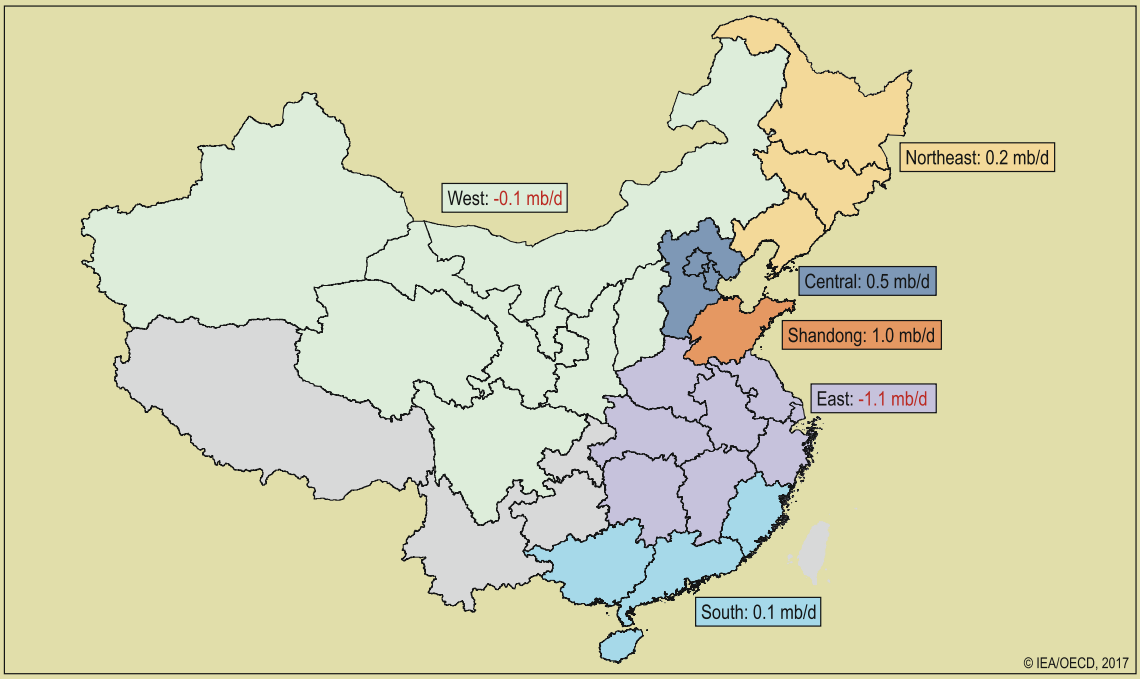
For the period in question, Shandong independents had a license to import about 900 kb/d of crude oil for 2017, but imported only 800 kb/d. Their quota to refine imported crude oil is set higher, at about 1.0 mb/d. The province throughput increased by about 250 kb/d in September-October compared to previous months of 2017, an increase that is entirely attributable to the independents, judging by Sinopec's operating rates. In September-October their throughput is estimated at about 1.3 mb/d, higher than the daily equivalent of the quota, but they are likely catching up with their annual quota in the second half of the year.

Thus, Chinese excess capacity can be split into two groups. Some 2.6 mb/d is located in provinces where throughput underreporting is not very likely, given the type of ownership, current utilisation rates or challenging logistics of crude supply and product exports. On the other hand, the more commercially minded Shandong sits on the remaining 1.4 mb/d of spare capacity, of which independents account for about 1.2 mb/d. Could a large-scale underreporting be going on in Shandong province, that could lower our implied Chinese crude oil balance of 0.6 mb/d for the January-October period?

Dissecting Chinese refining statistics – 2 (continued)

We looked at crude oil balances by province (local output plus net imports as per customs and subtracting refining and direct use, without any allowance for stock builds or draws), for January-October 2017. For this, we aggregated provinces into five relatively isolated groups. Most, but not all, provinces are connected with pipelines or navigable rivers and thus they can only be correctly analysed as part of an interconnected system. We have left out three provinces with no refineries, and Yunnan, where there was some operational stock build since this summer, with the startup of a new refinery, outside the analysis.

China's crude oil balances by regional grouping



This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Two groupings, the South with Guangdong and three neighbouring provinces, and the Northeast recorded average crude oil balances of 140 kb/d and 160 kb/d respectively. These two combined accounted for almost half of Chinese implied balances this year. Guangdong and the three north-eastern provinces are important crude oil producers, but also large importers. There are SPR sites in both of these regions.

The landlocked West region saw negative balances of 70 kb/d, which, most likely, was met by flows from other regions, rather than at the expense of local stocks. Seven provinces in the East group, plus Shanghai, are hugely underbalanced, due to a lack of import infrastructure. This region is net short 1.1 mb/d and relies on pipeline or seaborne flows from Shandong and the Central region to fill the gap.

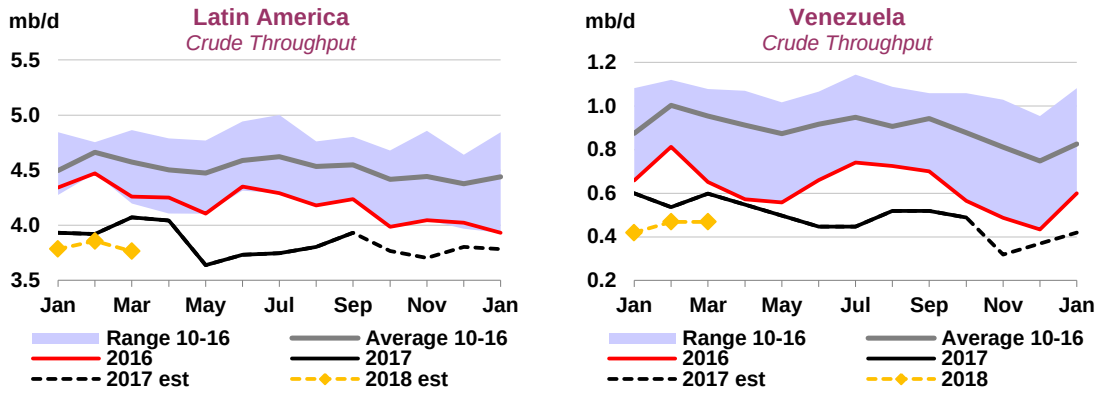
The Central region, with Beijing and two producing provinces of Tianjin and Hebei, and seaborne import facilities, saw a net oversupply of 500 kb/d. Most of this probably made its way south to feed Henan and Jiangsu provinces in the East grouping. Assuming the latter received 400 kb/d from the Central region (in line with historically observed flows from the annual statistics), and perhaps some 100 kb/d from the South, it still remained short 600 kb/d, which then points to Shandong as the only remaining supplier.

Shandong's implied crude balance was an average 1 mb/d in January-October this year. Allowing for flows of 600 kb/d to the East region (in 2015, the outflow recorded in the province statistics was about 300 kb/d, but has most likely grown significantly since then), Shandong is theoretically left with a 400 kb/d oversupply. This number could yet be lower, if Shandong crude has been used to balance crude reserves filling in other regions. For example, Chongqing, a landlocked province with no refining capacity or local output, received 30 mb of crude oil in August-September this year, via Fujian (in the East region), according to Argus China Petroleum. The province hosts a Phase III storage site near Wanzhou, the site of a proposed CNPC refinery, and a planned oil pipeline hub connecting to other provinces. However, we do not have enough visibility neither of strategic reserves fill, nor of commercial inventories in Shandong or elsewhere to be able to conclude decisively whether underreporting in Shandong was possible or not.

Indian throughput hit a record high in October at 5.2 mb/d, up 0.2 mb/d both m-o-m and y-o-y, implying utilisation rates above 107%. The forecast is adjusted slightly downwards due to maintenance, but 4Q17 runs are forecast to reach above 5 mb/d for the first time although there will be a small decline into 1Q18. In **Chinese Taipei**, even though 3Q17 throughput reached 0.9 mb/d for the first time in over two years, our 4Q17 forecast retreats back to 0.8 mb/d on expected maintenance, but rebounds in 1Q18. **Vietnam**'s new refinery, the 200 kb/d Nghi Son facility, is expected to come online in 1Q18. A gradual ramp-up is incorporated in our forecast.

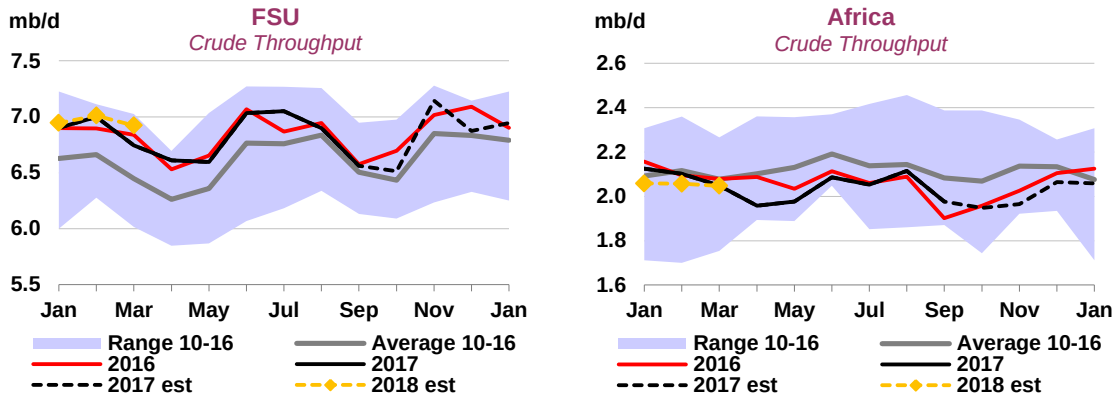
Saudi throughput reached a record high in September, at 2.8 mb/d, with utilisation rates at about 100%. **Qatar's** refinery intake also was at record high at 440 kb/d, while **Kuwait's** throughput was below 600 kb/d and Iraqi runs slowed down slightly. With our estimates filling in missing data for Iran, UAE, etc, 3Q17 Middle East throughput is estimated at a record high 7.4 mb/d. In 4Q17, it sees a steep decline of 0.4 mb/d due to refinery maintenance, before partially recovering in 1Q18.

Brazil's refinery throughput in October did not remain at the surprisingly high September level and declined below 1.8 mb/d, although we have revised our throughput forecast from December onwards higher. Petrobras recently restructured its oil-for-loan deal with Unipec, Sinopec's trading arm, replacing it by a loan from a Chinese financial institution and reducing the crude oil delivery obligation from 200 kb/d to 100 kb/d. China is the largest off-taker for Brazil's crude, accounting for 40-45% of the exports. **Argentinian** throughput also disappointed in October, at just 450 kb/d.



None of the Latin American setbacks, however, is a match to the **Venezuelan** refining meltdown, with the latest reports indicating utilisation rates that are almost impossibly low from an operational standpoint. We have no exclusive information on Venezuela and our assessment is based on publicly available reports and sense-checked against crude oil production estimates. Our forecast for Venezuela is revised down further, averaging just 380 kb/d in 4Q17 and 440 kb/d in 1Q18. Overall, Latin American throughput is expected to average just 3.8 mb/d in 2017, down 370 kb/d y-o-y.

Russian refining throughput in October finalised at about 5.4 mb/d, some 200 kb/d lower y-o-y, almost replicating the crude oil production cuts. November preliminary data showed a rebound to 5.8 mb/d, but runs are expected to decline to 5.6 mb/d in December, then staying flat in 1Q18. Our estimate for **Belarus** throughput in October was revised lower by 150 kb/d due to reports of major maintenance work at both refineries in the country. With our forecast for the FSU region revised lower, throughput is expected to stay almost flat y-o-y in 2017.



Our latest estimate for 3Q17 **African** throughput sees runs stabilising in terms of y-o-y change, registering a small 30 kb/d gain for the first time since 3Q15. Our forecast is adjusted lower though, with 2017 expected to see runs 30 kb/d lower y-o-y, at just above 2 mb/d.

Table 1
WORLD OIL SUPPLY AND DEMAND
(million barrels per day)

	2014	2015	1Q16	2Q16	3Q16	4Q16	2016	1Q17	2Q17	3Q17	4Q17	2017	1Q18	2Q18	3Q18	4Q18	2018
OECD DEMAND																	
Americas	24.2	24.6	24.6	24.5	25.1	24.8	24.7	24.5	25.0	25.0	25.1	24.9	24.6	24.9	25.3	25.1	25.0
Europe	13.5	13.8	13.6	13.9	14.4	14.2	14.0	13.9	14.3	14.7	14.1	14.3	13.8	14.2	14.7	14.3	14.3
Asia Oceania	8.1	8.1	8.6	7.7	7.8	8.4	8.1	8.6	7.8	7.9	8.4	8.1	8.5	7.6	7.7	8.2	8.0
Total OECD	45.8	46.4	46.8	46.1	47.3	47.4	46.9	47.0	47.0	47.6	47.5	47.3	46.9	46.8	47.7	47.6	47.3
NON-OECD DEMAND																	
FSU	4.6	4.5	4.6	4.6	4.9	4.9	4.8	4.6	4.7	5.0	4.9	4.8	4.7	4.8	5.1	5.0	4.9
Europe	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.8
China	10.8	11.6	11.8	12.1	11.6	11.9	11.9	12.5	12.6	12.2	12.4	12.4	12.8	12.9	12.6	13.0	12.8
Other Asia	11.8	12.4	13.0	13.0	12.7	13.0	12.9	13.2	13.5	13.2	13.6	13.4	13.8	14.0	13.6	14.3	13.9
Americas	6.9	6.7	6.5	6.6	6.7	6.5	6.6	6.4	6.6	6.7	6.6	6.6	6.5	6.7	6.8	6.7	6.7
Middle East	8.4	8.4	7.9	8.4	8.7	8.1	8.3	7.9	8.5	8.7	8.1	8.3	8.1	8.5	8.8	8.2	8.4
Africa	4.1	4.3	4.4	4.4	4.2	4.3	4.3	4.5	4.3	4.3	4.4	4.4	4.5	4.4	4.3	4.5	4.5
Total Non-OECD	47.3	48.5	48.8	49.7	49.6	49.5	49.4	49.8	51.0	50.7	50.7	50.6	51.1	52.0	52.0	52.4	51.9
Total Demand[1]	**93.1**	**95.0**	**95.6**	**95.8**	**96.9**	**97.0**	**96.3**	**96.7**	**98.0**	**98.3**	**98.3**	**97.8**	**98.0**	**98.8**	**99.7**	**100.0**	**99.1**
OECD SUPPLY																	
Americas[4]	19.1	20.0	19.9	19.0	19.3	19.7	19.5	19.9	19.8	20.2	20.5	20.1	21.1	21.1	21.5	21.9	21.4
Europe	3.3	3.5	3.6	3.4	3.3	3.6	3.5	3.7	3.5	3.4	3.4	3.5	3.6	3.6	3.5	3.6	3.6
Asia Oceania	0.5	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	0.4	0.5	0.4
Total OECD	22.9	23.9	24.0	22.9	23.1	23.7	23.4	24.0	23.6	23.9	24.3	24.0	25.2	25.1	25.4	25.9	25.4
NON-OECD SUPPLY																	
FSU	13.9	14.1	14.3	14.1	14.0	14.6	14.2	14.5	14.4	14.3	14.4	14.4	14.4	14.4	14.4	14.5	14.4
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	4.2	4.3	4.1	4.0	3.9	3.9	4.0	3.9	3.9	3.8	3.8	3.9	3.8	3.7	3.7	3.7	3.7
Other Asia[2]	3.5	3.6	3.7	3.6	3.5	3.5	3.6	3.5	3.5	3.4	3.4	3.5	3.4	3.4	3.4	3.3	3.4
Americas[2,4]	4.4	4.6	4.3	4.4	4.6	4.6	4.5	4.6	4.5	4.5	4.6	4.6	4.6	4.7	4.7	4.8	4.7
Middle East	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.3	1.2	1.3	1.3	1.3	1.3	1.3
Africa[2]	1.8	1.8	1.7	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.8
Total Non-OECD	29.3	29.7	29.5	29.1	29.1	29.7	29.4	29.5	29.3	29.2	29.3	29.4	29.3	29.4	29.4	29.6	29.4
Processing gains[3]	2.2	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
Global Biofuels	2.2	2.3	1.9	2.5	2.7	2.3	2.3	1.9	2.4	2.8	2.5	2.4	2.0	2.5	2.8	2.5	2.5
Total Non-OPEC Supply	56.6	58.1	57.7	56.7	57.2	58.0	57.4	57.7	57.7	58.2	58.4	58.0	58.8	59.4	59.9	60.3	59.6
OPEC																	
Crude	30.7	31.8	32.3	32.5	32.9	33.4	32.8	32.1	32.3	32.7							
NGLs	6.4	6.6	6.6	6.8	6.9	6.8	6.8	6.8	6.9	7.0	6.9	6.9	7.0	7.0	7.0	7.0	7.0
Total OPEC	37.0	38.4	38.9	39.3	39.8	40.2	39.6	38.9	39.2	39.6							
Total Supply[4]	**93.6**	**96.5**	**96.6**	**96.1**	**97.0**	**98.2**	**97.0**	**96.6**	**96.9**	**97.9**							
STOCK CHANGES AND MISCELLANEOUS																	
Reported OECD																	
Industry	0.4	0.8	0.4	0.4	0.1	-0.9	0.0	0.3	-0.2	-0.4							
Government	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1							
Total	0.4	0.8	0.4	0.4	0.1	-0.9	0.0	0.3	-0.3	-0.5							
Floating storage/Oil in transit	0.0	0.3	0.2	0.3	-0.2	0.2	0.1	-0.3	-0.3	-0.7							
Miscellaneous to balance[5]	0.2	0.4	0.4	-0.5	0.2	1.9	0.5	-0.1	-0.5	0.8							
Total Stock Ch. & Misc	**0.6**	**1.5**	**1.0**	**0.2**	**0.1**	**1.3**	**0.7**	**-0.1**	**-1.1**	**-0.5**							
Memo items:																	
Call on OPEC crude + Stock ch.[6]	30.1	30.3	31.3	32.3	32.9	32.2	32.1	32.2	33.4	33.1	32.9	32.9	32.2	32.4	32.7	32.7	32.5

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)

	2014	2015	1Q16	2Q16	3Q16	4Q16	2016	1Q17	2Q17	3Q17	4Q17	2017	1Q18	2Q18	3Q18	4Q18	2018
OECD DEMAND																	
Americas	-	-	-	-	-	-	-	-	-	0.1	-	-	-0.1	-	-	-	-
Europe	-	-	-	-	-	-	-	-	0.1	0.1	-0.1	-	-	-	0.1	0.1	-
Asia Oceania	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-
Total OECD	-	-	-	-	-	-	-	-	0.1	0.2	-	0.1	-	-	0.1	-	-
NON-OECD DEMAND																	
FSU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China	-	-	-	-	-	-	-	-	-	-	0.1	-	-	-	0.1	0.2	0.1
Other Asia	-	-	-	-	-	-	-	-	-	0.1	-	-	0.1	0.1	0.1	0.1	0.1
Americas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Middle East	-	-	-	-	-	-	-	-	-	-0.1	-0.1	-	-	-0.1	-0.1	-0.1	-0.1
Africa	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Total Non-OECD	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2
Total Demand	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.3**	**0.1**	**0.2**	**0.1**	**0.1**	**0.3**	**0.3**	**0.2**
OECD SUPPLY																	
Americas	-	-	-	-	-	-	-	-	-	0.1	0.1	-	0.1	0.1	0.2	0.2	0.2
Europe	-	-	-	-	-	-	-	-	-	-	-0.2	-	-0.1	-	-	-	-
Asia Oceania	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total OECD	-	-	-	-	-	-	-	-	-	0.1	-0.1	-	0.1	0.1	0.2	0.2	0.1
NON-OECD SUPPLY																	
FSU	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
Europe	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Asia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Americas	-	-	-	-	-	-	-	-	-	-	-0.1	-	-0.1	-	-0.1	-	-
Middle East	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Africa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Non-OECD	-	-	-	-	-	-	-	-	-	-	-0.1	-	-0.1	-	-	0.1	-
Processing gains	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Global Biofuels	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Non-OPEC Supply	-	-	-	-	-	-	-	-	-	0.1	-0.2	-	-	0.1	0.1	0.3	0.1
OPEC																	
Crude	-	-	-	-	-	-	-	-	-	-							
NGLs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total OPEC	-	-	-	-	-	-	-	-	-	-							
Total Supply	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**							
STOCK CHANGES AND MISCELLANEOUS																	
REPORTED OECD																	
Industry	-	-	-	-	-	-	-	-	-	0.1							
Government	-	-	-	-	-	-	-	-	-	-							
Total	-	-	-	-	-	-	-	-	-	0.1							
Floating storage/Oil in transit	-	-	-	-	-	-	-	-	-	-							
Miscellaneous to balance	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.4							
Total Stock Ch. & Misc	**-0.2**	**-0.2**	**-0.2**	**-0.2**	**-0.2**	**-0.2**	**-0.2**	**-0.2**	**-0.2**	**-0.3**							
Memo items:																	
Call on OPEC crude + Stock ch.	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	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

	2015	1Q16	2Q16	3Q16	4Q16	2016	1Q17	2Q17	3Q17	4Q17	2017	1Q18	2Q18	3Q18	4Q18	2018
Demand (mb/d)																
Americas	24.55	24.59	24.47	25.05	24.85	24.74	24.47	24.97	24.97	25.10	24.88	24.60	24.93	25.28	25.12	24.99
Europe	13.83	13.60	13.93	14.44	14.19	14.04	13.93	14.31	14.73	14.08	14.27	13.83	14.24	14.74	14.30	14.28
Asia Oceania	8.06	8.57	7.70	7.84	8.38	8.12	8.56	7.76	7.90	8.36	8.14	8.46	7.60	7.73	8.18	7.99
Total OECD	46.44	46.76	46.10	47.33	47.42	46.90	46.96	47.04	47.61	47.54	47.29	46.89	46.78	47.75	47.61	47.26
Asia	23.96	24.83	25.09	24.35	24.91	24.79	25.64	26.12	25.34	26.07	25.79	26.55	26.89	26.24	27.25	26.74
Middle East	8.37	7.87	8.40	8.70	8.12	8.27	7.92	8.46	8.68	8.06	8.28	8.09	8.52	8.80	8.21	8.41
Americas	6.71	6.47	6.58	6.66	6.53	6.56	6.45	6.57	6.68	6.55	6.56	6.50	6.66	6.77	6.68	6.65
FSU	4.55	4.59	4.56	4.92	4.93	4.75	4.59	4.73	5.01	4.91	4.81	4.67	4.79	5.07	4.97	4.88
Africa	4.26	4.38	4.36	4.20	4.32	4.32	4.48	4.35	4.27	4.38	4.37	4.55	4.43	4.32	4.51	4.45
Europe	0.69	0.69	0.73	0.72	0.72	0.71	0.71	0.74	0.75	0.76	0.74	0.73	0.76	0.76	0.76	0.75
Total Non-OECD	48.54	48.82	49.72	49.55	49.53	49.41	49.77	50.98	50.73	50.73	50.56	51.09	52.05	51.98	52.38	51.88
World	**94.98**	**95.58**	**95.82**	**96.88**	**96.95**	**96.32**	**96.74**	**98.02**	**98.34**	**98.27**	**97.85**	**97.98**	**98.83**	**99.72**	**99.99**	**99.14**
of which: US50	19.53	19.54	19.50	19.94	19.77	19.69	19.49	20.01	19.92	20.09	19.88	19.66	20.03	20.26	20.09	20.01
Europe 5*	8.13	8.09	8.14	8.34	8.21	8.19	8.28	8.35	8.49	8.10	8.31	8.17	8.27	8.47	8.26	8.29
China	11.56	11.80	12.07	11.63	11.91	11.85	12.48	12.64	12.19	12.44	12.44	12.80	12.88	12.63	13.00	12.83
Japan	4.12	4.44	3.70	3.79	4.18	4.03	4.33	3.64	3.69	4.07	3.93	4.21	3.41	3.55	3.90	3.77
India	4.24	4.65	4.60	4.39	4.55	4.55	4.60	4.73	4.49	4.80	4.65	4.95	5.05	4.74	5.14	4.97
Russia	3.41	3.52	3.41	3.75	3.69	3.59	3.48	3.56	3.81	3.68	3.63	3.55	3.60	3.86	3.74	3.69
Brazil	3.18	3.02	3.07	3.13	3.07	3.07	3.01	3.05	3.17	3.09	3.08	3.03	3.11	3.22	3.16	3.13
Saudi Arabia	3.42	3.02	3.39	3.53	3.11	3.26	2.88	3.35	3.57	3.12	3.23	3.04	3.44	3.61	3.16	3.31
Canada	2.37	2.33	2.32	2.46	2.40	2.38	2.35	2.34	2.50	2.40	2.40	2.32	2.31	2.46	2.39	2.37
Korea	2.47	2.66	2.55	2.60	2.72	2.63	2.69	2.56	2.64	2.76	2.66	2.70	2.62	2.58	2.72	2.66
Mexico	2.01	2.05	2.02	2.01	2.03	2.03	1.96	1.98	1.90	1.96	1.95	1.94	1.95	1.90	1.98	1.94
Iran	1.84	1.84	1.82	1.79	1.82	1.82	1.84	1.82	1.82	1.86	1.84	1.86	1.84	1.84	1.88	1.86
Total	**66.27**	**66.96**	**66.59**	**67.35**	**67.45**	**67.09**	**67.39**	**68.03**	**68.18**	**68.37**	**67.99**	**68.24**	**68.51**	**69.12**	**69.43**	**68.83**
% of World	69.8%	70.1%	69.5%	69.5%	69.6%	69.7%	69.7%	69.4%	69.3%	69.6%	69.5%	69.6%	69.3%	69.3%	69.4%	69.4%
Annual Change (% per annum)																
Americas	1.6	0.7	0.5	0.4	1.5	0.8	-0.5	2.0	-0.3	1.0	0.6	0.5	-0.1	1.2	0.1	0.4
Europe	2.2	0.5	1.9	1.1	2.5	1.5	2.5	2.8	2.1	-0.8	1.6	-0.7	-0.5	0.0	1.6	0.1
Asia Oceania	0.1	-1.3	1.1	1.2	2.1	0.8	-0.1	0.8	0.8	-0.3	0.2	-1.2	-2.0	-2.2	-2.1	-1.9
Total OECD	1.5	0.3	1.0	0.8	1.9	1.0	0.4	2.0	0.6	0.2	0.8	-0.2	-0.6	0.3	0.2	-0.1
Asia	5.9	6.0	3.8	1.5	2.8	3.5	3.3	4.1	4.1	4.6	4.0	3.6	2.9	3.6	4.5	3.7
Middle East	-0.6	1.1	-1.4	-1.5	-2.6	-1.2	0.6	0.7	-0.2	-0.7	0.1	2.1	0.7	1.4	1.8	1.5
Americas	-2.1	-2.4	-2.2	-1.8	-2.6	-2.3	-0.3	-0.1	0.3	0.3	0.0	0.8	1.3	1.4	1.9	1.4
FSU	-1.9	7.7	-0.1	4.3	6.2	4.4	0.1	3.8	1.8	-0.4	1.3	1.8	1.2	1.3	1.2	1.4
Africa	3.1	2.6	2.7	0.5	-0.3	1.4	2.2	-0.3	1.5	1.4	1.2	1.6	1.9	1.3	3.0	2.0
Europe	3.9	4.5	6.1	3.1	2.2	4.0	1.5	2.0	4.0	5.5	3.3	3.9	3.2	1.8	1.1	2.3
Total Non-OECD	2.5	3.8	1.6	0.7	1.2	1.8	1.9	2.5	2.4	2.4	2.3	2.6	2.1	2.5	3.3	2.6
World	**2.0**	**2.1**	**1.3**	**0.7**	**1.5**	**1.4**	**1.2**	**2.3**	**1.5**	**1.4**	**1.6**	**1.3**	**0.8**	**1.4**	**1.8**	**1.3**
Annual Change (mb/d)																
Americas	0.39	0.18	0.11	0.11	0.36	0.19	-0.12	0.49	-0.08	0.25	0.14	0.13	-0.03	0.31	0.02	0.11
Europe	0.29	0.07	0.26	0.16	0.35	0.21	0.33	0.39	0.30	-0.11	0.23	-0.10	-0.07	0.00	0.23	0.02
Asia Oceania	0.01	-0.11	0.09	0.09	0.17	0.06	-0.01	0.06	0.06	-0.02	0.02	-0.10	-0.16	-0.17	-0.18	-0.15
Total OECD	0.69	0.14	0.46	0.36	0.88	0.46	0.21	0.94	0.28	0.12	0.39	-0.07	-0.26	0.14	0.07	-0.03
Asia	1.33	1.41	0.91	0.35	0.68	0.84	0.81	1.03	0.99	1.16	1.00	0.91	0.77	0.90	1.18	0.94
Middle East	-0.05	0.09	-0.12	-0.13	-0.22	-0.10	0.05	0.06	-0.02	-0.06	0.01	0.17	0.06	0.12	0.15	0.12
Americas	-0.14	-0.16	-0.15	-0.12	-0.18	-0.15	-0.02	-0.01	0.02	0.02	0.00	0.05	0.09	0.09	0.13	0.09
FSU	-0.09	0.33	0.00	0.20	0.29	0.20	0.00	0.17	0.09	-0.02	0.06	0.08	0.06	0.06	0.06	0.07
Africa	0.13	0.11	0.11	0.02	-0.01	0.06	0.10	-0.01	0.07	0.06	0.05	0.07	0.08	0.06	0.13	0.09
Europe	0.03	0.03	0.04	0.02	0.02	0.03	0.01	0.01	0.03	0.04	0.02	0.03	0.02	0.01	0.01	0.02
Total Non-OECD	1.20	1.80	0.80	0.34	0.58	0.87	0.95	1.26	1.17	1.20	1.15	1.31	1.07	1.25	1.65	1.32
World	**1.89**	**1.95**	**1.26**	**0.70**	**1.47**	**1.34**	**1.16**	**2.20**	**1.45**	**1.32**	**1.53**	**1.24**	**0.81**	**1.39**	**1.72**	**1.29**
Revisions to Oil Demand from Last Month's Report (mb/d)																
Americas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01	0.02	-0.07	-0.04	0.03	-0.04	-0.03
Europe	0.00	-0.02	0.00	0.00	0.00	-0.01	0.04	0.07	0.11	-0.12	0.03	0.03	0.04	0.07	0.05	0.05
Asia Oceania	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.02	0.02	0.02	0.01	-0.01	0.01
Total OECD	0.00	-0.02	0.00	0.00	0.00	-0.01	0.04	0.07	0.20	-0.04	0.07	-0.02	0.01	0.11	0.00	0.03
Asia	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.06	0.13	0.06	0.03	0.08	0.17	0.30	0.15
Middle East	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.07	-0.13	-0.05	-0.01	-0.09	-0.11	-0.11	-0.08
Americas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	-0.01	-0.01	0.00	0.00	0.00
FSU	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.02	-0.01	-0.01	0.01	0.00	0.01	-0.02	0.00
Africa	0.17	0.18	0.18	0.18	0.18	0.18	0.13	0.13	0.15	0.12	0.13	0.09	0.11	0.13	0.12	0.11
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	0.17	0.19	0.19	0.19	0.19	0.19	0.13	0.13	0.13	0.11	0.13	0.12	0.10	0.20	0.29	0.18
World	**0.17**	**0.17**	**0.19**	**0.19**	**0.19**	**0.19**	**0.17**	**0.20**	**0.33**	**0.07**	**0.20**	**0.10**	**0.11**	**0.32**	**0.29**	**0.21**
Revisions to Oil Demand Growth from Last Month's Report (mb/d)																
World	-0.03	0.01	0.03	0.02	0.02	0.02	0.00	0.00	0.15	-0.12	0.01	-0.07	-0.09	-0.02	0.22	0.01

* France, Germany, Italy, Spain and UK

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

	2015	2016	4Q16	1Q17	2Q17	3Q17	Jul 17	Aug 17	Sep 17 [2]	Latest month vs. Aug 17	Latest month vs. Sep 16
Americas											
LPG and ethane	3.25	3.27	3.32	3.50	3.07	2.96	3.17	2.76	2.96	0.20	-0.15
Naphtha	0.34	0.35	0.34	0.35	0.36	0.34	0.36	0.35	0.30	-0.04	-0.02
Motor gasoline	10.89	11.10	11.00	10.64	11.30	11.36	11.37	11.63	11.08	-0.54	-0.19
Jet and kerosene	1.82	1.90	1.92	1.89	1.97	2.04	2.04	2.11	1.96	-0.14	0.05
Gasoil/diesel oil	5.22	5.07	5.20	5.14	5.10	5.10	4.89	5.26	5.13	-0.13	-0.02
Residual fuel oil	0.55	0.60	0.60	0.67	0.69	0.60	0.58	0.60	0.61	0.01	0.09
Other products	2.47	2.44	2.47	2.28	2.48	2.58	2.63	2.60	2.49	-0.11	0.00
Total	**24.55**	**24.74**	**24.85**	**24.47**	**24.97**	**24.97**	**25.05**	**25.31**	**24.54**	**-0.76**	**-0.25**
Europe											
LPG and ethane	1.17	1.21	1.25	1.26	1.17	1.13	1.19	1.10	1.10	0.00	-0.05
Naphtha	1.11	1.11	1.09	1.30	1.15	1.21	1.22	1.24	1.17	-0.07	0.12
Motor gasoline	1.89	1.90	1.86	1.79	1.99	2.01	2.00	2.06	1.95	-0.11	-0.06
Jet and kerosene	1.33	1.37	1.32	1.29	1.45	1.63	1.64	1.59	1.66	0.07	0.11
Gasoil/diesel oil	6.21	6.28	6.52	6.32	6.42	6.53	6.41	6.45	6.75	0.31	0.17
Residual fuel oil	0.89	0.89	0.87	0.89	0.87	0.89	0.90	0.88	0.91	0.03	0.04
Other products	1.24	1.28	1.28	1.09	1.27	1.33	1.33	1.26	1.40	0.14	0.00
Total	**13.83**	**14.04**	**14.19**	**13.93**	**14.31**	**14.73**	**14.69**	**14.58**	**14.94**	**0.37**	**0.34**
Asia Oceania											
LPG and ethane	0.77	0.83	0.85	0.89	0.77	0.74	0.74	0.75	0.72	-0.03	-0.10
Naphtha	1.98	1.96	2.04	2.14	1.98	2.05	2.01	2.09	2.06	-0.03	0.13
Motor gasoline	1.54	1.55	1.56	1.47	1.53	1.62	1.63	1.67	1.57	-0.10	0.00
Jet and kerosene	0.86	0.90	1.02	1.17	0.73	0.72	0.70	0.71	0.76	0.05	0.03
Gasoil/diesel oil	1.81	1.84	1.92	1.90	1.90	1.89	1.90	1.84	1.94	0.10	0.11
Residual fuel oil	0.64	0.65	0.65	0.64	0.51	0.52	0.54	0.52	0.50	-0.02	-0.07
Other products	0.46	0.40	0.34	0.35	0.34	0.35	0.31	0.37	0.37	0.00	0.00
Total	**8.06**	**8.12**	**8.38**	**8.56**	**7.76**	**7.90**	**7.84**	**7.94**	**7.93**	**-0.02**	**0.10**
OECD											
LPG and ethane	5.19	5.31	5.42	5.65	5.01	4.83	5.09	4.61	4.78	0.17	-0.30
Naphtha	3.43	3.42	3.47	3.79	3.48	3.60	3.60	3.68	3.53	-0.14	0.23
Motor gasoline	14.32	14.55	14.42	13.91	14.82	15.00	15.01	15.36	14.61	-0.76	-0.25
Jet and kerosene	4.01	4.17	4.27	4.34	4.15	4.39	4.38	4.41	4.38	-0.02	0.19
Gasoil/diesel oil	13.24	13.20	13.64	13.36	13.42	13.52	13.21	13.55	13.83	0.28	0.26
Residual fuel oil	2.09	2.15	2.12	2.20	2.06	2.01	2.02	2.00	2.02	0.02	0.05
Other products	4.17	4.11	4.09	3.71	4.10	4.25	4.27	4.23	4.26	0.04	0.00
Total	**46.44**	**46.90**	**47.42**	**46.96**	**47.04**	**47.61**	**47.58**	**47.83**	**47.41**	**-0.41**	**0.19**

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)

	2015	2016	4Q16	1Q17	2Q17	3Q17	Jul 17	Aug 17	Sep 17 [2]	Latest month vs. Aug 17	Latest month vs. Sep 16
United States[3]											
LPG and ethane	2.45	2.47	2.51	2.69	2.36	2.26	2.45	2.07	2.25	0.18	-0.11
Naphtha	0.22	0.22	0.22	0.24	0.24	0.21	0.22	0.22	0.18	-0.04	-0.03
Motor gasoline	9.18	9.32	9.20	8.95	9.54	9.56	9.57	9.77	9.33	-0.44	-0.16
Jet and kerosene	1.55	1.62	1.65	1.61	1.69	1.72	1.73	1.77	1.65	-0.12	0.00
Gasoil/diesel oil	4.00	3.88	3.99	3.95	3.91	3.87	3.71	3.99	3.92	-0.07	0.01
Residual fuel oil	0.26	0.33	0.32	0.37	0.37	0.30	0.27	0.34	0.31	-0.03	0.05
Other products	1.87	1.86	1.88	1.69	1.91	2.01	2.07	2.01	1.94	-0.07	0.05
Total	**19.53**	**19.69**	**19.77**	**19.49**	**20.01**	**19.92**	**20.02**	**20.16**	**19.58**	**-0.58**	**-0.18**
Japan											
LPG and ethane	0.44	0.44	0.44	0.50	0.40	0.37	0.37	0.38	0.36	-0.02	-0.05
Naphtha	0.79	0.76	0.80	0.83	0.75	0.75	0.70	0.78	0.76	-0.02	0.05
Motor gasoline	0.89	0.90	0.90	0.82	0.87	0.95	0.95	0.99	0.90	-0.09	-0.01
Jet and kerosene	0.49	0.50	0.59	0.73	0.36	0.33	0.31	0.32	0.37	0.04	0.01
Diesel	0.43	0.43	0.45	0.43	0.41	0.42	0.43	0.40	0.43	0.03	-0.01
Other gasoil	0.34	0.35	0.37	0.39	0.32	0.31	0.31	0.30	0.32	0.03	0.01
Residual fuel oil	0.37	0.34	0.34	0.33	0.27	0.27	0.28	0.27	0.26	-0.01	-0.04
Other products	0.37	0.31	0.30	0.30	0.27	0.29	0.28	0.30	0.28	-0.02	-0.01
Total	**4.12**	**4.03**	**4.18**	**4.33**	**3.64**	**3.69**	**3.64**	**3.75**	**3.68**	**-0.07**	**-0.04**
Germany											
LPG and ethane	0.10	0.10	0.09	0.13	0.13	0.13	0.13	0.13	0.11	-0.02	0.02
Naphtha	0.39	0.38	0.39	0.46	0.40	0.39	0.43	0.42	0.33	-0.09	-0.01
Motor gasoline	0.42	0.42	0.42	0.41	0.45	0.43	0.43	0.45	0.42	-0.03	-0.03
Jet and kerosene	0.18	0.20	0.20	0.20	0.21	0.22	0.23	0.22	0.22	0.01	0.00
Diesel	0.74	0.76	0.76	0.75	0.78	0.78	0.78	0.80	0.77	-0.03	-0.06
Other gasoil	0.36	0.36	0.39	0.39	0.36	0.35	0.35	0.33	0.37	0.04	0.09
Residual fuel oil	0.11	0.09	0.10	0.10	0.07	0.08	0.08	0.08	0.08	0.00	-0.01
Other products	0.06	0.10	0.10	0.07	0.10	0.11	0.11	0.10	0.11	0.01	-0.01
Total	**2.37**	**2.41**	**2.44**	**2.52**	**2.50**	**2.50**	**2.56**	**2.53**	**2.41**	**-0.11**	**-0.01**
Italy											
LPG and ethane	0.11	0.11	0.12	0.13	0.10	0.10	0.10	0.10	0.10	0.00	-0.01
Naphtha	0.08	0.09	0.08	0.11	0.11	0.12	0.12	0.11	0.13	0.02	0.05
Motor gasoline	0.18	0.18	0.17	0.16	0.18	0.18	0.19	0.19	0.17	-0.02	-0.02
Jet and kerosene	0.09	0.10	0.09	0.08	0.11	0.13	0.13	0.13	0.13	0.00	0.03
Diesel	0.47	0.46	0.45	0.45	0.47	0.46	0.48	0.45	0.46	0.02	-0.03
Other gasoil	0.09	0.09	0.10	0.08	0.08	0.09	0.09	0.08	0.09	0.01	-0.01
Residual fuel oil	0.08	0.06	0.06	0.07	0.06	0.08	0.08	0.08	0.07	0.00	0.01
Other products	0.18	0.16	0.18	0.15	0.16	0.16	0.17	0.14	0.17	0.03	-0.01
Total	**1.27**	**1.25**	**1.24**	**1.23**	**1.28**	**1.32**	**1.35**	**1.28**	**1.33**	**0.05**	**0.01**
France											
LPG and ethane	0.13	0.12	0.12	0.14	0.10	0.10	0.09	0.10	0.09	-0.01	-0.01
Naphtha	0.12	0.10	0.07	0.12	0.10	0.11	0.11	0.12	0.09	-0.03	0.00
Motor gasoline	0.16	0.17	0.17	0.16	0.19	0.20	0.19	0.20	0.20	0.00	0.02
Jet and kerosene	0.15	0.15	0.14	0.15	0.16	0.18	0.19	0.18	0.18	-0.01	0.01
Diesel	0.71	0.70	0.71	0.71	0.73	0.73	0.72	0.71	0.77	0.07	0.04
Other gasoil	0.26	0.25	0.28	0.28	0.21	0.25	0.23	0.23	0.30	0.07	0.03
Residual fuel oil	0.04	0.04	0.05	0.06	0.05	0.06	0.06	0.06	0.06	0.00	0.02
Other products	0.12	0.12	0.10	0.09	0.14	0.13	0.13	0.11	0.16	0.05	0.02
Total	**1.69**	**1.66**	**1.63**	**1.72**	**1.68**	**1.76**	**1.73**	**1.71**	**1.85**	**0.14**	**0.11**
United Kingdom											
LPG and ethane	0.14	0.16	0.16	0.16	0.14	0.13	0.13	0.13	0.12	-0.01	-0.03
Naphtha	0.03	0.03	0.03	0.03	0.04	0.03	0.04	0.03	0.03	0.00	0.01
Motor gasoline	0.29	0.29	0.29	0.28	0.30	0.29	0.28	0.29	0.30	0.01	0.00
Jet and kerosene	0.31	0.31	0.31	0.32	0.31	0.33	0.33	0.31	0.35	0.04	0.00
Diesel	0.50	0.52	0.53	0.49	0.53	0.52	0.52	0.51	0.53	0.02	0.01
Other gasoil	0.13	0.13	0.12	0.12	0.14	0.15	0.14	0.15	0.17	0.01	0.01
Residual fuel oil	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.03	0.00	0.00
Other products	0.11	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.12	0.00	0.01
Total	**1.55**	**1.59**	**1.58**	**1.53**	**1.59**	**1.60**	**1.59**	**1.56**	**1.65**	**0.09**	**0.00**
Canada											
LPG and ethane	0.35	0.37	0.39	0.39	0.32	0.32	0.33	0.31	0.32	0.01	-0.04
Naphtha	0.09	0.10	0.10	0.09	0.09	0.11	0.11	0.11	0.10	0.00	0.01
Motor gasoline	0.81	0.85	0.84	0.80	0.86	0.89	0.90	0.92	0.85	-0.07	-0.02
Jet and kerosene	0.13	0.14	0.13	0.13	0.14	0.17	0.16	0.18	0.17	-0.01	0.04
Diesel	0.31	0.30	0.29	0.30	0.29	0.29	0.28	0.29	0.29	0.01	-0.02
Other gasoil	0.26	0.24	0.27	0.26	0.26	0.32	0.30	0.35	0.31	-0.04	0.02
Residual fuel oil	0.05	0.04	0.04	0.05	0.06	0.05	0.05	0.04	0.06	0.02	0.01
Other products	0.36	0.34	0.35	0.33	0.32	0.36	0.35	0.37	0.36	-0.01	0.00
Total	**2.37**	**2.38**	**2.40**	**2.35**	**2.34**	**2.50**	**2.46**	**2.56**	**2.46**	**-0.10**	**0.01**

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)

	2016	2017	2018	2Q17	3Q17	4Q17	1Q18	2Q18	Sep 17	Oct 17	Nov 17
OPEC											
Crude Oil											
Saudi Arabia	10.42			9.97	9.99				9.97	10.05	9.97
Iran	3.55			3.77	3.83				3.84	3.78	3.80
Iraq	4.42			4.50	4.48				4.49	4.40	4.42
UAE	3.05			2.93	2.94				2.93	2.93	2.90
Kuwait	2.88			2.71	2.70				2.71	2.70	2.71
Neutral Zone	0.00			0.00	0.00				0.00	0.00	0.00
Qatar	0.65			0.62	0.60				0.58	0.61	0.61
Angola	1.71			1.64	1.67				1.66	1.68	1.62
Nigeria	1.47			1.49	1.62				1.61	1.58	1.64
Libya	0.39			0.71	0.94				0.92	0.99	0.97
Algeria	1.11			1.06	1.06				1.06	1.00	1.01
Equatorial Guinea	0.14			0.12	0.12				0.13	0.14	0.13
Ecuador	0.55			0.53	0.54				0.54	0.53	0.54
Venezuela	2.24			2.05	1.99				1.94	1.89	1.84
Gabon	0.23			0.20	0.20				0.19	0.21	0.20
Total Crude Oil	32.80			32.31	32.68				32.57	32.49	32.36
Total NGLs[1]	6.78	6.90	7.04	6.89	6.96	6.93	7.02	7.04	6.96	6.93	6.93
Total OPEC[2]	**39.58**			**39.20**	**39.64**				**39.53**	**39.42**	**39.29**
NON-OPEC[2,3]											
OECD											
Americas	19.48	20.08	21.40	19.76	20.16	20.46	21.10	21.09	20.05	20.09	20.45
United States	12.53	13.07	14.18	12.97	13.14	13.47	13.84	14.16	13.26	13.16	13.57
Mexico	2.47	2.25	2.17	2.31	2.16	2.19	2.21	2.19	2.00	2.17	2.17
Canada	4.47	4.76	5.05	4.47	4.85	4.80	5.04	4.74	4.79	4.76	4.71
Chile	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00
Europe	3.52	3.48	3.57	3.49	3.36	3.42	3.64	3.62	3.25	3.50	3.52
UK	1.03	1.02	1.17	1.04	0.97	1.02	1.17	1.19	0.97	1.09	1.13
Norway	1.99	1.97	1.90	2.00	1.89	1.90	1.97	1.93	1.76	1.90	1.88
Others	0.49	0.49	0.50	0.45	0.50	0.51	0.51	0.50	0.52	0.51	0.51
Asia Oceania	0.43	0.40	0.43	0.40	0.42	0.42	0.42	0.42	0.41	0.41	0.42
Australia	0.35	0.33	0.36	0.32	0.34	0.34	0.35	0.35	0.34	0.34	0.34
Others	0.08	0.07	0.07	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Total OECD	**23.42**	**23.97**	**25.40**	**23.65**	**23.94**	**24.31**	**25.17**	**25.13**	**23.72**	**24.01**	**24.38**
NON-OECD											
Former USSR	14.24	14.36	14.41	14.36	14.27	14.36	14.38	14.38	14.28	14.29	14.36
Russia	11.34	11.35	11.32	11.34	11.29	11.31	11.30	11.30	11.28	11.31	11.31
Others	2.90	3.01	3.10	3.02	2.98	3.05	3.08	3.08	3.00	2.98	3.05
Asia[2]	7.57	7.32	7.06	7.36	7.27	7.21	7.14	7.08	7.25	7.24	7.20
China	3.99	3.86	3.71	3.91	3.82	3.79	3.75	3.73	3.81	3.81	3.79
Malaysia	0.71	0.69	0.66	0.69	0.69	0.68	0.67	0.66	0.69	0.68	0.67
India	0.85	0.86	0.84	0.85	0.86	0.85	0.83	0.83	0.85	0.86	0.84
Indonesia	0.88	0.84	0.81	0.84	0.84	0.82	0.82	0.81	0.83	0.83	0.82
Others	1.15	1.08	1.05	1.07	1.07	1.07	1.06	1.05	1.06	1.07	1.07
Europe	0.14	0.13	0.12	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Americas[2]	4.49	4.56	4.70	4.54	4.54	4.58	4.59	4.68	4.57	4.56	4.52
Brazil	2.61	2.75	2.93	2.74	2.73	2.77	2.80	2.90	2.77	2.75	2.71
Argentina	0.61	0.58	0.58	0.56	0.58	0.58	0.58	0.58	0.59	0.58	0.58
Colombia	0.88	0.86	0.84	0.86	0.86	0.86	0.85	0.84	0.86	0.87	0.86
Others	0.38	0.37	0.36	0.37	0.37	0.37	0.36	0.36	0.36	0.37	0.37
Middle East[2,4]	1.26	1.25	1.29	1.24	1.25	1.26	1.27	1.28	1.25	1.25	1.26
Oman	1.01	0.98	1.00	0.98	0.98	0.99	0.99	0.99	0.98	0.98	0.99
Syria	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Yemen	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Others	0.20	0.22	0.24	0.22	0.22	0.22	0.24	0.24	0.22	0.22	0.22
Africa	1.68	1.74	1.79	1.71	1.76	1.79	1.77	1.81	1.77	1.78	1.79
Egypt	0.67	0.63	0.61	0.64	0.64	0.63	0.62	0.62	0.63	0.63	0.63
Others	1.01	1.10	1.17	1.07	1.12	1.16	1.14	1.19	1.13	1.15	1.16
Total Non-OECD	**29.37**	**29.35**	**29.38**	**29.34**	**29.22**	**29.32**	**29.27**	**29.36**	**29.26**	**29.26**	**29.26**
Processing gains[5]	2.27	2.29	2.32	2.29	2.29	2.29	2.32	2.32	2.29	2.29	2.29
Global Biofuels	2.34	2.41	2.49	2.45	2.78	2.49	2.04	2.54	2.86	2.65	2.57
TOTAL NON-OPEC	**57.39**	**58.02**	**59.60**	**57.73**	**58.23**	**58.41**	**58.80**	**59.35**	**58.12**	**58.21**	**58.51**
TOTAL SUPPLY	**96.97**			**96.93**	**97.87**				**97.65**	**97.63**	**97.80**

1 Includes condensates reported by OPEC countries, oil from non-conventional sources, e.g. Venezuelan Orimulsion (but not Orinoco extra-heavy oil), and non-oil inputs to Saudi Arabian MTBE.
2 Latin America excludes Ecuador throughout. Africa excludes Angola, 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			
	Jun2017	Jul2017	Aug2017	Sep2017	Oct2017*	Oct2014	Oct2015	Oct2016	4Q2016	1Q2017	2Q2017	3Q2017
OECD Americas												
Crude	656.3	645.5	625.2	632.5	626.5	508.0	610.6	649.6	0.24	0.56	-0.44	-0.26
Motor Gasoline	268.7	262.4	254.6	252.4	245.5	237.1	247.1	257.6	0.11	0.02	-0.03	-0.18
Middle Distillate	224.3	221.6	216.0	212.2	202.5	188.2	210.6	230.5	0.01	-0.13	-0.02	-0.13
Residual Fuel Oil	41.1	39.3	40.3	42.7	38.5	43.9	50.2	45.6	0.03	0.00	-0.08	0.02
Total Products[3]	753.1	754.5	755.7	749.4	727.7	691.4	745.8	782.3	-0.29	-0.43	0.18	-0.04
Total[4]	1595.2	1590.6	1581.2	1579.1	1551.2	1382.1	1545.4	1626.9	-0.24	0.10	-0.14	-0.17
OECD Europe												
Crude	364.7	364.0	345.7	340.4	339.1	315.4	347.2	346.9	-0.15	0.18	0.05	-0.26
Motor Gasoline	92.1	90.5	90.3	88.0	88.8	84.1	89.2	92.4	0.09	0.02	-0.09	-0.04
Middle Distillate	297.5	304.5	310.2	293.4	283.9	252.1	301.4	305.6	-0.22	0.06	-0.15	-0.04
Residual Fuel Oil	64.7	63.1	61.2	59.6	60.1	62.2	69.8	66.2	-0.01	-0.03	-0.02	-0.05
Total Products[3]	560.0	564.6	573.3	554.9	544.6	497.5	556.9	562.9	-0.11	0.16	-0.33	-0.06
Total[4]	996.9	1004.0	990.2	968.1	957.1	884.4	973.7	981.2	-0.27	0.33	-0.27	-0.31
OECD Asia Oceania												
Crude	189.7	197.0	195.1	198.2	185.9	184.2	205.1	202.3	-0.11	-0.03	0.01	0.09
Motor Gasoline	25.1	22.8	24.9	23.1	23.3	22.3	23.1	24.0	0.00	-0.01	0.02	-0.02
Middle Distillate	63.3	64.1	69.7	66.4	72.0	67.8	65.0	71.5	-0.11	-0.05	0.04	0.03
Residual Fuel Oil	20.9	21.6	20.0	18.9	21.0	21.2	21.9	19.1	-0.02	0.01	0.03	-0.02
Total Products[3]	169.7	175.6	182.2	172.1	181.7	179.8	168.5	181.1	-0.27	-0.08	0.16	0.03
Total[4]	424.1	436.5	442.5	433.2	431.8	433.8	439.1	446.7	-0.39	-0.13	0.23	0.10
Total OECD												
Crude	1210.7	1206.4	1166.0	1171.2	1151.5	1007.6	1162.9	1198.8	-0.01	0.71	-0.38	-0.43
Motor Gasoline	385.9	375.8	369.7	363.4	357.6	343.5	359.4	374.0	0.20	0.03	-0.10	-0.24
Middle Distillate	585.0	590.1	595.9	572.0	558.4	508.1	577.0	607.5	-0.32	-0.12	-0.13	-0.14
Residual Fuel Oil	126.7	124.0	121.5	121.3	119.5	127.3	141.9	130.8	0.01	-0.02	-0.07	-0.06
Total Products[3]	1482.7	1494.7	1511.2	1476.4	1454.0	1368.6	1471.2	1526.3	-0.66	-0.35	0.02	-0.07
Total[4]	3016.2	3031.0	3013.9	2980.4	2940.1	2700.3	2958.1	3054.8	-0.90	0.31	-0.17	-0.39

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			
	Jun2017	Jul2017	Aug2017	Sep2017	Oct2017*	Oct2014	Oct2015	Oct2016	4Q2016	1Q2017	2Q2017	3Q2017
OECD Americas												
Crude	679.2	678.9	678.8	673.6	670.8	691.0	695.1	695.1	0.00	-0.04	-0.14	-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	208.4	208.3	208.1	208.0	207.6	209.1	206.2	204.9	-0.01	0.00	0.03	0.00
Products	272.2	268.4	267.9	267.1	266.9	256.0	257.6	268.6	0.05	0.02	-0.03	-0.06
OECD Asia Oceania												
Crude	385.0	385.0	385.0	385.0	385.0	384.7	381.5	385.7	-0.01	0.00	0.01	0.00
Products	38.0	38.0	38.0	38.3	38.3	31.0	33.9	36.5	0.01	0.01	0.00	0.00
Total OECD												
Crude	1272.6	1272.2	1271.9	1266.7	1263.3	1284.7	1282.9	1285.7	-0.02	-0.04	-0.09	-0.06
Products	312.2	308.4	307.8	307.4	307.3	289.0	293.5	307.0	0.06	0.03	-0.03	-0.05
Total[4]	1588.5	1583.9	1583.2	1577.6	1574.1	1578.4	1580.9	1595.0	0.04	0.00	-0.12	-0.12

* 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 September 2016		End December 2016		End March 2017		End June 2017		End September 2017 [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	184.8	77	183.3	78	184.9	79	182.6	73	194.0	-
Chile	12.2	37	11.2	33	11.9	35	11.2	32	12.5	-
Mexico	45.7	23	47.3	24	47.5	24	49.2	26	45.8	-
United States[4]	2053.2	104	2031.6	104	2034.5	102	2011.2	101	1980.3	-
Total[4]	2318.0	93	2295.5	94	2301.0	92	2276.3	91	2254.8	91
OECD Asia Oceania										
Australia	36.7	33	33.9	30	33.3	28	35.4	30	33.7	-
Israel	-	-	-	-	-	-	-	-	-	-
Japan	586.6	140	562.5	130	546.3	150	566.3	154	571.3	-
Korea	239.3	88	230.3	86	237.8	93	236.4	89	243.5	-
New Zealand	8.7	50	8.9	48	8.2	48	9.0	54	8.1	-
Total	871.3	104	835.6	98	825.6	106	847.1	107	856.5	104
OECD Europe[5]										
Austria	21.6	81	22.8	88	24.3	94	21.8	76	22.1	-
Belgium	50.5	74	47.4	71	47.8	76	46.6	72	44.1	-
Czech Republic	22.9	111	21.9	117	22.5	102	21.4	94	21.4	-
Denmark	29.7	187	30.5	201	27.2	169	27.3	171	23.6	-
Estonia	2.4	81	2.4	72	2.6	94	2.7	98	2.2	-
Finland	44.9	219	42.3	220	44.8	224	43.4	214	44.7	-
France	166.9	102	162.2	94	167.7	100	165.4	94	165.2	-
Germany	285.0	117	285.4	113	280.7	112	277.1	111	274.8	-
Greece	30.8	99	33.9	115	35.1	118	32.4	100	32.3	-
Hungary	23.6	148	24.5	151	24.3	144	25.2	145	26.2	-
Ireland	11.7	74	11.8	78	12.8	86	12.1	79	9.4	-
Italy	127.4	102	124.3	101	134.4	105	133.7	101	127.7	-
Latvia	4.4	118	2.4	69	2.4	58	3.3	77	1.5	-
Luxembourg	0.7	12	0.7	12	0.7	12	0.7	12	0.6	-
Netherlands	154.2	158	152.6	155	154.7	157	154.5	160	150.8	-
Norway	23.2	96	22.9	113	22.9	107	22.0	98	22.0	-
Poland	68.4	113	67.4	116	69.8	110	69.5	103	69.2	-
Portugal	24.3	107	22.7	101	26.5	110	24.0	96	24.1	-
Slovak Republic	11.3	138	12.1	147	12.8	151	13.0	138	12.1	-
Slovenia	4.4	81	4.5	96	4.9	94	5.1	92	4.7	-
Spain	139.4	107	129.0	101	136.5	106	128.7	98	127.2	-
Sweden	35.7	109	33.5	107	51.5	159	52.0	155	43.3	-
Switzerland	36.5	156	35.2	158	35.5	162	34.5	160	35.4	-
Turkey	76.5	81	79.1	100	81.4	83	84.0	76	83.9	-
United Kingdom	78.1	49	82.3	54	81.2	51	81.0	51	78.0	-
Total	1474.6	104	1453.8	104	1505.0	105	1481.2	101	1446.7	107
Total OECD	**4663.9**	**98**	**4584.9**	**98**	**4631.6**	**98**	**4604.6**	**97**	**4558.0**	**98**
DAYS OF IEA Net Imports[6]	**-**	**202**	**-**	**200**	**-**	**203**	**-**	**197**	**-**	**193**

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 September 2017 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]		
3Q2014	4300	1580	2719	93	34	59
4Q2014	4288	1582	2706	92	34	58
1Q2015	4377	1584	2792	96	35	61
2Q2015	4467	1587	2880	95	34	61
3Q2015	4538	1581	2957	98	34	64
4Q2015	4577	1588	2989	98	34	64
1Q2016	4616	1595	3021	100	35	66
2Q2016	4652	1592	3060	98	34	65
3Q2016	4664	1596	3068	98	34	65
4Q2016	4585	1600	2985	98	34	64
1Q2017	4632	1600	3032	98	34	64
2Q2017	4605	1588	3016	97	33	63
3Q2017	4558	1578	2980	98	34	64

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 3Q2017 (when latest forecasts are used).

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

	2014	2015	2016	4Q16	1Q17	2Q17	3Q17	Jul 17	Aug 17	Sep 17	Year Earlier Sep 16	Year Earlier change
Saudi Light & Extra Light												
Americas	0.65	0.63	0.69	0.62	0.70	0.75	0.44	0.57	0.38	0.37	0.48	-0.10
Europe	0.84	0.78	0.79	0.87	0.64	0.78	0.64	0.70	0.62	0.62	0.71	-0.09
Asia Oceania	1.17	1.25	1.40	1.56	1.65	1.49	1.56	1.66	1.62	1.38	1.31	0.07
Saudi Medium												
Americas	0.36	0.37	0.44	0.48	0.43	0.35	0.28	0.31	0.29	0.25	0.50	-0.26
Europe	0.03	0.03	0.01	0.01	0.01	0.00	0.01	-	0.00	0.04	0.03	0.01
Asia Oceania	0.45	0.44	0.41	0.34	0.33	0.33	0.41	0.37	0.35	0.50	0.44	0.06
Canada Heavy												
Americas	1.71	1.90	2.04	2.07	2.31	2.25	2.21	2.15	2.24	2.25	2.07	0.19
Europe	0.00	0.01	0.01	0.01	0.01	-	0.03	0.04	0.02	0.03	0.05	-0.02
Asia Oceania	0.00	-	-	-	-	-	-	-	-	-	-	-
Iraqi Basrah Light[2]												
Americas	0.35	0.17	0.42	0.55	0.53	0.67	0.55	0.63	0.50	0.51	0.41	0.10
Europe	0.50	0.72	0.81	0.67	0.76	0.84	0.76	0.73	0.69	0.87	0.91	-0.05
Asia Oceania	0.24	0.41	0.46	0.41	0.42	0.39	0.41	0.52	0.43	0.27	0.45	-0.18
Kuwait Blend												
Americas	0.27	0.13	0.14	0.14	0.19	0.18	0.04	0.13	-	-	0.28	-
Europe	0.09	0.13	0.19	0.26	0.20	0.22	0.25	0.27	0.23	0.25	0.24	0.01
Asia Oceania	0.62	0.65	0.66	0.60	0.71	0.68	0.67	0.67	0.68	0.67	0.72	-0.05
Iranian Light												
Americas	-	-	-	-	-	-	-	-	-	-	-	-
Europe	0.10	0.09	0.21	0.24	0.38	0.25	0.25	0.22	0.28	0.25	0.23	0.02
Asia Oceania	0.01	0.01	0.01	0.01	0.01	0.00	0.02	0.01	-	0.04	0.04	0.01
Iranian Heavy[3]												
Americas	-	-	-	-	-	-	-	-	-	-	-	-
Europe	0.01	0.02	0.21	0.38	0.41	0.52	0.59	0.68	0.52	0.57	0.39	0.19
Asia Oceania	0.28	0.27	0.52	0.59	0.73	0.43	0.57	0.52	0.51	0.67	0.68	-0.01
BFOE												
Americas	0.01	0.01	0.02	0.03	0.02	0.01	0.02	0.02	0.02	0.03	-	-
Europe	0.56	0.49	0.44	0.42	0.39	0.41	0.49	0.49	0.54	0.44	0.37	0.08
Asia Oceania	0.07	0.06	0.05	0.08	0.09	0.06	0.09	0.10	0.07	0.11	-	-
Kazakhstan												
Americas	0.01	0.00	0.01	-	-	-	-	-	-	-	0.07	-
Europe	0.64	0.64	0.70	0.62	0.76	0.78	0.74	0.69	0.81	0.70	0.61	0.09
Asia Oceania	0.02	0.06	0.03	0.04	0.05	0.09	0.15	0.07	0.21	0.18	-	-
Venezuelan 22 API and heavier												
Americas	0.64	0.67	0.63	0.66	0.52	0.61	0.41	0.42	0.48	0.34	0.63	-0.29
Europe	0.08	0.09	0.05	0.05	0.06	0.04	0.05	0.01	0.10	0.03	0.03	0.00
Asia Oceania	-	-	-	-	-	-	-	-	-	-	-	-
Mexican Maya												
Americas	0.66	0.50	0.53	0.53	0.54	0.63	0.50	0.61	0.47	0.41	0.45	-0.05
Europe	0.14	0.15	0.17	0.20	0.20	0.18	0.17	0.20	0.16	0.14	0.14	0.01
Asia Oceania	-	0.01	0.05	0.07	0.06	0.07	0.07	0.06	0.11	0.03	0.04	-0.01
Russian Urals												
Americas	-	-	-	-	-	-	0.02	-	0.02	0.02	-	-
Europe	1.58	1.61	1.72	1.77	1.64	1.57	1.68	1.73	1.61	1.72	1.81	-0.09
Asia Oceania	-	-	-	-	-	0.02	0.02	0.03	0.03	-	-	-
Cabinda and Other Angola												
North America	0.04	0.11	0.16	0.13	0.04	-	0.17	0.16	0.22	0.15	0.18	-0.03
Europe	0.33	0.42	0.27	0.16	0.09	0.07	0.17	0.16	0.16	0.19	0.40	-0.21
Pacific	0.01	0.02	0.01	-	-	0.01	0.03	0.03	-	0.06	-	-
Nigerian Light[4]												
Americas	0.00	0.02	0.07	0.07	0.02	0.04	0.05	0.13	0.03	-	-	-
Europe	0.55	0.57	0.39	0.31	0.36	0.46	0.38	0.38	0.40	0.36	0.25	0.10
Asia Oceania	0.02	-	0.01	0.03	0.02	0.03	0.03	0.03	0.02	0.03	-	-
Libya Light and Medium												
Americas	-	-	-	-	-	-	0.03	0.10	-	-	-	-
Europe	0.31	0.22	0.20	0.30	0.41	0.37	0.67	0.60	0.76	0.64	0.17	0.47
Asia Oceania	0.02	0.01	0.02	0.01	0.04	0.04	0.01	-	0.02	0.02	0.05	-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)

	2014	2015	2016	4Q16	1Q17	2Q17	3Q17	Jul 17	Aug 17	Sep 17	Year Earlier Sep 16	Year Earlier % change
Crude Oil												
Americas	4201	4026	4542	4288	4558	4664	4285	4400	4453	3992	4724	-15%
Europe	8679	9505	9253	9566	9473	9606	9812	9948	9634	9854	9403	5%
Asia Oceania	6366	6573	6669	6664	7006	6450	6919	7026	7115	6606	6902	-4%
Total OECD	19246	20103	20464	20518	21038	20719	21016	21374	21203	20452	21029	-3%
LPG												
Americas	12	10	20	18	23	16	15	11	13	21	14	43%
Europe	433	418	445	468	499	417	426	439	422	416	458	-9%
Asia Oceania	531	518	566	551	603	586	466	549	482	364	442	-18%
Total OECD	975	947	1031	1036	1126	1020	906	998	917	800	915	-13%
Naphtha												
Americas	20	14	10	18	19	19	18	12	9	35	4	720%
Europe	352	345	348	354	392	365	365	309	390	398	417	-4%
Asia Oceania	952	950	905	893	980	976	968	944	978	982	889	10%
Total OECD	1324	1309	1263	1265	1391	1361	1351	1264	1377	1415	1310	8%
Gasoline[3]												
Americas	665	670	735	689	575	890	860	790	841	952	949	0%
Europe	117	105	100	209	151	131	142	188	151	86	48	79%
Asia Oceania	75	93	84	107	119	97	93	66	141	72	66	8%
Total OECD	857	868	919	1004	845	1118	1096	1045	1133	1109	1063	4%
Jet & Kerosene												
Americas	100	141	169	190	148	144	177	132	175	226	180	25%
Europe	455	445	503	466	460	475	553	577	461	622	542	15%
Asia Oceania	60	66	74	89	112	68	46	58	28	52	62	-15%
Total OECD	615	651	746	746	719	687	776	768	664	900	784	15%
Gasoil/Diesel												
Americas	95	76	67	84	81	37	47	49	58	35	101	-65%
Europe	1043	1161	1334	1275	1390	1351	1401	1457	1512	1228	1225	0%
Asia Oceania	152	158	195	219	204	206	188	195	193	175	189	-7%
Total OECD	1291	1395	1596	1579	1675	1593	1636	1701	1763	1438	1515	-5%
Heavy Fuel Oil												
Americas	132	116	149	147	141	103	153	165	166	128	108	19%
Europe	596	537	469	416	261	296	292	260	180	442	465	-5%
Asia Oceania	200	173	153	123	145	180	106	116	97	104	121	-14%
Total OECD	928	826	770	687	546	580	551	541	442	675	694	-3%
Other Products												
Americas	671	675	652	605	705	694	722	633	718	817	626	31%
Europe	692	701	772	775	1116	981	840	843	904	771	903	-15%
Asia Oceania	399	343	344	320	301	244	240	184	271	267	309	-14%
Total OECD	1762	1719	1768	1700	2122	1919	1802	1660	1893	1855	1838	1%
Total Products												
Americas	1695	1702	1802	1751	1692	1903	1993	1792	1980	2214	1983	12%
Europe	3687	3712	3971	3962	4269	4017	4019	4072	4021	3962	4057	-2%
Asia Oceania	2369	2301	2321	2303	2464	2357	2107	2113	2189	2016	2079	-3%
Total OECD	7751	7715	8093	8016	8424	8277	8119	7977	8190	8192	8118	1%
Total Oil												
Americas	5896	5728	6344	6039	6250	6567	6278	6192	6433	6206	6707	-7%
Europe	12366	13216	13224	13528	13742	13622	13831	14021	13655	13816	13460	3%
Asia Oceania	8735	8874	8990	8967	9471	8807	9026	9138	9304	8622	8981	-4%
Total OECD	26997	27818	28558	28534	29462	28996	29134	29351	29392	28644	29148	-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 11 August 2017), 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 © 2017 Argus Media Limited - all rights reserved).

Next Issue: 19 January 2018