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April 2019

EXECUTIVE SUMMARY

In April, U.S. petroleum markets turned in a solid overall performance:

- ▶ Crude oil production sustained a record-tying 12.1 million barrels per day (mb/d); and,
- ▶ Total petroleum demand—the highest for the month since 2007 at 20.2 mb/d—accelerated to growth of 1.2 percent y/y in April from 0.4 percent y/y in March.

The demand for gasoline (9.5 mb/d) and jet fuel (1.7 mb/d) set new records for the month of April, which likely reflected strong U.S. consumer sentiment and spending.

However, the demand for distillates (diesel) fell by 10.9 percent between March and April and coincided with indicators that freight trucking and industrial activity slowed. API's economic indicator, the API DEI (Distillate Economic Indicator) decreased by 0.3 percentage points in April with a three-month average level of zero, which has reflected the slowing of U.S. total industrial production. Please see the [following chart](#) for comparisons.

Moreover, U.S. petroleum international trade weakened between March and April:

- ▶ U.S. petroleum imports rose by 1.1 mb/d, about 60 percent of which was crude oil; and,
- ▶ Crude oil exports fell by 0.4 mb/d, which contributed to increased domestic crude oil inventories.

Although the rise in petroleum imports largely appeared to be seasonal, the decline in crude oil exports could reflect heightened trade frictions plus efforts to buy Iranian crude oil before sanction waivers [expired](#) on May 2.

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

Demand

- **U.S. petroleum demand growth (1.2 percent y/y) picked up in April**
 - Record gasoline demand (9.5 mb/d) for the month of April.
 - Steepest decrease in April distillate demand since 1993.
 - Seasonally strong jet fuel demand in April (1.7 mb/d).
 - Residual fuel oil demand 41 percent below April 2018 levels.
 - Strongest refinery and petrochemical feedstock demand (5.0 mb/d) for April since 2007.

Prices & Macroeconomy

- **Oil and gasoline prices increased in April.**
- **U.S. leading economic indicators suggest solid employment and consumer confidence, weakened industrial activity.**

Supply

- **Sustained record U.S. crude oil production (12.1 mb/d).**

International trade

- **U.S. petroleum imports rose by 1.1 mb/d from March.**

Industry operations

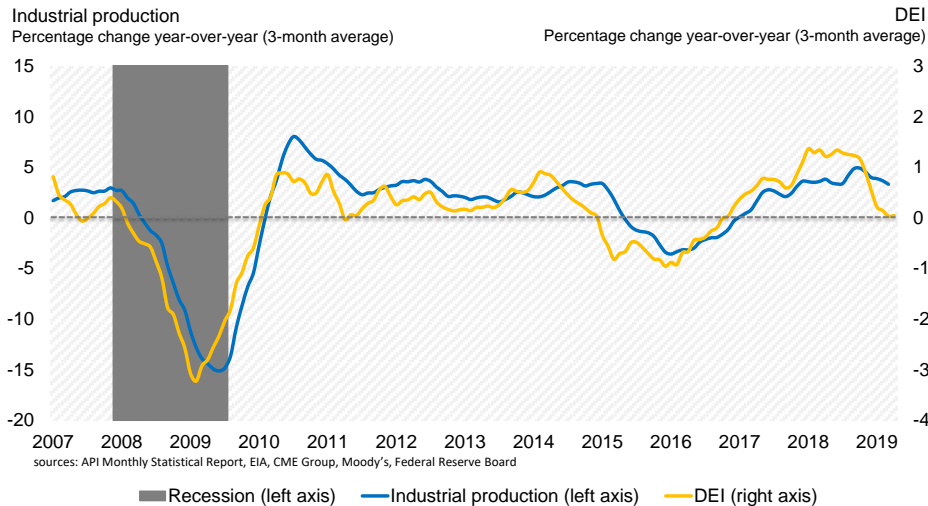
- **Refinery throughput and capacity utilization rose in April but remain below year-ago levels.**

Inventories

- **Total petroleum inventories grew 4.5 percent year-on-year.**

API DEI (Distillate Economic Indicator) – April 2019

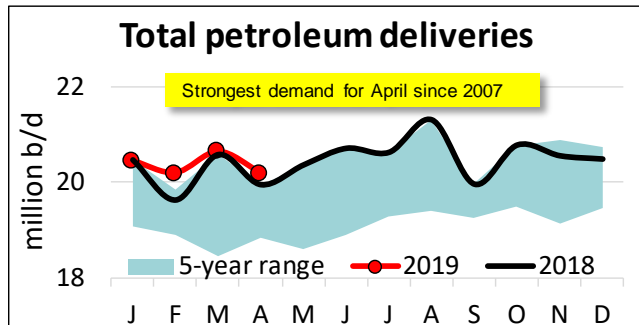
• The DEI value of -0.3 for April and three-month average of 0.04 suggests a continued slowing of industrial production



Details by section

Demand

U.S. petroleum demand growth picked up in April

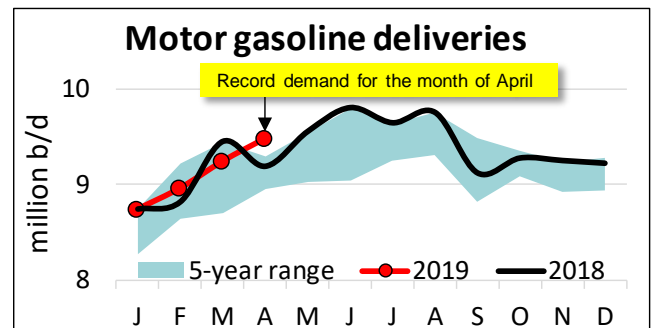


U.S. petroleum demand, as measured by total domestic petroleum deliveries, was 20.2 mb/d in April, which was down by 2.2 percent from March but up by 1.2 percent compared with April 2018. This was an uptick in the pace of annual growth, which had fallen to 0.4 percent for March in last month's report.

Varying seasonally as it did in 2018, this also was the strongest demand for the month of April since 2007. Cumulatively over the first four months of the year, demand increased by 1.3 percent (225 thousand barrels per day (kb/d) compared with the same period one year ago.

Gasoline

Record gasoline demand (9.5 mb/d) for the month of April

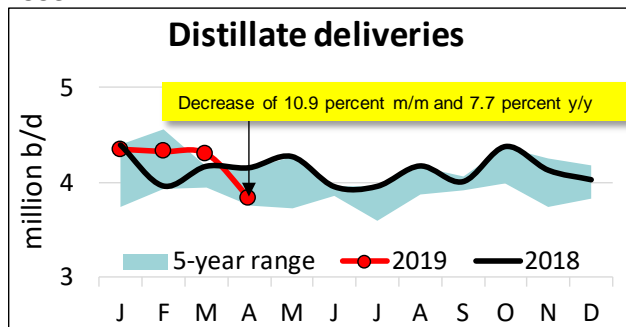


Consumer gasoline demand, measured by total motor gasoline deliveries, was 9.5 mb/d in April. This was an increase of 2.6 percent from March and 3.2 percent versus April 2018. This growth ran counter to recent seasonality and led to the strongest ever U.S. gasoline demand for the month of April.

The growth also was dispersed broadly across America, as demand for conventional gasoline, which is used primarily in rural areas, rose by 4.6 percent y/y to 6.3 mb/d. Demand for reformulated-type gasoline, which is consumed primarily in urban areas, rose by 0.6 percent y/y to 3.2 mb/d in April.

Distillate Fuel Oil

Steepest decrease in April distillate demand since 1993



In April, distillate deliveries of 3.8 mb/d decreased by 10.9 percent from March and 7.7 percent compared with April 2018. Although seasonal monthly decreases between March and April are typical, this was the largest decrease for April since 1993 and ran counter to a strong first quarter of the year. Cumulatively through the first four months of the year, distillate demand was 0.2 percent below that of the same period one year ago.

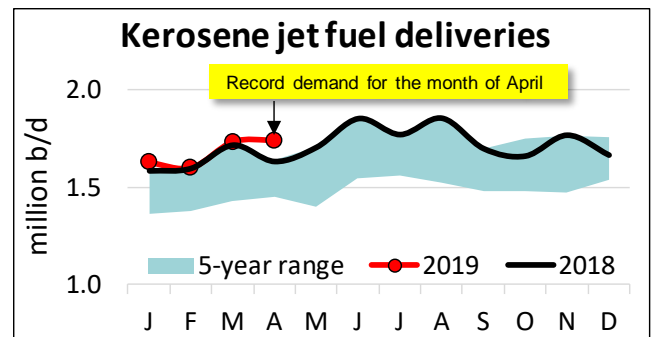
Driven mainly by road freight transportation activity, 96.0 percent of distillate demand in April was for ultra-low sulfur distillate (ULSD). Freight trucking activity appeared to slow in April as the Bureau of Labor Statistics' (BLS) Producer Price Index for freight trucking fell by 0.6 percent from March and was down for the third consecutive month.

The remainder (4.0 percent) of distillate demand 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 April, HSD deliveries of 136 thousand barrels per day (kb/d) decreased seasonally between March and April and fell by 3.5 percent compared with April 2018.

Kerosene Jet Fuel

Seasonally strong jet fuel demand in April (1.7 mb/d)

Kerosene jet fuel demand, at 1.7 mb/d in April, continued above the 5-year range. This represented growth of 0.5 percent from March and 6.5 percent compared with April 2018 – the strongest annual growth for April since 2013.

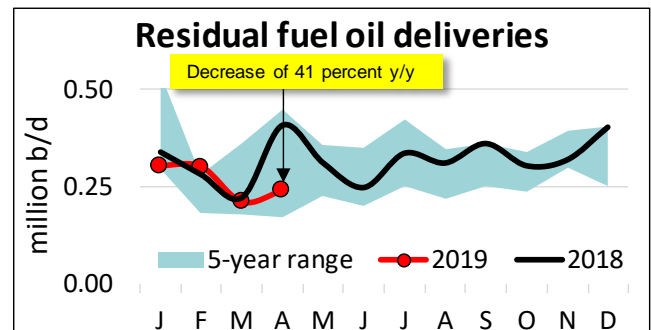


The [International Air Transport Association \(IATA\)](#) corroborated the slower growth reported last month, as seen in the March data, and attributed it to the Easter holiday falling later this year. By the same token, this likely contributed to the higher demand seen in April.

Although [grounding of the Boeing 737 Max](#) jet also may have contributed to lower jet fuel demand growth in March, it appears some airlines replaced these jets with ones that are [less fuel efficient](#), which would additionally lend toward higher fuel consumption as airline routes were restored.

Residual Fuel Oil

Residual fuel oil demand was 41 percent below April 2018 levels



Residual fuel oil demand was 241 kb/d in April, which represented an increase of 13.7 percent from March but a decrease of 41.1 percent versus April 2018. Residual fuel oil is used in electric power production, space heating, marine vessel bunkering and other industrial applications.

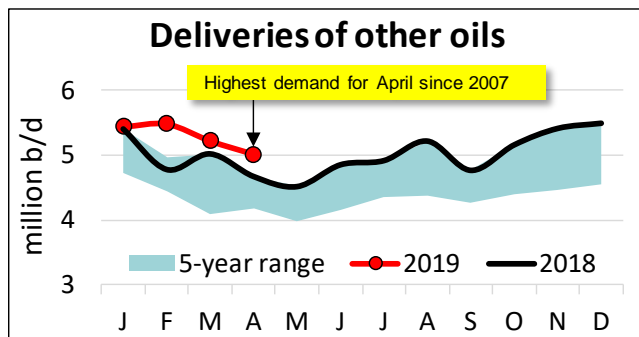
Marine shipping picked up in April. The [Baltic Dry Shipping Index](#), an index of ship charter rates, increased by 13.6 percent between March and April and as of early May rebounded to its highest levels since January. However, the structural shift appears

to have affected [future contracted residual fuel oil demand](#) with marine fuel sulfur regulations tightening at the beginning of 2020.

Other Oils

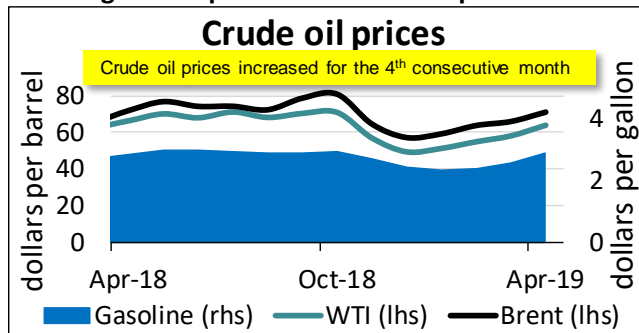
Strongest refinery and petrochemical feedstock demand (5.0 mb/d) for April since 2007

Refining and petrochemical demand for liquid feedstocks, naphtha, and gasoil (“other oils”) was 5.0 mb/d in April, a decrease of 4.0 percent from March but an increase of 7.2 percent above April 2018. This was the highest other oils’ demand for the month of April since 2007 and appeared to be consistent with petrochemical industry growth reported by the American Chemistry Council in its [Chemical Activity Barometer](#).



Prices

Oil and gasoline prices increased in April



Domestic WTI crude oil prices averaged \$63.86 per barrel in April, an increase of 9.8 percent (\$5.71 per barrel) from March but a decrease of 3.6 percent (\$2.39 per barrel) from April 2018. Similarly, international Brent crude oil prices averaged \$71.26 per barrel, up 7.7 percent (\$5.12 per barrel) from March. As prices rose for the fourth consecutive month, the difference between Brent and WTI crude oil prices narrowed by \$0.59 per barrel to \$7.40 per barrel in April from \$7.99 per barrel in March. As crude oil prices rose, the average U.S.

gasoline price increased to \$2.88 per gallon in April from \$2.59 per gallon in March, according to [AAA](#) reports.

Macroeconomy

U.S. leading economic indicators suggest solid employment and consumer confidence, weakened industrial activity

API’s D-E-I (Distillate Economic Indicator), which includes industry fundamentals, prices and interest rates, decreased by 0.3 percentage points in April with a three-month average of zero, which suggested a continued slowing in industrial production.

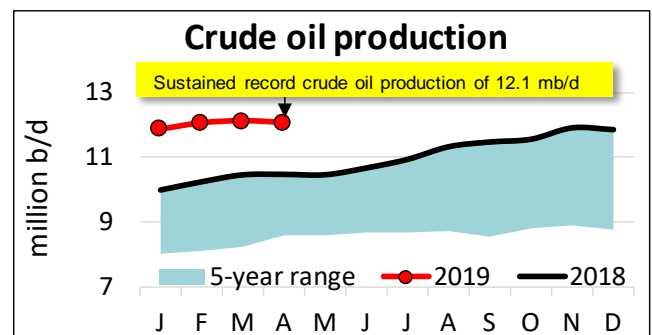
The [Institute for Supply Management’s Purchasing Managers Index \(PMI\)](#) registered 52.8 in April, which was an decrease of 2.5 percentage points from a reading of 55.3 in March. Any value above 50.0 suggests an expansion. New orders, production and employment increased. Growth occurred in 13 of the 18 manufacturing sectors surveyed, which was three fewer than in March.

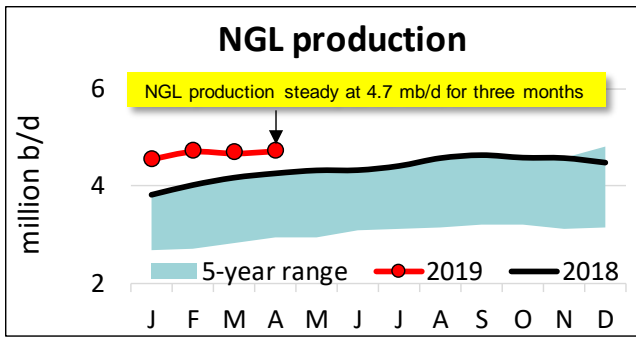
The [University of Michigan’s consumer sentiment index](#) slipped to a preliminary April reading of 97.2 from a final reading of 98.4 in March. Overall consumer sentiment has remained at relatively favorable levels and not moved significantly.

According to the [Bureau of Labor Statistics \(BLS\)](#), labor markets tightened in April, as the unemployment rate decreased to 3.6 percent and U.S. non-farm payrolls grew by 263,000.

Supply

Sustained record U.S. oil production (12.1 mb/d)



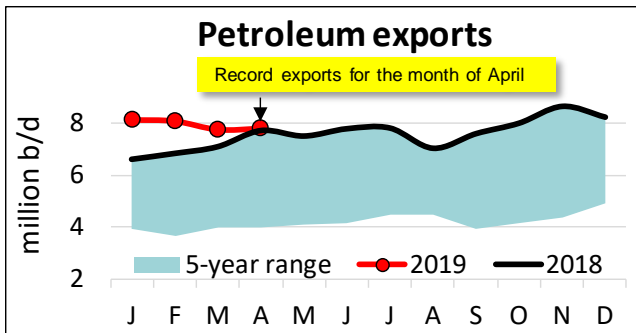


In April, the U.S. tied its world-leading and record U.S. crude oil production of 12.1 mb/d as well as natural gas liquids production of 4.7 mb/d.

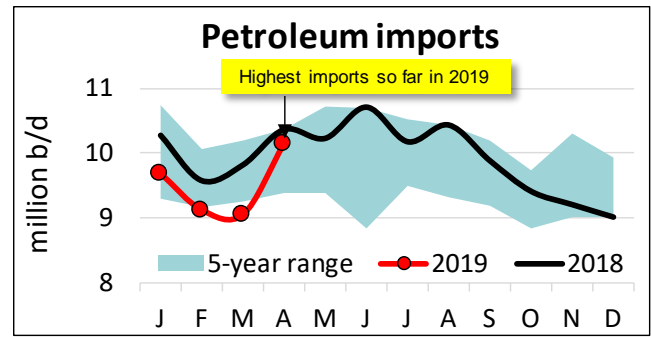
Production remained flat with productivity offset by slower drilling activity over the past quarter. [Baker Hughes](#) reported an average of 848 oil-targeted rigs in Q1 2019, down from 878 oil-targeted rigs in Q4 2018.

International trade

U.S. petroleum imports rose by 1.1 mb/d from March

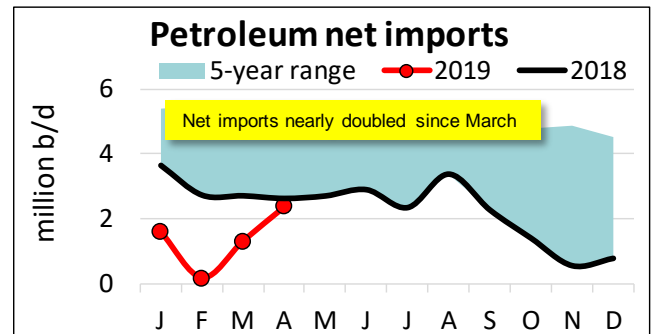


Total U.S. petroleum exports – crude oil and refined products – hit a record for the month of April at 7.8 mb/d. This was an increase of 0.5 percent from March and 0.6 percent versus April 2018. However, these small percentage increases masked a notable decrease in crude oil exports to 2.5 mb/d in April from 2.8 mb/d in March and a high of 3.0 mb/d in February.



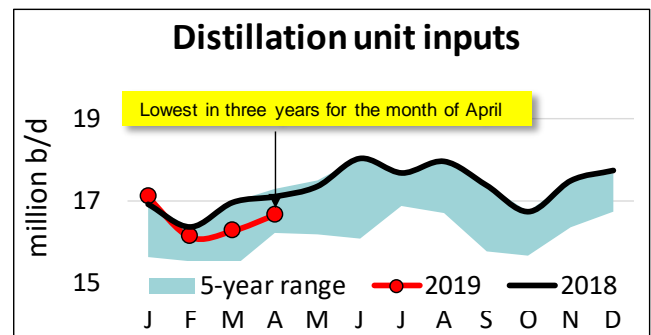
However, total U.S. petroleum imports were the dominant change in April with an increase of 12.1 percent (1.1 mb/d) from March. This included gasoline and distillate import increases of 13 percent and 69 percent, respectively, while jet fuel imports more than doubled to over 200 kb/d.

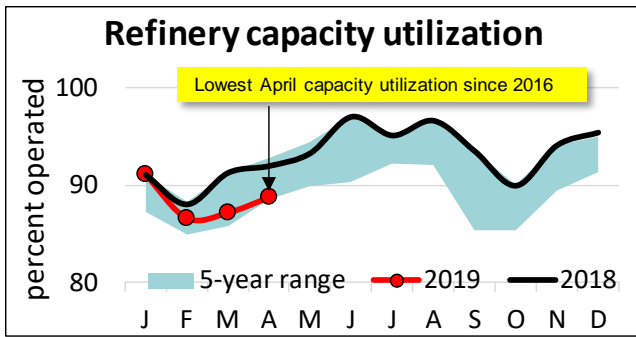
Consequently, with imports rising more than exports in April, the U.S. petroleum trade balance nearly doubled to 2.4 mb/d of net imports from 1.3 mb/d in March.



Industry operations

Refinery throughput and capacity utilization rose April but remain below year-ago levels



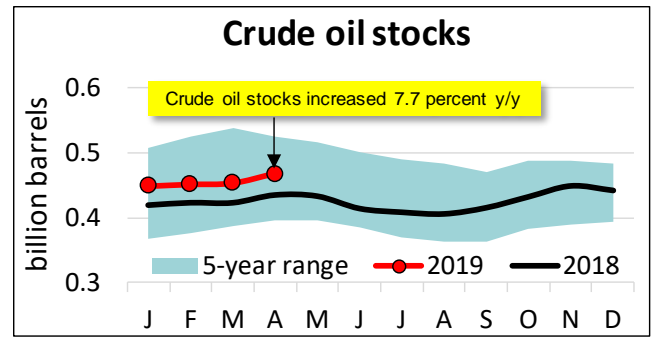
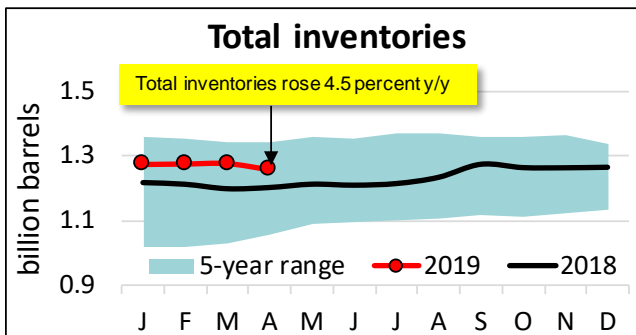


In April, gross inputs to U.S. refineries were 16.7 mb/d and an implied a capacity utilization rate of 88.8 percent. This capacity utilization rate remained at the lower bound of the five-year range, due in part to refinery outages of more than 1.4 mb/d in April – about 0.6 mb/d more than in April 2018, according to Bloomberg.

Another contributing factor may have been the decline of Venezuelan heavy oil imports to the U.S., which [EIA estimates](#) suggest fell to 0.15 mb/d in April from over 0.9 mb/d in April 2017. Over the same two-year period, Venezuela’s decline was partially offset by imports from Canada, which increased by nearly 0.6 mb/d. However, this could leave some U.S. refiners short of the heavy grade of oil needed to run their complex refinery units at full capacity.

Inventories

Total petroleum inventories grew to 4.5 percent year-on-year



In April, total petroleum inventories, including crude oil and refined products but excluding the Strategic Petroleum Reserve, were 1.25 billion barrels. This was a flat change from March but an increase of 4.5 percent over April 2018. Total inventories were nearly on par with the average of the 5-year range.

Within the April total, crude oil inventories of 0.47 billion barrels increased by 3.3 percent from March and 7.7 percent versus April 2018. With the accumulation in April, crude oil inventories stood 2.4 percent above the 5-year average. This stock building mainly resulted from a combination of the aforementioned strong domestic crude oil production coupled with decreased crude oil exports.

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

Disposition and Supply	April			Year-to-Date		
	2019 ²	2018	% Change	2019 ³	2018	% Change
Disposition:						
Total motor gasoline.....	9,482	9,187	3.2	9,095	9,053	0.5
Finished reformulated.....	3,160	3,142	0.6	3,020	3,028	(0.3)
Finished conventional.....	6,322	6,045	4.6	6,075	6,025	0.8
Kerosene-jet.....	1,740	1,634	6.5	1,688	1,635	3.2
Distillate fuel oil.....	3,836	4,154	(7.7)	4,165	4,175	(0.2)
≤ 500 ppm sulfur.....	3,700	4,012	(7.8)	4,020	3,983	0.9
≤ 15 ppm sulfur.....	3,687	4,009	(8.0)	3,998	3,964	0.9
> 500 ppm sulfur.....	136	141	(3.5)	145	192	(24.5)
Residual fuel oil.....	241	409	(41.1)	253	314	(19.4)
All other oils (including crude losses).....	5,006	4,670	7.2	5,281	4,915	7.4
Reclassified ⁴	(115)	(113)	na	(61)	72	na
Total domestic product supplied.....	20,190	19,941	1.2	20,419	20,164	1.3
Exports.....	7,778	7,730	0.6	7,916	7,074	11.9
Total disposition.....	27,968	27,671	1.1	28,336	27,237	4.0
Supply:						
Domestic liquids production						
Crude oil (including condensate).....	12,068	10,475	15.2	11,941	10,294	16.0
Natural gas liquids.....	4,714	4,260	10.7	4,661	4,070	14.5
Other supply ⁵	1,182	1,214	(2.7)	1,195	1,223	(2.3)
Total domestic supply.....	17,964	15,949	12.6	17,796	15,587	14.2
Imports:						
Crude oil (excluding SPR imports).....	7,262	8,244	(11.9)	7,031	7,847	(10.4)
From Canada.....	3,936	3,731	5.5	3,720	3,658	1.7
All other.....	3,326	4,513	(26.3)	3,311	4,189	(21.0)
Products.....	2,895	2,120	36.6	2,482	2,171	14.3
Total motor gasoline (incl. blend.comp)....	937	827	13.3	670	641	4.5
All other.....	1,958	1,293	51.4	1,812	1,530	18.4
Total imports.....	10,157	10,364	(2.0)	9,513	10,018	(5.0)
Total supply.....	28,121	26,313	6.9	27,310	25,605	6.7
Stock change, all oils.....	153	(1,358)	na	(1,026)	(1,633)	na
Refinery Operations:						
Input to crude distillation units.....	16,666	17,107	(2.6)	16,549	16,847	(1.8)
Gasoline production.....	10,015	9,964	0.5	9,799	9,790	0.1
Kerosene-jet production.....	1,739	1,798	(3.3)	1,736	1,722	0.8
Distillate fuel production.....	5,023	5,119	(1.9)	5,004	4,814	3.9
Residual fuel production.....	391	450	(13.1)	348	443	(21.5)
Operable capacity.....	18,762	18,598	0.9	18,697	18,580	0.6
Refinery utilization ⁶	88.8%	92.0%	na	88.5%	90.7%	na
Crude oil runs.....	16,344	16,766	(2.5)	16,241	16,502	(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)

	April 2019	March 2019	April 2018	% Change From	
				Month Ago	Year Ago
Stocks (at month-end, in millions of barrels):					
Crude oil (excluding lease & SPR stocks).....	468.4	453.5	435.1	3.3	7.7
Unfinished oils.....	96.3	91.8	94.3	4.9	2.1
Total motor gasoline.....	227.2	235.5	239.9	(3.5)	(5.3)
Finished reformulated.....	0.0	0.0	0.1	(0.1)	(8.0)
Finished conventional.....	21.0	21.6	22.8	(2.8)	(7.8)
Blending components.....	206.2	213.9	217.1	(3.6)	(5.0)
Kerosene-jet.....	40.5	40.8	40.9	(0.7)	(1.0)
Distillate fuel oil.....	125.0	127.5	120.6	(2.0)	3.7
≤ 500 ppm sulfur.....	114.1	116.9	111.0	(2.4)	2.8
≤ 15 ppm sulfur.....	111.2	114.3	106.8	(2.7)	4.1
> 500 ppm sulfur.....	10.9	10.6	9.6	2.8	13.6
Residual fuel oil.....	29.5	29.4	32.3	0.3	(8.8)
All other oils.....	267.5	276.1 R	237.1	(3.1)	12.9
Total all oils.....	1,254.4	1254.6 R	1,200.1	(0.0)	4.5