

Vol. 42 No. 8**Published September 20, 2018****August 2018****EXECUTIVE SUMMARY**

U.S. petroleum markets established new records for oil production and refinery performance in August:

- Crude oil production: 10.8 million barrels per day (mb/d); and,
- Refining throughput: 18.0 mb/d record for the month of August.

U.S. liquid fuels production remained up by more than 2.0 mb/d year-over-year (y/y) in August, and the United States continued to supply virtually all global oil demand growth and compensate for production losses in some OPEC nations.

In August, U.S. petroleum demand, led by motor gasoline, distillate and refinery feedstocks, grew by 250 thousand barrels per day (kb/d) from July to 20.8 mb/d. This was the strongest demand for any month since August 2007 and reflected solid economic growth, industrial activity, and consumer confidence.

While domestic markets remained strong, U.S. petroleum exports decreased for a second consecutive month.

- Crude oil exports: 1.6 mb/d in August, down 400 kb/d from July and 560 kb/d from June; and,
- Refined product exports: 4.9 mb/d in August, down 160 kb/d from July and 730 kb/d from June.

U.S. petroleum exports fell by a total of 1.3 mb/d between June and August at the same time as U.S. petroleum imports increased by more than 0.3 mb/d. Consequently, the U.S. petroleum trade balance backslid by 1.6 mb/d or 56 percent within two months. While the increased imports reflected strong U.S. demand and refining activity, the drop-off in exports likely was due to a shift in buying patterns among U.S. trading partners. We'll monitor the developments for details by destination in coming months, but it appears to be a setback for the United States' goal to achieve energy dominance.

August highlights

(Click hyperlinks to advance to any section)

Demand

- **U.S. petroleum demand accelerated to 20.8 mb/d.**
 - Gasoline demand notches its third highest August on record since 1945.
 - Strong trucking and marine shipping activities drive highest August distillate demand since 2007.
 - Strongest jet fuel demand year-to-date since 2001.
 - Residual fuel oil demand most volatile on record since 1936.
 - Refinery and petrochemical feedstock demand grew by more than 0.5 mb/d since August 2017.

Prices & Macroeconomy

- **U.S. crude oil and gasoline prices declined on strong production and the U.S. dollar.**
- **Solid indicators despite rising price inflation.**

Supply

- **New U.S. production crude oil production record (10.8 mb/d).**

International trade

- **U.S. petroleum exports fell by 1.3 mb/d between June and August.**

Industry operations

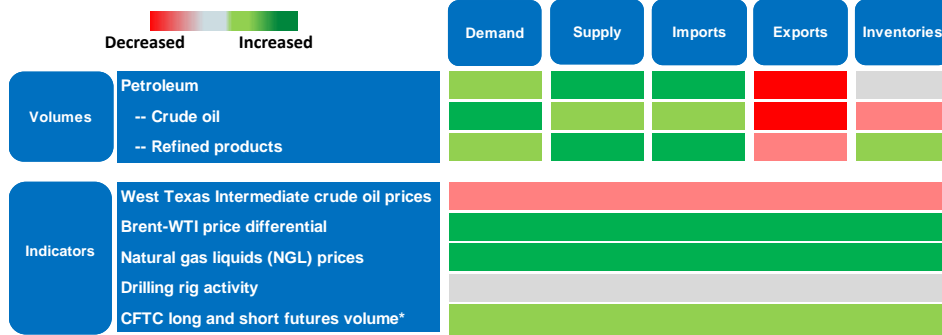
- **Record August refinery throughput (18.0 mb/d).**

Inventories

- **U.S. petroleum inventories stable in the 5-year range.**

Monthly Statistical Report heat map – August 2018

Heat map of monthly percentage changes



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

Highlights for August 2018, compared with July 2018

- Exports dropped by the largest amounts on record within two months (1.3 mb/d)
- Refined product inventories accumulated with strong refinery throughput and lower exports
- Domestic oil prices eased, and drilling activity paused

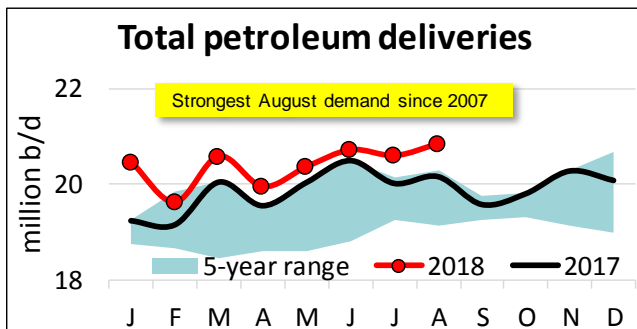


American Petroleum Institute

Details by section

Demand

U.S. petroleum demand accelerated to 20.8 mb/d

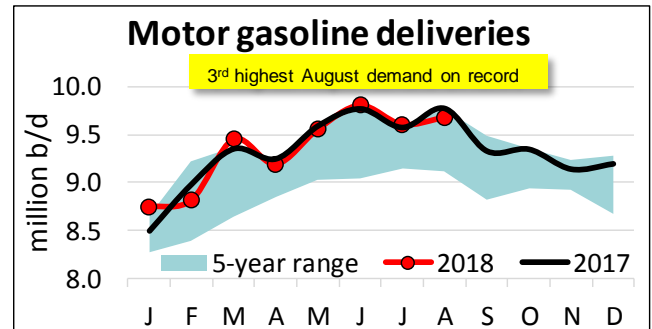


U.S. petroleum demand, as measured by total domestic petroleum deliveries, was 20.8 mb/d in August, up by 1.2 percent from July and 2.9 percent compared with August 2017. Through the end of the summer driving season, the pace of annual growth reflected solid economic growth, industrial activity, and consumer confidence.

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

Gasoline

Gasoline demand notches its third highest August on record since 1945



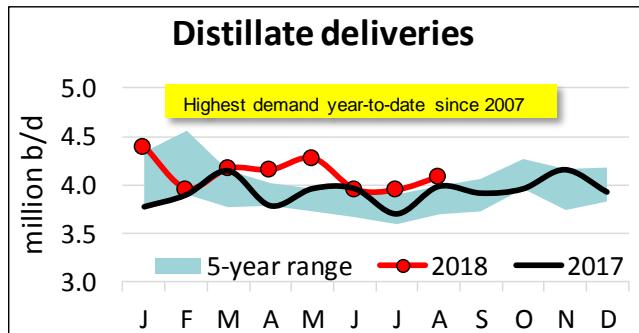
Consumer gasoline demand, as measured by total motor gasoline deliveries, was 9.7 mb/d in August. This was 0.8 percent below that of August 2017 but the third highest demand for the month of August on record since 1945.

The two highest years were 2016 and 2017, which suggests the increase in crude oil and gasoline prices this year may have suppressed some demand growth despite the strong economy. The average price of regular-grade gasoline was \$2.91 per gallon in August, which was down by 1.4 cents per gallon from July, but up by 42.0 cents per gallon compared with August 2017 and 63.0 cents per gallon versus August 2016.

In August, demand for reformulated-type gasoline, which is consumed primarily in urban areas, increased by 0.5 percent y/y to 3.3 mb/d. By contrast, conventional gasoline is used more in rural areas and decreased 1.5 percent y/y to 6.4 mb/d.

Distillate Fuel Oil

Strong trucking and marine shipping activities drive highest August distillate demand since 2007



In August, distillate deliveries of 4.1 mb/d increased by 3.4 percent from July and 2.0 percent compared with August 2017. Both for the month of August and cumulatively through the first eight months of the year, this was the highest distillate demand since 2007.

About 96.0 percent of distillate demand in August was for ultra-low sulfur distillate (ULSD), which is driven by road freight transportation activity. The Bureau of Labor Statistics’ (BLS) Producer Price Index for freight trucking increased by 8.4 percent y/y in August at the same time as discussion has increased about [America’s shortage of truck drivers](#).

The remaining 4.0 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 of 151 kb/d in August were up by 64.1 percent versus August 2017 as [marine shipping activity for imports remained high](#) to beat the imposition of import tariffs by the U.S..

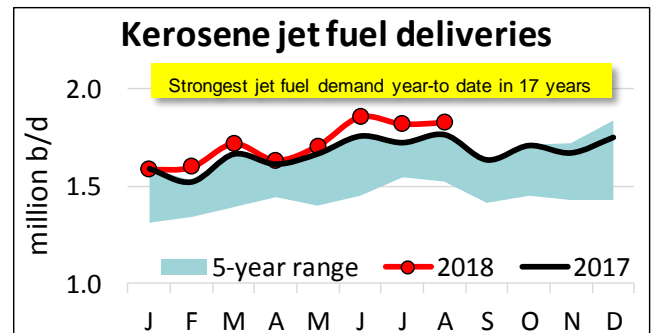
Kerosene Jet Fuel

Strongest jet fuel demand year-to-date since 2001

In August, kerosene jet fuel deliveries of 1.8 mb/d increased by 3.6 percent compared with August 2017. This was the second strongest demand on

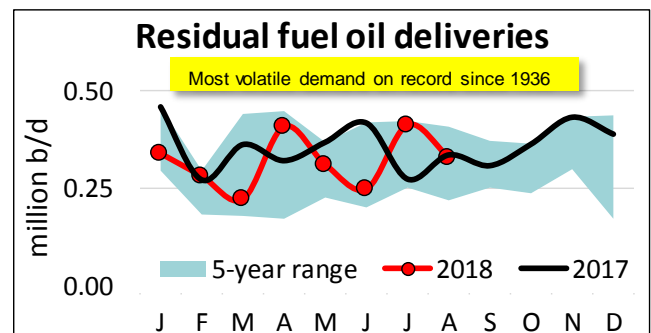
record for the month and third highest for any month. Year-to-date through August, jet fuel demand is at its highest since 2001.

The [International Air Transport Association \(IATA\)](#) reported that U.S. domestic air passenger kilometers increased by 5.6 percent compared with July 2017, and their separate release of [World Air Transport Statistics](#) highlighted that 2017 was a strong year in which the number of global air passenger exceeded four billion for the first time, which was attributed to broad-based improvement in global economic conditions and low airfares.



Residual Fuel Oil

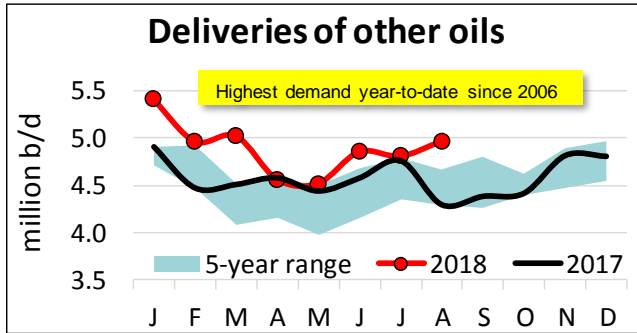
Residual fuel oil demand most volatile on record since 1936



Residual fuel oil is used in electric power production, space heating, vessel bunkering and other industrial applications. Residual fuel oil was 331 kb/d in August, a decrease of 19.9 percent from July and 4.3 percent below August 2017. The spike in July and annual increase were consistent with the marine shipping-driven activity. Notably, the pattern of monthly changes so far this year has been the most volatile demand on record, which suggests residual fuel oil increasingly serves niche and cyclical markets.

Other Oils

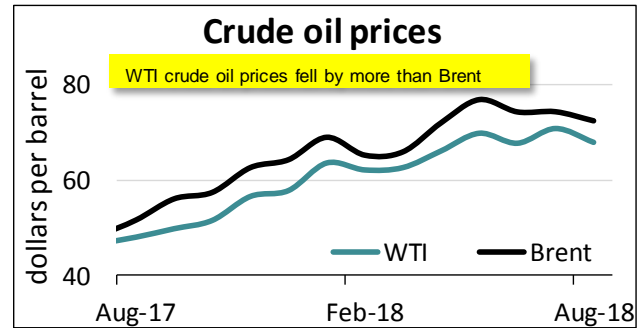
Refinery and petrochemical feedstock demand grew by more than 0.5 mb/d since August 2017



Refining and petrochemical demand for liquid feedstocks, naphtha, and gasoil (“other oils”) was 5.0 mb/d in August, which was an increase of 2.1 percent from July and 12.8 percent — more than 0.5 mb/d— versus August 2017. This reflected solid refining and petrochemical activity and was consistent with American Chemistry Council’s [Chemical Activity Barometer](#) which grew 3.8 percent y/y in August.

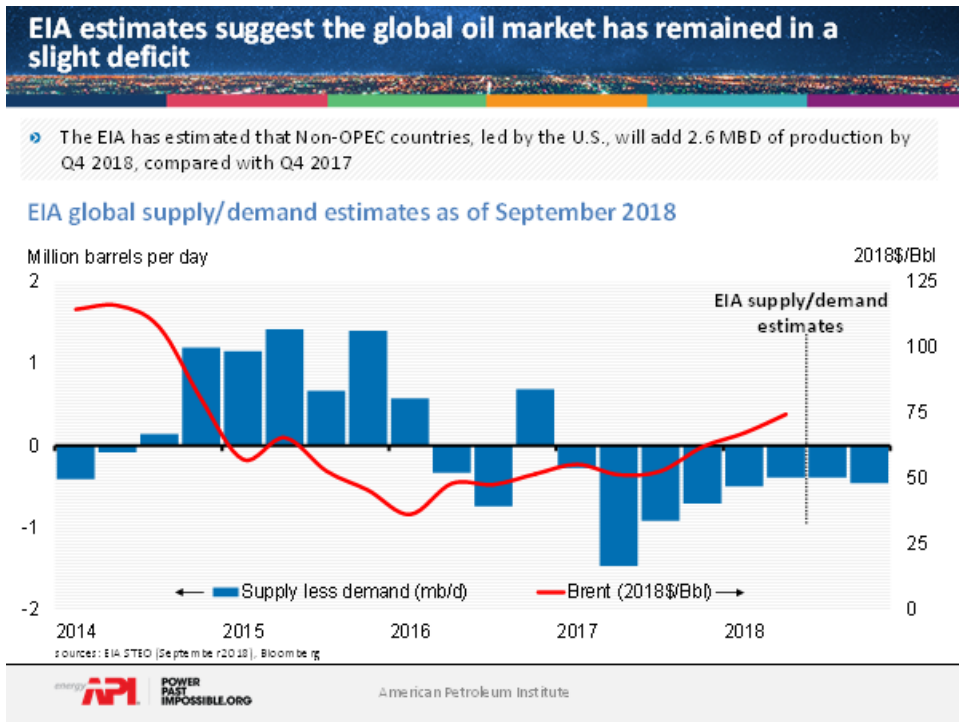
Prices

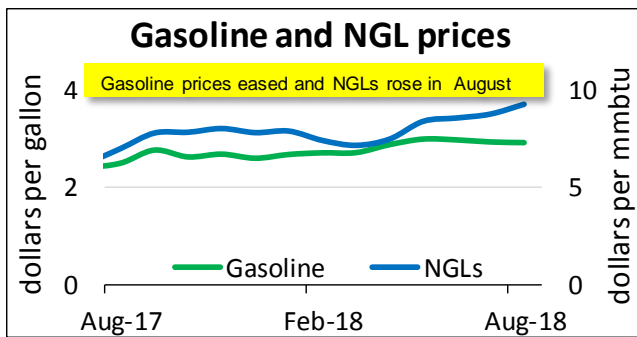
U.S. crude oil and gasoline prices declined on strong production and the U.S. dollar



Domestic West Texas Intermediate (WTI) crude oil prices averaged \$68.06 per barrel in August, which was a decrease of \$2.92 per barrel from July. By comparison, international Brent crude oil prices averaged \$72.53 per barrel, down \$1.91 from July.

The difference of nearly \$4.50 per barrel between WTI and Brent crude oil prices widened from around \$3.50 per barrel in July, even as U.S. crude oil exports fell between July and August.





With the EIA reporting that crude oil [currently accounts for 58 percent](#) of the price of a gallon of gasoline, gasoline prices generally follow those of crude oil. In August, gasoline prices fell by 1.4 cents per gallon from July but remained up 42.0 cents per gallon above those of August 2017.

Separately, with increased refining and petrochemical demand, natural gas liquids (NGL) prices averaged \$9.27 per million BTU (MMBtu) in August, which was an increase of 5.7 percent from July. According to Bloomberg data, each of the constituent NGLs increased in price between July and August.

Financial and physical fundamentals that affect global oil markets offered some highlights in August. A strong U.S. dollar generally has corresponded with lower oil prices in recent years, and in August the U.S. dollar neared its highest levels in a decade following a two percent increase since the beginning of Q3 2018 and nearly 10 percent since late January. The U.S. dollar's strength may have helped ease prices despite what appeared to be a tighter global supply/demand balance by Energy Information Administration estimates.

The [EIA's August 2018 assessment](#) of the global oil supply/demand balance shifted from a projected surplus in last month's outlook to a slight deficit with demand outpacing supply throughout 2018.

Continued supply challenges have emerged from abroad, with OPEC output declines in Venezuela and Angola, plus the impending renewal of sanctions against Iran. In the third quarter and year-to-date through 2018, the U.S. supplied virtually all global oil demand growth.

Macroeconomy

Solid indicators despite rising price inflation

The backdrop for petroleum demand and the end of the summer driving season appeared to be solid in August, and indicators of the business climate, consumer sentiment, and employment conditions were strong.

Leading economic indicators continued to point toward expanding business conditions. The [Institute for Supply Management's Purchasing Managers Index \(PMI\)](#) registered 61.3 in August, which was an increase of 3.1 percentage points from June. Any value above 50.0 suggests an expansion. New orders, production activity and employment expanded. Growth occurred in 16 of the 18 manufacturing sectors surveyed.

Separately, the [University of Michigan's consumer sentiment index](#) rose to 100.8 in September from 96.2 in July and 95.1 in July. The September reading was the highest since 2004. The survey's Chief Economist, Richard Curtin, noted that consumers' main concern is with the effects of rising tariffs, which have contributed to price inflation.

In August, the Producer Price Index for all steel product manufacturing from purchased steel increased by 22.3 percent compared with August 2017. By contrast, this index was up by 3.1 percent as of February 2018 versus the same month one year ago.

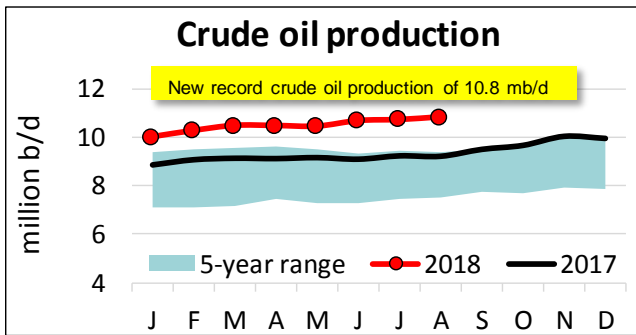
Labor markets have remained tight. U.S. non-farm payrolls grew by 201,000 in August, while the unemployment rate remained steady at 3.9 percent, according to the [Bureau of Labor Statistics \(BLS\)](#).

Supply

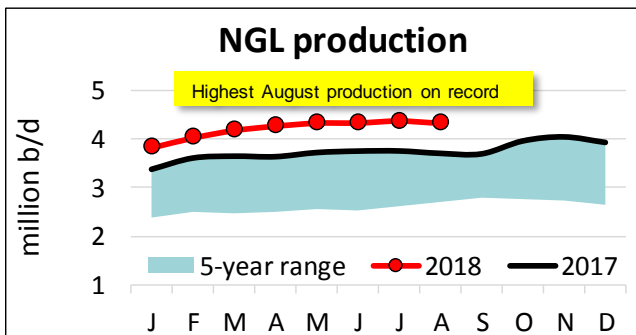
New U.S. production crude oil production record (10.8 mb/d)

U.S. crude oil production expanded to a record 10.8 mb/d in August, up by more than 100 kb/d from July. The rising production has been consistent with Baker Hughes' reported increases in U.S. oil drilling activity, which increased to an average of 864 oil-

targeted rigs in August from 741 rigs and 846 rigs in first and second quarters of 2018, respectively.

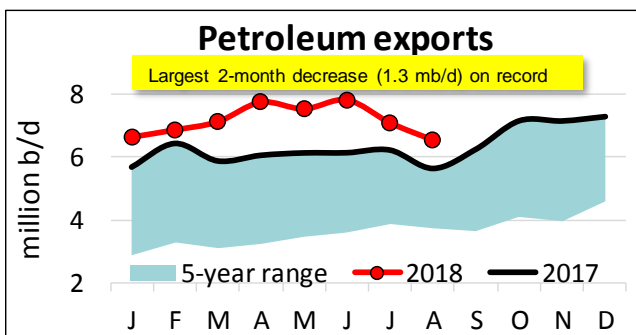


Natural gas liquids (NGL) production, a co-product of natural gas production, remained near its record production record with 4.3 mb/d in August, down 0.1 mb/d from July but up from 3.8 mb/d in August 2017. This was the highest NGL production on record for the month of August.



International trade

U.S. petroleum exports fell by 1.3 mb/d between June and August



U.S. crude exports fell by 1.3 mb/d between June and August, including 560 kb/d of crude oil and 730 kb/d of refined products.

At the same time, however, U.S. petroleum imports led by refined products rose by more than 300 kb/d.

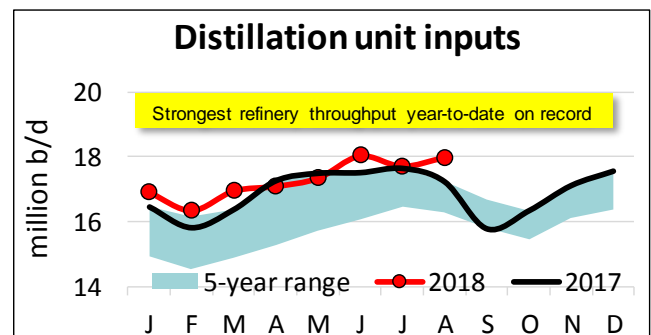
The increased imports likely reflected strong refining and product demand.

By contrast, the 1.3 mb/d decrease in exports – at a time when international oil prices and demand are high – appeared to highlight a shift in global petroleum buying patterns away from the United States. The root cause should be more apparent when monthly data by country of destination become available in a few months.

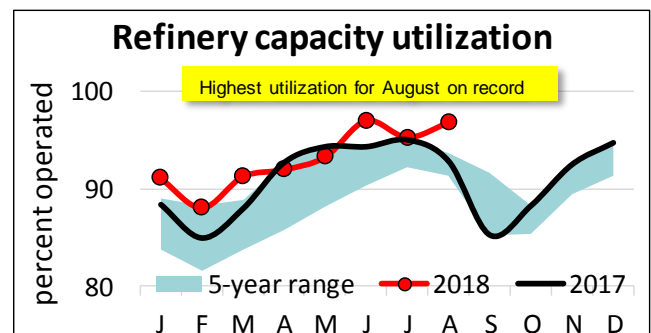
In the meantime, we’ll continue to monitor if other buyers step up to purchase U.S. crude oil and refined products, perhaps at a discount. The Brent-WTI price differential has widened above \$9.00 per barrel as of the mid-September time of writing.

Industry operations

Record August refinery throughput (18.0 mb/d)

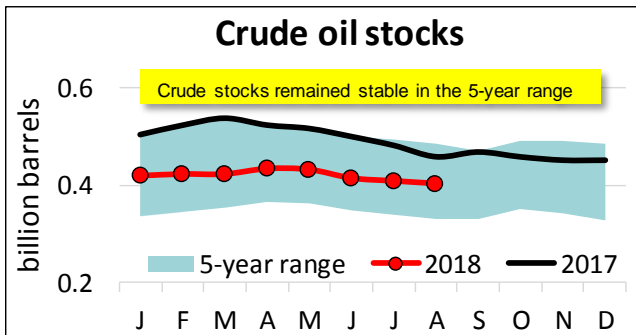
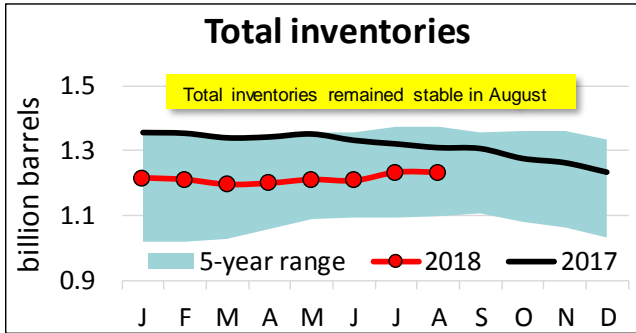


U.S. refineries set a record for the month of August with gross inputs of 18.0 mb/d and also ran at their second highest percent of capacity operated (96.8 percent) for the month. Refinery outages reported by Bloomberg in August (270 kb/d) fell from July and neared the best levels ever.



Inventories

U.S. petroleum inventories stable in the 5-year range



Total petroleum inventories in August remained steady and in the middle of the five-year range at 1.23 billion barrels. With strong refinery throughput, refined product inventories rose by 0.7 percent from July, while those for crude oil fell by 1.4 percent.

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

Disposition and Supply	August			Year-to-Date		
	2018 ²	2017	% Change	2018 ³	2017	% Change
Disposition:						
Total motor gasoline.....	9,672	9,752	(0.8)	9,285	9,293	(0.1)
Finished reformulated.....	3,321	3,303	0.5	3,124	3,087	1.2
Finished conventional.....	6,351	6,449	(1.5)	6,179	6,206	(0.4)
Kerosene-jet.....	1,825	1,762	3.6	1,710	1,657	3.2
Distillate fuel oil.....	4,084	4,004	2.0	4,106	3,895	5.4
≤ 500 ppm sulfur.....	3,933	3,911	0.6	3,933	3,723	5.7
≤ 15 ppm sulfur.....	3,926	3,896	0.8	3,923	3,715	5.6
> 500 ppm sulfur.....	151	92	64.1	173	172	0.6
Residual fuel oil.....	331	346	(4.3)	318	341	(6.7)
All other oils (including crude losses)	4,961	4,397	12.8	4,877	4,649	4.9
Reclassified ⁴	(38)	(9)	na	33	34	na
Total domestic product supplied.....	20,835	20,251	2.9	20,329	19,869	2.3
Exports.....	6,515	5,665	15.0	7,228	6,092	18.6
Total disposition.....	27,350	25,917	5.5	27,557	25,961	6.1
Supply:						
Domestic liquids production						
Crude oil (including condensate).....	10,829	9,244	17.2	10,382	9,048	14.7
Natural gas liquids.....	4,319	3,764	14.8	4,158	3,643	14.1
Other supply ⁵	1,262	1,240	1.8	1,241	1,201	3.3
Total domestic supply.....	16,410	14,247	15.2	15,781	13,892	13.6
Imports:						
Crude oil (excluding SPR imports).....	8,397	7,923	6.0	7,958	8,132	(2.1)
From Canada.....	3,742	3,493	7.1	3,710	3,435	8.0
All other.....	4,655	4,430	5.1	4,248	4,697	(9.6)
Products.....	2,654	2,189	21.2	2,226	2,131	4.5
Total motor gasoline (incl. blend.comp)....	820	712	15.2	697	658	5.9
All other.....	1,834	1,477	24.1	1,529	1,473	3.8
Total imports.....	11,051	10,112	9.3	10,183	10,263	(0.8)
Total supply.....	27,461	24,360	12.7	25,964	24,155	7.5
Stock change, all oils.....	111	(1,557)	na	(1,593)	(1,806)	na
Refinery Operations:						
Input to crude distillation units.....	17,995	17,243	4.4	17,263	16,958	1.8
Gasoline production.....	10,149	10,176	(0.3)	10,012	9,888	1.3
Kerosene-jet production.....	1,917	1,764	8.7	1,810	1,706	6.1
Distillate fuel production.....	5,372	5,044	6.5	5,103	4,950	3.1
Residual fuel production.....	372	453	(17.9)	415	434	(4.3)
Operable capacity.....	18,599	18,571	0.2	18,582	18,584	(0.0)
Refinery utilization ⁶	96.8%	92.8%	na	92.9%	91.2%	na
Crude oil runs.....	17,697	16,981	4.2	16,919	16,619	1.8

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)

	August 2018	July 2018	August 2017	% Change From	
				Month Ago	Year Ago
Stocks (at month-end, in millions of barrels):					
Crude oil (excluding lease & SPR stocks).....	403.3	408.9	460.0	(1.4)	(12.3)
Unfinished oils.....	88.1	88.8	90.7	(0.8)	(2.9)
Total motor gasoline.....	234.3	234.6	226.8	(0.1)	3.3
Finished reformulated.....	0.0	0.1	0.0	-	0.0
Finished conventional.....	23.3	23.5	24.5	(0.9)	(5.0)
Blending components.....	211.0	211.0	202.2	0.0	4.4
Kerosene-jet.....	41.1	40.7	40.4	1.0	1.7
Distillate fuel oil.....	133.1	125.4	147.8	6.1	(9.9)
≤ 500 ppm sulfur.....	125.1	117.3	136.4	6.6	(8.3)
≤ 15 ppm sulfur.....	121.8	112.8	119.0	8.0	2.4
> 500 ppm sulfur.....	8.0	8.1	11.4	(1.2)	(29.9)
Residual fuel oil.....	28.1	29.8	32.7	(5.7)	(14.0)
All other oils.....	303.2	303.1 R	309.0	0.0	(1.9)
Total all oils.....	1,231.2	1231.3 R	1,307.4	(0.0)	(5.8)