

EXECUTIVE SUMMARY

The United States' leading position in oil and natural gas markets advanced in March, as the U.S. produced a record 10.4 million barrels per day (MBD) of crude oil plus another 3.9 MBD of natural gas liquids (NGL). As strong as supply has been, however, voracious refined product demand growth outpaced it. In March, U.S. petroleum demand of 20.6 MBD achieved its highest levels since 2007. To satisfy demand, domestic refineries utilized 91.5 percent of their capacity – a record for the month of March – and processed 17.0 MBD of oil and NGLs.

The U.S. petroleum trade balance narrowed in March as the global thirst for U.S. crude oil and major refined product exports rose to 6.8 MBD, which also was a record for the month and an increase of 1.0 MBD from March 2017. With strong demand and exports, U.S. inventories fell in March by 4.9 percent year-over-year (y/y) but rose compared with February. Within the total, inventories of crude oil and “other oils” increased between February and March, which is partly why domestic oil prices traded at a greater discount to international ones and NGL prices have fallen.

West Texas Intermediate (WTI) crude oil prices averaged \$62.73 per barrel in March, up by 0.8 percent from February and 27.2 percent versus March 2017. However, Brent crude oil prices increased by relatively more, 1.1 percent m/m in March to \$66.02 per barrel. The rise in oil prices has been consistent with solid economic growth.

Multiple coincident and leading indicators corroborate the economic strength at home and abroad, which has spurred a virtuous cycle of U.S. petroleum demand, production, and exports that in turn have helped to reinforce prices and motivate even greater infrastructure investment and U.S. drilling activity. As of the first week of April, the proverbial April surprise was that the U.S. drilling rig count eclipsed 1,000 for the first time since April 2015 and positioned the U.S. for further supply growth.

March highlights

(click hyperlinks to advance to any section)

Demand

- **U.S. petroleum sustained its highest levels in 11 years.**
 - Q1 2018 gasoline demand up from Q1 2017.
 - Distillate fuel demand in the middle of the 5-year range.
 - Jet fuel demand reached its highest level since 2000.
 - Residual fuel oil demand rose with seasonal winter weather.
 - Strong petrochemical feedstock demand – highest year-to-date level on record.

Prices & Macroeconomy

- **Crude oil prices buoyed by strong global demand and a weaker U.S. dollar.**
- **Solid leading indicators have underpinned the economy and energy demand.**

Supply

- **Record 10.4 MBD U.S. oil production; drilling has accelerated.**

International trade

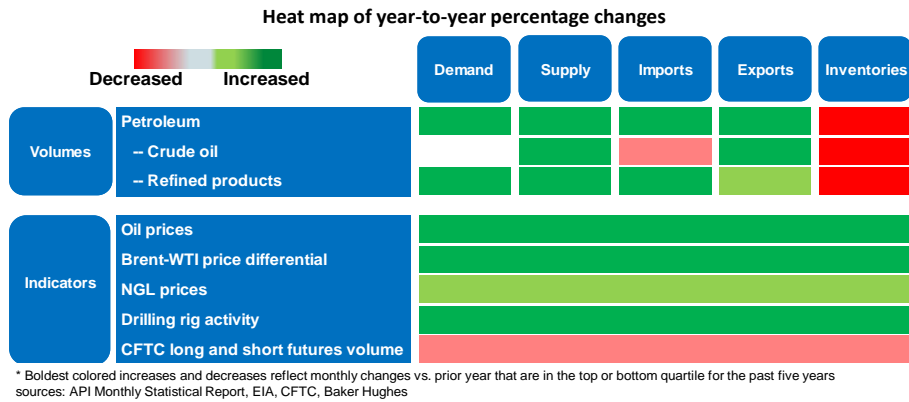
- **U.S. petroleum imports increased, but exports rose by more.**
- **U.S. petroleum exports at record 6.8 MBD YTD.**

Industry operations

- **Record March refinery throughput and March capacity utilization.**

Inventories

- **Crude oil drove U.S. inventories higher.**



Highlights for March 2018, compared with March 2017

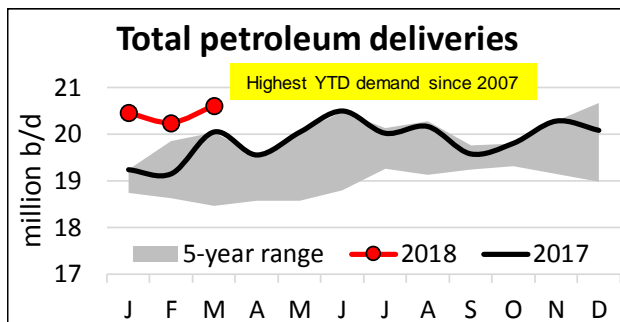
- Prices rose as U.S. demand outpaced supply and inventories fell
 - Brent crude oil prices rose by more than West Texas Intermediate (WTI)
- Drilling rig activity responded to higher prices
- For the first time since Q2 2014, CFTC oil futures volumes fell despite higher prices

Details by section

Demand

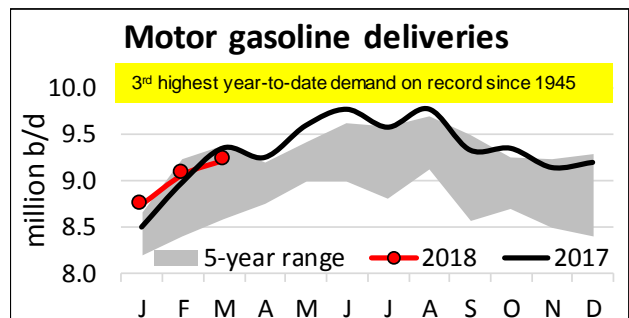
U.S. petroleum demand sustained its highest levels in 11 years

U.S. petroleum demand, as measured by total domestic petroleum deliveries, was 20.6 MBD in March, which was an increase of 1.8 percent from February and 2.9 percent above March 2017. This was the strongest March monthly demand since 2007. Through Q1 2018, U.S. petroleum demand averaged nearly 1.0 MBD above that of Q1 2017 despite higher prices, which is a testament to underlying U.S. economic strength.



Reformulated-type gasoline, which is consumed primarily in urban areas, grew by 1.3 percent y/y in March to 3.0 MBD. By contrast, conventional gasoline is used more in rural areas and fell by 2.6 percent y/y in March to 6.2 MBD.

Gasoline and crude oil prices generally move in tandem. WTI crude oil averaged \$62.73 per barrel in March, up by \$0.50 per barrel from February and \$13.40 per barrel above March 2017. The average price of regular-grade gasoline was \$2.709 per gallon in March, which was an increase of 0.4 cents per gallon (0.1 percent) from February and 27.2 cents per gallon (11.2 percent) versus March 2017.



Gasoline

Q1 2018 gasoline demand up from Q1 2017

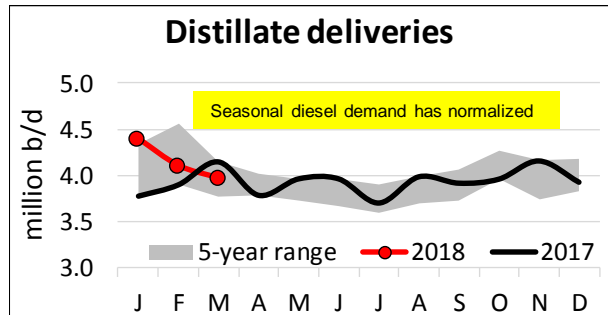
Consumer gasoline demand, as measured by total motor gasoline deliveries, of 9.2 MBD in March was up by 1.7 percent from February but down 1.4 percent versus March 2017. This was the third highest gasoline demand year-to-date (9.0 MBD) for March.

Distillate Fuel Oil

Distillate demand in the middle of the 5-year range

In March, distillate deliveries of 4.0 MBD were down by 3.3 percent from February and 4.4 percent compared with March 2017. With the decline, distillate demand remained near the middle of the 5-year range.

Nearly 92 percent of distillate demand in March was for ultra-low sulfur distillate (ULSD), which declined by 1.2 percent m/m and 6.5 percent y/y. The slowing could reflect the rising cost of road freight transportation, which according to the Bureau of Labor Statistics' Producer Price Index for truck transportation of freight rose by 5.9 percent y/y in March; this was strongest annual percentage increase for truck freight costs since October 2011.

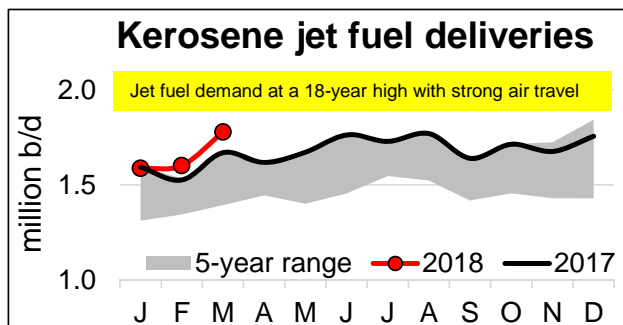


The remaining 8 percent of distillate deliveries was for high sulfur distillate fuel (HSD), which is a heating fuel in the residential and commercial sectors and a marine fuel when blended to upgrade heavy fuel oil. As winter weather eased across much of the United States, HSD deliveries fell to 313 KBD in March, which was a 24 percent fall from February but still 36 percent above the level from March 2017. In its [Short-Term Energy Outlook](#), the EIA estimated that heating degree days in across the U.S. were up by 7.5 percent y/y in March.

Kerosene Jet Fuel

Jet fuel demand reached its highest level since 2000

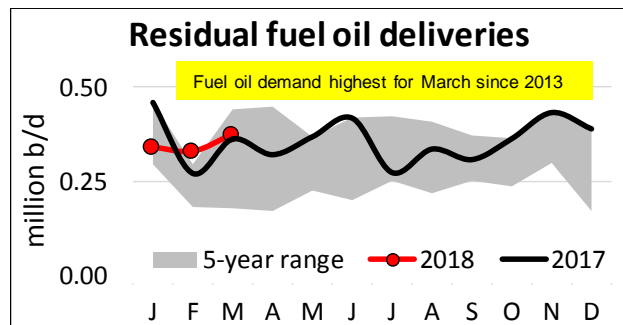
Kerosene jet fuel deliveries in March rose by 11.0 percent from February and 6.5 percent compared with March 2017 to reach 1.8 MBD – an 18-year high underpinned by strong air travel demand. The [International Air Transport Association \(IATA\)](#) reported that a strong economic backdrop and solid business confidence spurred U.S. domestic passenger demand in February to rise by 6.2 percent y/y, and the passenger load factor reached 81.9 percent, which was up by 0.7 percent from January.



Residual Fuel Oil

Fuel oil demand rose with seasonal winter weather

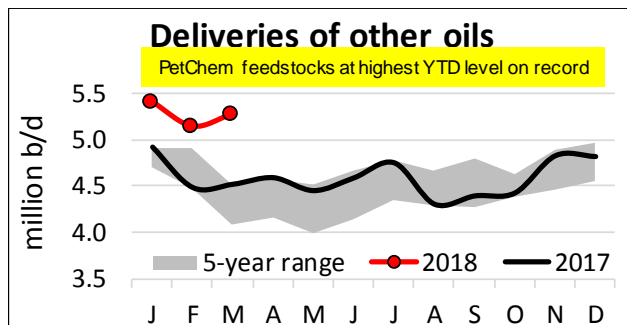
Residual fuel oil is used in electric power production, space heating, vessel bunkering and other industrial applications. Residual fuel oil demand increased to 374 KBD in March, which was an increase of 13.7 percent versus February and 3.3 percent versus March 2017. The rise was consistent with the aforementioned winter weather and increase in heating degree days.



Other Oils

Strong petrochemical feedstock demand – highest year-to-date level on record

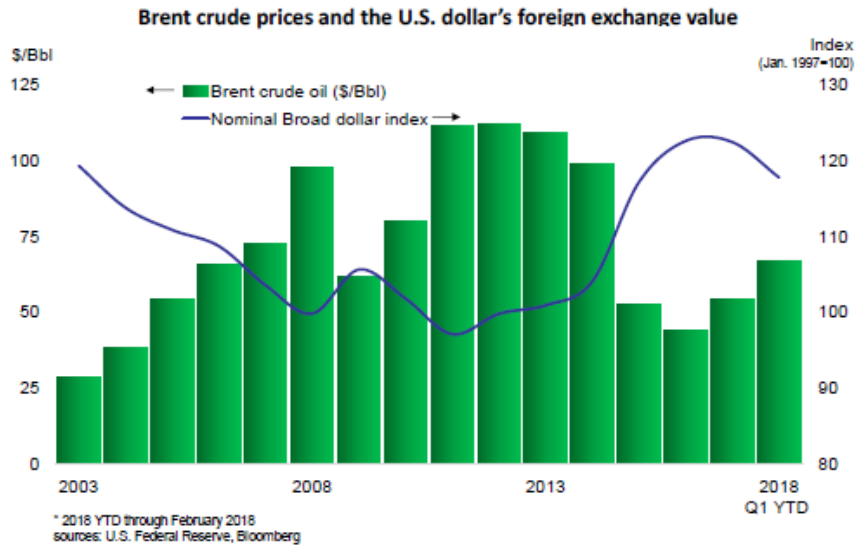
Liquid petrochemical feedstocks, naphtha and gasoil – “other oils” – demand of 5.3 MBD rose by 2.6 percent from February and 20.5 percent compared with March 2017, which suggests that strong refining and petrochemical activity has continued. The American Chemistry Council's [Chemical Activity Barometer](#) was up by 4.0 y/y percent in March.



Prices

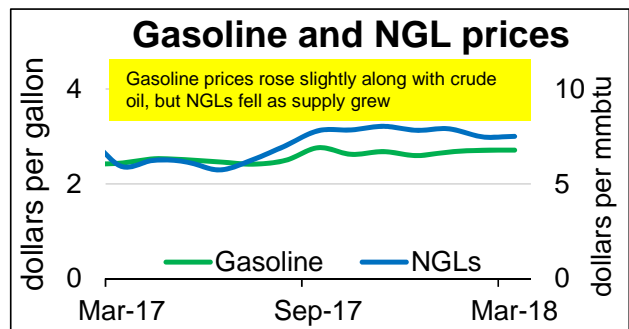
Crude oil prices buoyed by strong global demand and a weaker U.S. dollar

Domestic WTI crude oil prices averaged \$62.73/Bbl. in March, up by 0.8 percent from February and 27.2 percent versus March 2017. Meanwhile, international Brent crude oil prices increased by relatively more – 1.1 percent m/m in March to \$66.02 per barrel – which is a sign that the global economy and oil demand remained strong.



WTI crude oil traded as an average discount of \$3.29 per barrel below Brent in March, which was an increase following two consecutive monthly decreases from a recent high of \$6.49 per barrel in December. Infrastructure constraints have continued to hamper WTI prices. By comparison, Light Louisiana Sweet crude oil has minimal constraints and traded at a discount to Brent of \$1.33 per barrel in March.

Depreciation of the U.S. dollar's foreign exchange value is another factor that has contributed to the rise in crude oil prices. In Q1 2018, the Federal Reserve's nominal broad dollar index fell by 2.0 percent from Q4 2017 and 6.6 percent versus Q1 2017. The U.S. dollar's exchange value matters because oil is priced globally in U.S. dollars. When the U.S. dollar depreciates versus other currencies, the oil price generally falls among all countries where their currency appreciated versus the U.S. dollar. Economics tells us that demand goes up when prices go down, so for the market supply and demand to re-equilibrate the global oil price consequently generally rises when the dollar falls, and vice versa.



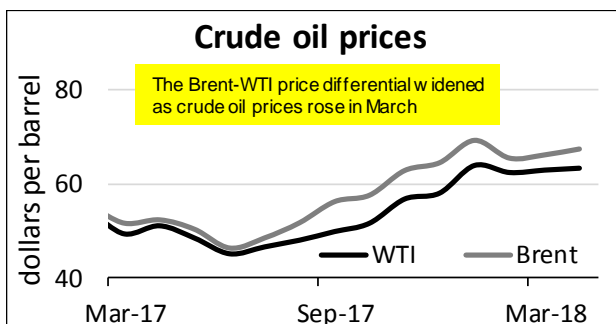
Separately, composite natural gas liquids (NGL) prices averaged \$7.50 per million BTU (MMBtu) in March, unchanged from February, as weakness in propane supplies offset slight price increases for ethane, butane and natural gasoline. A [shutdown of the Mariner East 1 NGL pipeline](#) appeared to back up regional propane supplies and depress prices. The relative stability of NGL prices despite growing demand and rising crude oil prices also likely reflected increased supply and stocks.

Macroeconomy

Solid leading indicators have underpinned the economy and energy demand

With a continuation of solid economic growth and leading indicators including the business climate, consumer sentiment and employment conditions, the backdrop for petroleum demand remained strong in March.

Global economic growth started 2018 on a strong note. Based on country growth rates reported by the IMF, global GDP growth in 2017 was 2.9 percent y/y on a market exchange rate basis (on par with the average for the past 20 years) and could expand by another 2.9 percent y/y in 2018. The Bureau of Economic Analysis revised upwards its U.S. real GDP growth estimate for Q4 2017



to a seasonally adjusted annualized rate of 2.9 percent from 2.5 percent in last month's release. The Bloomberg consensus expects U.S. real GDP growth to accelerate to 2.8 percent through the first half of 2018, easing to a 2.7 percent pace in the second half of the year.

Leading economic indicators have continued to suggest expanding business conditions. The [Institute for Supply Management's Purchasing Managers Index \(PMI\)](#) registered 59.3 percent in March, a decrease of 1.5 percentage points from the February reading of 60.8 percent. Any value above 50.0 suggests an expansion. Comments from the panel reflected robust demand that has stretched the nation's employment resources and supply chains. The New Orders Index was at 60 or above for the 11th straight month, and the Customers' Inventories Index at its lowest level since July 2011. The Backlog of Orders Index continued a 14-month expansion with its highest reading since May 2004. In March, price increases occurred across 17 of 18 industry sectors.

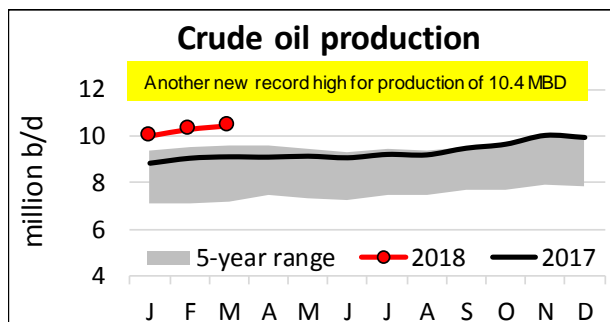
Separately, the University of Michigan's consumer sentiment index appeared to peak in March at 101.4 – the highest reading since January 2004 – but slipped to 97.8 (-3.6 percent m/m) in the preliminary April reading along with increased volatility in financial markets. An index level of 97.8 historically is strong and consistent with solid spending growth, but the April decline (if sustained in the final reading) would be among the worst 20 percent of monthly changes in the index since 1978.

U.S. non-farm payrolls grew by 103,000 in March, and the unemployment rate was unchanged at 4.1 percent for the sixth consecutive month, according to the Bureau of Labor Statistics (BLS). A four-week average of initial claims for unemployment insurance fell by 2.4 percent m/m in March.

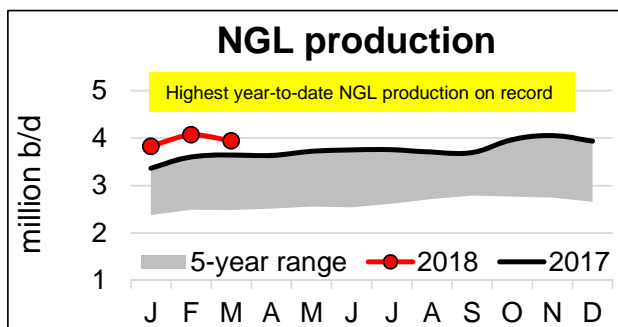
Supply

Record 10.4 MBD U.S. oil production; drilling has accelerated

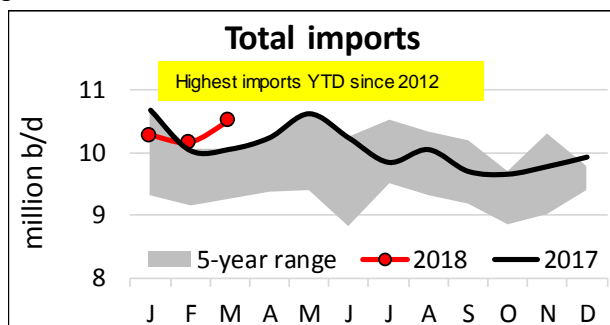
In March, U.S. crude oil production rose to 10.4 MBD – another new monthly production record. This was an increase of 1.6 percent versus February and 14.6 percent from March 2017. The growth was attributable to onshore production in the lower 48 U.S. states. Regionally, Texas crude oil production averaged 4.0 MBD in March, which was 660 KBD above its level in March 2017. North Dakota sustained crude oil production of 1.2 MBD in March, unchanged from February but up by 217 KBD above March 2017.



Natural gas liquids (NGL) production, a co-product of natural gas production, fell to 3.9 MBD in March from record of 4.1 MBD in February; this was a decrease of 3.1 percent from February but an increase of 8.1 percent from March 2017. According to the EIA's Short-Term Energy Outlook (STEO), released April 10, 2018, U.S. dry natural gas production averaged 79.2 billion cubic feet per day (Bcf/d) in March, which was up 10.6 percent versus March 2017 but a downward revision of more than 1.0 bcf/d since the March STEO.



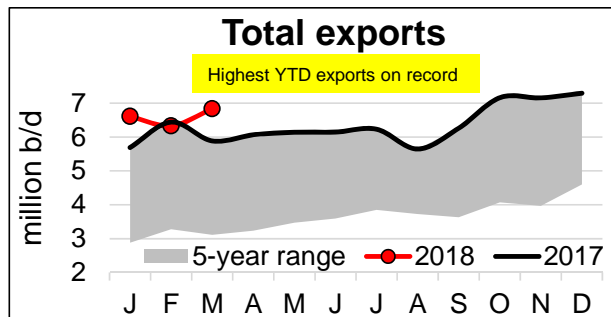
Oil and natural gas production follows with a lag between most drilling and production. According to Baker-Hughes, Inc., the U.S. rig count climbed back above 1,000 in the first week of April for the first time in three years. The rig count stands at 1,008 rigs as of April 13, up 4.3 percent above the average of 966 rigs in Q1 2018, which should position U.S. production for continued growth.



International trade

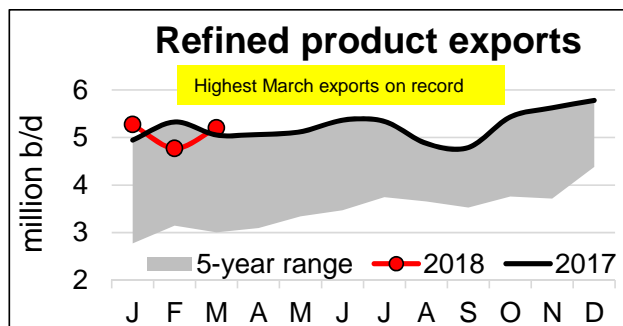
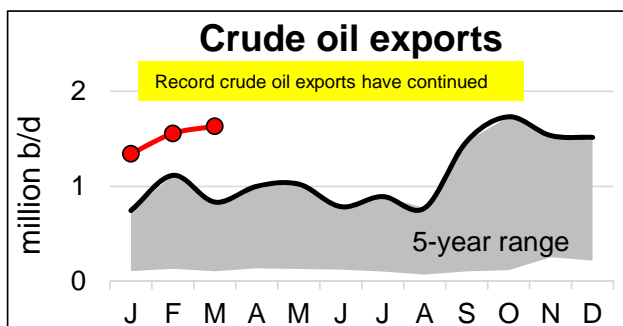
U.S. petroleum imports increased, but exports rose by more

In March, imports of crude oil and refined products were 10.5 MBD, which was an increase of 3.5 percent from February and 4.6 percent compared with March 2017. Within the total, crude oil imports fell by 1.6 percent y/y, while refined product imports rose by 29.2 percent y/y. Imports of gasoline were up by 250 KBD y/y, and imports of distillate and residual fuel oil each were up by about 100 KBD y/y. Canadian imports made up 32.3 percent of total petroleum imports in March and fell by 3.3 percent y/y to 3.4 MBD.



U.S. petroleum exports at record 6.6 MBD YTD

In March, the U.S. exported 6.8 MBD of crude oil and refined products, which was an increase of 8.0 percent from February and 16.2 percent compared with March 2017. Crude oil exports of 1.6 MBD in March continued to rise and more than double those of March 2017. Refined product exports also rose in March to 5.2 MBD, which was an increase of 9.1 percent from February and 3.0 from March 2017. Year-to-date, the March results place the U.S. on a record export pace of 6.6 MBD.

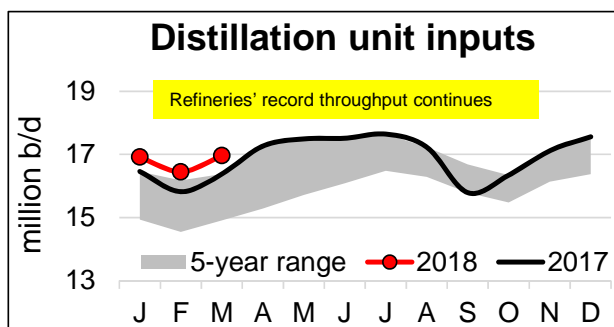


Industry operations

Record March refinery throughput and March capacity utilization

In March, total refinery gross inputs rose by 3.6 percent y/y to 17.0 MBD, which was the strongest March and year-to-date throughput on record. Kerosene type jet fuel production of nearly 1.8 MBD displayed the largest percentage increase, up by 4.8 percent y/y. Gasoline had the largest production by volume at 9.9 MBD in March and increased by 0.3 percent y/y. Distillate fuel production and residual fuel oil production both were down by 1.5 percent y/y and 6.3 percent y/y, respectively.

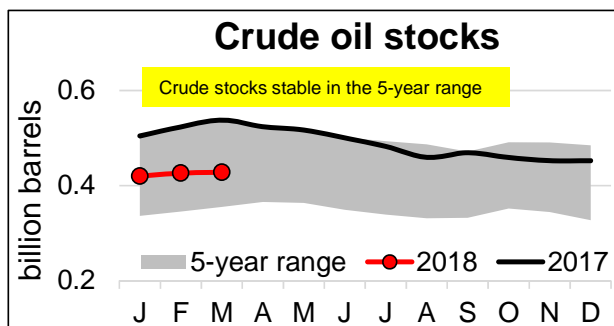
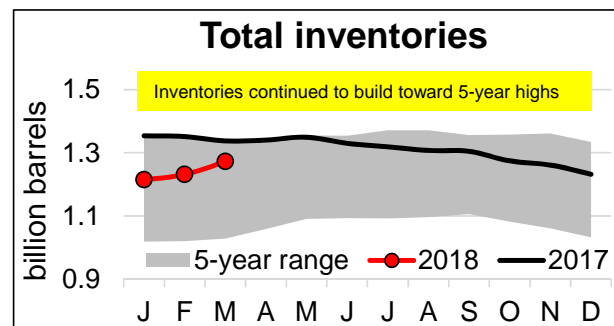
The refinery utilization rate in March was 91.5 percent, 2.7 percentage points above that of February and 3.5 percentage points above that of March 2017 for the strongest March utilization rate on record.



Inventories

U.S. petroleum inventories rose slightly

In March, total crude and refined product inventories were down 4.9 percent compared with March 2017 but rose by 3.4 percent from February. Within the total, crude oil stocks were up by 0.4 percent m/m, but product inventories led by other oils were up by 4.9 percent between February and March.



The API **Monthly Statistical Report** is available via IHS Global (www.global.ihs.com). For more information, go to <http://www.api.org/statistics> or contact IHS at 1-800-854-7179.

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ESTIMATED UNITED STATES PETROLEUM BALANCE¹
(Daily average in thousands of 42 gallon barrels)

Disposition and Supply	March			Year-to-Date		
	2018 ²	2017	% Change	2018 ³	2017	% Change
Disposition:						
Total motor gasoline.....	9,224	9,352	(1.4)	9,000	8,945	0.6
Finished reformulated.....	3,029	2,990	1.3	2,953	2,877	2.6
Finished conventional.....	6,195	6,362	(2.6)	6,047	6,068	(0.3)
Kerosene-jet.....	1,777	1,669	6.5	1,649	1,598	3.2
Distillate fuel oil.....	3,970	4,154	(4.4)	4,146	3,948	5.0
≤ 500 ppm sulfur.....	3,657	3,924	(6.8)	3,867	3,705	4.4
≤ 15 ppm sulfur.....	3,646	3,898	(6.5)	3,849	3,695	4.2
> 500 ppm sulfur.....	313	230	36.1	278	243	14.4
Residual fuel oil.....	374	362	3.3	354	367	(3.5)
All other oils (including crude losses).....	5,333	4,425	20.5	5,138	4,619	11.2
Reclassified ⁴	(56)	84	na		17	na
Total domestic product supplied.....	20,622	20,047	2.9	20,265	19,494	4.0
Exports.....	6,837	5,886	16.2	6,760	5,992	12.8
Total disposition.....	27,459	25,933	5.9	27,026	25,486	6.0
Supply:						
Domestic liquids production						
Crude oil (including condensate).....	10,435	9,107	14.6	10,056	8,990	11.8
Natural gas liquids.....	3,938	3,644	8.1	3,938	3,536	11.4
Other supply ⁵	1,228	1,191	3.1	1,323	1,190	11.2
Total domestic supply.....	15,601	13,942	11.9	15,317	13,716	11.7
Imports:						
Crude oil (excluding SPR imports).....	7,921	8,048	(1.6)	7,732	8,132	(4.9)
From Canada.....	3,394	3,509	(3.3)	3,582	3,513	2.0
All other.....	4,527	4,539	(0.3)	4,150	4,620	(10.2)
Products.....	2,599	2,011	29.2	2,390	2,136	11.9
Total motor gasoline (incl. blend.comp).....	751	501	49.9	478	565	(15.4)
All other.....	1,848	1,510	22.4	1,913	1,571	21.7
Total imports.....	10,520	10,059	4.6	10,122	10,269	(1.4)
Total supply.....	26,121	24,001	8.8	25,439	23,985	6.1
Stock change, all oils.....	(1,338)	(1,931)	na	(1,587)	(1,501)	na
Refinery Operations:						
Input to crude distillation units.....	16,963	16,380	3.6	16,993	16,233	4.7
Gasoline production.....	9,862	9,834	0.3	9,741	9,568	1.8
Kerosene-jet production.....	1,758	1,677	4.8	1,716	1,633	5.1
Distillate fuel production.....	4,708	4,781	(1.5)	4,791	4,753	0.8
Residual fuel production.....	400	427	(6.3)	431	461	(6.4)
Operable capacity.....	18,534	18,621	(0.5)	18,544	18,620	(0.4)
Refinery utilization ⁶	91.5%	88.0%	na	91.6%	87.2%	na
Crude oil runs.....	16,569	16,028	3.4	16,653	15,913	4.7

1. Total supply, i.e., production plus imports adjusted for net stock change is equal to total disposition from primary storage. Total disposition from primary storage less exports equals total domestic products supplied. Information contained in this report is derived from information published in the API *Weekly Statistical Bulletin* and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2. Based on API estimated data converted to a monthly basis.

3. Data for most current two months are API estimates. Other data come from U.S. Energy Information Administration (including any adjustments).

4. An adjustment to avoid double counting resulting from differences in product classifications among different refineries and blenders.

5. Includes unaccounted-for crude oil, withdrawals from the SPR when they occur, processing gain, field production of other hydrocarbons and alcohol, and downstream blending of ethanol.

6. Represents "Input to crude oil distillation units" as a percent of "Operable capacity".

R: Revised. na: Not available.

ESTIMATED UNITED STATES PETROLEUM BALANCE¹
(Daily average in thousands of 42 gallon barrels)

	March 2018	February 2018	March 2017	% Change From	
				Month Ago	Year Ago
Stocks (at month-end, in millions of barrels):					
Crude oil (excluding lease & SPR stocks).....	427.8	426.1	537.9	0.4	(20.5)
Unfinished oils.....	94.5	89.2	89.3	5.9	5.8
Total motor gasoline.....	241.2	248.3	239.0	(2.9)	0.9
Finished reformulated.....	0.0	0.1	0.0	(7.7)	9.1
Finished conventional.....	24.0	25.1	21.7	(4.4)	10.5
Blending components.....	217.2	223.1	217.2	(2.6)	(0.0)
Kerosene-jet.....	40.8	43.6	42.3	(6.4)	(3.5)
Distillate fuel oil.....	131.1	138.2	151.1	(5.1)	(13.2)
≤ 500 ppm sulfur.....	120.0	126.0	140.9	(4.8)	(14.9)
≤ 15 ppm sulfur.....	115.6	119.9	134.8	(3.6)	(14.3)
> 500 ppm sulfur.....	11.1	12.2	10.1	(9.0)	9.5
Residual fuel oil.....	34.3	32.5	40.8	5.5	(15.9)
All other oils.....	303.0	253.3 R	237.3	19.6	27.7
Total all oils.....	1,272.7	1231.2 R	1,337.6	3.4	(4.9)