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July 2018

EXECUTIVE SUMMARY

In July, the United States tied its record for crude oil production and set a new one for natural gas liquids (NGLs):

- Crude oil production: 10.7 million barrels per day (mb/d); and,
- NGL production: 4.4 mb/d.

With total U.S. liquid fuels production up by more than 2.0 mb/d year-over-year (y/y), the United States has been the world's only substantive source of oil production growth so far in 2018 and more than compensated for production losses in some OPEC nations.

Meanwhile, U.S. petroleum demand in July sustained its highest level in 11 years, 20.6 mb/d, which reflected solid economic activity. However, nearly all demand growth between June and July stemmed from residual fuel oil and, to a much lesser extent, kerosene jet fuel. For residual fuel oil, the change ran contrary to typical seasonal demand and suggested an acceleration in marine shipping activity with escalating U.S. trade disputes.

The U.S. petroleum trade balance took a step backwards in July. U.S. petroleum net imports increased in July by 450 thousand barrels per day (kb/d) from June. The decreases in exports were notable:

- Crude oil exports: 2.0 mb/d in July, down 240 kb/d from June; and,
- Refined product exports: 5.0 mb/d in July, down 220 kb/d from June.

U.S. petroleum exports increased in July during 10 of the past 12 years, so the decline last month warrants monitoring. A key question is whether it's indicative of a moderation in global economic growth or, alternatively, a symptom of U.S. trade frictions.

July highlights

(Click hyperlinks to advance to any section)

Demand

- **[Strongest U.S. petroleum demand year-to-date since 2007.](#)**
 - [Summer driving supports strongest motor gasoline demand since 2007.](#)
 - [Strong freight trucking and shipping activity raised distillate demand.](#)
 - [Strongest July jet fuel demand on record.](#)
 - [Residual fuel oil demand up more than 50 percent y/y due to marine shipping in July.](#)
 - [Refinery and petrochemical feedstock demand solid growth.](#)

Prices & Macroeconomy

- **[U.S. crude oil prices rose on strong domestic demand.](#)**
- **[Tariff and price uncertainties belie solid indicators.](#)**

Supply

- **[New U.S. production records for crude oil \(10.7 mb/d\) and NGLs \(4.4 mb/d\).](#)**

International trade

- **[U.S. petroleum net imports rose 450 kb/d in July.](#)**

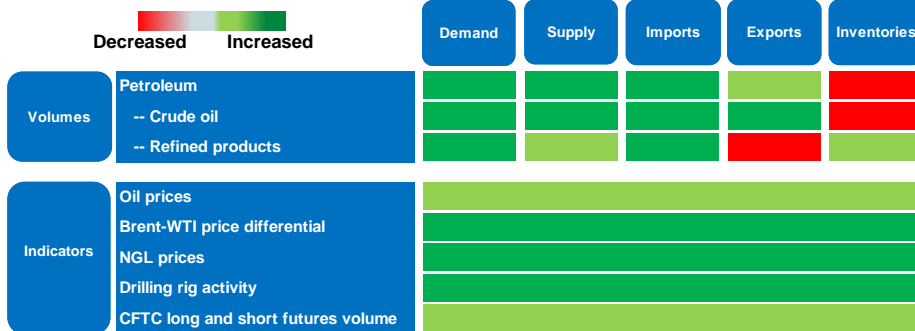
Industry operations

- **[Highest refinery throughput for the month of July \(17.7 mb/d\).](#)**

Inventories

- **[U.S. petroleum inventories increased to above the median of the 5-year range.](#)**

Heat map of year-to-year percentage changes



* Boldest colored increases and decreases reflect monthly changes vs. prior year that are in the top or bottom quartile for the past five years
sources: API Monthly Statistical Report, EIA, CFTC, Baker Hughes

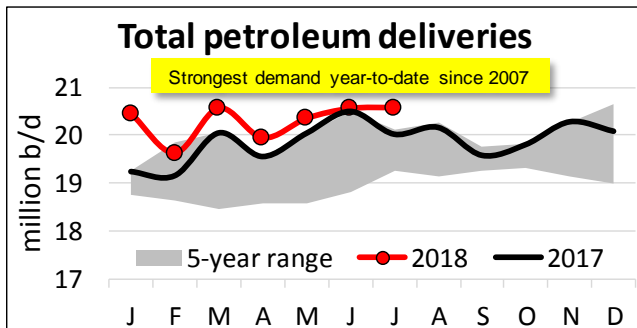
Highlights for July 2018, compared with July 2017

- ▶ Tightened market with strong demand and crude oil inventories below year-ago levels
- ▶ Refined product inventories accumulated as product exports fell
- ▶ Drilling activity continued to rise, which positioned the U.S. for further supply growth

Details by section

Demand

Strongest U.S. petroleum demand year-to-date since 2007

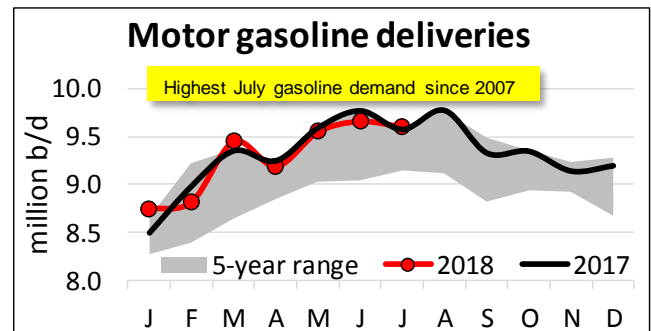


U.S. petroleum demand, as measured by total domestic petroleum deliveries, was 20.6 mb/d in July, which was steady from June and up by 2.8 percent compared with July 2017. The pace of annual growth reflected July summer driving supported by solid economic growth, industrial activity and consumer sentiment.

Year-to-date through July, petroleum demand was at its strongest since 2007, averaging 20.3 mb/d. This was an increase of more than 0.5 mb/d over the first seven months of 2017.

Gasoline

Summer driving supports highest motor gasoline demand since 2007



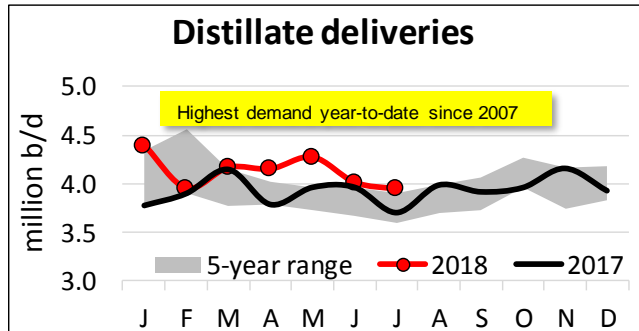
Consumer gasoline demand, as measured by total motor gasoline deliveries, was 9.6 mb/d in July. This was 0.3 percent above that of July 2017 and the highest demand for the month of July since 2007.

The average price of regular-grade gasoline was \$2.93 per gallon in July, which was down by 4.2 cents per gallon from June and supported the summer driving season.

In July, demand for reformulated-type gasoline, which is consumed primarily in urban areas, increased by 2.2 percent y/y to 3.3 mb/d. By contrast, conventional gasoline is used more in rural areas and decreased 0.7 percent y/y to 6.3 mb/d.

Distillate Fuel Oil

Strong freight trucking and shipping activity raised distillate demand



In July, distillate deliveries of 4.0 mb/d decreased by 1.7 percent from June but were up by 6.6 percent compared with July 2017; this was the second-highest July distillate demand on record.

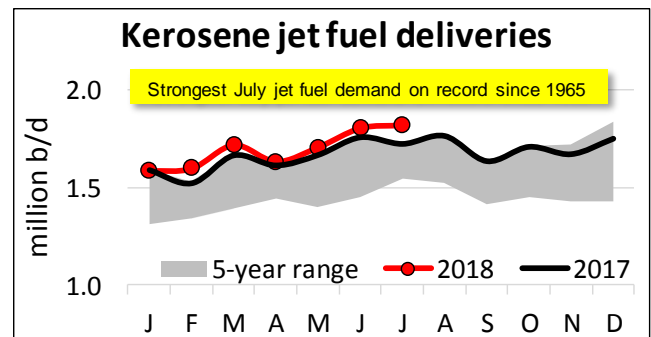
About 95 percent of distillate demand in July was for ultra-low sulfur distillate (ULSD), which has accounted for all distillate demand growth year-to-date in 2018. Road freight transportation activity has driven the increased demand. The Bureau of Labor Statistics’ (BLS) Producer Price Index for freight trucking accelerated to 9.8 percent y/y in July from 8.8 percent y/y in June. Strong growth in road freight demand and prices also fueled a [monthly record for truck orders in July](#).

The remaining 5.0 percent of distillate demand was 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. HSD deliveries rose to 175 kb/d in July, compared with 125 kb/d in June, as [the U.S.-China trade dispute appeared to accelerate container shipping](#).

Kerosene Jet Fuel

Strongest July jet fuel demand on record

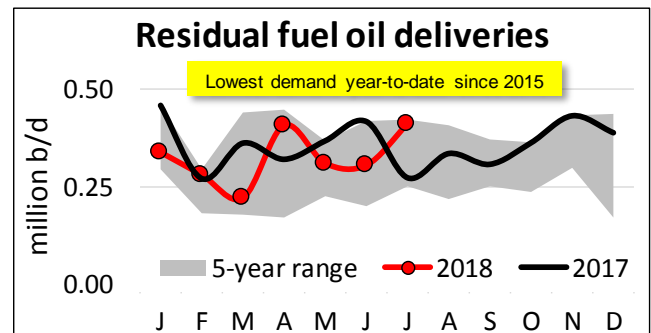
In July, kerosene jet fuel deliveries of 1.8 mb/d were the strongest on record for July and second highest jet fuel demand in any month on record. This likely reflected solid economic activity and consumer confidence.



In early July, the [International Air Transport Association \(IATA\)](#) reported record load factors through June that suggested demand for air connectivity remained “above trend” in the peak summer travel season, but noted “the prospect of a global trade war is casting a long shadow.” It’s not yet apparent in the jet fuel data, however, which suggested accelerated freight shipping.

Residual Fuel Oil

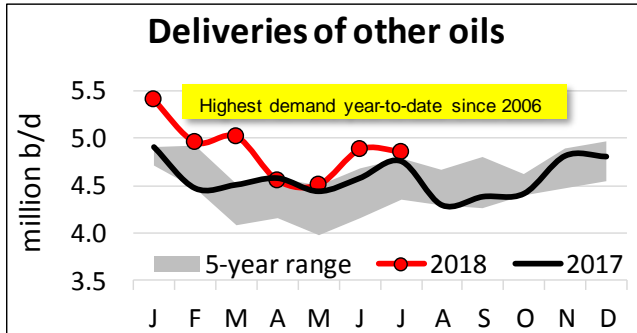
Residual fuel oil demand up more than 50 percent y/y due to marine shipping in July



Residual fuel oil is used in electric power production, space heating, vessel bunkering and other industrial applications. Residual fuel oil demand rose to 413 kb/d in July, which was an increase of 34.5 percent from June and 51.8 percent versus July 2017. The increase was consistent with the shipping-driven increase in July HSD deliveries.

Other Oils

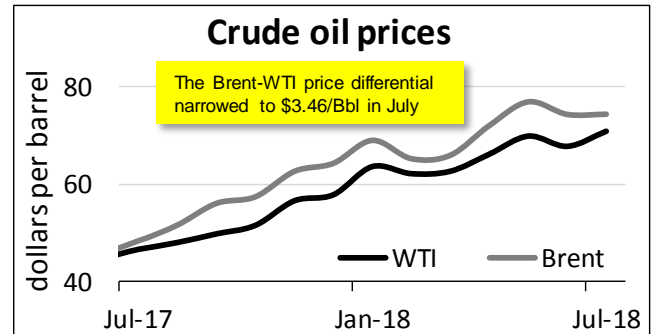
Refinery and petrochemical feedstock demand solid growth



Refining and petrochemical demand for liquid feedstocks, naphtha and gasoil (“other oils”) was 4.9 mb/d in July, which was a decrease of 0.5 percent from June but an increase of 2.1 percent versus July 2017. This reflected solid refining and petrochemical activity and was consistent with American Chemistry Council’s [Chemical Activity Barometer](#) which grew 3.9 percent y/y in both June and July.

Prices

U.S. crude oil prices rose on strong domestic demand

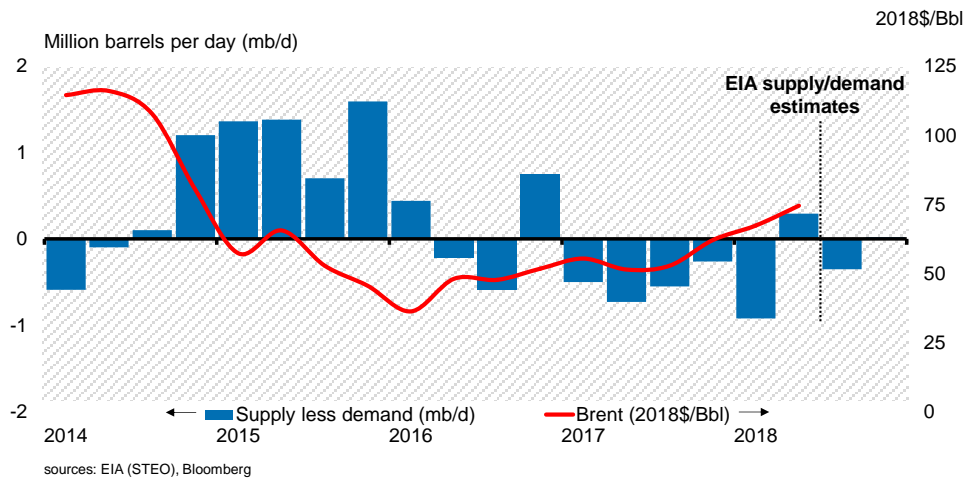


Domestic West Texas Intermediate (WTI) crude oil prices averaged \$70.98 per barrel in July, which was an increase of \$3.11 per barrel from June. By comparison, international Brent crude oil prices averaged \$74.44 per barrel, essentially unchanged from June.

The difference of \$3.46 per barrel between WTI and Brent crude oil prices narrowed from more than \$6.50 per barrel in June, even as crude oil exports fell between June and July. This suggests that strong domestic refinery gross inputs to distillation helped to buoy WTI crude oil prices in July.

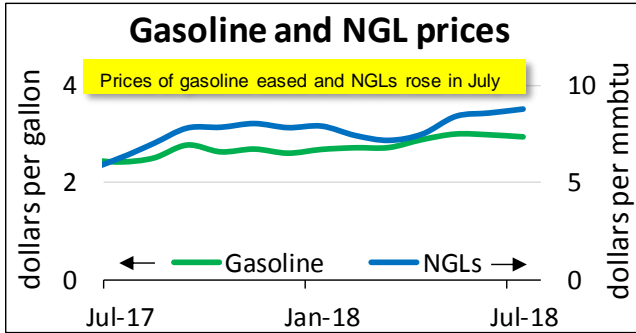
energy API EIA anticipates that the global oil market was balanced beginning in Q2 2018

EIA global supply/demand estimates as of July 2018



- ▶ The EIA has estimated that Non-OPEC countries, led by the U.S., will add 2.8 mb/d of production by Q4 2018, compared with Q4 2017

As the oil market heatmap suggested, global oil demand and supply have risen since last year. The [EIA's revised assessment](#) of the global supply/demand balance suggests that the global market could have returned to a surplus beginning in Q2 2018, but effectively became balanced.



With the rise this year in crude oil prices coupled with increased refining and petrochemical demand, natural gas liquids (NGL) prices averaged \$8.77 per million BTU (MMBtu) in July, which was an increase of 2.3 percent from June. According to Bloomberg data, each of the constituent NGLs increased in price between June and July.

Macroeconomy

Tariff and price uncertainties belie solid indicators

The backdrop for petroleum demand remained solid in July, as indicators of the business climate, consumer sentiment, and employment conditions underpinned growth but also highlighted uncertainties about the emerging effects of tariffs and trade disputes on the economy.

The Bureau of Economic Analysis's initial estimate of U.S. GDP growth for Q2 2018 was 4.1 percent at a seasonally-adjusted annualized rate, which was the strongest quarter since Q3 2014. Meanwhile, the Bloomberg consensus raised its expectations by 0.1 percent to 3.0 percent y/y through the second half of 2018, but still anticipates slowing of annual U.S. growth to 2.5 percent and 1.9 percent in 2019 and 2020, respectively.

Leading economic indicators have continued to suggest expanding business conditions. The [Institute for Supply Management's Purchasing Managers Index \(PMI\)](#) registered 58.1 in July, a

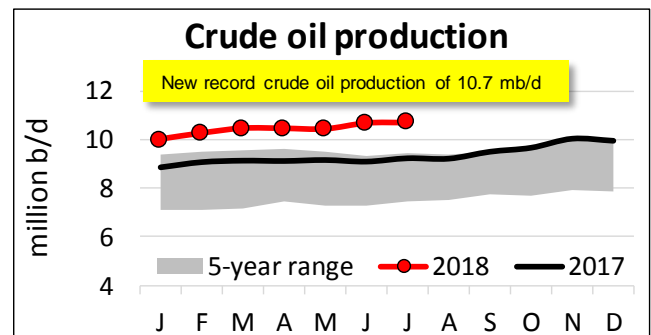
decrease of 2.1 percentage points from June. Any value above 50.0 suggests an expansion. New orders, production activity and employment expanded. Growth occurred in 17 of the 18 manufacturing sectors surveyed, but the survey highlighted concerns for rising tariff activity and price inflation beginning this quarter.

Separately, the [University of Michigan's consumer sentiment index](#) slipped to 97.9 in July from 98.2 in June. This was a solid level despite the rise in price inflation, interest rates and concerns about trade disputes. The survey's Chief Economist, Richard Curtin, noted that resolution of trade concerns "is critical to forestall decreases in consumer discretionary spending as a precaution against a worsening economy."

Labor markets have remained tight. U.S. non-farm payrolls grew by 157,000 in July, while the unemployment rate fell to 3.9 percent, according to the [Bureau of Labor Statistics \(BLS\)](#).

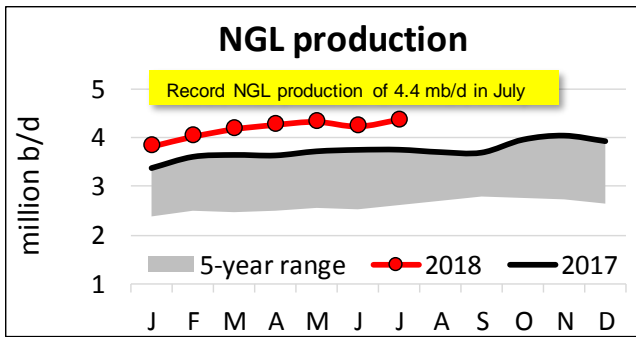
Supply

U.S. production records for crude oil (10.7 mb/d) and NGLs (4.4 mb/d)



U.S. crude oil production sustained a record 10.7 mb/d in July, up 1.5 mb/d from 9.2 mb/d in July 2017. The rising production has been consistent with Baker Hughes' reported increases in U.S. oil drilling activity through the first half of the year, which increased to 861 oil-targeted rigs from 750 in January.

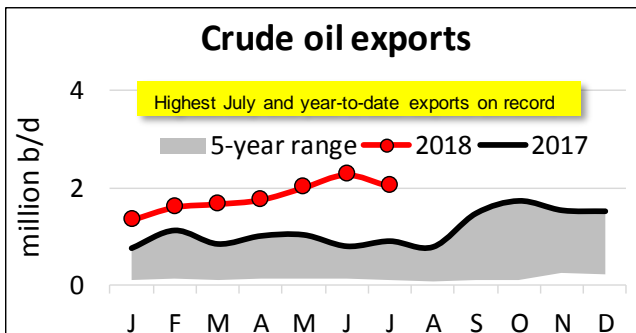
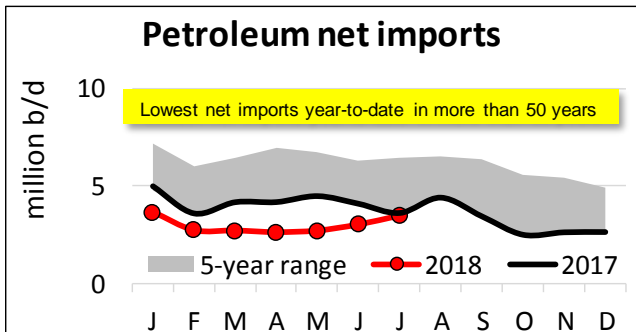
Natural gas liquids (NGL) production, a co-product of natural gas production, also contributed a new production record of 4.4 mb/d in July, up from 3.8 mb/d in July 2017.



Altogether, U.S. crude oil and NGLs increased by 2.1 mb/d y/y in July and continued to supply virtually all global oil demand growth so far this year. By contrast, the EIA's [Short-Term Energy Outlook](#) suggests world oil demand increased by 2.0 mb/d y/y in July. EIA and Bloomberg consensus estimates also suggest OPEC production fell by about 300 kb/d y/y in July, led by declines in Venezuela, Angola, Libya, and Nigeria. There also was uncertainty about the re-imposition of sanctions against Iran. Consequently, with estimates through July, the U.S. shouldered the burden of all global oil demand growth and offset the decline in OPEC production.

International trade

U.S. petroleum net imports rose 450 kb/d in July

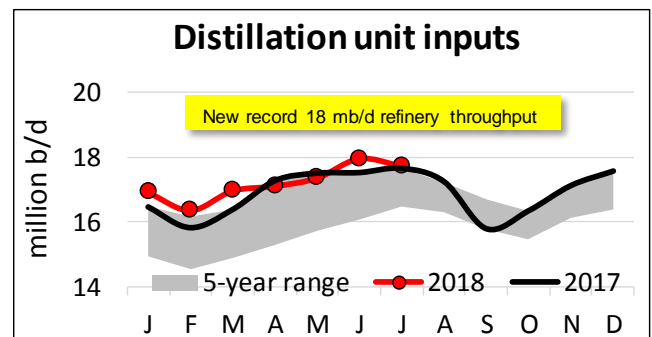


U.S. petroleum net imports were 3.5 mb/d in July, which was an increase of about 450 kb/d from June. Specifically, between June and July, U.S. imports of crude oil went up 140 kb/d at the same time as crude oil exports decreased 240 kb/d. With refined products, exports fell by 220 kb/d as imports also went down by 140 kb/d.

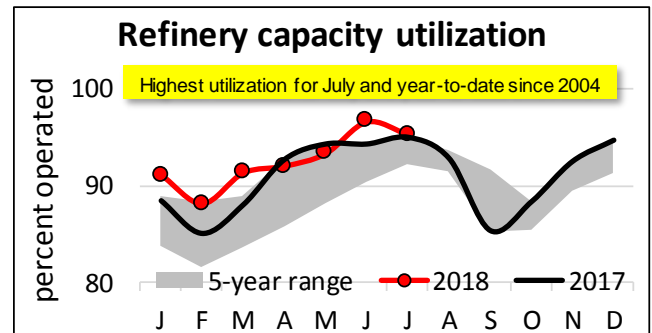
U.S. petroleum exports increased in July during 10 of the past 12 years, so the decrease in July stood out. While the U.S. petroleum trade balance in July still was 150 kb/d or 1.3 percent less than in July 2017, we need to monitor petroleum trade carefully for the implications it may have for the U.S. energy renaissance.

Industry operations

Record July refinery throughput (17.7 mb/d)

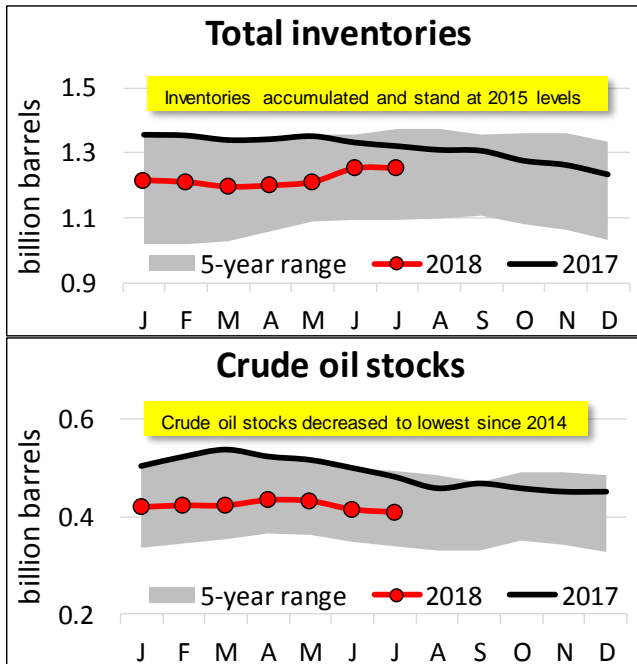


U.S. refineries set a new record for the month of July with gross inputs of 17.7 mb/d and ran at their highest percent of capacity operated (95.3 percent) for the month since 2004, even though refinery outages reported by Bloomberg (470 kb/d) increased from June.



Inventories

U.S. petroleum inventories increased to above the median of the 5-year range



Total petroleum inventories in July remained below last year's levels. Refinery throughput was strong in July, so refined product inventories accumulated while those of crude oil were drawn down. In July, total crude and refined product inventories of 1.25 billion barrels increased by 0.1 percent from June but remained 5.1 percent below those of July 2017. Total U.S. petroleum inventories remained above the median of the 5-year range, 1.24 million barrels.

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

Disposition and Supply	July			Year-to-Date		
	2018 ²	2017	% Change	2018 ³	2017	% Change
Disposition:						
Total motor gasoline.....	9,601	9,573	0.3	9,291	9,290	0.0
Finished reformulated.....	3,346	3,275	2.2	3,148	3,100	1.6
Finished conventional.....	6,255	6,298	(0.7)	6,143	6,191	(0.8)
Kerosene-jet.....	1,819	1,728	5.3	1,696	1,654	2.6
Distillate fuel oil.....	3,950	3,707	6.6	4,134	3,897	6.1
≤ 500 ppm sulfur.....	3,775	3,547	6.4	3,969	3,713	6.9
≤ 15 ppm sulfur.....	3,765	3,544	6.2	3,956	3,707	6.7
> 500 ppm sulfur.....	175	160	9.4	165	184	(10.3)
Residual fuel oil.....	413	272	51.8	342	354	(3.4)
All other oils (including crude losses)	4,859	4,761	2.1	4,832	4,596	5.2
Reclassified ⁴	(56)	(20)	na	14	11	na
Total domestic product supplied.....	20,586	20,020	2.8	20,310	19,801	2.6
Exports.....	7,071	6,232	13.5	7,202	6,081	18.4
Total disposition.....	27,657	26,252	5.4	27,512	25,883	6.3
Supply:						
Domestic liquids production						
Crude oil (including condensate).....	10,717	9,238	16.0	10,435	9,120	14.4
Natural gas liquids.....	4,364	3,755	16.2	4,172	3,639	14.6
Other supply ⁵	1,264	1,206	4.8	1,239	1,190	4.1
Total domestic supply.....	16,345	14,199	15.1	15,845	13,949	13.6
Imports:						
Crude oil (excluding SPR imports).....	8,201	7,825	4.8	7,926	8,109	(2.3)
From Canada.....	3,544	3,241	9.4	3,698	3,424	8.0
All other.....	4,657	4,584	1.6	4,228	4,685	(9.7)
Products.....	2,334	2,024	15.3	2,272	2,144	6.0
Total motor gasoline (incl. blend.comp)....	779	653	19.3	695	667	4.2
All other.....	1,555	1,371	13.4	1,577	1,476	6.8
Total imports.....	10,535	9,850	7.0	10,198	10,252	(0.5)
Total supply.....	26,880	24,049	11.8	26,043	24,202	7.6
Stock change, all oils.....	(777)	(2,203)	na	(1,469)	(1,681)	na
Refinery Operations:						
Input to crude distillation units.....	17,727	17,644	0.5	17,207	16,951	1.5
Gasoline production.....	10,141	10,159	(0.2)	9,952	9,882	0.7
Kerosene-jet production.....	1,893	1,816	4.2	1,792	1,704	5.2
Distillate fuel production.....	5,252	5,171	1.6	5,058	4,998	1.2
Residual fuel production.....	405	396	2.3	419	431	(2.8)
Operable capacity.....	18,597	18,569	0.2	18,586	18,596	(0.1)
Refinery utilization ⁶	95.3%	95.0%	na	92.6%	91.2%	na
Crude oil runs.....	17,382	17,318	0.4	16,862	16,641	1.3

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)

	July 2018	June 2018	July 2017	% Change From	
				Month Ago	Year Ago
Stocks (at month-end, in millions of barrels):					
Crude oil (excluding lease & SPR stocks).....	408.9	415.0	482.4	(1.5)	(15.2)
Unfinished oils.....	88.8	90.8	87.9	(2.2)	1.0
Total motor gasoline.....	234.6	238.7	233.0	(1.7)	0.7
Finished reformulated.....	0.1	0.1	0.0	0.0	25.0
Finished conventional.....	23.5	23.6	23.1	(0.4)	1.7
Blending components.....	211.0	215.0	209.9	(1.9)	0.5
Kerosene-jet.....	40.7	41.0	41.0	(0.7)	(0.8)
Distillate fuel oil.....	125.4	119.4	151.1	5.0	(17.0)
≤ 500 ppm sulfur.....	117.3	110.7	141.6	6.0	(17.2)
≤ 15 ppm sulfur.....	112.8	106.8	134.5	5.6	(16.2)
> 500 ppm sulfur.....	8.1	8.7	9.4	(6.9)	(14.0)
Residual fuel oil.....	29.8	31.6	33.6	(5.7)	(11.3)
All other oils.....	323.3	314.2.0 R	290.0	2.9	11.5
Total all oils.....	1,251.5	1,250.7 R	1,319.0	0.1	(5.1)