



Vol. 46 No. 4  
Published May 19, 2022  
April 2022

### EXECUTIVE SUMMARY

- U.S. petroleum demand (19.3 mb/d) decreased to its lowest for any month since March 2021.
- U.S. production of crude oil and natural gas liquids (NGLs) together remained flat in April.
- With Russia’s war in Ukraine, U.S. petroleum net exports rose to 1.4 mb/d, their highest on record since 1947.
- U.S. crude oil commercial inventories (ex-SPR) were the lowest for April since 2014 and showed the lowest year-to-date stock building on record since 2005.

U.S. petroleum demand fell by 0.1 million barrels per day (mb/d) in March and by another 1.0 mb/d in April. Excluding the 2020-2021 pandemic, this was the largest two-month decrease since September 2008. The vast majority of the fall was in “other oils” (that is, naphtha, gasoil, propane, and propylene) that feed refinery and petrochemical operations which enable consumer products like medical plastics, films, and packaging. As motor fuel prices remained near record-high levels, however, U.S. gasoline demand remained flat (compared seasonal increases historically since 2012), and distillate fuel oil demand dropped for a second straight month. Residual fuel oil demand tripled year-on-year with fuel substitution.

U.S. crude oil production rose by 158,000 barrels per day (b/d) in April but was largely offset by a 130,000 b/d decrease in natural gas liquids (NGL) field production. Meanwhile, U.S. refinery activity remained solid with a capacity utilization rate over 90% for the second straight month. And with the potential loss of Russian crude oil and petroleum products to global markets, U.S. petroleum net exports rose to 1.4 mb/d, their second highest for any month on record since 1947. Consequently, U.S. crude oil inventories remained at their lowest for the month since 2014. Notably, U.S. commercial crude oil inventories between December and April each year on record since 2005 have historically risen by an average of more than 40 million barrels in advance of increased refining activity preceding the summer driving season. As of April 2022 year-to-date, however, U.S. crude oil inventories fell by 3.4 million barrels.

Leading economic indicators weakened. API’s Distillate Economic Indicator™ suggested slowed growth of U.S. industrial production and broader economic activity (please see the following [chart](#) for details).

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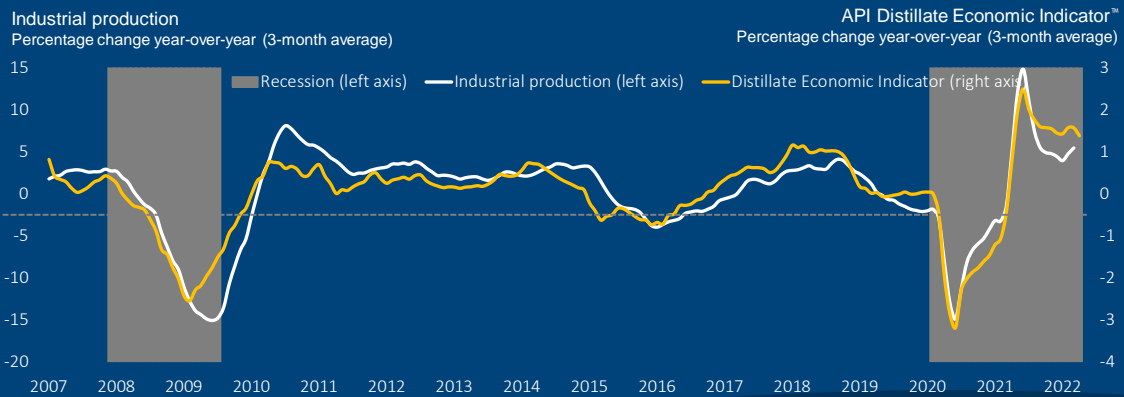
- **U.S. refining capacity utilization rate over 90% for a second straight month.**

#### Inventories

- **Crude Historically low crude oil inventories and unusually low accumulation oil inventories fell to their lowest for April since 2014.**

# API's Distillate Economic Indicator™ - April 2022

The Distillate Economic Indicator™ value of +0.8 for April 2022 and three-month average of +1.4 signaled continued but slower growth of U.S. industrial production and broader economic activity



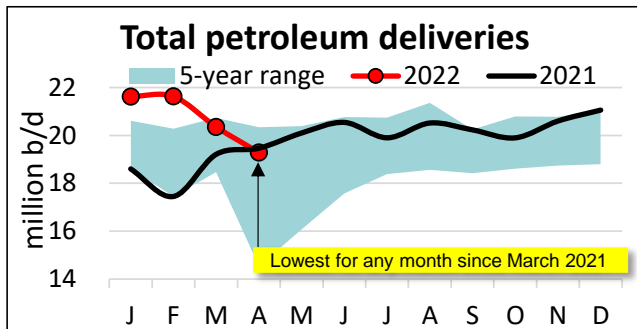
sources: API Monthly Statistical Report; EIA; CME Group; Moody's, Federal Reserve Board; API Team calculations



## Details by section

### Demand

**U.S. petroleum demand (19.3 mb/d) fell to its lowest since March 2021**

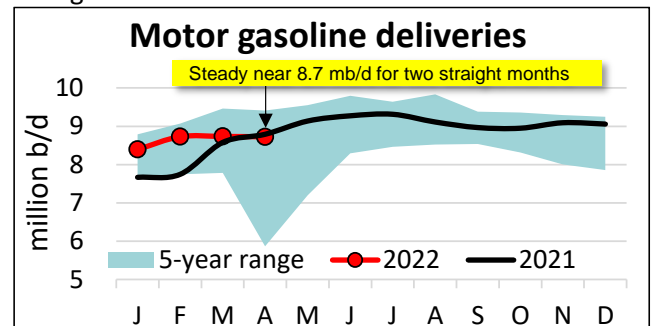


U.S. petroleum demand, as measured by total domestic petroleum deliveries, was 19.3 mb/d in April. This reflected a 5.2% decrease from March and by 5.6% since February. Excluding the 2020 and 2021 COVID-19 pandemic, this was the largest two-month decrease since September 2008. Furthermore, out of the 1.2 mb/d decrease demand since February, 1.0 mb/d of it was “other oils” (that is, naphtha, gasoil, propane, and propylene) that feed refinery and petrochemical operations, including packaging, films, and medical plastics.

### Gasoline

**Motor gasoline demand (8.7 mb/d) flattened along with urban commuting**

Consumer gasoline demand, measured by motor gasoline deliveries, remained near 8.7 mb/d in March and April. April showed decreases of 0.1% m/m from March and 0.8% y/y compared with April 2021. Excluding the 2020 COVID-19 pandemic, U.S. gasoline demand since 2012 increased by averages of 1.0% m/m between March and April and 3.4% between February and March. Therefore, the past two months departed from these historical monthly changes.

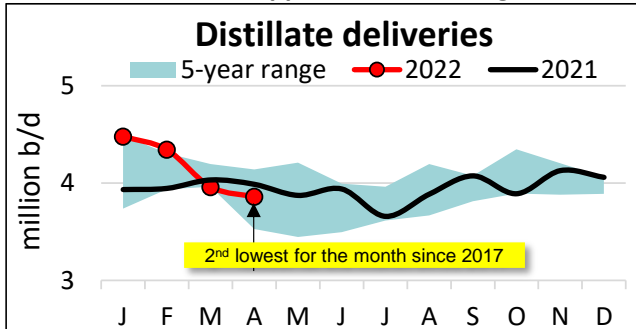


Deliveries of conventional gasoline (consumed mainly in rural areas) increased by 1.2% m/m to 5.9 mb/d. By comparison, reformulated-type gasoline (consumed primarily in urban areas) fell to 2.8 mb/d and was down by 2.8% m/m from March, which countered historical seasonality, with other April

monthly decreases having occurred in 2020 (-20.7% m/m) and 2008 (0.5% m/m).

**Distillate Fuel Oil**

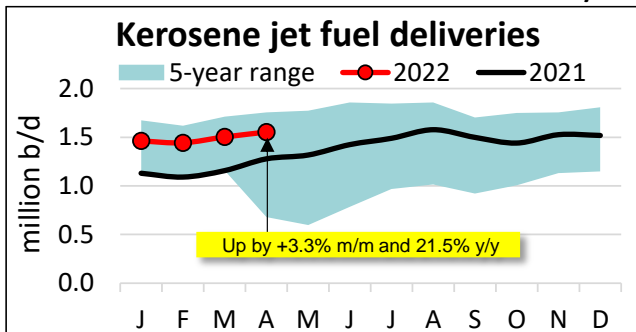
Distillate demand dropped for a 2<sup>nd</sup> straight month



Distillate deliveries of 3.9 mb/d decreased by 2.5% m/m from March and by 3.2% y/y compared with April 2021. [DAT iQ industry trendlines](#) showed that spot trucks available in April fell by 2.8% m/m, while the number of available spot loads decreased by 27.0% m/m, which were consistent with [slowed](#) freight trucking.

**Kerosene Jet Fuel**

Jet fuel demand continued to rise above 1.5 mb/d

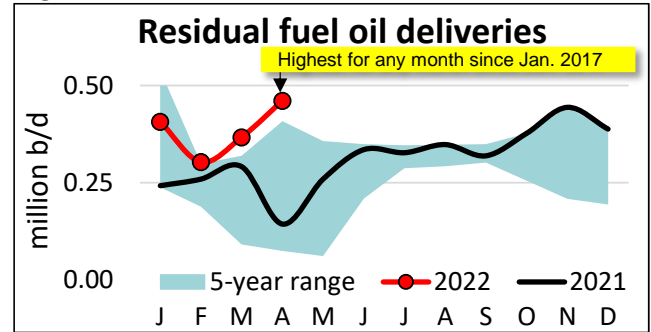


Kerosene-type jet fuel deliveries of 1.5 mb/d in April were up by 3.3% m/m from March and 21.5% y/y compared with April 2021 – on par with their levels in April 2015 and 2016.

High-frequency data from [Flightradar24](#) and [TSA](#) showed that the numbers of flights decreased by 1.7% m/m while air passenger volumes rose by 3.0% m/m, consistent with the International Air Transport Association (IATA) reports that passenger traffic continued to [recover](#) but air [cargo](#) decreased along with economic conditions.

**Residual Fuel Oil**

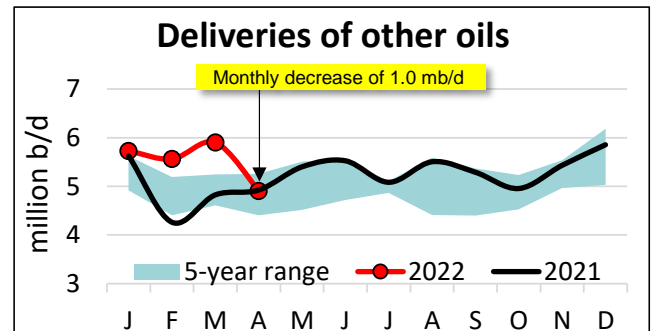
Highest residual fuel oil demand since Jan. 2017



Deliveries of residual fuel oil, which is used as a marine bunker fuel and internationally in electric power production, space heating and industrial applications, were 0.5 mb/d in April, which reflected an increase of 25.6% m/m from March and more than triple (222% y/y) the level in April 2021. Although global marine shipping markets have remained historically [tight](#), it appears likely that fuel substitution of distillates for relatively less expensive residual fuel oil continued in April.

**Other Oils – Naphtha, Gasoil, Propane & Propylene**

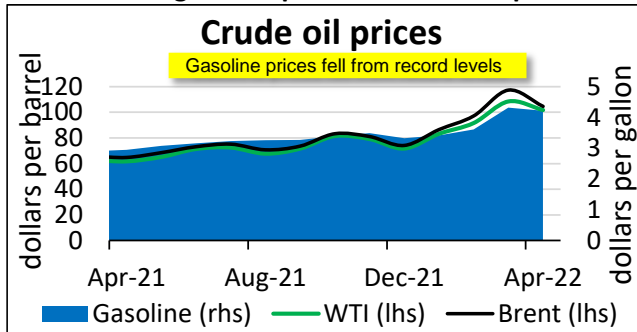
Other oils' demand dropped by 1.0 mb/d in April



Deliveries of refinery and petrochemical liquid feedstocks – that is, naphtha, gasoil, and propane/propylene (“other oils”) – were 4.9 mb/d in April, down by 1.0 mb/d m/m from March. The drop likely reflected a combination of slower broad economic activity and less demand for medical plastics, films, and packaging.

**Prices**

**Crude oil and gasoline prices receded in April**



In April, West Texas Intermediate (WTI) crude oil prices decreased by 6.2% m/m to \$101.78 per barrel. Brent crude oil spot prices averaged \$104.58 per barrel and implied a Brent-WTI crude oil price differential of \$2.80 per barrel, down from a differential of \$8.75 per barrel in March.

Crude oil remained the top input cost in making gasoline per [EIA](#). The U.S. average conventional gasoline price was \$4.21 per gallon in April, down by 2.5% m/m from March but up by 15.8% y/y compared with April 2021, according to [AAA](#).

**Macroeconomy**

**Leading indicators showed weaker industrial growth and consumer sentiment**

API’s Distillate Economic Indicator™, which is based primarily on diesel/distillate supply, demand, and inventories, had a reading of +0.8 in April and a three-month average of +1.4, suggesting that U.S. industrial production and broader economic activity have continued to grow, but at a slower rate than the March reading of +1.3 showed.

The Institute for Supply Management’s manufacturing Purchasing Managers Index (PMI) had a reading of 55.4 in April, a 1.7 percentage point decrease from March. Index values above 50.0 suggest an expansion in the overall economy, and the manufacturing PMI exceeded that threshold for a 23<sup>rd</sup> consecutive month. Within the index, there were monthly increases in the index’s measures of supplier deliveries and customers’ inventories. And there were monthly decreases in the index’s measures of new orders, production, employment, inventories, prices, backlog of orders, new export orders and imports. Seventeen

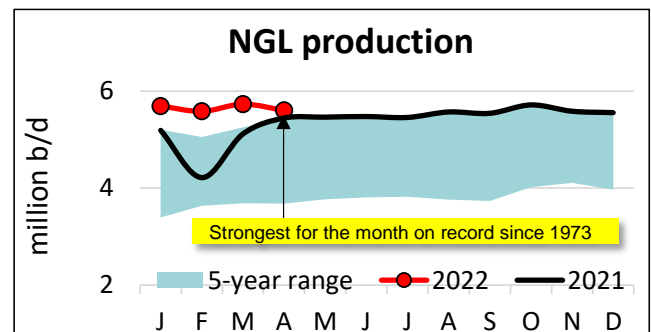
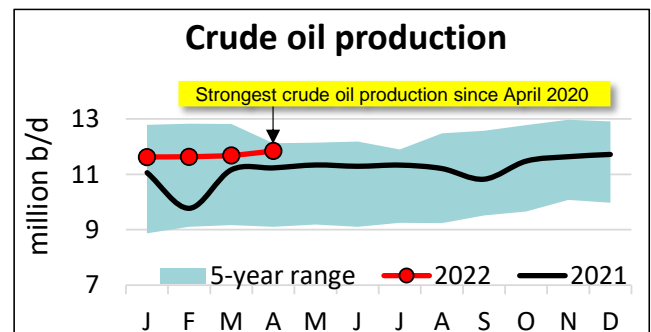
manufacturing industries surveyed reported growth in April, with Petroleum and Coal Products the lone decrease.

The [University of Michigan’s consumer sentiment index](#) fell to 59.1 in early May from readings of 65.2 in April and 59.4 in March. The survey noted broad-based decreases in consumer assessments of current economic conditions as well as expectations.

According to the [Bureau of Labor Statistics \(BLS\)](#), the unemployment rate held steady at 3.6% in April. Non-farm payrolls increased by a preliminary estimate of 428,000 m/m, on par with payroll additions in March but still the lowest since September 2021.

**Supply**

**Growth of U.S. crude oil production offset by lower NGL production**



U.S. crude oil production of 11.8 mb/d in April increased by 1.4% m/m from March and 5.4% y/y compared with April 2021. This remained 1.1 mb/d below the highest U.S. crude oil production, which occurred in November 2019.

[Baker Hughes](#) reported 549 active oil-directed rigs in April, a 4.0% m/m increase from March but 33.2% less than the 821 rigs that ran in April 2019, which

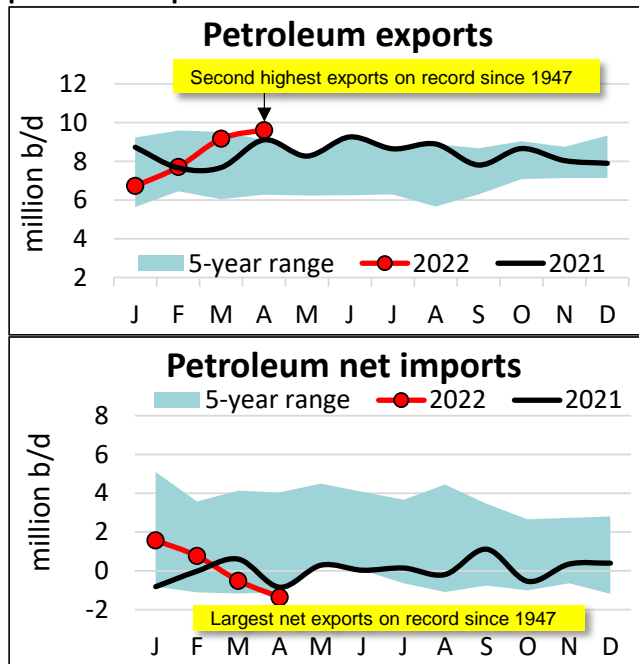
as a benchmark preceded the strongest U.S. crude oil production later that year.

Natural gas-directed drilling rose by 5.2% m/m (7 rigs) to 143 rigs in April at the same time as natural gas spot prices at Henry Hub increased by 34.7% m/m to \$6.60 per million Btu. The extraction of natural gas liquids (NGLs) depends to the relative values of ethane, propane and butane, which historically have tended to correspond with those of crude oil. NGL production fell by 2.3% m/m to 5.6 mb/d, but was still at its highest level for the month of April on record since 1973.

On net for April, the decrease in NGL production offset the increase in crude oil production.

**International trade**

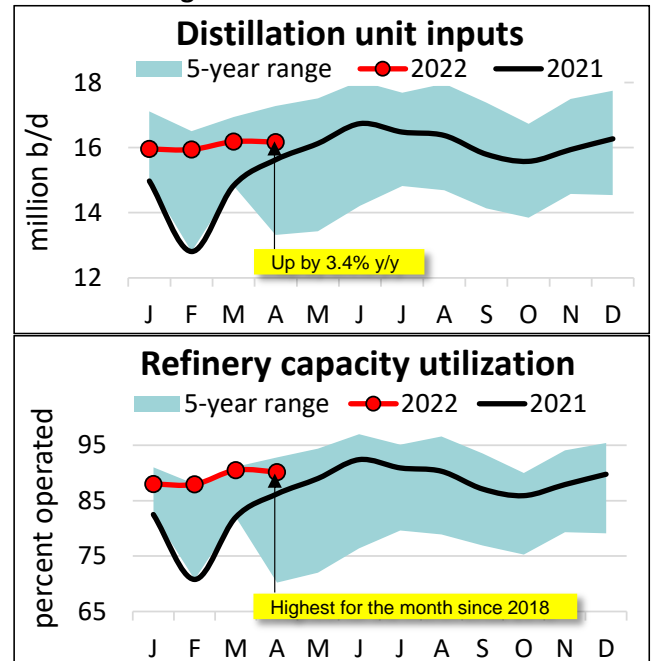
**Global geopolitics spurred record-high U.S. petroleum exports**



The U.S. petroleum was a net exporter of petroleum – that is, crude oil and refined products – of 1.4 mb/d in April, up from net exports of 0.5 mb/d in March. The monthly change was driven by 0.4 mb/d m/m lower total petroleum imports, coupled with 0.4 mb/d m/m higher total petroleum exports. This was apparently driven by Russia’s war in Ukraine, which increased the pull for U.S. petroleum exports while also making imports relatively more expensive in April.

**Industry operations**

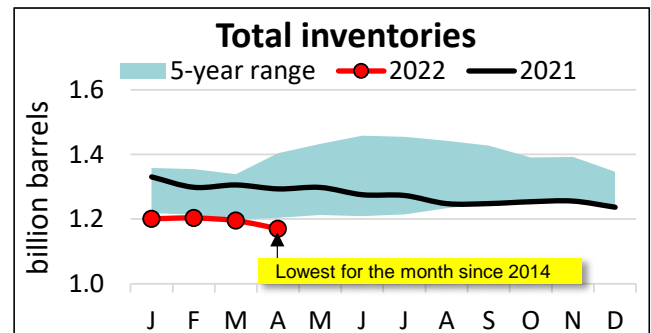
**U.S. refining capacity utilization rate over 90% for a second straight month**

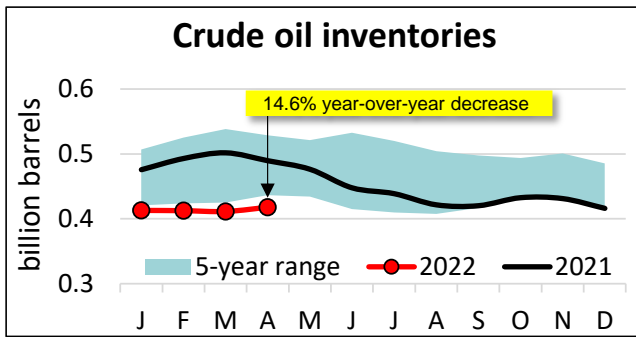


In April, U.S. refinery throughput, measured by gross inputs into crude distillation units, was 16.2 mb/d and implied a capacity utilization rate of 90.1%. The throughput rate rose by 3.4% y/y from April 2021 and was at its 7<sup>th</sup> highest for the month April on record since 1985. The capacity utilization rate in was also the highest for the month since 2018 and the second straight month sustained over 90%, as refiners continued to run their facilities near the highest rates seen in the past five years.

**Inventories**

**Historically low crude oil inventories and unusually low accumulation**





Total petroleum inventories, including crude oil and refined products (but excluding the Strategic Petroleum Reserve) of 1.17 billion barrels increased by 0.2% m/m from March and decreased 9.5% y/y compared with April 2021 to their lowest level for the month since 2014.

U.S. crude oil inventories increased by 1.6% m/m to 418.0 million barrels but fell by 14.6% y/y from one year ago, also to their least for the month since 2014. Typically, through April of each year compared with December of the prior year, U.S. commercial crude oil inventories have risen by an average of more than 40 million barrels (2005 to 2021), in advance of refining activity for the summer driving season. However, as of April 2022 U.S. crude oil inventories decreased by 3.4 million barrels.

**ESTIMATED UNITED STATES PETROLEUM BALANCE<sup>1</sup>**  
(Daily average in thousands of 42 gallon barrels)

Disposition and Supply	April			Year-to-Date		
	2022 <sup>2</sup>	2021	% Change	2022 <sup>3</sup>	2021	% Change
<b>Disposition:</b>						
Total motor gasoline.....	8,725	8,791	(0.8)	8,506	8,201	3.7
Finished reformulated.....	2,781	2,799	(0.6)	2,699	2,525	6.9
Finished conventional.....	5,944	5,992	(0.8)	5,807	5,676	2.3
Kerosene-jet.....	1,554	1,279	21.5	1,472	1,166	26.3
Distillate fuel oil.....	3,860	3,988	(3.2)	4,016	3,976	1.0
≤ 500 ppm sulfur.....	3,842	3,955	(2.9)	3,988	3,951	0.9
≤ 15 ppm sulfur.....	3,836	3,914	(2.0)	3,981	3,901	2.1
> 500 ppm sulfur.....	18	33	(45.5)	29	25	16.0
Residual fuel oil.....	461	143	222.4	381	234	62.8
All other oils (including crude losses).....	4,906	4,924	(0.4)	5,530	4,925	12.3
Reclassified <sup>4</sup> .....	(222)	335	na	39	199	na
Total domestic product supplied.....	19,284	19,459	(0.9)	19,944	18,700	6.7
Exports.....	9,615	9,110	5.5	9,137	8,304	10.0
Total disposition.....	28,899	28,569	1.2	29,080	27,004	7.7
<b>Supply:</b>						
Domestic liquids production						
Crude oil (including condensate).....	11,840	11,230	5.4	11,552	10,827	6.7
Natural gas liquids.....	5,600	5,443	2.9	5,565	5,006	20.0
Other supply <sup>5</sup> .....	1,067	1,092	(2.3)	1,158	1,059	9.4
Total domestic supply.....	18,507	17,765	4.2	18,275	16,892	8.2
Imports:						
Crude oil (excluding SPR imports).....	5,984	5,819	2.8	6,211	5,748	8.1
From Canada.....	3,647	3,472	5.0	3,792	3,693	2.7
All other.....	2,337	2,347	(0.4)	2,419	2,055	17.7
Products.....	2,280	2,448	(6.9)	2,173	2,289	(5.1)
Total motor gasoline (incl. blend.comp).....	625	1,027	(39.1)	560	769	(27.2)
All other.....	1,655	1,421	16.5	1,613	1,521	6.1
Total imports.....	8,264	8,267	(0.0)	8,384	8,037	4.3
Total supply.....	26,771	26,032	2.8	26,659	24,929	6.9
Stock change, all oils.....	(2,128)	(2,537)	na	(2,421)	(2,075)	na
<b>Refinery Operations:</b>						
Input to crude distillation units.....	16,170	15,633	3.4	16,043	14,597	9.9
Gasoline production.....	9,464	9,636	(1.8)	9,245	8,967	3.1
Kerosene-jet production.....	1,622	1,263	28.4	1,518	1,138	33.4
Distillate fuel production.....	4,805	4,607	4.3	4,753	4,371	8.7
Residual fuel production.....	189	181	4.4	231	191	20.4
Operable capacity.....	17,941	18,128	(1.0)	17,928	18,113	(1.0)
Refinery utilization <sup>6</sup> .....	90.1%	86.2%	na	89.5%	80.6%	na
Crude oil runs.....	15,630	15,160	3.1	15,531	14,145	9.8

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<sup>1</sup>**  
(Daily average in thousands of 42 gallon barrels)

	April 2022	March 2022	April 2021	% Change From	
				Month Ago	Year Ago
<b>Stocks (at month-end, in millions of barrels):</b>					
Crude oil (excluding lease & SPR stocks).....	418.0	411.4	489.7	1.6	(14.6)
Unfinished oils.....	88.5	87.2	92.2	1.5	(4.0)
Total motor gasoline.....	228.2	238.6	238.4	(4.4)	(4.3)
Finished reformulated.....	0.0	0.0	0.0	0.3	9.5
Finished conventional.....	17.9	17.8	21.3	0.6	(15.8)
Blending components.....	210.3	220.8	217.1	(4.8)	(3.2)
Kerosene-jet.....	36.5	35.6	40.5	2.5	(9.9)
Distillate fuel oil.....	104.9	115.3	136.0	(9.0)	(22.9)
≤ 500 ppm sulfur.....	97.4	107.7	128.7	(9.6)	(24.3)
≤ 15 ppm sulfur.....	94.3	104.7	125.8	(9.9)	(25.0)
> 500 ppm sulfur.....	7.5	7.6	7.3	(1.3)	2.3
Residual fuel oil.....	27.8	26.8	31.3	3.7	(11.1)
All other oils.....	266.0	252.9	264.9	5.2	0.4
Total all oils.....	1,169.9	1,167.8	1,293.0	0.2	(9.5)