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November 2019

EXECUTIVE SUMMARY

Following the theme of a year-end toast, the U.S. oil & gas industry has delivered a remarkable 2019, including:

- A new crude oil production record of **12.8 million barrels per day (mb/d)** in November – No. 1 in the world;
- The **greatest petroleum demand** for the month of November, 21.0 mb/d;
- Solid U.S. petroleum exports steady above **8.0 mb/d** despite global headwinds; and,
- Relatively **low oil prices** (down more than 20% y/y) with 13 consecutive months of year-over year inventory growth.

Notably, the record production came despite a third consecutive quarter of increasingly slower drilling activity. U.S. petroleum production and export growth were enabled by productivity gains, coupled with new pipeline infrastructure in the Permian Basin that has enabled more efficient markets.

Challenges remain, however, as trade frictions have continued to add uncertainty at home and abroad, and there has been a clear dichotomy in economic growth where consumers have prospered but industry and freight transportation have shown regional weaknesses. API's economic indicator, the API D-E-I[®] (Distillate Economic Indicator) had a reading of -0.1 in November and a three-month average of -0.15, which historically has corresponded with slowing U.S. industrial production. Please see the [following chart](#) for comparisons.

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

Demand

- **U.S. petroleum demand (21.0 mb/d) at a record high for the month of November.**
 - Gasoline deliveries slowed but diverged regionally.
 - Distillate deliveries near record highs for November despite U.S. trucking weakness.
 - Record jet fuel demand in November and year-to-date.
 - Residual fuel oil deliveries were the second highest on record for the month of November.
 - Other oils' (naphtha, gasoil) refining and petrochemical records for November and year-to-date.

Prices & Macroeconomy

- **Crude oil prices remained down more than 20% y/y in November.**
- **U.S. leading economic indicators reinforced industrial weakness, but solid consumerism.**

Supply

- **Record U.S. crude oil production (12.8 mb/d).**

International trade

- **Led by refined products, U.S. petroleum exports remained steady above 8.0 mb/d.**

Industry operations

- **Refinery throughput and capacity utilization rates expanded in November.**

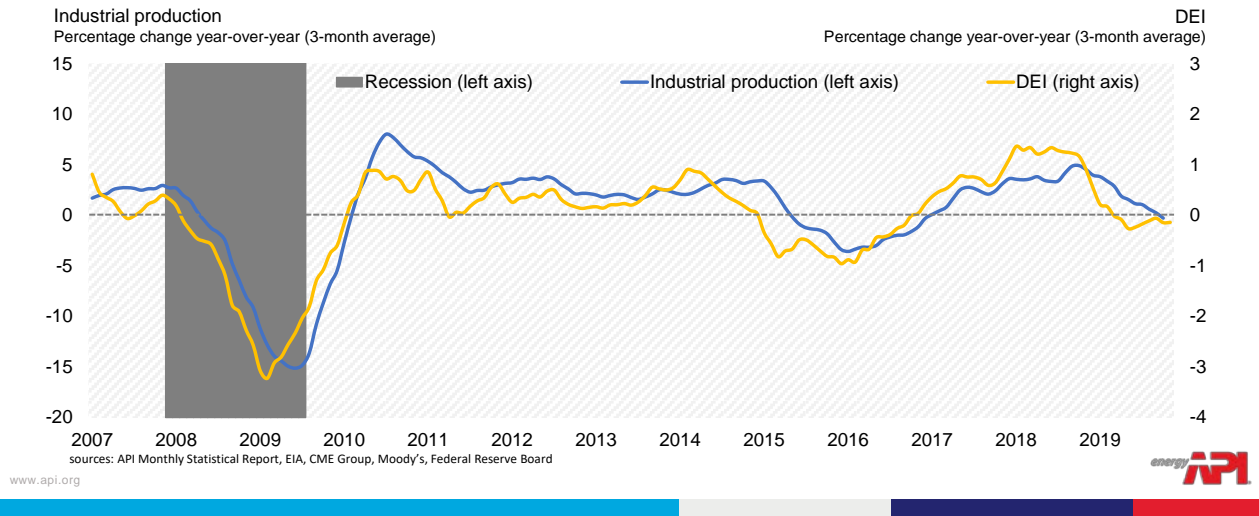
Inventories

- **Total inventories increased year-on-year for the 13th consecutive month.**



The API D-E-I[®] (Distillate Economic Indicator) - Nov. 2019

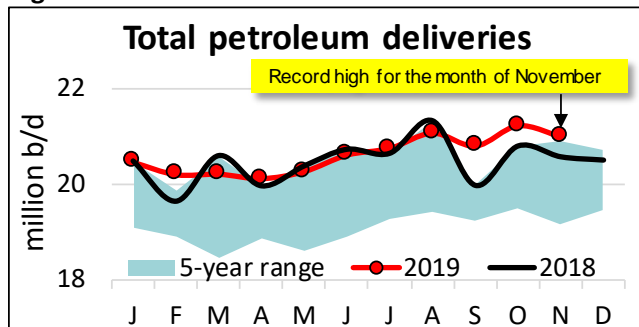
▶ The D-E-I[®] value of -0.1 for November and three-month average of -0.15 suggests a continued slowing of industrial production



Details by section

Demand

U.S. petroleum demand (21.0 mb/d) at a record high for the month of November



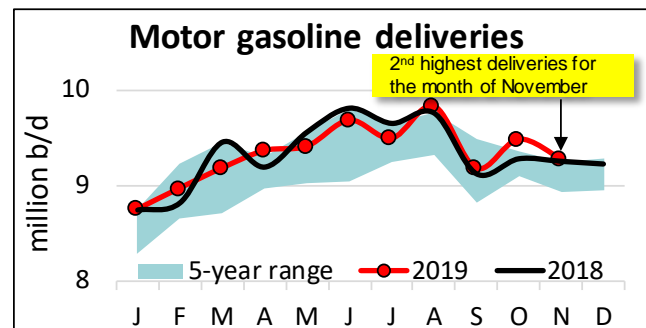
Last month established a new U.S. record for the highest petroleum demand ever in the month of November, as measured by total domestic petroleum deliveries. This was a seasonal decrease of 1.1% from October but an increase of 1.1% (227 thousand barrels per day, kb/d) compared with November 2018.

Year-to-date through November, total petroleum demand averaged a record 20.6 mb/d, up 0.1% y/y.

Gasoline

Gasoline deliveries slowed but diverged regionally

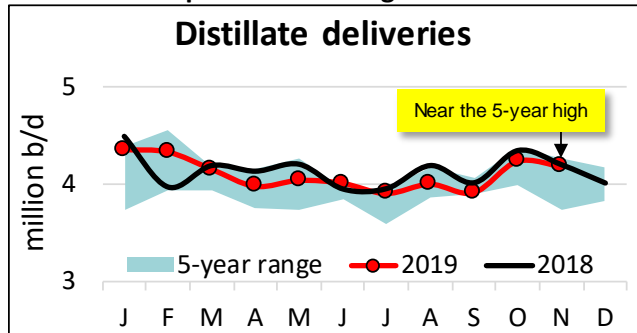
Consumer gasoline demand, measured by total motor gasoline deliveries, was 9.3 mb/d in November. This represented decreases of 2.2% from October and 0.3% versus November 2018, but the level was the second highest on record.



In November, consumption diverged between U.S. regions as reformulated-type gasoline deliveries, consumed primarily in urban areas, rose 5.0% y/y to 3.1 mb/d. By contrast, conventional gasoline deliveries to more rural areas fell 2.7% y/y to 6.2 mb/d. Interestingly, these directions of growth – reformulated gasoline up and conventional down – countered the trends year-to-date through November and were not marked by regular seasonality, so they appeared to reflect shifts in underlying economic and transportation activities.

Distillate Fuel Oil

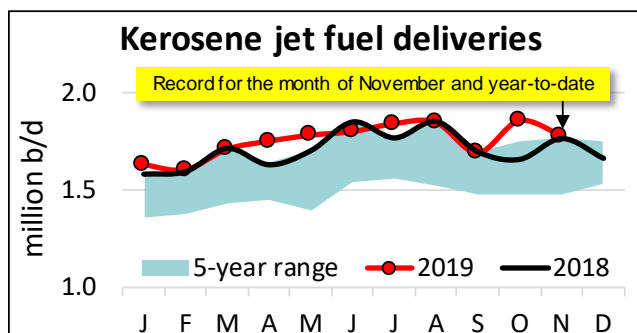
Distillate deliveries near record highs for November despite U.S. trucking weakness



Distillate deliveries of 4.2 mb/d in November remained near their highest ever for the month, but reflected decreases of 1.4% from October and 0.6% versus November 2018. Cumulatively through November, distillate deliveries decreased 1.4% y/y, symptomatic of the U.S. trucking recession that resulted in [layoffs](#).

Kerosene Jet Fuel

Record jet fuel demand in November and year-to-date

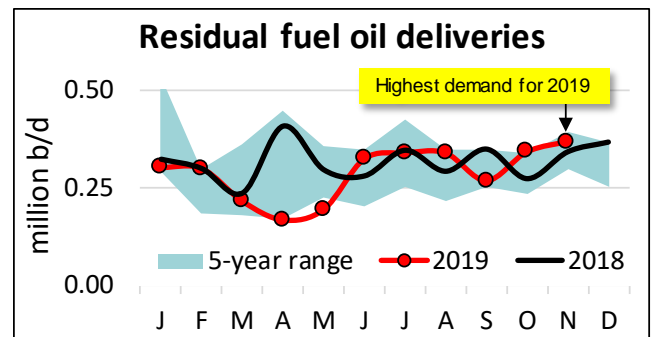


Kerosene jet fuel demand of 1.8 mb/d set new records for the month of November and cumulatively year-to-date. This was an increase of 1.2% y/y in November and 2.6% y/y year-to-date.

The International Air Transport Association (IATA) reported a broad slowing of growth in revenue passenger kilometers in early [December](#), but domestic U.S. air travel increased 4.1% y/y despite “strong headwinds in 2019.”

Residual Fuel Oil

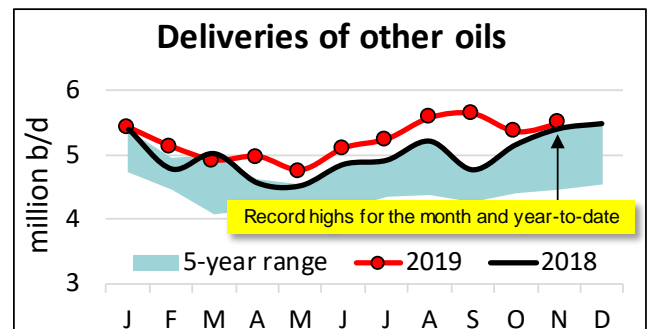
Residual fuel oil deliveries were the second highest on record for the month of November.



Deliveries of residual fuel oil, which is used in electric power production, space heating, industrial applications and as a marine bunker fuel, were 370 kb/d in November. This was an increase of 8.2% y/y despite the U.S. Energy Information Administration (EIA) [reporting](#) fewer heating degree days in November 2019 (versus one year ago) and the [IMO 2020](#) deadline approaching on January 1, 2020, to cut sulphur oxide emissions in marine fuels; this should induce some switching to distillates and away from residual fuel oil.

Other Oils

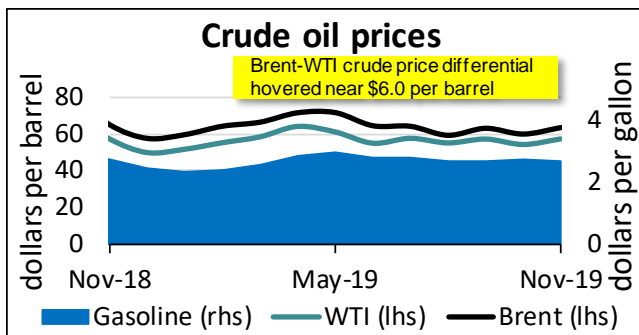
Other oils' (naphtha, gasoil) refining and petrochemical records for November and year-to-date



Other oils' comprise liquid feedstocks, such as naphtha and gasoil, used in refining and petrochemicals. In 2019, deliveries of other oils set records for the month of November (5.5 mb/d) and year-to-date (5.1 mb/d). Consistent with strong industry operations, these represented growth of 7.9% y/y in November and 1.9% y/y cumulatively through the first 11 months of 2019.

Prices

Crude oil prices remained down more than 20% y/y in November



Domestic WTI crude oil prices averaged \$57.03 per barrel in November, an increase of 5.7% (\$3.07 per barrel) from October and an increase of 0.1% (\$0.07 per barrel) from November 2018. By contrast, international Brent crude oil prices averaged \$63.21 per barrel, up \$3.50 per barrel from October. Consequently, the difference between domestic and international crude oil prices widened to \$6.18 per barrel in November from \$5.75/bbl. in October.

As crude oil prices fell in the prior month (October), the average retail U.S. gasoline price decreased to \$2.69 per gallon in November from \$2.72 in October, according to [AAA](#) reports. By EIA [estimates](#), crude oil was 51% of the input cost to make gasoline in October.

Macroeconomy

U.S. leading economic indicators reinforced industrial weakness, but solid consumerism

API's D-E-I[®] (Distillate Economic Indicator), which includes industry fundamentals, prices and interest rates, had a reading of -0.1 in November and a three-month average reading of -0.15, which historically has corresponded with slowing U.S. industrial production.

The [Institute for Supply Management's Purchasing Managers Index \(PMI\)](#) signaled a contraction of industrial activity in November with a reading of 48.1%. Index values below 50.0 suggest a contraction. New orders, production and employment decreased, while supplier deliveries slowed and indicators covering trade, supplier backlogs, inventories and raw materials weakened; and, prices decreased.

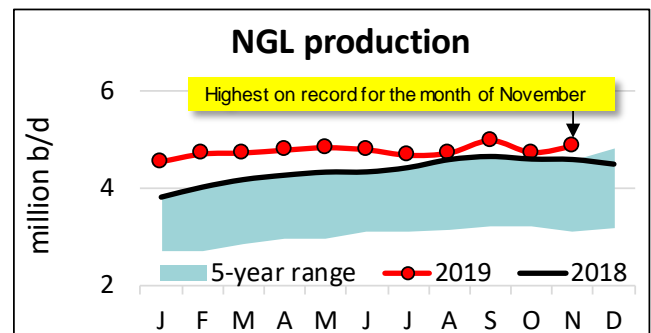
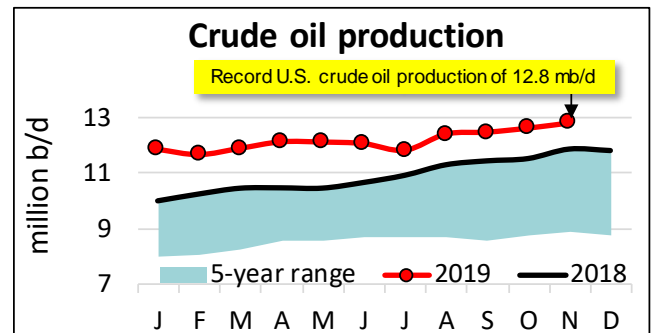
By contrast, consumer sentiment remained solid in November as the [University of Michigan's consumer](#)

[sentiment index](#) increased 2.5% month-on-month to 96.8 in November. The survey noted that upper-income households drove nearly all of the gains, largely due to increased stock prices.

According to the [Bureau of Labor Statistics \(BLS\)](#), the unemployment rate decreased to 3.5% as U.S. non-farm payrolls grew by 266,000 in November.

Supply

Record U.S. crude oil production (12.8 mb/d)

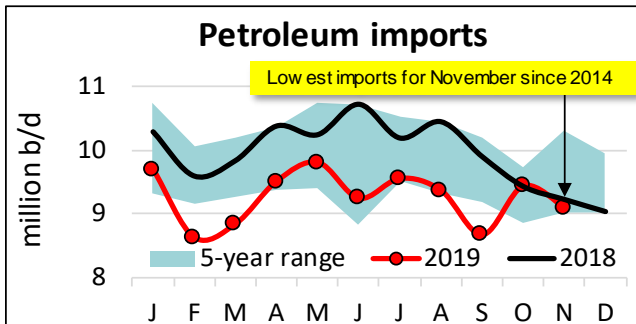
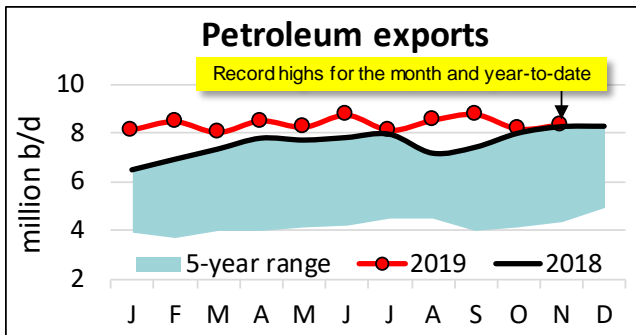


In November, the U.S. set a record of 12.8 mb/d for crude oil production, plus natural gas liquids production of 4.9 mb/d. The record production came despite less drilling activity in November. [Baker Hughes](#) reported oil-targeted drill rig activity has declined for three consecutive quarters, and this deceleration has become larger each quarter. By contrast, however, the [EIA](#) estimated the productivity of new wells has continued to rise at the same time as the backlog of drilled but uncompleted well (DUCs) fell, more than offsetting the lower drilling activity to result in higher production.

International trade

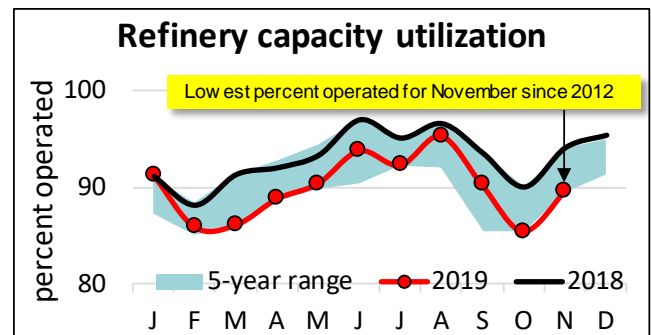
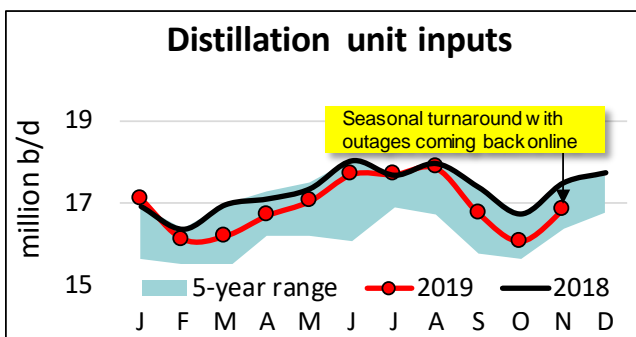
Led by refined products, U.S. petroleum exports remained steady above 8.0 mb/d.

U.S. petroleum exports totaled 8.3 mb/d in November, up 2.5% from October and 0.7% y/y. Meanwhile, U.S. petroleum imports fell to 9.1 mb/d for the month, which was a decrease of 3.7% from October and 2.0% versus November 2018. These imply the U.S. was an oil net importer in November, but remained a net exporter of energy in total.



Industry operations

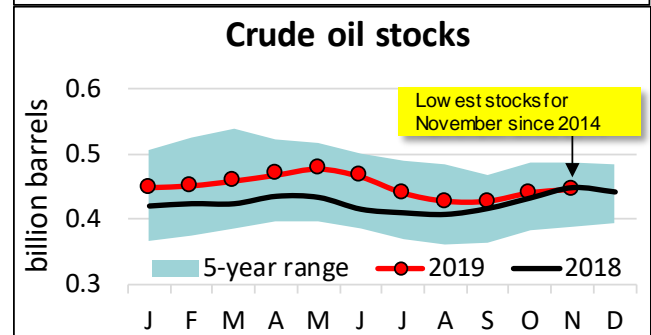
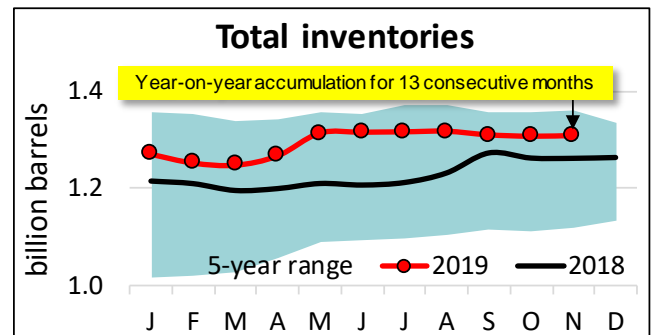
Refinery throughput and capacity utilization rates expanded in November.



In November, gross inputs to U.S. refineries of 16.8 mb/d implied a capacity utilization rate of 89.5%. Following exceptional utilization in October due to mainly to planned turnarounds, November marked the largest monthly increase in throughput this year, restoring inputs into the 5-year range, as 3.7 mb/d of crude distillation capacity came back on stream.

Inventories

Total inventories increased year-on-year for the 13th consecutive month.



U.S. total petroleum inventories, including crude oil and refined products but excluding the Strategic Petroleum Reserve, were 1.31 billion barrels in November, on par with their average since May 2019. However, total petroleum inventories have continued to exceed their year-ago levels for 13 consecutive months, even as crude oil stocks reverted to their 2018 level.

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

| Disposition and Supply | November | | | Year-to-Date | | |
|--|-------------------|---------|----------|-------------------|---------|----------|
| | 2019 ² | 2018 | % Change | 2019 ³ | 2018 | % Change |
| Disposition: | | | | | | |
| Total motor gasoline..... | 9,263 | 9,290 | (0.3) | 9,323 | 9,343 | (0.2) |
| Finished reformulated..... | 3,052 | 2,906 | 5.0 | 3,048 | 3,112 | (2.1) |
| Finished conventional..... | 6,211 | 6,385 | (2.7) | 6,275 | 6,231 | 0.7 |
| Kerosene-jet..... | 1,777 | 1,756 | 1.2 | 1,754 | 1,710 | 2.6 |
| Distillate fuel oil..... | 4,178 | 4,204 | (0.6) | 4,100 | 4,158 | (1.4) |
| ≤ 500 ppm sulfur..... | 4,086 | 4,098 | (0.3) | 4,030 | 4,037 | (0.2) |
| ≤ 15 ppm sulfur..... | 4,081 | 4,089 | (0.2) | 4,020 | 4,021 | (0.0) |
| > 500 ppm sulfur..... | 92 | 106 | (13.2) | 70 | 114 | (38.6) |
| Residual fuel oil..... | 370 | 342 | 8.2 | 289 | 313 | (7.7) |
| All other oils (including crude losses)..... | 5,500 | 5,097 | 7.9 | 5,076 | 4,980 | 1.9 |
| Reclassified ⁴ | (114) | 56 | na | 11 | 19 | na |
| Total domestic product supplied..... | 20,974 | 20,747 | 1.1 | 20,553 | 20,523 | 0.1 |
| Exports..... | 8,339 | 8,281 | 0.7 | 8,344 | 7,536 | 10.7 |
| Total disposition..... | 29,313 | 29,027 | 1.0 | 28,897 | 28,059 | 3.0 |
| Supply: | | | | | | |
| Domestic liquids production | | | | | | |
| Crude oil (including condensate)..... | 12,790 | 11,999 | 6.6 | 12,165 | 10,893 | 11.7 |
| Natural gas liquids..... | 4,876 | 4,563 | 6.9 | 4,753 | 4,359 | 9.1 |
| Other supply ⁵ | 1,149 | 1,256 | (8.5) | 1,196 | 1,251 | (4.3) |
| Total domestic supply..... | 18,815 | 17,818 | 5.6 | 18,115 | 16,503 | 9.8 |
| Imports: | | | | | | |
| Crude oil (excluding SPR imports)..... | 6,529 | 7,542 | (13.4) | 6,858 | 7,831 | (12.4) |
| From Canada..... | 3,780 | 3,870 | (2.3) | 3,844 | 3,710 | 3.6 |
| All other..... | 2,749 | 3,672 | (25.1) | 3,014 | 4,121 | (26.9) |
| Products..... | 2,554 | 1,731 | 47.6 | 2,349 | 2,197 | 6.9 |
| Total motor gasoline (incl. blend.comp).... | 660 | 281 | 134.9 | 732 | 654 | 11.9 |
| All other..... | 1,894 | 1,450 | 30.6 | 1,618 | 1,544 | 4.8 |
| Total imports..... | 9,083 | 9,272 | (2.0) | 9,208 | 10,028 | (8.2) |
| Total supply..... | 27,898 | 27,090 | 3.0 | 27,322 | 26,531 | 3.0 |
| Stock change, all oils..... | (1,415) | (1,937) | na | (1,575) | (1,529) | na |
| Refinery Operations: | | | | | | |
| Input to crude distillation units..... | 16,832 | 17,500 | (3.8) | 16,915 | 17,276 | (2.1) |
| Gasoline production..... | 10,202 | 10,240 | (0.4) | 10,080 | 10,065 | 0.2 |
| Kerosene-jet production..... | 1,836 | 1,769 | 3.8 | 1,794 | 1,802 | (0.4) |
| Distillate fuel production..... | 5,131 | 5,350 | (4.1) | 5,118 | 5,130 | (0.2) |
| Residual fuel production..... | 281 | 450 | (37.6) | 371 | 423 | (12.3) |
| Operable capacity..... | 18,809 | 18,603 | 1.1 | 18,798 | 18,599 | 1.1 |
| Refinery utilization ⁶ | 89.5% | 94.1% | na | 90.0% | 92.9% | na |
| Crude oil runs..... | 16,312 | 17,162 | (5.0) | 16,533 | 16,929 | (2.3) |

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)

| | November 2019 | October 2019 | November 2018 | % Change From | |
|---|------------------|-----------------|------------------|---------------|----------|
| | | | | Month Ago | Year Ago |
| Stocks (at month-end, in millions of barrels): | | | | | |
| Crude oil (excluding lease & SPR stocks)..... | 446.3 | 440.5 | 449.4 | 1.3 | (0.7) |
| Unfinished oils..... | 95.2 | 98.7 | 91.8 | (3.5) | 3.7 |
| Total motor gasoline..... | 231.6 | 217.4 | 230.2 | 6.5 | 0.6 |
| Finished reformulated..... | 0.0 | 0.1 | 0.0 | (0.2) | (2.4) |
| Finished conventional..... | 23.9 | 22.0 | 24.1 | 8.6 | (0.7) |
| Blending components..... | 207.7 | 195.3 | 206.1 | 6.3 | 0.8 |
| Kerosene-jet..... | 39.5 | 39.7 | 39.3 | (0.5) | 0.5 |
| Distillate fuel oil..... | 118.7 | 119.0 | 126.5 | (0.3) | (6.2) |
| ≤ 500 ppm sulfur..... | 107.2 | 107.9 | 115.9 | (0.6) | (7.5) |
| ≤ 15 ppm sulfur..... | 105.3 | 105.3 | 111.4 | 0.0 | (5.5) |
| > 500 ppm sulfur..... | 11.5 | 11.1 | 10.4 | 3.6 | 10.4 |
| Residual fuel oil..... | 28.7 | 28.9 | 29.8 | (0.7) | (3.7) |
| All other oils..... | 347.4 | 361.8 | 295.1 | (4.0) | 17.7 |
| Total all oils..... | 1,307.4 | 1,306.0 | 1,262.2 | 0.1 | 3.6 |