

Vol. 43 No. 9

Published October 18, 2019

September 2019

EXECUTIVE SUMMARY

Although geopolitics and trade tensions continued to rankle global oil markets in September, the U.S. remained relatively insulated as:

- Domestic petroleum demand achieved its highest level on record for the month of September;
- Gasoline prices in September edged down seasonally even as crude oil prices increased;
- Record production of crude oil (12.4 million barrels per day, mb/d) and natural gas liquids (4.8 mb/d, sustained record) continued despite slower drilling activity; and,
- U.S. petroleum net imports decreased to 0.8 mb/d.

Marked improvement in the U.S. petroleum trade balance was driven by a combination of higher exports and lower imports, even as domestic motor fuel prices remained relatively low.

The only notable weaknesses in September were among jet fuel and distillate/diesel fuel deliveries. API's economic indicator, the API D-E-I (Distillate Economic Indicator) had a reading of zero (+0.03) in September and a three-month average of zero (-0.03), which historically has corresponded with slowing U.S. industrial production. Please see the [following chart](#) for comparisons.

SEPTEMBER HIGHLIGHTS ([Click hyperlinks to advance to any section](#))**Demand**

- **U.S. petroleum demand (20.8 mb/d) highest on record for the month of September.**
 - Gasoline deliveries rose 1.3% y/y in September.
 - Lowest distillate deliveries (3.9 mb/d) for September since 2013.
 - Largest monthly jet fuel decrease for September since 2001.
 - Highest residual fuel oil deliveries so far this year (0.4 mb/d).
 - Record refinery and petrochemical deliveries of other oil (5.7 mb/d).

Prices & Macroeconomy

- **Global geopolitics increased oil prices.**
- **U.S. leading economic indicators suggest weak industrial activity but solid consumer sentiment.**

Supply

- **Record U.S. crude oil (12.4 mb/d) and natural gas liquids (4.8 mb/d) production.**

International trade

- **Increased exports, decreased imports drove U.S. petroleum net imports to 0.8 mb/d.**

Industry operations

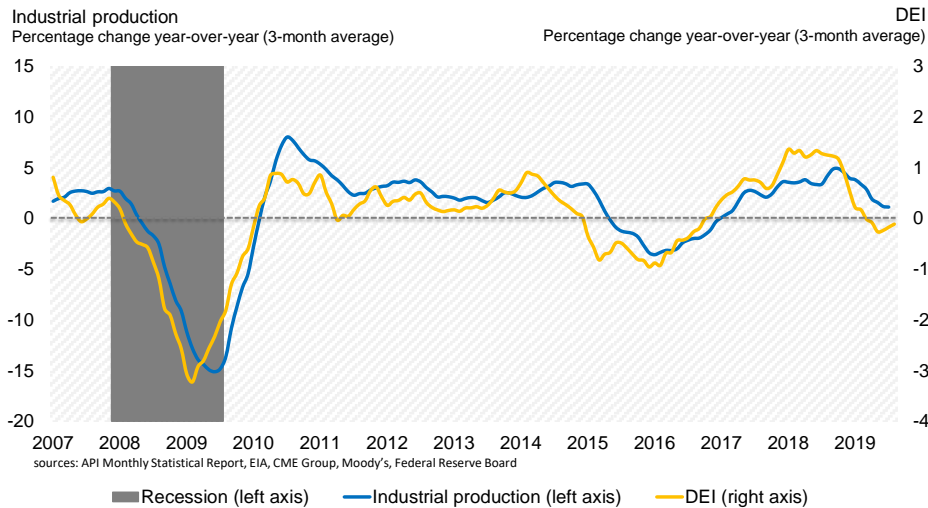
- **Notable slowing of refinery throughput and capacity utilization rates in September.**

Inventories

- **Total inventories increased year-on-year for the 11th consecutive month.**

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

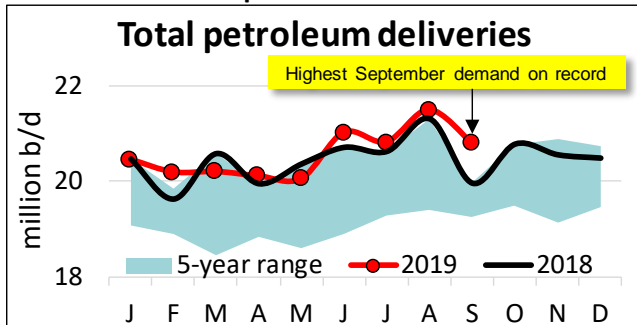
• The DEI value of +0.03 for September and three-month average of -0.03 suggests a continued slowing of industrial production



Details by section

Demand

U.S. petroleum demand (20.8 mb/d) highest ever for the month of September

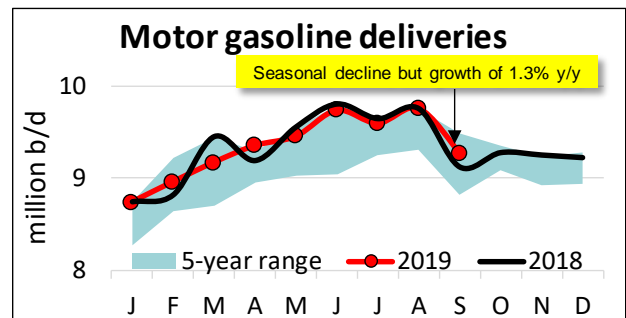


U.S. petroleum demand, as measured by total domestic petroleum deliveries, was 20.8 mb/d in September – the highest on record for the month of September. This was a seasonal decrease of 3.2% from August but increase of 3.5% compared with September 2018. Year-to-date through September, total petroleum demand averaged 20.5 mb/d, up 0.3% y/y and the strongest level since 2007.

Gasoline

Gasoline deliveries rose 1.3% y/y in September

Consumer gasoline demand, measured by total motor gasoline deliveries, was 9.3 mb/d in September.



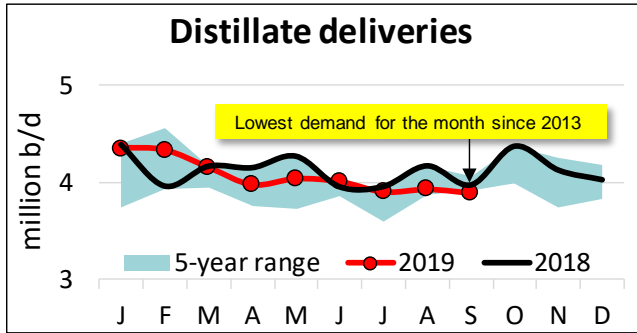
This represented a seasonal decrease of 5.0% from August but was up by 1.3% compared with September 2018. Year-to-date through September, however, gasoline demand decreased by 0.4% y/y.

Regional consumption varied in September. Reformulated-type gasoline deliveries, which is consumed primarily in urban areas, increased by 7.4% y/y to 3.2 mb/d. By contrast, conventional gasoline that is used more in rural areas decreased 1.6% y/y to 6.1 mb/d. This was reversal of the growth pattern through most of 2019 to date and the first month in which reformulated gasoline monthly deliveries grew compared with 2018.

Distillate Fuel Oil

Lowest distillate deliveries (3.9 mb/d) for September since 2013.

In September, distillate deliveries of 3.9 mb/d decreased by 1.0% from August and 3.2% compared with September 2018. Cumulatively through September, distillate deliveries decreased 1.6% y/y.

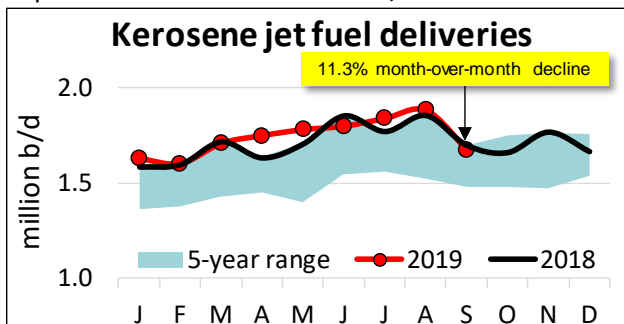


Nearly 98.0% of distillate demand in September was for ultra-low sulfur distillate (ULSD), which is mainly used in heavy-duty transportation, including road freight trucking and agriculture. ULSD deliveries decreased by 2.2% y/y in September. The remaining 2.0% was high-sulfur distillate fuel (HSD), which is a heating fuel in the residential and commercial sectors and a marine fuel when blended to upgrade heavy fuel oil. In September, HSD deliveries of 55 thousand barrels per day (kb/d) fell 41.5% y/y.

Kerosene Jet Fuel

Largest monthly jet fuel decrease for September since 2001.

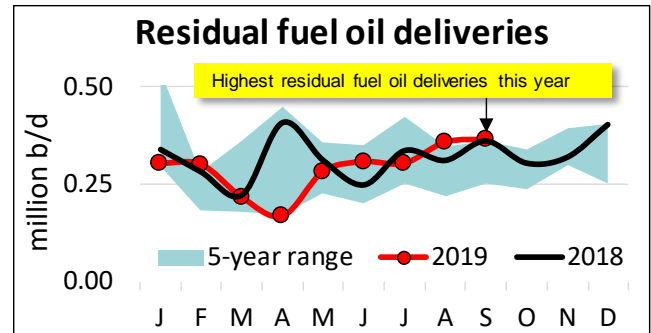
Kerosene jet fuel demand at 1.7 mb/d in September fell below its 2018 levels for only the second time in nine months so far this year. This was a decrease of 1.9% compared with September 2018 and 11.3% below August – the largest seasonal decrease for September since 2001 and the 9/11 attack.



The International Air Transport Association (IATA) has not yet reported data for September but suggested in its October 9 [report](#) that the U.S.-China trade war has weighted heavily on air cargo with trade volumes down 1% y/y in September.

Residual Fuel Oil

Highest residual fuel oil deliveries so far this year (0.4 mb/d).

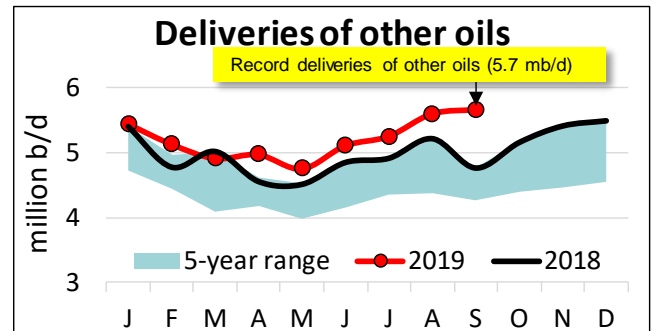


Residual fuel oil is used in electric power production, space heating, marine vessel bunkering and other industrial applications.

Residual fuel oil deliveries were 365 kb/d in September, which was an increase of 2.0% from August and 4.6% compared with September 2018. This also was the highest level so far in 2019, just months in advance of tighter [marine fuel sulfur specifications](#) taking effect in January 2020.

Other Oils

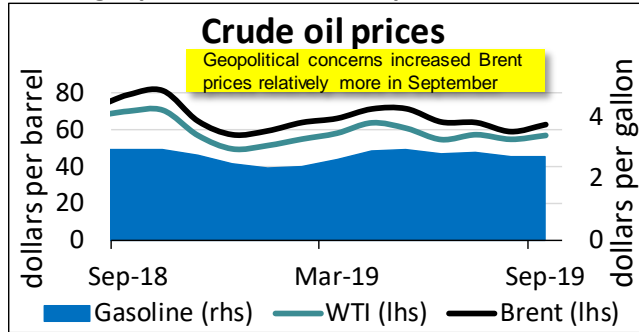
Record refinery and petrochemical deliveries of other oil (5.7 mb/d)



Refining and petrochemical deliveries of liquid feedstocks, naphtha, and gasoil ("other oils") were at its highest ever in September, 5.7 mb/d. This was an increase of 1.1% from August and the highest monthly level on record.

Prices

Global geopolitics increased oil prices.



Domestic WTI crude oil prices averaged \$56.95 per barrel in September, an increase of 3.9% (\$2.14 per barrel) from August and a decrease of 18.9% (\$13.28 per barrel) from September 2018. By contrast, international Brent crude oil prices averaged \$62.83 per barrel, up \$3.79 per barrel from August, as [tensions](#) between Saudi Arabia and Iran added a premium to global prices. Consequently, the difference between domestic and international crude oil prices increased to \$5.88 per barrel in September from \$4.23 in August.

Although crude oil prices rose in September, the average U.S. gasoline price decreased to \$2.68 per gallon in September from \$2.71 in August, according to [AAA](#) reports. By EIA [estimates](#), crude oil was 53% of the input cost to make gasoline in August.

Macroeconomy

U.S. leading economic indicators suggest weak industrial activity but solid consumer sentiment

API's D-E-I (Distillate Economic Indicator), which includes industry fundamentals, prices and interest rates, had a reading of zero (+0.03) in September and also a three-month average reading of zero (-0.03), which historically has corresponded with slowing U.S. industrial production.

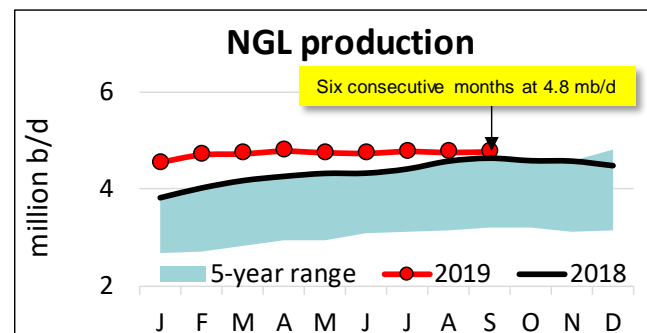
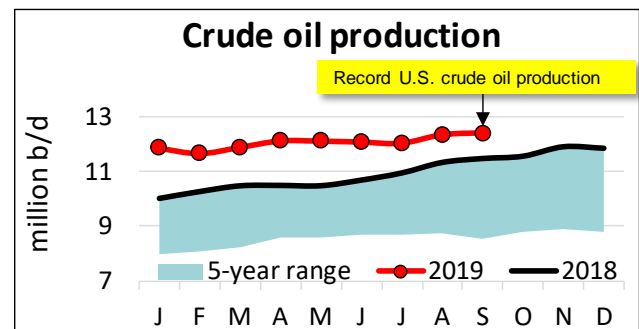
The [Institute for Supply Management's Purchasing Managers Index \(PMI\)](#) again signaled a contraction of industrial activity in September with a reading of 47.8%. New orders, production and employment each decreased, while supplier deliveries slowed and indicators covering trade, supplier backlogs, inventories and raw materials weakened.

While leading indicators of industrial activity signaled a slowing through most of 2019, consumer sentiment remained optimistic. The [University of Michigan's consumer sentiment index](#) increased to 96.0 as of early October, up from 93.2 in September but down from 98.6 in August. These readings suggest solid consumer sentiment, and the survey noted household real income expectations have risen to their most favorable level in two decades.

According to the [Bureau of Labor Statistics \(BLS\)](#), the unemployment rate fell to 3.5% as U.S. non-farm payrolls grew by 136,000 in September.

Supply

Record U.S. crude oil (12.4 mb/d) and natural gas liquids (4.8 mb/d) production

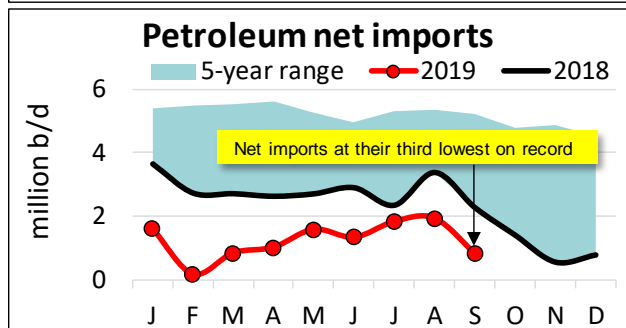
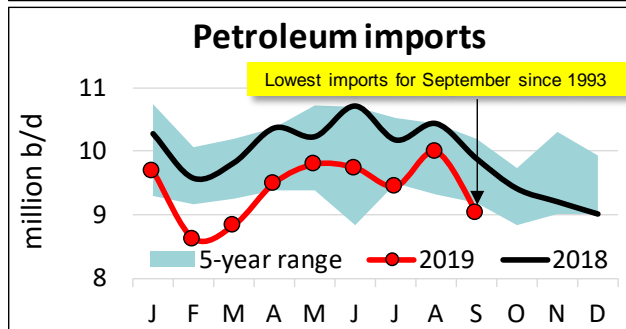
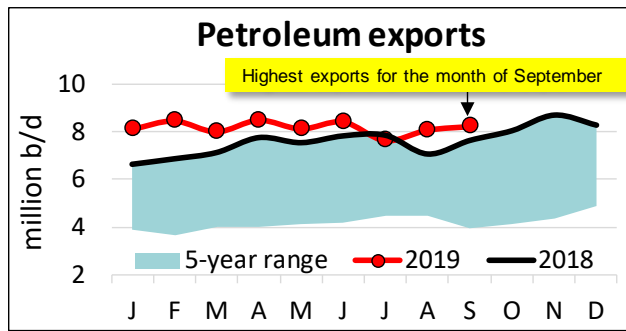


In September, the U.S. recorded a new record 12.4 mb/d for crude oil production and sustained record natural gas liquids production of 4.8 mb/d. The production records came despite less drilling activity in September. [Baker Hughes](#) reported oil-targeted rigs decreased by 7.2% between July and September. The [U.S. Energy Information Administration \(EIA\)](#) estimates the backlog of drilled but uncompleted well (DUCs) declined below 8,000 in August from previously reported peaks above 8,500 wells.

International trade

Increased exports, decreased imports drove U.S. petroleum net imports to 0.8 mb/d.

U.S. petroleum exports grew to 8.2 mb/d in September from 8.1 mb/d in August. Meanwhile, U.S. petroleum imports fell by 1.0 mb/d between August and September to their lowest level for the month since 1993.

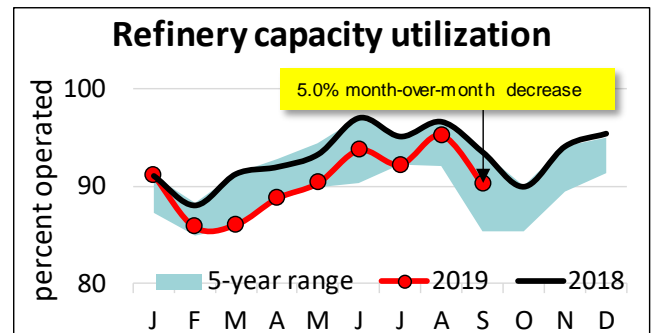
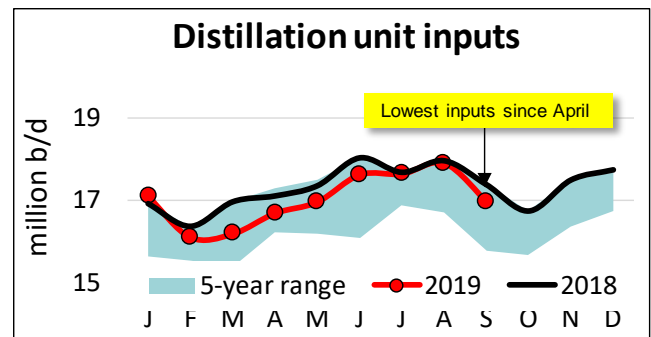


Overall U.S. petroleum net imports decreased to 0.8 mb/d in September – the second lowest in 2019 and a step closer to the U.S. becoming a net exporter.

Industry operations

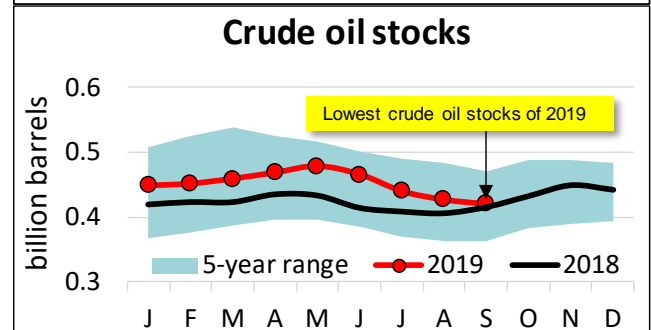
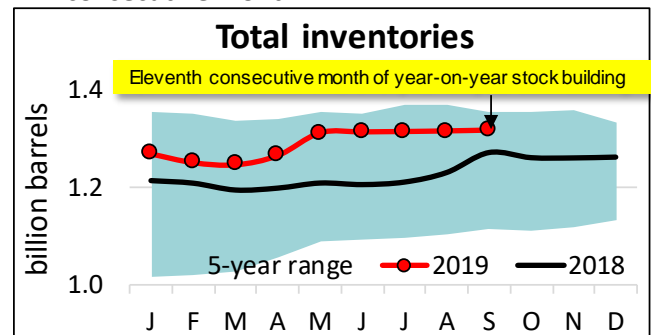
Notable slowing of refinery throughput and capacity utilization rates in September.

In September, gross inputs to U.S. refineries of 17.0 mb/d implied a capacity utilization rate of 90.2%. These marked notable slowing from August, which had the highest refinery throughput and capacity utilization rates so far in 2019.



Inventories

Total inventories increased year-on-year for the 11th consecutive month



In September, U.S. total petroleum inventories were 1.32 billion barrels, including crude oil and refined products but excluding the Strategic Petroleum Reserve. Inventories increased despite crude oil stocks falling to their lowest level so far in 2019.

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

Disposition and Supply	September			Year-to-Date		
	2019 ²	2018	% Change	2019 ³	2018	% Change
Disposition:						
Total motor gasoline.....	9,275	9,153	1.3	9,317	9,354	(0.4)
Finished reformulated.....	3,188	2,968	7.4	3,066	3,140	(2.3)
Finished conventional.....	6,087	6,185	(1.6)	6,251	6,215	0.6
Kerosene-jet.....	1,671	1,704	(1.9)	1,742	1,709	2.0
Distillate fuel oil.....	3,893	4,022	(3.2)	4,066	4,131	(1.6)
≤ 500 ppm sulfur.....	3,838	3,895	(1.5)	3,984	3,996	(0.3)
≤ 15 ppm sulfur.....	3,834	3,921	(2.2)	3,974	3,978	(0.1)
> 500 ppm sulfur.....	55	94	(41.5)	81	127	(36.2)
Residual fuel oil.....	365	349	4.6	286	314	(8.9)
All other oils (including crude losses)	5,652	5,016	12.7	5,133	4,957	3.5
Reclassified ⁴	(65)	(160)	na	(2)	9	na
Total domestic product supplied.....	20,791	20,083	3.5	20,542	20,475	0.3
Exports.....	8,216	7,415	10.8	8,258	7,401	11.6
Total disposition.....	29,007	27,498	5.5	28,800	27,875	3.3
Supply:						
Domestic liquids production						
Crude oil (including condensate).....	12,413	11,498	8.0	12,035	10,688	12.6
Natural gas liquids.....	4,773	4,638	2.9	4,734	4,310	9.8
Other supply ⁵	1,164	1,229	(5.3)	1,226	1,252	(2.1)
Total domestic supply.....	18,350	17,365	5.7	17,995	16,250	10.7
Imports:						
Crude oil (excluding SPR imports).....	6,576	7,593	(13.4)	6,988	7,917	(11.7)
From Canada.....	3,929	3,483	12.8	3,884	3,697	5.1
All other.....	2,647	4,110	(35.6)	3,104	4,220	(26.5)
Products.....	2,458	2,296	7.1	2,387	2,258	5.7
Total motor gasoline (incl. blend.comp)....	767	599	28.0	765	708	8.1
All other.....	1,691	1,697	(0.3)	1,622	1,550	4.6
Total imports.....	9,034	9,889	(8.6)	9,375	10,175	(7.9)
Total supply.....	27,384	27,254	0.5	27,370	26,425	3.6
Stock change, all oils.....	(1,623)	(244)	na	(1,429)	(1,450)	na
Refinery Operations:						
Input to crude distillation units.....	16,961	17,383	(2.4)	17,053	17,313	(1.5)
Gasoline production.....	9,988	9,927	0.6	10,054	10,018	0.4
Kerosene-jet production.....	1,829	1,856	(1.5)	1,803	1,818	(0.8)
Distillate fuel production.....	5,048	5,230	(3.5)	5,140	5,117	0.5
Residual fuel production.....	366	429	(14.7)	377	423	(10.8)
Operable capacity.....	18,803	18,601	1.1	18,795	18,599	1.1
Refinery utilization ⁶	90.2%	93.5%	na	90.7%	93.1%	na
Crude oil runs.....	16,612	16,991	(2.2)	16,683	16,962	(1.6)

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)

	September 2019	August 2019	September 2018	% Change From	
				Month Ago	Year Ago
Stocks (at month-end, in millions of barrels):					
Crude oil (excluding lease & SPR stocks).....	420.3	427.0	416.7	(1.6)	0.9
Unfinished oils.....	92.4	94.7	91.9	(2.4)	0.5
Total motor gasoline.....	230.4	231.3	240.0	(0.4)	(4.0)
Finished reformulated.....	0.0	0.0	0.0	0.1	22.9
Finished conventional.....	23.8	22.5	24.7	5.8	(3.6)
Blending components.....	206.6	208.8	215.2	(1.1)	(4.0)
Kerosene-jet.....	44.8	42.6	46.8	5.2	(4.2)
Distillate fuel oil.....	130.3	134.4	137.2	(3.1)	(5.1)
≤ 500 ppm sulfur.....	119.1	123.6	127.8	(3.6)	(6.8)
≤ 15 ppm sulfur.....	116.6	121.4	123.5	(3.9)	(5.6)
> 500 ppm sulfur.....	11.2	10.8	9.2	3.7	21.4
Residual fuel oil.....	29.3	30.9	28.7	(5.2)	2.1
All other oils.....	370.0	354.9 R	311.9	4.2	18.6
Total all oils.....	1,317.5	1,315.8 R	1,273.2	0.1	3.5