

Vol. 43 No. 8

Published September 19, 2019

August 2019

EXECUTIVE SUMMARY

With an uncertain and potentially prolonged oil supply disruption in Saudi Arabia, knowing the state of U.S. petroleum markets becomes even more critical. In this report, API provides the earliest monthly estimates based on its weekly surveying of 90% of the U.S. industry. August brought new U.S. records for:

- Production of crude oil (12.3 million barrels per day, mb/d) and natural gas liquids (4.8 mb/d, sustained record); and,
- Demand for jet fuel and other oils (that is liquid refinery feedstocks, naphtha, and gasoil).

The backdrop additionally included total U.S. petroleum demand of 21.5 mb/d, its highest since 2005, and rebounds in refinery throughput and capacity utilization plus strong petroleum exports. The U.S. petroleum trade balance was 1.9 mb/d in August, which was an improvement of 1.5 mb/d compared with August 2018 on the strength of higher exports and lower imports. Petroleum inventories also increased year-on-year for the ninth consecutive month, which has helped cushion domestic markets.

Overall, this was remarkably strong oil production, demand, and trade despite weaker leading economic indicators in August. API's economic indicator, the API D-E-I (Distillate Economic Indicator) had a reading of -0.1 in August and a three-month average of -0.1, which historically has corresponded with slowing U.S. industrial production. Please see the [following chart](#) for comparisons.

AUGUST HIGHLIGHTS [\(Click hyperlinks to advance to any section\)](#)

Demand

- **U.S. petroleum demand (21.5 mb/d) highest for any month since Aug. 2005.**
 - Record gasoline demand (9.8 mb/d) for the month of August.
 - August distillate demand (3.9 mb/d) fell 5.8% y/y.
 - Highest recorded jet fuel demand (1.9 mb/d).
 - Marine fuel needs drive residual fuel oil demand higher.
 - Record refinery and petrochemical other oils demand (5.6 mb/d) for the month of August.

Prices & Macroeconomy

- **Improved infrastructure helped increase supply and lower oil price.**
- **U.S. leading economic indicators highlight weaker industrial activity and consumer sentiment.**

Supply

- **Record U.S. crude oil (12.3 mb/d) and natural gas liquids (4.8 mb/d) production.**

International trade

- **Highest U.S. petroleum exports (8.1 mb/d) for the month of August.**

Industry operations

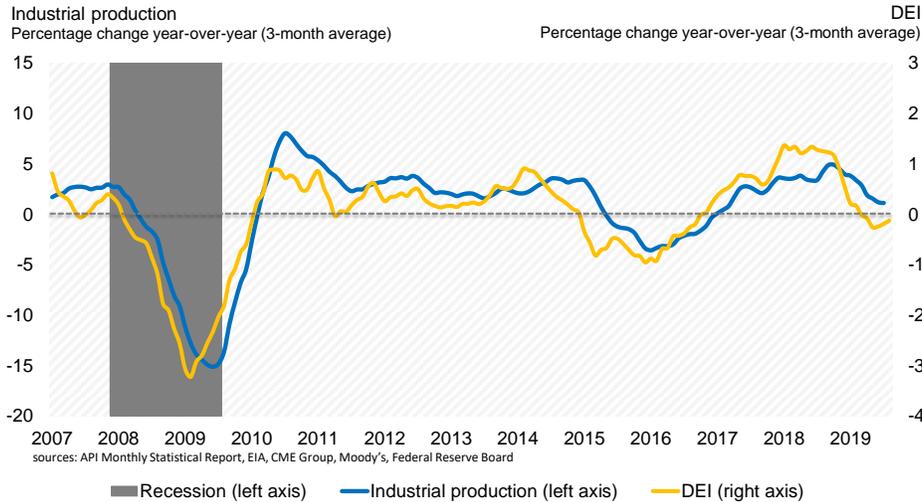
- **Strongest refinery throughput and capacity utilization rates in 2019.**

Inventories

- **Total inventories increased year-on-year for the ninth consecutive month.**

The API D-E-I (Distillate Economic Indicator) – August 2019

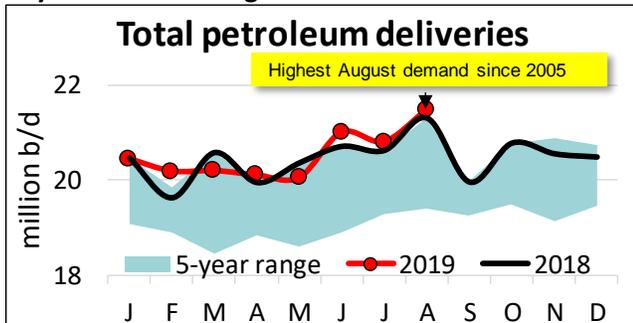
▶ The DEI value of -0.1 for August and three-month average of -0.1 suggests a continued slowing of industrial production



Details by section

Demand

U.S. petroleum demand (21.5 mb/d) highest for any month since Aug. 2005

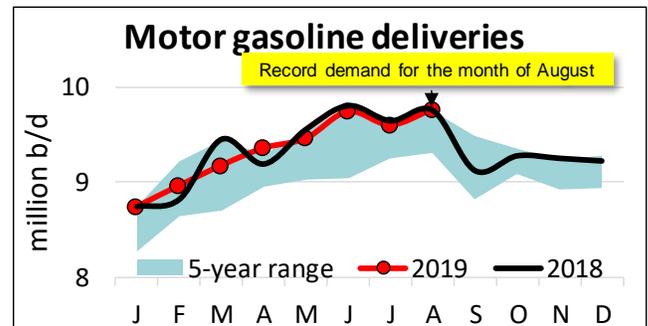


U.S. petroleum demand, as measured by total domestic petroleum deliveries, was 21.5 mb/d in August – the highest for any month since August 2005. This was an increase of 3.2% from July and an increase of 0.9% compared with August 2018. Year-to-date through August, total petroleum demand averaged 20.5 mb/d, its strongest level since 2007.

Gasoline

Record demand (9.8 mb/d) for August

Consumer gasoline demand, measured by total motor gasoline deliveries, was 9.8 mb/d in August.

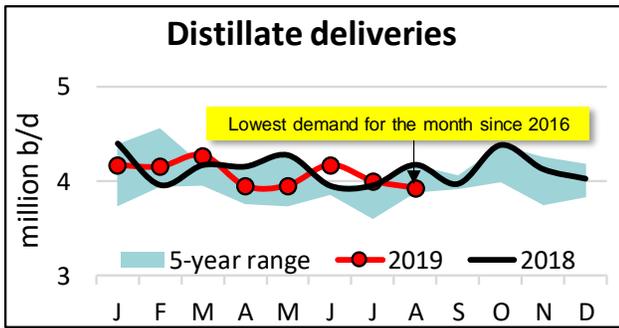


This represented an increase of 1.7% from July and 0.1% compared with August 2018. Year-to-date through August, gasoline demand decreased by 0.4% y/y while regional consumption varied. Over the same period, demand for reformulated-type gasoline, which is consumed primarily in urban areas, decreased by 3.6% y/y to 3.1 mb/d. By contrast, conventional gasoline is used more in rural areas and increased 1.3% y/y to 6.3 mb/d.

Distillate Fuel Oil

August distillate demand (3.9 mb/d) fell 5.8% y/y

In August, distillate deliveries of 3.9 mb/d increased by 1.1% from July but decreased by 5.8% compared with August 2018.



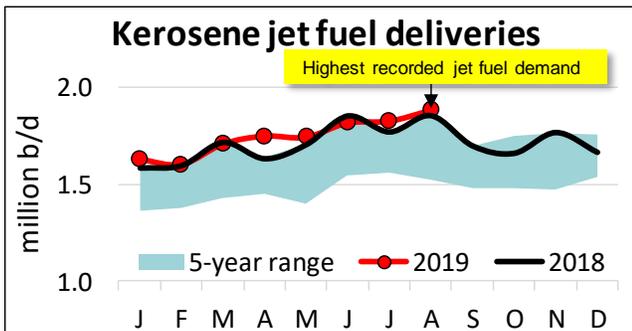
Cumulatively through August, distillate deliveries have decreased 1.2% y/y, along with greater corroboration of a [recession](#) in the trucking industry.

Nearly 98.0% of distillate demand in August was for ultra-low sulfur distillate (ULSD), which is mainly used in heavy-duty transportation, including road freight trucking and agriculture. ULSD deliveries decreased by 5.5% y/y in August. The remaining 2.0% 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. In August, HSD deliveries of 87 thousand barrels per day (kb/d) rose 4.8% y/y.

Kerosene Jet Fuel

Highest recorded jet fuel demand (1.9 mb/d)

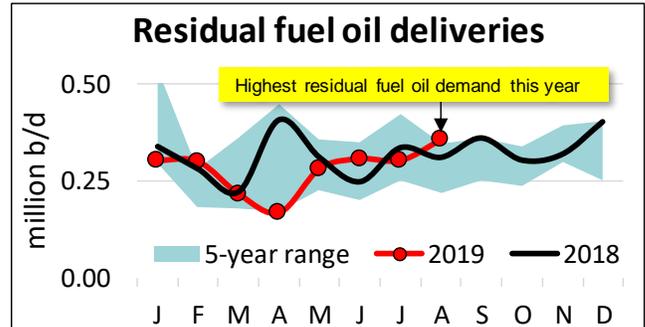
Kerosene jet fuel demand reached a new record for any month at 1.9 mb/d in August. This was an increase of 3.1% from July and 1.5% compared with August 2018.



The [International Air Transport Association \(IATA\)](#) reported North American revenue passenger kilometers increased 1.5% y/y in July (latest) and was the second among all regions.

Residual Fuel Oil

Marine fuel needs drive residual fuel oil demand higher.

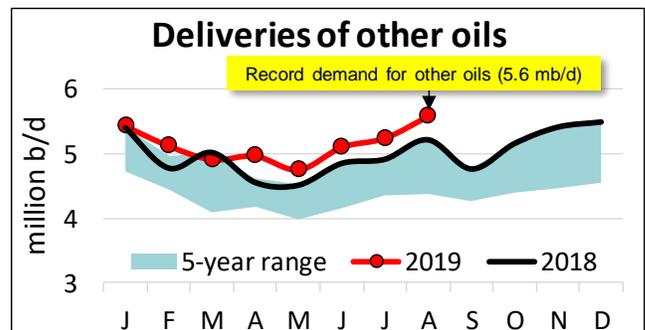


Residual fuel oil demand was 358 kb/d in August, which was an increase of 17.8% from July and 14.7% compared with August 2018.

Residual fuel oil is used in electric power production, space heating, marine vessel bunkering and other industrial applications. An acceleration in demand from marine shipping appears to have driven the increased demand. The [Baltic Dry Shipping Index](#) of ship charter rates increased by 27.3% in August and has nearly quadrupled since February, even as tariffs slowed global trade. [Reports](#) suggest that vessels entering the shipyards in order to install exhaust gas cleaning systems (scrubbers) in advance of more stringent sulfur fuel regulations that take effect on January 1, 2020, explain the trend and may support pricing for the balance of the year.

Other Oils

Record refinery and petrochemical other oils demand (5.6 mb/d) for the month of August

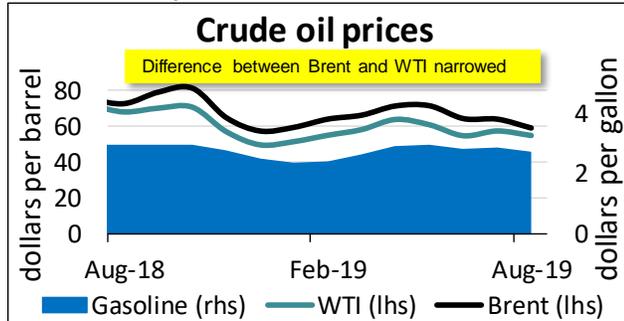


Refining and petrochemical demand for liquid feedstocks, naphtha, and gasoil ("other oils") was at its highest ever in August, 5.6 mb/d. This represented an increase of 6.5% from July and 6.8%

above August 2018. The increase was consistent with acceleration in U.S. refining activity, as detailed in [industry operations](#).

Prices

Improved infrastructure helped increase supply and lower oil prices



For the fourth consecutive month, domestic and international crude prices converged. Domestic WTI crude oil prices averaged \$54.81 per barrel in August, a decrease of 4.4% (\$2.54 per barrel) from July and a decrease of 19.5% (\$13.25 per barrel) from August 2018. By contrast, international Brent crude oil prices averaged \$59.04 per barrel, down 7.6% from July. The difference between domestic

and international crude oil prices fell to \$4.23 in August from a recent high of \$10.49 in May. The narrowing was expected as new Permian basin pipelines came on stream, highlighted in API's Industry Outlook for Q2 2019, issued in June.

As crude oil prices fell, the average U.S. gasoline price decreased to \$2.71 per gallon in August from \$2.82 in July, according to [AAA](#) reports.

Macroeconomy

U.S. leading economic indicators highlight weaker industrial activity and consumer sentiment

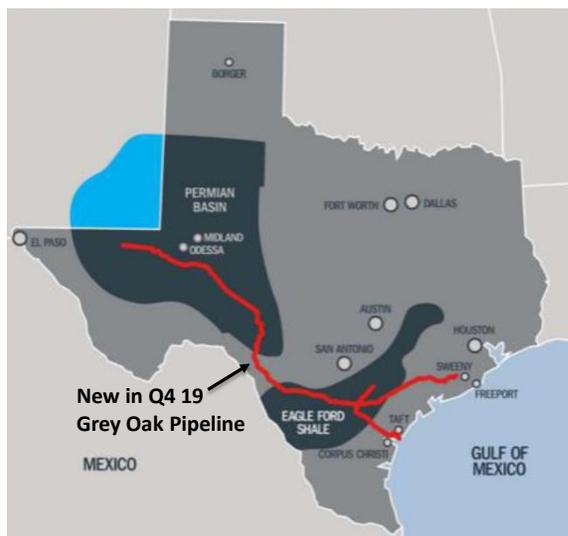
API's D-E-I (Distillate Economic Indicator), which includes industry fundamentals, prices and interest rates, had a reading of -0.1 in August and a three-month average reading of -0.1, which historically has corresponded with slowing U.S. industrial production.

The [Institute for Supply Management's Purchasing Managers Index \(PMI\)](#) signaled a contraction in industrial activity with a reading of 49.1 in August. New orders, production and employment each

Permian Basin 1.5 mb/d of new pipeline capacity additions are expected by the end of 2019 (Q4 19 vs. Q4 18)

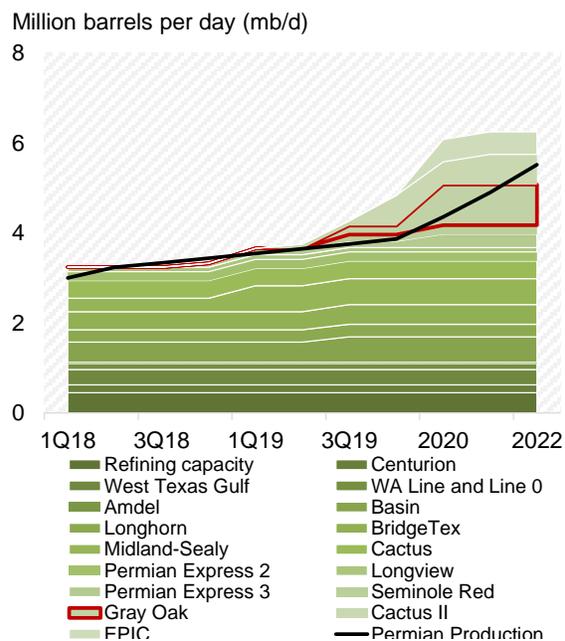
- » The expansions, including the Grey Oak, Cactus II and Seminole Red pipelines, should more than accommodate expected production growth

Permian Basin and the Grey Oak pipeline



source: EnSys

Permian Basin pipeline capacity balance



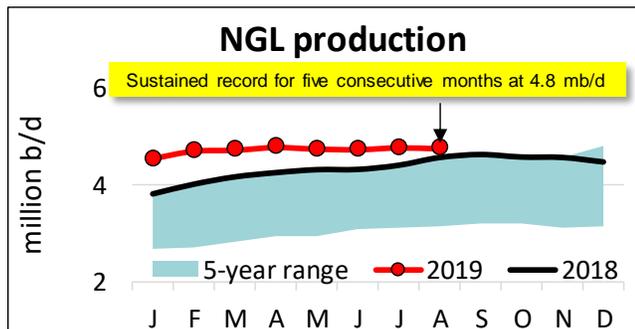
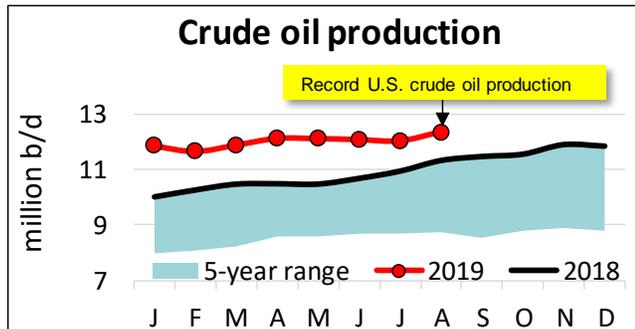
decreased, while supplier deliveries slowed and indicators covering trade, supplier backlogs, inventories and raw materials all weakened.

While leading indicators of industrial activity signaled a slowing through most of 2019, consumer sentiment remained solid. However, the [University of Michigan's consumer sentiment index](#) fell to a reading of 89.8 in August from 100.0 in July. This demonstrates how quickly sentiment can shift along with sudden financial market volatility, as the S&P 500 Index dropped by nearly 5% in the first two weeks of August.

According to the [Bureau of Labor Statistics \(BLS\)](#), labor markets remained near record-low unemployment. The unemployment rate remained steady at 3.7% as U.S. non-farm payrolls grew by 130,000 in August.

Supply

Record U.S. crude oil (12.3 mb/d) and natural gas liquids (4.8 mb/d) production



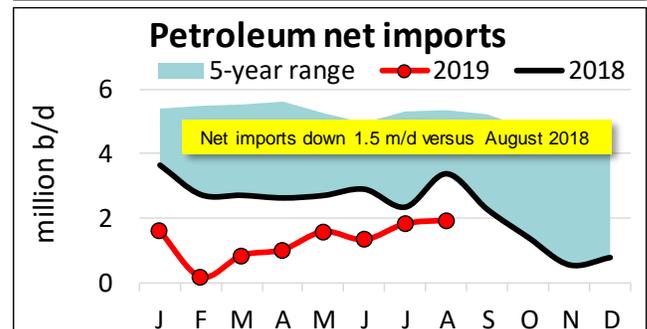
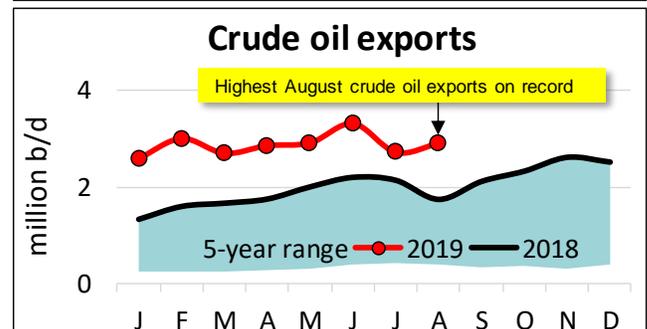
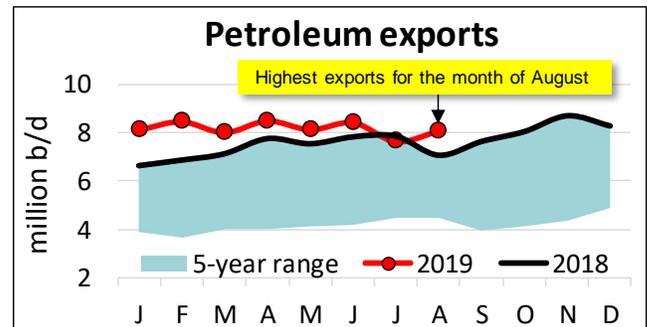
In August, the U.S. recorded a new record 12.3 mb/d for crude oil production and sustained record natural gas liquids production of 4.8 mb/d for five consecutive months. The solid oil production came despite more than 4.0% less drilling activity in

August. [Baker Hughes](#) reported an average of 760 oil-targeted rigs in August, down from 782 in July. This is consistent with continued shale productivity increases reported in the [U.S. Energy Information Administration \(EIA\) Drilling Productivity Report](#). Additionally, the production results were consistent with EIA reports that the number of drilled but uncompleted well (DUCs) declined to 8,108 in July from previously reported peaks above 8,500 wells.

International trade

Highest U.S. petroleum exports (8.1 mb/d) for the month of August.

U.S. petroleum exports rebounded in August to 8.1 mb/d, which was an increase of more than 0.4 mb/d above July and 1.0 mb/d above August 2018. Between July and August, crude oil and refined product exports increased by 180 thousand barrels per day (kb/d) and 258 kb/d, respectively.

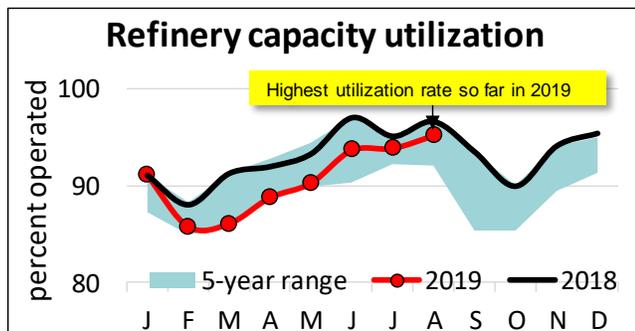
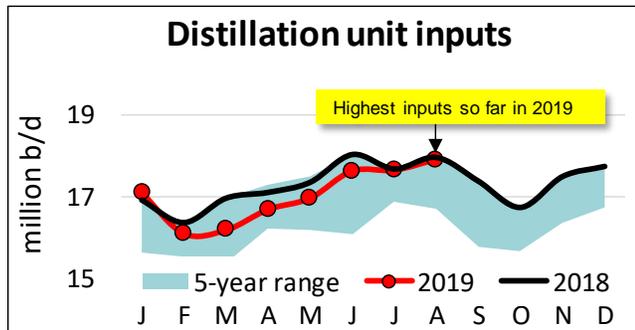


At the same time, however, U.S. petroleum imports returned above 10.0 mb/d in August, with increased in both crude oil and refined product imports.

Overall, U.S. petroleum net imports increased to 1.9 mb/d in August from 1.8 mb/d in July but were still 1.5 mb/d lower than they were in August 2018.

Industry operations

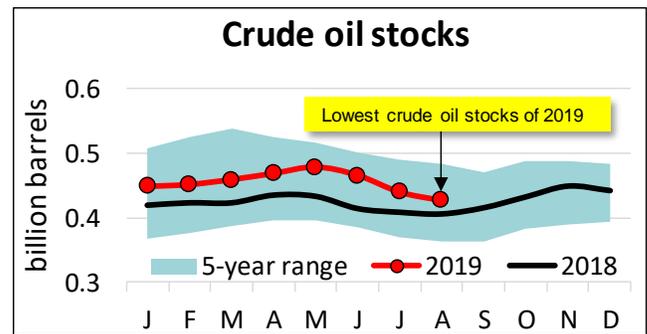
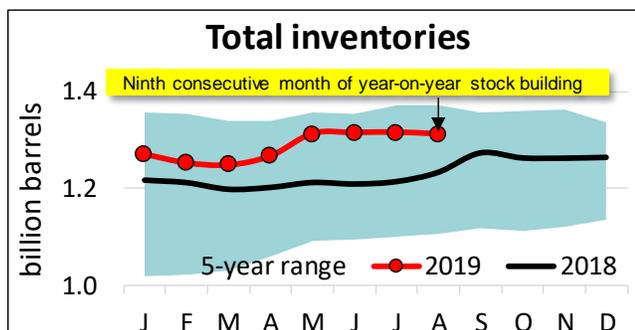
Strongest refinery throughput and capacity utilization rates in 2019



In August, gross inputs to U.S. refineries were 17.9 mb/d, and implied a capacity utilization rate of 95.2% – both at their highest rates so far in 2019.

Inventories

Total inventories increased year-on-year for the ninth consecutive month



In August, U.S. total petroleum inventories were 1.31 billion barrels, including crude oil and refined products but excluding the Strategic Petroleum Reserve. Total inventories increased despite crude oil stocks falling to their lowest level to date in 2019. As refinery throughput and U.S. crude oil exports increased in August, there was a draw down on crude oil stocks and subsequent rise in refined product and total inventories.

When we zoom out to the broader annual changes, however, it stands out that the year-on-year change in total inventories remained positive in August for the ninth consecutive month.

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

Disposition and Supply	August			Year-to-Date		
	2019 ²	2018	% Change	2019 ³	2018	% Change
Disposition:						
Total motor gasoline.....	9,761	9,748	0.1	9,337	9,372	(0.4)
Finished reformulated.....	3,288	3,356	(2.0)	3,051	3,164	(3.6)
Finished conventional.....	6,473	6,392	1.3	6,286	6,208	1.3
Kerosene-jet.....	1,883	1,856	1.5	1,749	1,717	1.9
Distillate fuel oil.....	3,933	4,173	(5.8)	4,085	4,132	(1.2)
≤ 500 ppm sulfur.....	3,846	4,090	(6.0)	3,990	3,987	0.1
≤ 15 ppm sulfur.....	3,841	4,064	(5.5)	3,979	3,975	0.1
> 500 ppm sulfur.....	87	83	4.8	94	146	(35.6)
Residual fuel oil.....	358	312	14.7	272	308	(11.7)
All other oils (including crude losses)	5,591	5,235	6.8	5,070	4,908	3.3
Reclassified ⁴	(42)	(22)	na	9	22	na
Total domestic product supplied.....	21,484	21,302	0.9	20,521	20,459	0.3
Exports.....	8,066	7,043	14.5	8,205	7,312	12.2
Total disposition.....	29,550	28,345	4.3	28,726	27,771	3.4
Supply:						
Domestic liquids production						
Crude oil (including condensate).....	12,346	11,361	8.7	12,019	10,588	13.5
Natural gas liquids.....	4,759	4,570	4.1	4,742	4,241	11.8
Other supply ⁵	1,268	1,304	(2.8)	1,228	1,250	(1.7)
Total domestic supply.....	18,373	17,234	6.6	17,989	16,079	11.9
Imports:						
Crude oil (excluding SPR imports).....	7,085	8,000	(11.4)	7,028	7,951	(11.6)
From Canada.....	4,060	3,675	10.5	3,884	3,715	4.5
All other.....	3,025	4,325	(30.1)	3,145	4,236	(25.8)
Products.....	2,917	2,432	20.0	2,377	2,251	5.6
Total motor gasoline (incl. blend.comp)....	909	815	11.5	763	749	1.9
All other.....	2,008	1,616	24.2	1,613	1,502	7.4
Total imports.....	10,002	10,432	(4.1)	9,405	10,203	(7.8)
Total supply.....	28,375	27,666	2.6	27,394	26,281	4.2
Stock change, all oils.....	(1,175)	(679)	na	(1,332)	(1,490)	na
Refinery Operations:						
Input to crude distillation units.....	17,909	17,973	(0.4)	17,058	17,311	(1.5)
Gasoline production.....	10,255	10,243	0.1	10,053	10,027	0.3
Kerosene-jet production.....	1,942	1,955	(0.7)	1,801	1,815	(0.8)
Distillate fuel production.....	5,211	5,369	(2.9)	5,155	5,103	1.0
Residual fuel production.....	393	391	0.5	380	422	(10.0)
Operable capacity.....	18,803	18,601	1.1	18,794	18,590	1.1
Refinery utilization ⁶	95.2%	96.6%	na	90.8%	93.1%	na
Crude oil runs.....	17,431	17,612	(1.0)	16,697	16,958	(1.5)

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 2019	July 2019	August 2018	% Change From	
				Month Ago	Year Ago
Stocks (at month-end, in millions of barrels):					
Crude oil (excluding lease & SPR stocks).....	427.0	440.0	406.9	(3.0)	5.0
Unfinished oils.....	94.7	93.8	89.6	1.0	5.7
Total motor gasoline.....	231.3	230.6	236.1	0.3	(2.0)
Finished reformulated.....	0.0	0.0	0.0	0.2	0.0
Finished conventional.....	22.5	22.5	23.3	0.0	(3.2)
Blending components.....	208.8	208.1	212.8	0.3	(1.9)
Kerosene-jet.....	42.6	42.4	41.8	0.5	2.0
Distillate fuel oil.....	134.4	137.2	132.0	(2.0)	1.8
≤ 500 ppm sulfur.....	123.6	126.6	123.5	(2.4)	0.1
≤ 15 ppm sulfur.....	121.4	124.3	119.1	(2.3)	1.9
> 500 ppm sulfur.....	10.8	10.6	8.6	1.9	26.1
Residual fuel oil.....	30.9	30.1	27.8	2.7	11.1
All other oils.....	351.3	337 R	297.3	4.3	18.2
Total all oils.....	1,312.2	1311.1 R	1,231.5	0.1	6.6