energy API
Statistics Department
Monthly Statistical Report
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EXECUTIVE SUMMARY

In December 2019, U.S. oil markets achieved two new records:

- Record petroleum exports of **9.0 mb/d**; and,
- Crude oil production of **12.9 million barrels per day (mb/d)**, plus another 4.9 mb/d of natural gas liquids.

As international trade has dominated recent headlines, U.S. energy exports reached the 9.0 mb/d milestone even before endorsement of the U.S.-China trade deal. Within the 9.0 mb/d total, crude oil exports rose to 3.6 mb/d in December, compared with 3.1 mb/d in November and 2.4 mb/d in December 2018. Importantly, the U.S. therefore exported 1.2 mb/d of incremental crude oil supplies as of year-end 2019, which exceeds the U.S. Energy Information Administration's (EIA) estimate of 2019 total global oil demand growth.

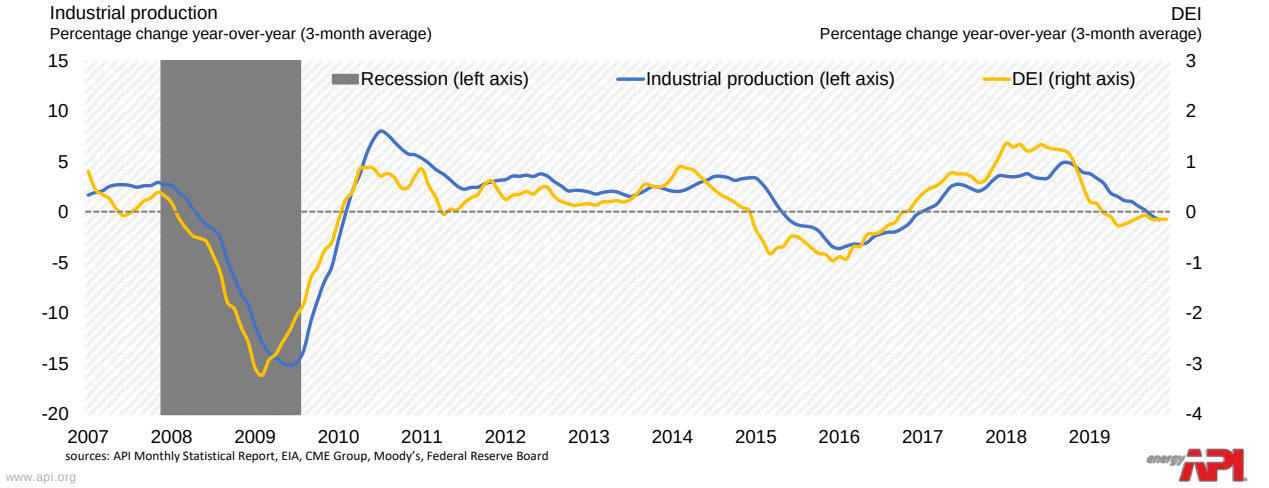
December was the 5th consecutive month of U.S. crude oil production records, despite oil-targeted drilling activity having fallen 23.5% y/y as of December. While EIA estimated well productivity improved nationwide, new production coming from a 10% drawdown in the backlog of drilled but uncompleted wells (DUCs) also contributed over the latter half of 2019, enabled by increased pipeline capacity.

API's economic indicator, the API D-E-I©, had a reading of -0.1 in December and a three-month average of -0.14 – nearly identical to the reading in November – and this historically has corresponded with slowing U.S. industrial production. Please see the following chart for comparisons.

DECEMBER HIGHLIGHTS (Click hyperlinks to advance to any section)

The API D-E-I© (Distillate Economic Indicator) - Dec. 2019

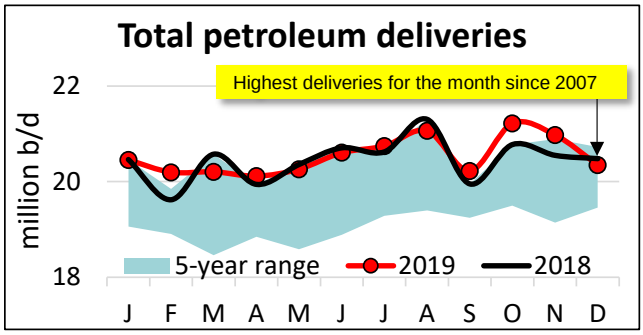
- The D-E-I © value of -0.1 for December and three-month average of -0.14 suggests a continued slowing of industrial production



Details by section

Demand

U.S. petroleum demand slowed in December and for 2019

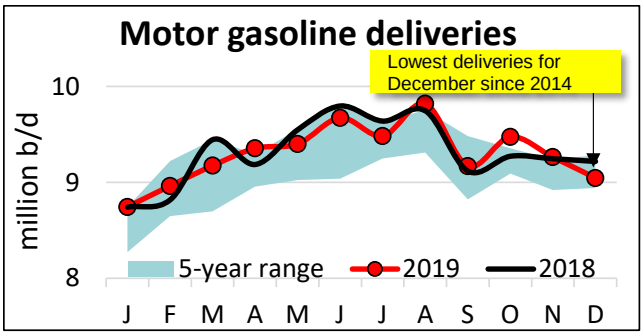


U.S. petroleum demand, as measured by total domestic petroleum deliveries, slowed to 20.3 mb/d in December. This was a seasonal decrease of 3.0% from November but an increase of 0.2% compared with December 2018.

For the year, 2019 U.S. petroleum demand decreased by six thousand barrels per day (-0.03% y/y) and ended seven consecutive years of growth, despite West Texas Intermediate (WTI) oil prices that fell by 12.2% from 2018. The changes appear to reflect divergent economic growth across sectors, as discussed below.

Gasoline

Gasoline deliveries slowed but diverged regionally

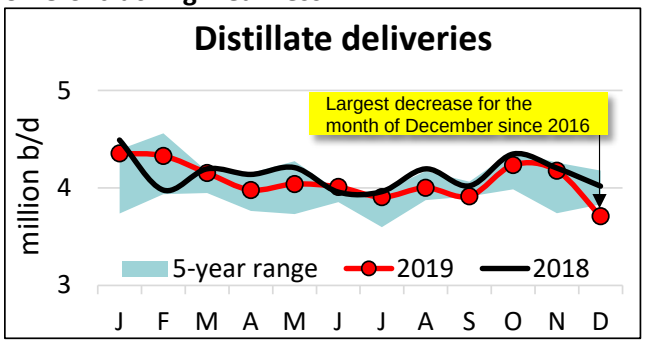


Consumer gasoline demand, measured by total motor gasoline deliveries, was 9.0 mb/d in December. This represented decreases of 2.3% from November and 1.4% versus December 2018 – and was at its lowest for the month since 2014. Meanwhile, U.S. average conventional gasoline prices rose 7.7% y/y in December according to AAA, which by basic economics would frictionally drag on holiday road travel.

For 2019, U.S. gasoline demand decreased by 0.4% y/y, due to a 2.3% y/y decrease in reformulated-type gasoline deliveries that are consumed primarily in urban areas. Conventional gasoline deliveries to mainly rural areas increased by 0.5% y/y.

Distillate Fuel Oil

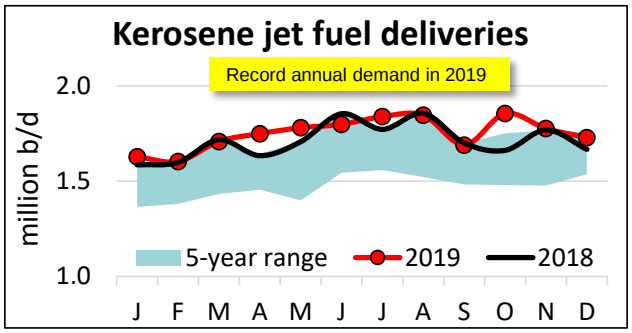
Distillate deliveries down for December and 2019 on U.S. trucking weakness



Distillate deliveries of 3.7 mb/d in December decreased by 11.2% from November and 7.7% compared with December 2018. This marked the largest year-on-year decrease for the month since 2016. For 2019, distillate deliveries fell by 1.9% y/y following growth for the previous two years. Weakness for December and the year reflected a downturn in U.S. trucking, which could be eased through 2020 along with the U.S.-China trade deal.

Kerosene Jet Fuel

Solid December jet fuel demand contributed to an annual record

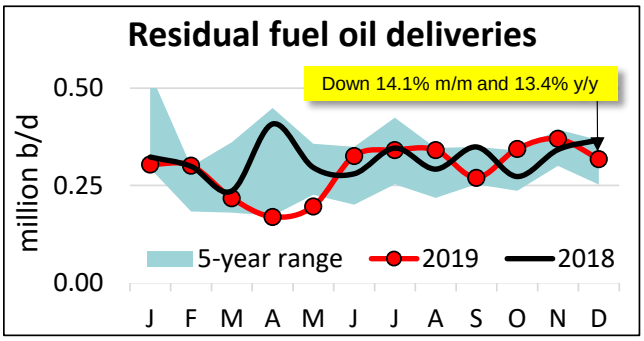


Kerosene jet fuel deliveries were 1.7 mb/d in December and on average through 2019 – a U.S. record for the year. This reflected increases of 3.2% y/y for December and 2.0% y/y for the year.

As of early January, the International Air Transport Association (IATA) reported for November domestic U.S. revenue passenger kilometer growth of 2.4% y/y but contraction in air freight kilometers. On net, 2019 was solid for air travel and jet fuel demand.

Residual Fuel Oil

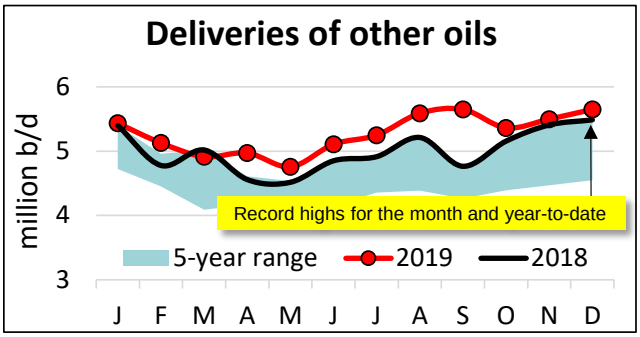
Lower residual fuel oil deliveries in December appeared to reflect heating and marine fuel needs



Deliveries of residual fuel oil, which is used in electric power production, space heating, industrial applications and as a marine bunker fuel, were 318 kb/d in December. This was a decrease of 14.1% from November and 13.4% compared with December 2018. By U.S. Energy Information Administration (EIA) estimates, December had 5.2% fewer heating degree days this year. Additionally, fuel switching to distillates and away from residual fuel oil was expected in preparation for IMO 2020 taking effect as of January 1, 2020, to cut sulphur oxide emissions in marine fuels.

Naphtha & Gasoil "Other Oils"

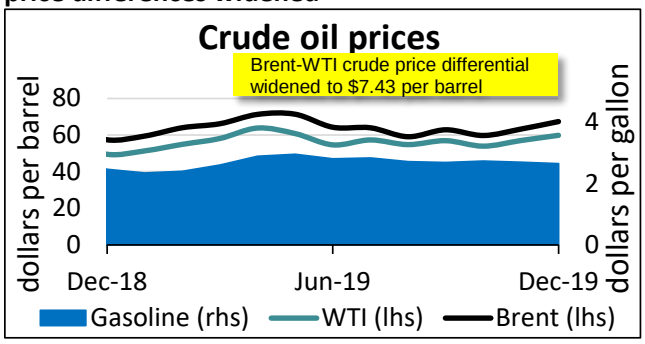
Refining and petrochemical demand set records for December and the year



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 December, deliveries of other oils (5.7 mb/d, +10.6% y/y) were on par with the U.S. record for any month and also contributed to an annual record for 2019.

Prices

December crude oil prices rose, and international price differences widened



Domestic WTI crude oil prices averaged $59.88 per barrel in December, an increase of 5.0% ($2.85 per barrel) from November and an increase of 20.9% ($10.36 per barrel) from December 2018. By contrast, international Brent crude oil prices averaged $67.31 per barrel, up $4.10 per barrel from November. Consequently, the difference between domestic and international crude oil prices widened to $7.43 per barrel in December from $6.18 per barrel in November.

Macroeconomy

U.S. economic indicators suggest solid consumer sentiment has driven growth

API's D-E-I© (Distillate Economic Indicator), which includes industry fundamentals, prices and interest rates, had a reading of -0.1 in December and a three-month average reading of -0.14, which historically has corresponded with slowing U.S. industrial production.

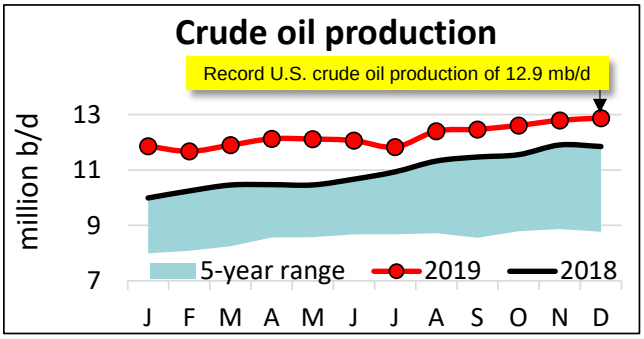
The Institute for Supply Management's Purchasing Managers Index (PMI) also signaled a slowing of industrial activity in December with a reading of 47.2%. Index values below 50.0 suggest a contraction. New orders, production and employment decreased, while supplier deliveries slowed and indicators covering trade, supplier backlogs, inventories and raw materials weakened; and, prices increased.

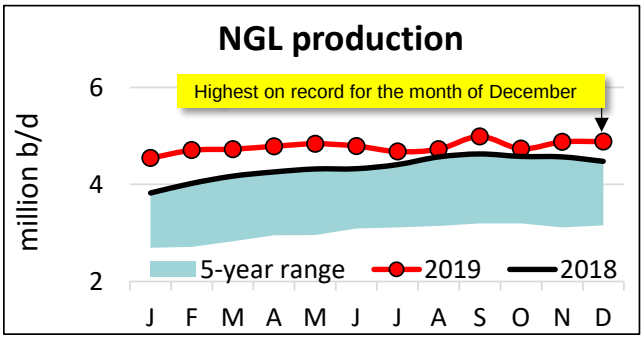
By contrast, consumer sentiment improved in December as the University of Michigan's consumer sentiment index increased to a reading of 99.3 in December from 96.8 in November. The survey noted that consumer spending has driven the record economic expansion and remains favorable for 2020 prospects.

According to the Bureau of Labor Statistics (BLS), the unemployment rate remained at 3.5% as U.S. non-farm payrolls grew by 145,000 in December.

Supply

Productivity and well completions drove record U.S. crude oil production (12.9 mb/d)





For five consecutive months including December, the U.S. set new crude oil production records. December crude oil production of 12.9 mb/d was an increase of 6.9% y/y or 0.83 mb/d over December 2018. Additional natural gas liquids (NGL) production of 4.9 mb/d set a record for December and was the third highest monthly production in 2019. The December production records came despite less drilling activity in December.

Baker Hughes reported oil-targeted drill rig activity has declined for 13 consecutive months and was down by 23.5% y/y in December.

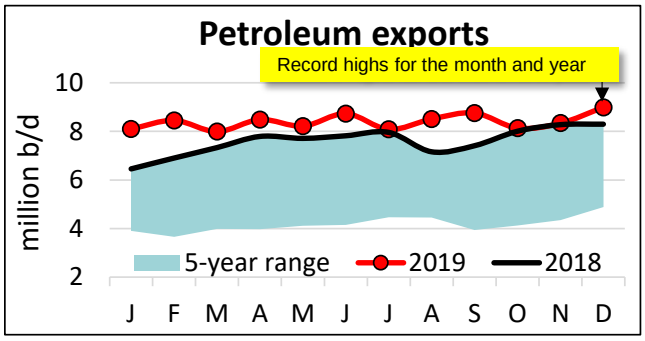
By contrast, however, the EIA estimated the productivity of new wells has continued to rise at the same time as the backlog of drilled but uncompleted wells (DUCs, 7,574 as of Nov.) has been drawn down by more than 10% since May

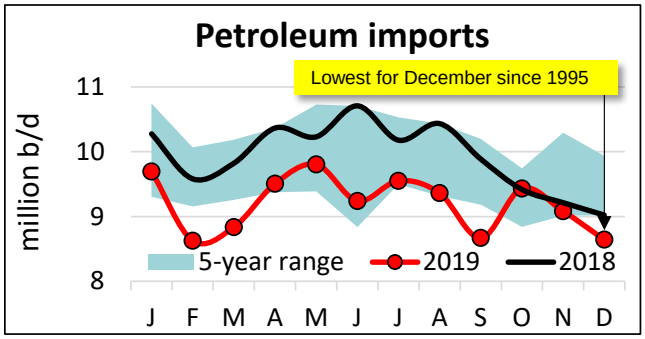
2019. These factors more than offset lower drilling activity and resulted in the production growth.

International trade

Crude oil export milestone drives U.S. total petroleum exports to record 9.0 mb/d

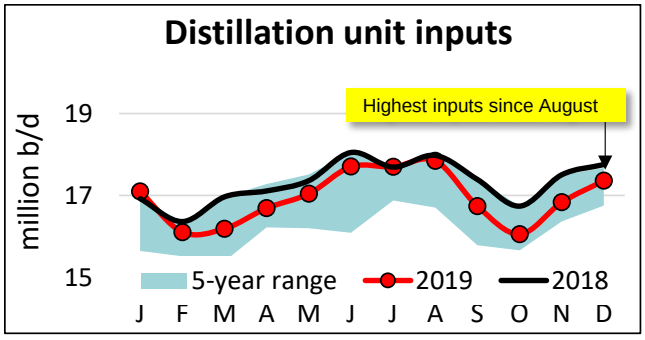
U.S. crude exports reached a new high of 3.6 mb/d in December, driving total petroleum exports to 9.0 mb/d. Total exports rose 7.8% from November and 8.3% versus December 2018. Meanwhile, U.S. petroleum imports fell to 8.6 mb/d for the month, which was a decrease of 4.8% from November and 4.2% versus December 2018. All together these figures suggest the U.S. remained a net exporter of oil to conclude 2019.

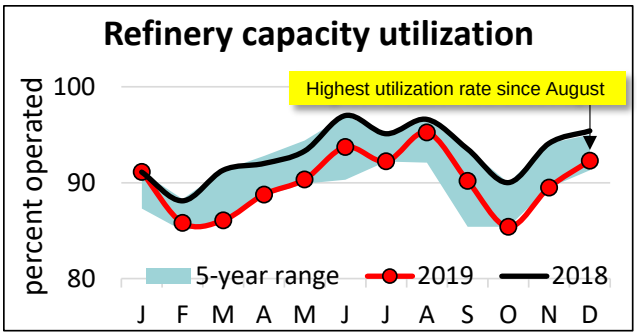




Industry operations

Refinery throughput and capacity utilization rates rebounded in December





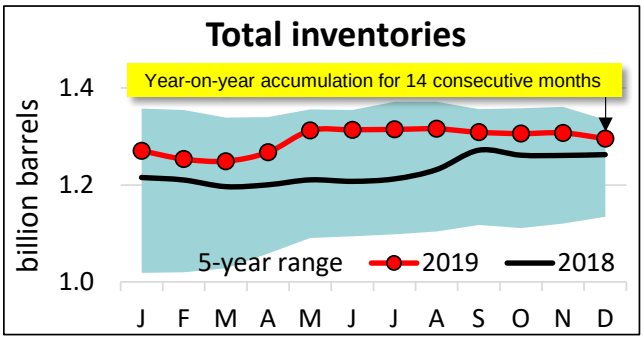
In December, gross inputs into crude oil distillation units at U.S. refineries was 17.4 mb/d and implied a capacity utilization rate of 92.3%. Following a season of relatively low capacity utilization, December marked the highest rate since August and restored gross inputs into the 5-year range.

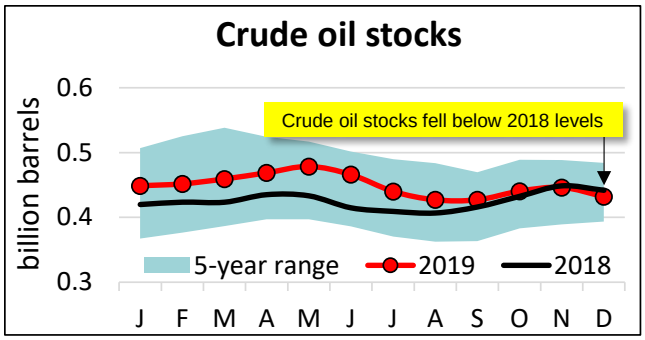
Refinery capacity utilization dropped through 2019 as refiners lost more than 0.6 mb/d of heavy oil imports from Venezuela as of December 2018 that were partially offset by 0.4 mb/d of higher imports of similar Canadian crude oil as of December 2019.

Additionally, EIA reports through October 2019 show U.S. refiners' average crude oil input sulfur content decreased 8.8% y/y while the API gravity rose by 2.3% y/y, which is consistent with the industry leveraging more of light sweet crude oil produced domestically.

Inventories

Total inventories increased year-on-year for the 14th consecutive month





U.S. total petroleum inventories, including crude oil and refined products but excluding the Strategic Petroleum Reserve, were 1.3 billion barrels in December, on par with their average since May 2019. However, total petroleum inventories in December exceeded their year-ago levels for the 14th consecutive month, even as crude oil stocks dropped by 3.2% from November.

ESTIMATED UNITED STATES PETROLEUM BALANCE[1]
(Daily average in thousands of 42 gallon barrels)

Disposition and Supply	December			Year-to-Date		
	2019[2]	2018	% Change	2019[3]	2018	% Change
Disposition:						
Total motor gasoline	9,046	9,179	(1.4)	9,288	9,329	(0.4)
Finished reformulated	3,032	2,995	1.2	3,032	3,102	(2.3)
Finished conventional	6,014	6,184	(2.7)	6,256	6,227	0.5
Kerosene-jet	1,729	1,676	3.2	1,741	1,707	2.0
Distillate fuel oil	3,710	4,020	(7.7)	4,066	4,146	(1.9)
≤ 500 ppm sulfur	3,636	3,915	(7.1)	3,999	4,027	(0.7)
≤ 15 ppm sulfur	3,629	3,907	(7.1)	3,989	4,011	(0.6)
> 500 ppm sulfur	74	105	(29.5)	67	114	(41.2)
Residual fuel oil	318	367	(13.4)	289	318	(9.1)
All other oils (including crude losses)	5,651	5,111	10.6	5,095	4,991	2.1
Reclassified[4]	(107)	(49)	na	19	14	na
Total domestic product supplied	20,347	20,304	0.2	20,498	20,504	(0.0)
Exports	8,990	8,301	8.3	8,469	7,601	11.4
Total disposition	29,337	28,605	2.6	28,967	28,106	3.1
Supply:						
Domestic liquids production						
Crude oil (including condensate)	12,870	12,038	6.9	12,230	10,990	11.3
Natural gas liquids	4,883	4,483	8.9	4,798	4,369	9.8
Other supply[5]	1,194	1,240	(3.6)	1,213	1,250	(2.9)
Total domestic supply	18,947	17,761	6.7	18,240	16,609	9.8
Imports:						
Crude oil (excluding SPR imports)	6,398	7,097	(9.8)	6,820	7,768	(12.2)
From Canada	4,072	3,680	10.6	3,839	3,707	3.6
All other	2,326	3,417	(31.9)	2,980	4,061	(26.6)
Products	2,246	1,924	16.8	2,320	2,174	6.7
Total motor gasoline (incl. blend.comp)	520	500	4.0	697	641	8.7
All other	1,726	1,423	21.3	1,623	1,533	5.8
Total imports	8,644	9,021	(4.2)	9,139	9,943	(8.1)
Total supply	27,591	26,781	3.0	27,380	26,552	3.1
Stock change, all oils	(1,746)	(1,823)	na	(1,587)	(1,554)	na
Refinery Operations:						
Input to crude distillation units	17,360	17,749	(2.2)	16,960	17,316	(2.1)
Gasoline production	9,936	10,020	(0.8)	10,083	10,061	0.2
Kerosene-jet production	1,891	1,856	1.9	1,797	1,806	(0.5)
Distillate fuel production	5,255	5,576	(5.8)	5,123	5,168	(0.9)
Residual fuel production	276	440	(37.3)	360	424	(15.1)
Operable capacity	18,809	18,603	1.1	18,799	18,600	1.1
Refinery utilization[6]	92.3%	95.4%	na	90.2%	93.1%	na
Crude oil runs	16,880	17,409	(3.0)	16,556	16,969	(2.4)

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 BALANCE[1]
(Daily average in thousands of 42 gallon barrels)

	December 2019	November 2019		December 2018	% Change From Month Ago	% Change From Year Ago
Stocks (at month-end, in millions of barrels):						
Crude oil (excluding lease & SPR stocks)	432.0	446.3		442.5	(3.2)	(2.4)
Unfinished oils	89.6	95.2		85.9	(5.9)	4.3
Total motor gasoline	245.4	231.6		246.5	6.0	(0.4)
Finished reformulated	0.0	0.0		0.0	0.1	(8.7)
Finished conventional	25.7	23.9		25.7	7.5	(0.1)
Blending components	219.7	207.7		220.7	5.8	(0.5)
Kerosene-jet	39.8	39.5		41.6	0.8	(4.3)
Distillate fuel oil	133.8	118.7		140.2	12.7	(4.5)
≤ 500 ppm sulfur	122.8	107.2		129.0	14.6	(4.8)
≤ 15 ppm sulfur	119.6	105.3		123.8	13.6	(3.4)
> 500 ppm sulfur	11.0	11.5		11.2	(4.3)	(1.9)
Residual fuel oil	29.8	28.7		28.3	3.8	5.2
All other oils	325.3	334.0	R	279.2	(2.6)	16.5
Total all oils	1,295.7	1,294.0	R	1,264.1	0.1	2.5