

Vol. 44 No. 2

Published March 19, 2020

February 2020

EXECUTIVE SUMMARY

In February, U.S. petroleum demand increased and adapted in its product mix. At the same time, refining throughput and exports set February monthly records. However, these drivers all took a back seat to sustained record high U.S. oil production that propelled inventories higher in February and helped set the stage for the [dramatic](#) oil market events seen so far in March.

- **Fuel substitution.** Lower jet fuel and diesel deliveries in February were partially offset by increased gasoline demand as consumers appear to have driven instead of flown, likely due to concerns about the coronavirus (COVID-19). Consequently, U.S. gasoline demand rose in February to its highest for the month since 2007.
- **Slow supply growth.** U.S. crude oil production sustained its record 13.0 million barrels per day (mb/d) against a backdrop in which productivity and well completions (rather than drilling) shouldered the growth.
- **Record crude oil exports** (3.6 mb/d) contributed to strong total petroleum exports (9.2 mb/d) that made the U.S. a net exporter of oil once again in February.
- **Closer domestic and international crude prices.** The price difference between domestic West Texas Intermediate (WTI) and international Brent crude oil prices narrowed in February and likely responded to increased pipeline capacity that especially enabled Permian basin crude oil to go to market more efficiently.
- **Leading economic indicators signaled weakness**, including the University of Michigan's consumer sentiment index, the Institute of Supply Management's purchasing managers' index and API's distillate economic indicator, the API D-E-I™. Please see the following [chart](#) for details.

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

- **U.S. petroleum demand increased in February despite rising coronavirus concerns.**
 - Gasoline deliveries increased 3.2% from January with lower prices and more road travel.
 - Distillate deliveries fell 9.9% y/y to the lowest February level since 2010.
 - Jet fuel deliveries fell 5.2% y/y in February.
 - Residual fuel oil's transition with IMO 2020 has gone smoothly.
 - Refining and petrochemical demand for naphtha and gasoil set a record for the month of February.

Prices & Macroeconomy

- **As crude oil prices fell, U.S. refiners' crude oil feedstock advantage decreased.**
- **COVID-19 concerns reinforced U.S. industrial slowing and roiled consumer sentiment.**

Supply

- **Productivity and well completions drove record U.S. crude oil production (13.0 mb/d).**

International trade

- **With record February crude oil exports (3.6 mb/d), the U.S. was a net petroleum exporter in February.**

Industry operations

- **Refinery throughput set a record, but capacity utilization rates declined in February.**

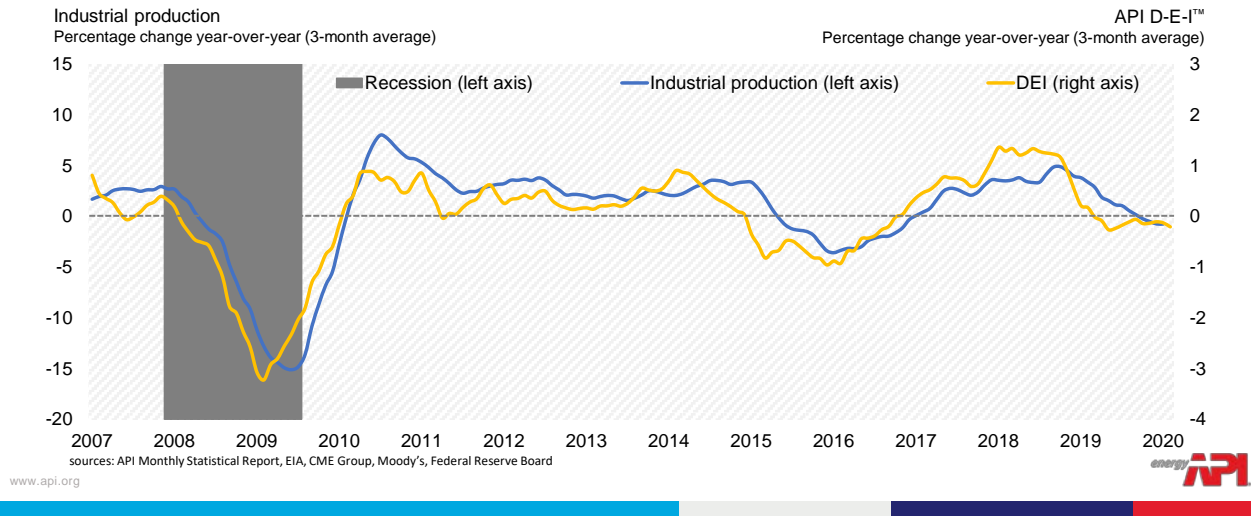
Inventories

- **Total inventories increased year-on-year for the 16th consecutive month.**



API's economic indicator: The API D-E-I™ - Feb. 2020

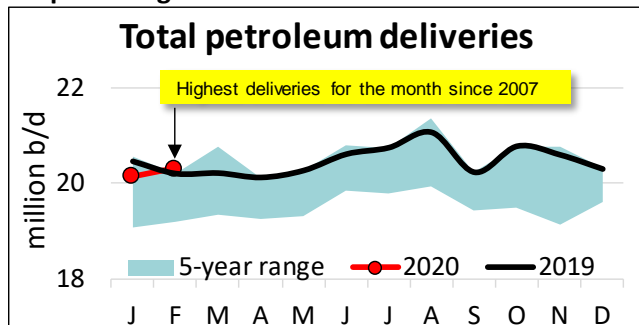
▶ The D-E-I™ value of -0.3 for February 2020 and three-month average of -0.2 suggests a continued slowing of industrial production



Details by section

Demand

U.S. petroleum demand increased in February despite rising coronavirus concerns

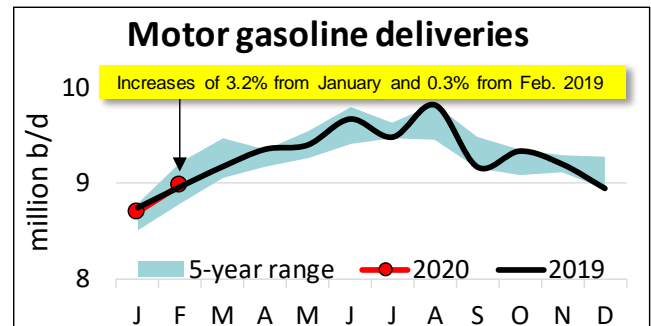


U.S. petroleum demand, as measured by total domestic petroleum deliveries, increased to 20.3 mb/d in February. This was an increase of 0.8% from January and 0.6% compared with February 2019 — the highest for the month of February since 2007.

In the face of rising concerns in February about the coronavirus (COVID-19), the rise in petroleum demand suggests underlying economic growth remained solid in the month and that consumers may have substituted road travel for air travel, especially as gasoline prices decreased.

Gasoline

Gasoline deliveries increased 3.2% from January with lower prices and more road travel

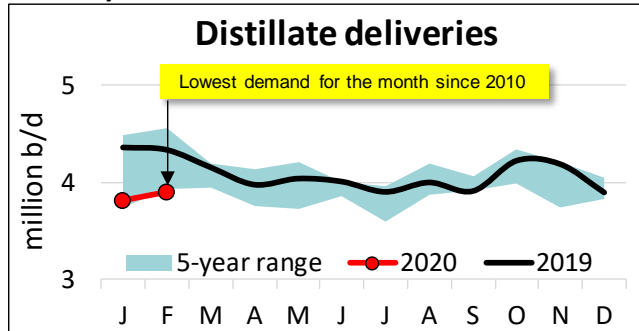


Consumer gasoline demand, measured by total motor gasoline deliveries, was 9.0 mb/d in February. This represented increases of 3.2% from January and 0.3% compared with February 2019. Meanwhile, U.S. average conventional gasoline prices fell by 3.9% or 10.3 cents per gallons from January or 18.8 cents per gallon according to [AAA](#). Although [road travel](#) statistics for February are not yet available, there also likely was substitution of driving for flying in February as broad concerns about COVID-19 were beginning in the United States.

Between January and February, reformulated-type gasoline, which is consumed primarily in urban areas, increased by 2.5% m/m, while demand for conventional gasoline that is mainly consumed in rural areas increased by and 3.6% m/m.

Distillate Fuel Oil

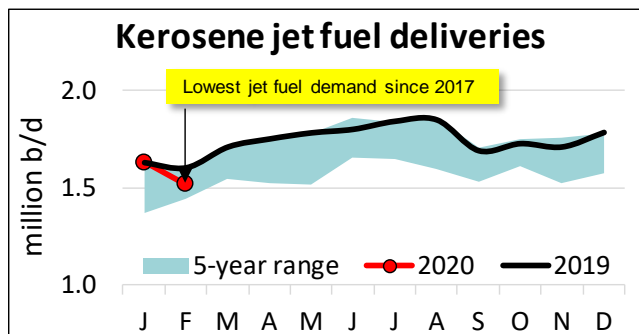
Distillate deliveries fell 9.9% y/y to lowest February level since 2010



Distillate deliveries of 3.9 mb/d in February were up by 2.3% from January but down 9.9% compared with February 2019. This was the lowest distillate demand for the month since 2010 and reflected a U.S. trucking recession as well as slower U.S. industrial production, as encapsulated in API’s economic indicator, the API D-E-I™.

Kerosene Jet Fuel

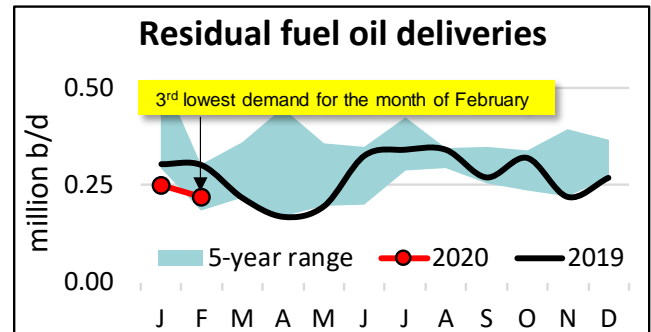
Jet fuel deliveries fell 5.2% y/y in February



Kerosene jet fuel deliveries were 1.5 mb/d in February, which was a decrease of 6.8% from January and 5.2% versus February 2019. In the past 21 years, this is only the seventh time that jet fuel demand fell between January and February. The decrease reflects lower air travel demand due to the coronavirus.

Residual Fuel Oil

Residual fuel oil’s transition with IMO 2020 has gone smoothly

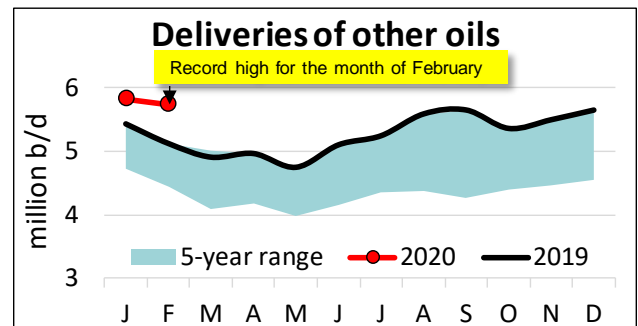


Deliveries of residual fuel oil, which is used in electric power production, space heating, industrial applications and as a marine bunker fuel, were 218 thousand barrels per day (kb/d) in February. This was a decrease of 12.4% from January and 27.6% compared with February 2019.

A downshift in residual fuel demand was broadly anticipated with the implementation of IMO 2020 on January 1, 2020, to cut sulfur oxide emissions in marine fuels. The transition has gone smoothly so far, with the refining industry upgrading the product and having reduced its production of residual fuel oil by 27.1% y/y in February.

Naphtha & Gasoil “Other Oils”

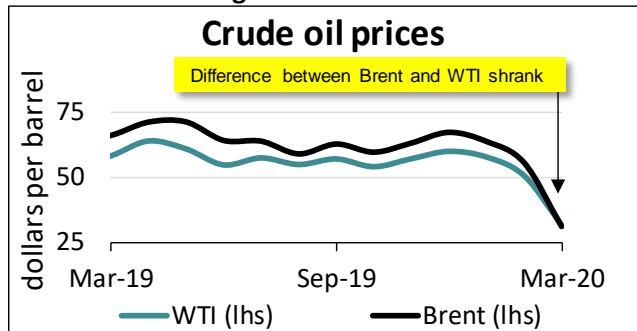
Refining and petrochemical demand for naphtha and gasoil set a record for the month of February



Liquid feedstocks, such as naphtha and gasoil, are used in refining and petrochemicals that have continued to expand due to the U.S. energy revolution. In February, deliveries of other oils (5.7 mb/d, +11.9% y/y) were the highest on record for the month of February and suggest that refining and petrochemical activities has remained solid.

Prices

As crude oil prices fell, U.S. refiners' crude oil feedstock advantage decreased



Concerns for the coronavirus continued to impact transportation fuel demand and consequently the prices for crude oil and motor fuels.

Domestic WTI crude oil prices averaged \$50.54 per barrel in February but fell as low as \$31.49 per barrel as of March 13. By contrast, international Brent crude oil prices averaged \$55.70 per barrel, down \$8.12 per barrel from January but fell to \$31.23 as of March 13.

On a daily basis, this was the first time domestic West Texas Intermediate (WTI) crude oil traded at a premium to international Brent crude oil, which indicates the global market is currently awash in crude oil.

Importantly, this also implies that the crude oil feedstock advantage of U.S. refiners has vanished at least temporarily, which consequently affects relative refining margins across regions.

Macroeconomy

COVID-19 concerns reinforced U.S. industrial slowing and roiled consumer sentiment

API's economic indicator, The D-E-I™, based primarily on diesel / distillate supply, demand and inventories, had a reading of -0.3 in February and a three-month average reading of -0.2, which has historically corresponded with slowing U.S. industrial production.

The [Institute for Supply Management's Purchasing Managers Index \(PMI\)](#), came in with a reading of 50.1 in February. Index values above 50.0 suggest

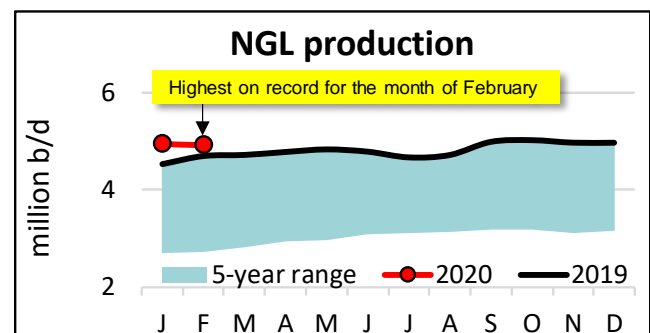
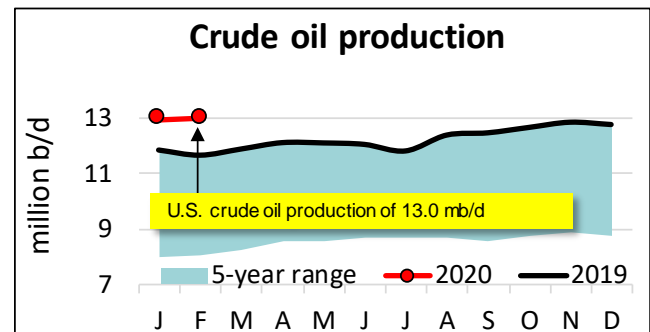
an expansion, so the reading essentially indicated no marked growth or contraction even through new orders and production declined. These were offset by a slight pick-up in employment, supplier deliveries and a reduction in prices.

Furthermore, consumer sentiment declined in the most recent March [University of Michigan's consumer sentiment index](#) reading. Index had a reading of 95.9 in March from 101.0 in February and 99.8 in January. The survey emphasized that a rapid response to COVID-19 is essential to avoid a U.S. recession.

Employment is a lagging indicator but continued to show strength. According to the [Bureau of Labor Statistics \(BLS\)](#), the unemployment rate fell to 3.5% in February from 3.6% in January as U.S. non-farm payrolls rose by 273,000 over the period.

Supply

Productivity and well completions drove record U.S. crude oil production (13.0 mb/d)



For the 36th consecutive month including February, the U.S. set new y/y crude oil production records. February crude oil production remained at 13.0 mb/d, an increase of 11.5 % y/y or 1.3 mb/d over February 2019. Additional natural gas liquids (NGL)

production of 4.9 mb/d is a record high for the month. Production records have been sustained despite less drilling activity. [Baker Hughes](#) reported oil-targeted drill rig activity has declined for 15 consecutive months and was down by 24.6% y/y in February.

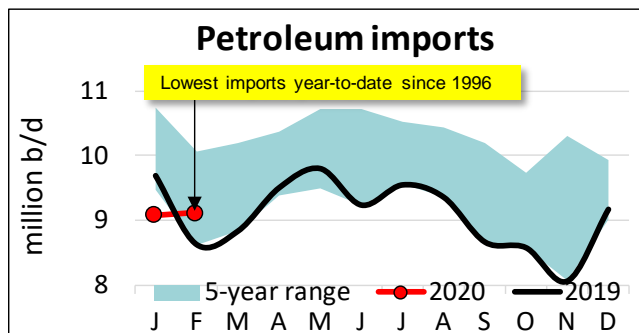
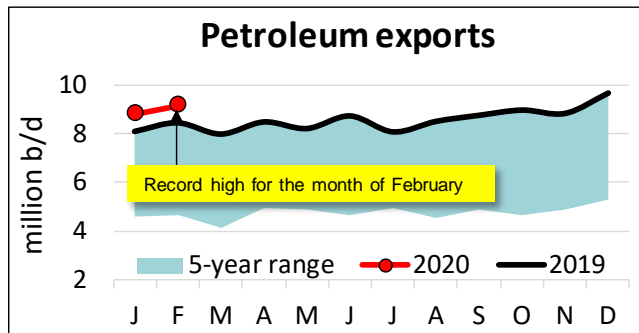
By contrast, the [EIA](#) estimated the productivity of new wells continued to rise at the same time as the backlog of drilled but uncompleted wells (DUCs, 7,682 as of Jan.) fell 8.6 % y/y. These factors more than offset lower drilling activity and resulted in production growth.

International trade

With record February crude oil exports (3.6 mb/d), the U.S. was a net petroleum exporter in February month

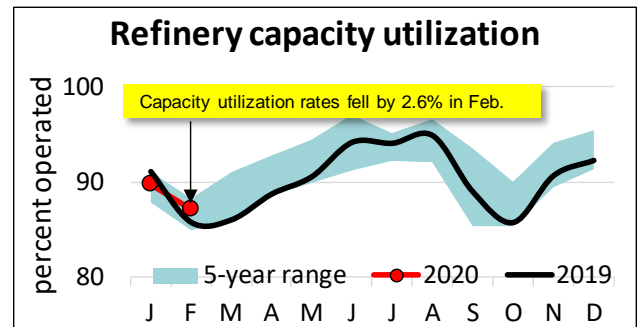
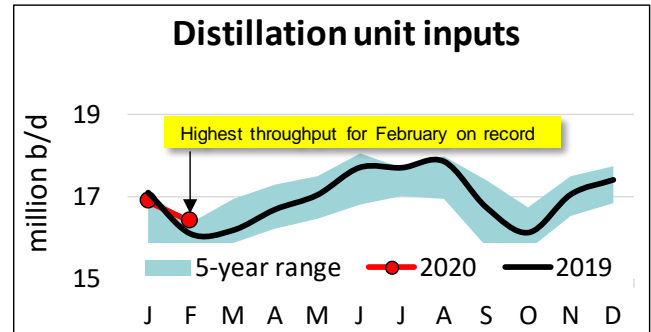
U.S. crude exports reached a monthly high of 3.6 mb/d, which contributed to record February total petroleum exports of 9.2 mb/d. Total exports increased by 4.0% from January and 8.3% compared with February 2019.

Meanwhile, U.S. petroleum imports were 9.1 mb/d for the month, an increase of 5.6% y/y versus February 2019. Together these trade figures suggest the U.S. was a net oil exporter in February.



Industry operations

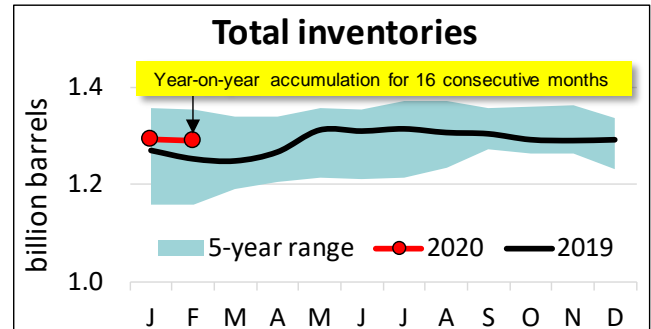
Refinery throughput set a record, but capacity utilization rates declined in February



Relatively low domestic crude prices in February supported refinery activity. In February, gross inputs into crude oil distillation units at U.S. refineries were 16.4 mb/d, which was the highest on record for the month of February. This monthly throughput implied a capacity utilization rate of 87.2%, which was down seasonally by 2.6% from January but up by 1.4% versus February 2019.

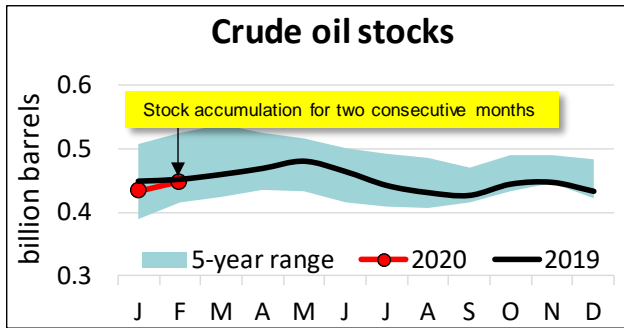
Inventories

Total inventories increased year-on-year for the 16th consecutive month



U.S. total petroleum inventories, including crude oil and refined products but excluding the Strategic Petroleum Reserve, held at 1.3 billion barrels in February, on par with last year's average and in the

middle of the 5-year range. However, total petroleum inventories in February exceeded their year-ago levels for the 16th consecutive month, which reinforced the low prices.



Crude oil inventories increased for the second consecutive month despite the February record refinery throughput and were 14.6% below the maximum of the 5-year range.

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

Disposition and Supply	February			Year-to-Date		
	2020 ²	2019	% Change	2020 ³	2019	% Change
Disposition:						
Total motor gasoline.....	8,986	8,963	0.3	8,841	8,848	(0.1)
Finished reformulated.....	2,925	2,870	1.9	2,889	2,837	1.8
Finished conventional.....	6,061	6,093	(0.5)	5,952	6,011	(1.0)
Kerosene-jet.....	1,520	1,603	(5.2)	1,577	1,617	(2.4)
Distillate fuel oil.....	3,901	4,331	(9.9)	3,856	4,343	(11.2)
≤ 500 ppm sulfur.....	3,828	4,271	(10.4)	3,793	4,254	(10.9)
≤ 15 ppm sulfur.....	3,816	4,267	(10.6)	3,781	4,225	(10.5)
> 500 ppm sulfur.....	73	60	21.7	63	89	(29.2)
Residual fuel oil.....	218	301	(27.6)	234	303	(22.8)
All other oils (including crude losses).....	5,738	5,129	11.9	5,787	5,290	9.4
Reclassified ⁴	(55)	(133)	na	(73)	(71)	na
Total domestic product supplied.....	20,308	20,194	0.6	20,222	20,329	(0.5)
Exports.....	9,155	8,453	8.3	8,975	8,269	8.5
Total disposition.....	29,463	28,646	2.9	29,197	28,599	2.1
Supply:						
Domestic liquids production						
Crude oil (including condensate).....	13,014	11,669	11.5	12,999	11,767	10.5
Natural gas liquids.....	4,942	4,706	5.0	4,948	4,621	7.1
Other supply ⁵	1,205	1,216	(0.9)	1,199	1,211	(1.0)
Total domestic supply.....	19,161	17,591	8.9	19,146	17,600	8.8
Imports:						
Crude oil (excluding SPR imports).....	6,945	6,652	4.4	6,852	7,108	(3.6)
From Canada.....	4,115	3,651	12.7	4,151	3,813	8.9
All other.....	2,830	3,000	(5.7)	2,701	3,295	(18.0)
Products.....	2,165	1,977	9.5	2,245	2,080	7.9
Total motor gasoline (incl. blend.comp)....	515	585	(12.0)	553	575	(3.8)
All other.....	1,650	1,392	18.5	1,692	1,504	12.5
Total imports.....	9,110	8,628	5.6	9,097	9,187	(1.0)
Total supply.....	28,271	26,219	7.8	28,243	26,788	5.4
Stock change, all oils.....	(1,192)	(2,427)	na	(954)	(1,811)	na
Refinery Operations:						
Input to crude distillation units.....	16,403	16,106	1.8	16,654	16,627	0.2
Gasoline production.....	9,758	9,730	0.3	9,702	9,733	(0.3)
Kerosene-jet production.....	1,695	1,689	0.4	1,792	1,732	3.5
Distillate fuel production.....	4,803	4,902	(2.0)	4,978	5,086	(2.1)
Residual fuel production.....	223	306	(27.1)	237	354	(33.0)
Operable capacity.....	18,809	18,767	0.2	18,809	18,764	0.2
Refinery utilization ⁶	87.2%	85.8%	na	88.5%	88.6%	na
Crude oil runs.....	15,909	15,837	0.5	16,233	16,335	(0.6)

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. A data 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)

	February 2020	January 2020	February 2019	% Change From	
				Month Ago	Year Ago
Stocks (at month-end, in millions of barrels):					
Crude oil (excluding lease & SPR stocks).....	448.5	433.8	451.7	3.4	(0.7)
Unfinished oils.....	96.9	89.4	92.8	8.4	4.4
Total motor gasoline.....	254.0	260.4	251.4	(2.5)	1.0
Finished reformulated.....	0.1	0.0	0.1	0.2	(1.9)
Finished conventional.....	26.6	27.2	24.2	(2.2)	10.1
Blending components.....	227.3	233.2	227.2	(2.5)	0.1
Kerosene-jet.....	42.8	42.4	42.0	0.9	1.9
Distillate fuel oil.....	135.2	143.6	136.3	(5.8)	(0.8)
≤ 500 ppm sulfur.....	125.6	132.4	124.8	(5.1)	0.6
≤ 15 ppm sulfur.....	122.3	129.0	120.5	(5.2)	1.5
> 500 ppm sulfur.....	9.6	11.2	11.4	(14.3)	(16.1)
Residual fuel oil.....	30.1	30.6	27.8	(1.6)	8.2
All other oils.....	283.5	289.6	251.2	(2.1)	12.8
Total all oils.....	1,291.0	1,289.8	1,253.2	0.1	3.0