American Petroleum Institute

200 Massachusetts Ave. NW
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The MSR™ - Monthly Statistical Report

API Statistics Department & Office of the Chief Economist

Vol. 46 No. 10
Published November 17, 2022
October 2022

Executive Summary

API's industry data for October achieved several benchmarks that showed a resilient economy:

- U.S. petroleum demand (20.3 million barrels per day, mb/d) was marked by the second highest demand for "other oils" (that is, naphtha, gasoil, propane/propylene) on record since 1965 as well as a 12.0% monthly increase for distillates.
- Refining throughput and capacity utilization rates rose to their highest levels for the month of October since 2018.
- Crude oil production rebounded to 12.1 million barrels per day (mb/d), its highest for any month since March 2020.
- U.S. petroleum net exports (2.1 mb/d) set a new record high for any month since 1947.

U.S. petroleum demand was solid at 20.3 mb/d in October and also 20.3 mb/d on average for the first 10 months of 2022. The year-to-date average was within 1.3% of its highest level over the past five years. October showed a marked return to urban motor gasoline deliveries (up 8.5% y/y) that was more than offset by an 8.8% y/y decrease in rural deliveries; this likely reflected continued post-pandemic return to work commuting. Distillate (mainly diesel fuel and heating oil) demand rose by 12.0% m/m in October despite indications of weaker freight shipping by truck. Rather, the increase was due to a combination of low east coast distillate inventories, the drought-stricken Mississippi River, and a potential rail strike.

For supply, U.S. crude oil production of 12.1 mb/d rose to its highest level since March 2020 but remained below its highest level of 13.0 mb/d in Nov. 2019. On the heels of record-high U.S. natural gas production, the extraction of 6.1 mb/d of natural gas liquids was the highest for the month of October and second highest for any month on record since 1973. The rates of refining activity and capacity utilization were also at their highest for the month of October since 2018.

Amid the disruptions that Russia's war in Ukraine has had on global oil markets, total U.S. exports of crude oil and refined products eclipsed a record 10.0 mb/d for a second straight month, and U.S. petroleum net exports rose to 2.1 mb/d, which was the highest for any month on record since 1947.

API's Distillate Economic Indicator™ had a reading of +1.3 in October – up from 0.9 in September – and a three-month average of +1.1, which showed continued growth of U.S. industrial production and broader economic activity. (Please see the following chart for details).

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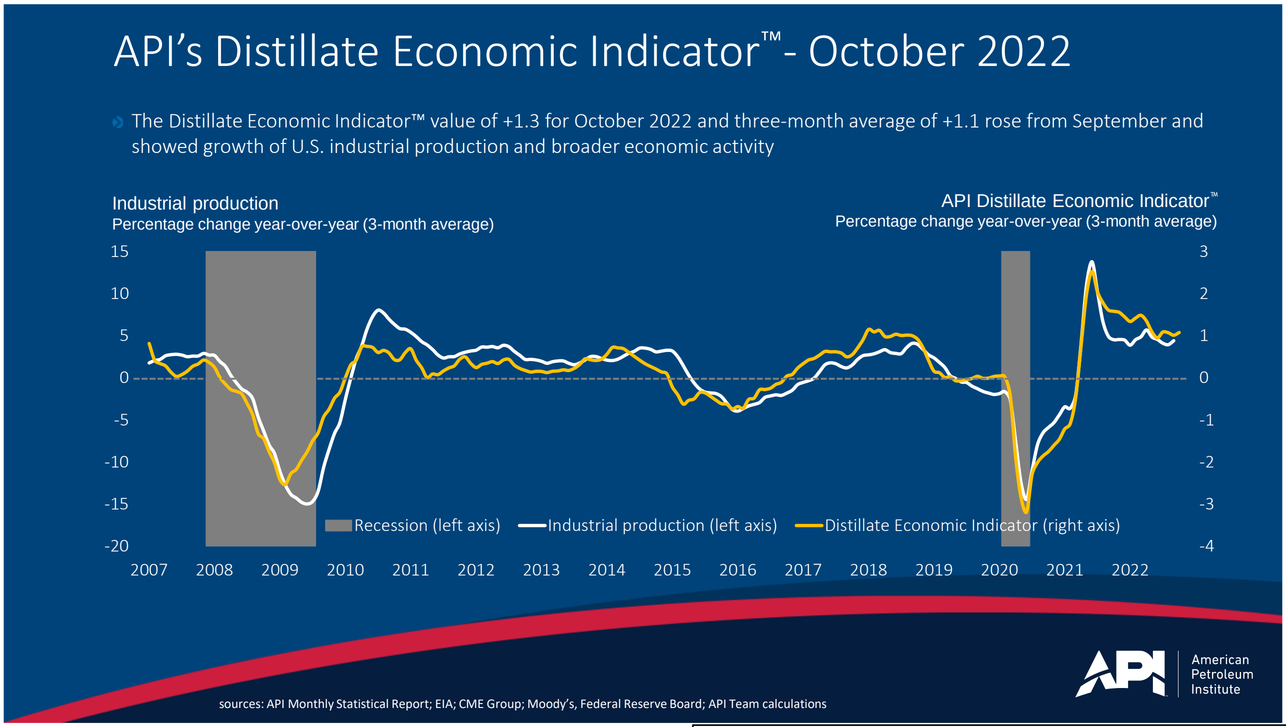
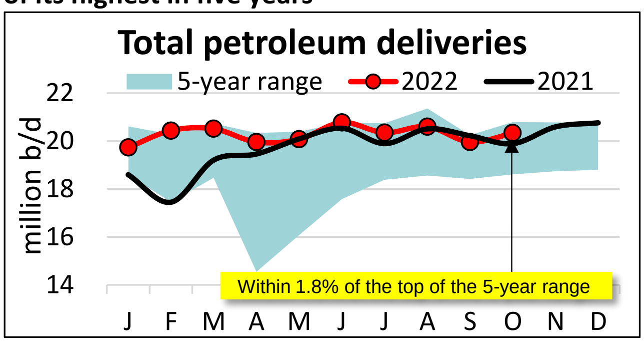


Details by section

Demand

U.S. petroleum demand (20.3 mb/d) within 1.8% of its highest in five years

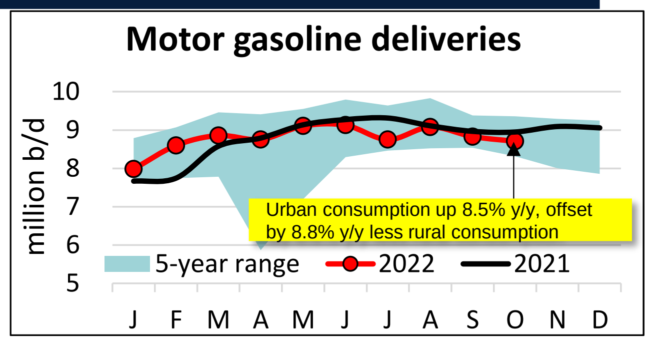


U.S. petroleum demand, as measured by total domestic petroleum deliveries, was 20.3 mb/d in October. This reflected an increase of 1.9% from September but was 0.2% y/y below the level of October 2021. The 20.3 mb/d was also 1.8% less than that of October 2019, which was the top of the five-year range.

Gasoline

Solid motor gasoline (8.7 mb/d) masked divergent changes in urban/rural driving

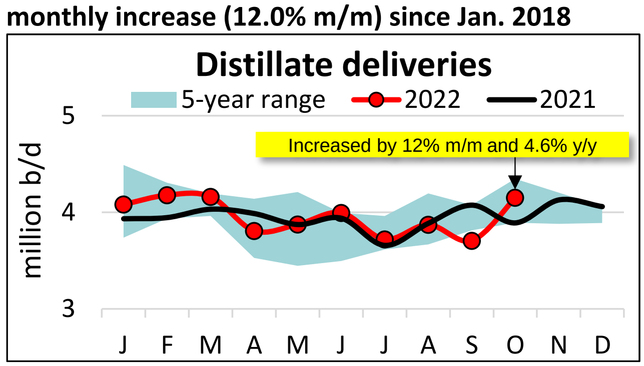
Consumer gasoline demand, measured by motor gasoline deliveries, was 8.7 mb/d in October. This reflected decreases of 1.4% from September and 3.5% y/y compared with October 2021.



A return towards urban commuting was evident. Deliveries of reformulated-type gasoline (consumed primarily in urban areas) rose by 8.5% y/y to 3.0 mb/d, while those of conventional gasoline (consumed mainly in rural areas) decreased by 8.8% y/y to 5.7 mb/d.

Distillate Fuel Oil

Distillate demand (4.2 mb/d) with strongest monthly increase (12.0% m/m) since Jan. 2018



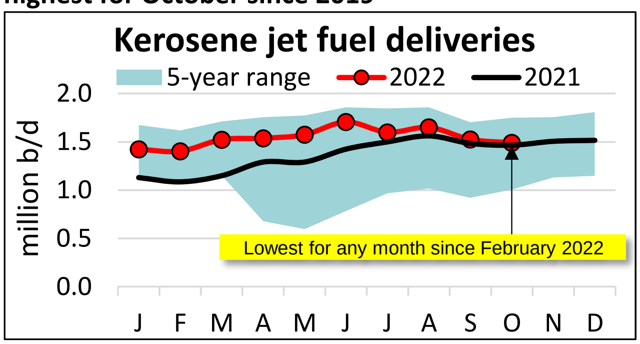
Distillate deliveries of 4.2 mb/d increased by 12.0% m/m from September and by 4.6% y/y compared with October 2021. This was the largest monthly percentage increase since January 2018 (13.0% m/m) despite weaker freight trucking activities.

DAT iQ industry trendlines showed that the quantity of spot loads available for transport in October fell by 51.8% y/y, while the availability of spot trucks rose by 19.8% y/y, which together showed there was slack freight trucking markets.

Rather, as the state of freight reported, a combination of low east coast inventories, the drought-stricken Mississippi River, and a potential rail strike contributed to higher diesel demand in October.

Kerosene Jet Fuel

Kerosene-type jet fuel demand (1.5 mb/d) at its highest for October since 2019

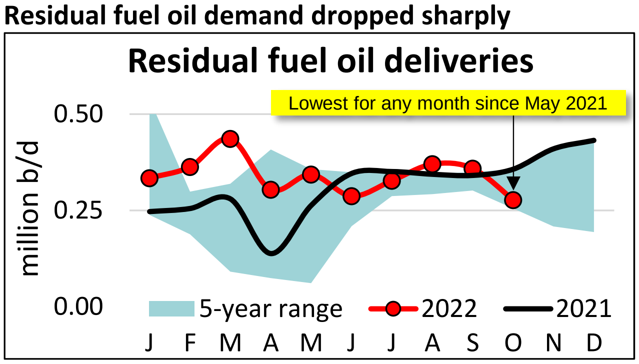


Kerosene-type jet fuel deliveries of 1.5 mb/d in October fell by 2.2% m/m from September but were up by 1.6% y/y versus October 2021 to their highest for the month since 2019.

High-frequency data from Flightradar24 and TSA showed that the total numbers of flights and air passengers increased by 7.4% y/y and 19.1% y/y, respectively. The International Air Transport Association (IATA) reported mixed news with solid passenger demand but softened air cargo.

Residual Fuel Oil

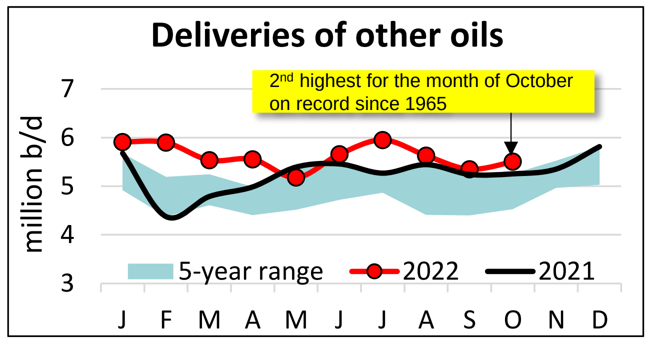
Residual fuel oil demand dropped sharply



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 0.3 mb/d in October, which reflected decreases of 22.8% m/m from September and 22.4% y/y versus October 2021. This was consistent with reports of weaker container shipping and an easing of supply chain constraints "normalizing" of shipping market conditions.

Other Oils – Naphtha, Gasoil, Propane & Propylene

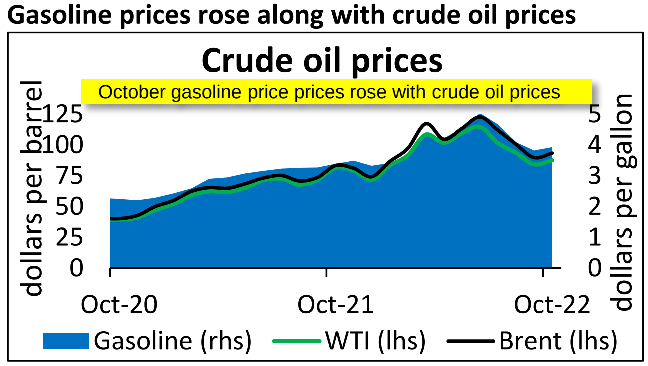
Second highest other oils demand for October on record since 1965



Deliveries of refinery and petrochemical liquid feedstocks – that is, naphtha, gasoil, and propane/propylene ("other oils") – were 5.5 mb/d in October, the second highest reading for the month of October on record since 1965. These reflected increases of 3.0% m/m and 4.8% y/y – as well as continued solid demand for films, packaging, and medical plastics.

Prices

Gasoline prices rose along with crude oil prices



In October, West Texas Intermediate (WTI) crude oil prices increased by 3.9% m/m to $87.55 per barrel.

Brent crude oil spot prices increased by 4.0% m/m to $93.33 per barrel, which implied a Brent-WTI crude oil price differential of $5.78 per barrel in October, up from $5.50 per barrel in September. Crude oil remained the top input cost in making gasoline per EIA. The U.S. average conventional gasoline price was $3.94 per gallon in October, up by 5.1% m/m from September per EIA.

Macroeconomy

Leading indicators reinforced industrial growth and improved consumer sentiment

API's Distillate Economic Indicator™, which is based primarily on diesel/distillate supply, demand, and inventories, had a reading of +1.3 in October – up from 0.9 in September – and a three-month average of +1.1, which showed continued growth of U.S. industrial production and broader economic activity.

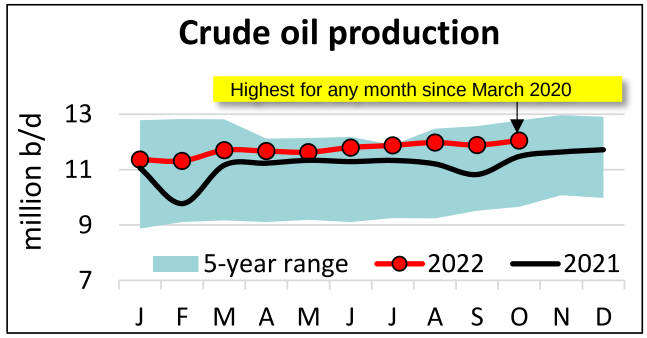
The Institute for Supply Management's manufacturing Purchasing Managers Index (PMI) had a reading of 50.2 in October – 0.7 percentage points lower than in September. Index values above 50.0 suggest an expansion in the overall economy, and the manufacturing PMI exceeded that threshold for a 29th straight month. Within the index, there were monthly increases in the index's measures of new orders, production and employment. And there were monthly decreases in the index's measures of inventories, imports, backlog of orders, supplier deliveries, prices, and new export orders. The measure of customers' inventories was flat. Eight manufacturing industries surveyed reported growth in October, while ten industries reported contractions in October compared with September.

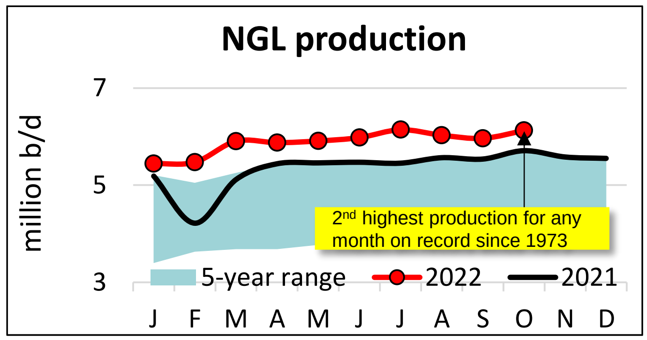
The University of Michigan's consumer sentiment index rose a reading of 59.9 in October from 58.6 in September. The survey noted that buying conditions for durables continued to improve due to eased supply constraints.

According to the Bureau of Labor Statistics (BLS), the unemployment rate rose by 0.2% m/m to 3.7% in October. Non-farm payrolls increased by a preliminary estimate of 261,000 m/m, a solid number but its weakest monthly gain since December 2020.

Supply

Highest crude oil production since March 2020





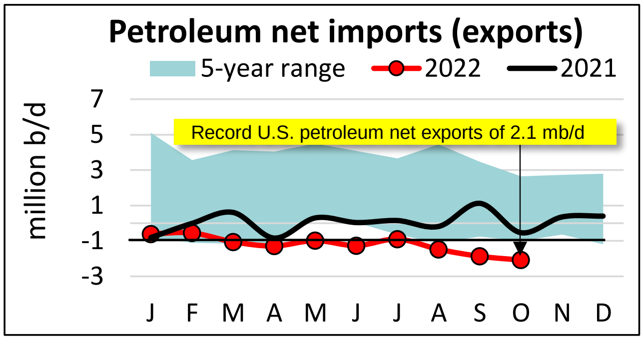
U.S. crude oil production of 12.1 mb/d in October increased by 1.4% m/m from September and by 4.2% y/y compared with October 2021. This reflected the second highest production for any month since March 2020.

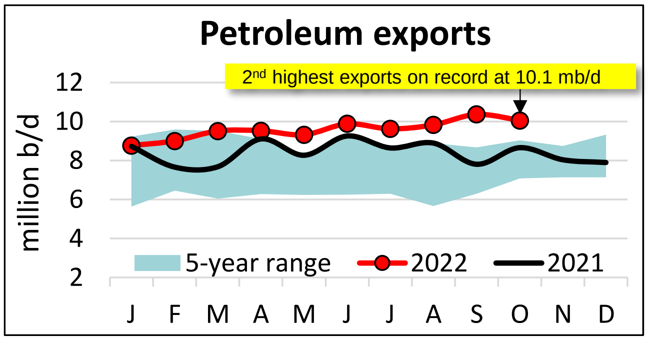
Baker Hughes reported 609 active oil-directed rigs in October, a 1.7% m/m (10 rig) increase from September but remained 13.5% lower than the 704 rigs that ran in October 2019.

Natural gas-directed drilling of 157 rigs in October fell from September by five rigs. The extraction of natural gas liquids (NGLs) depends on the relative values of ethane, propane, and butane, which historically have tended to correspond with those of crude oil. NGL production increased by 2.7% m/m to 6.1 mb/d, its second highest level on record for any month since 1973.

International trade

Largest petroleum net exports (2.1 mb/d) on record since 1947

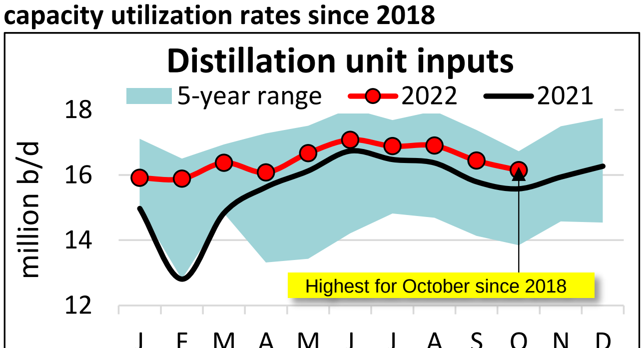


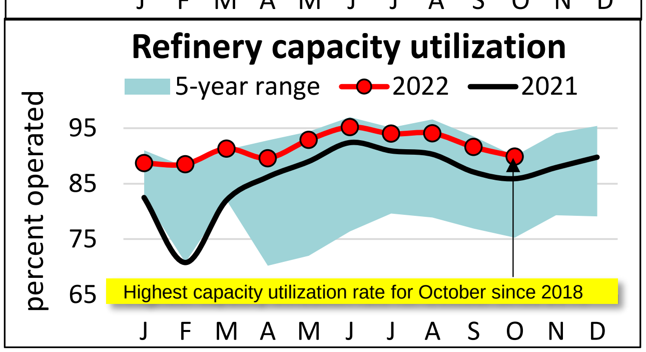


U.S. petroleum exports – crude oil (4.0 mb/d) and refined products (6.0 mb/d) – of 10.1 mb/d in total for October were the second highest on record for any month since 1947. Total exports increased by 22.2% y/y at the same time as total imports fell by 2.0% y/y. Consequently, the U.S. was a petroleum net exporter of 2.1 mb/d in October, which was the highest monthly petroleum net exports on record since 1947.

Industry operations

Strongest October refining throughput and capacity utilization rates since 2018



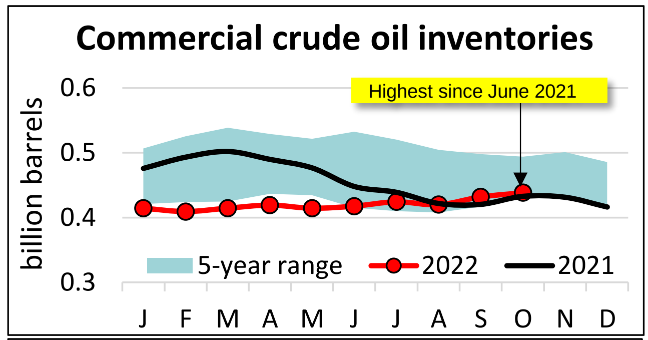


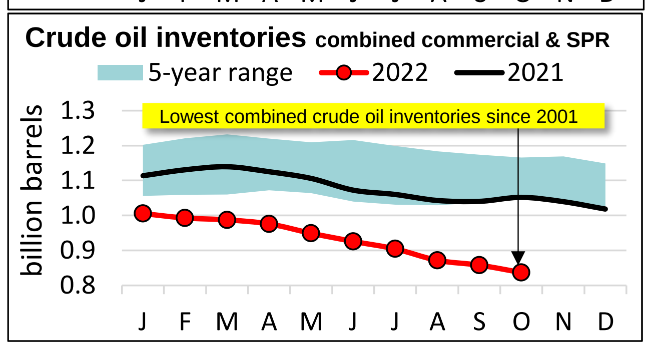
In October, U.S. refinery throughput, measured by gross inputs into crude distillation units, was 16.2 mb/d and implied a capacity utilization rate of 89.9%. The throughput decreased seasonally by 1.8% m/m but remained at its highest for the month of October since 2018.

The capacity utilization rate similarly fell by 1.7 percentage points from September but remained up by 3.8 percentage points compared with that of October 2021.

Inventories

Crude oil inventories – combined commercial & SPR – at a twenty-two-year low





U.S. commercial crude oil inventories 438.2 million barrels in October increased by 6.4 million barrels (1.5% m/m) from September and by 1.6 million barrels (0.4% y/y) versus October 2021. By contrast, crude oil in the U.S. Strategic Petroleum Reserve (SPR) fell by 23.1 million barrels (5.4% m/m) to its lowest level since 1984 – and continued to fall with drawdowns through mid-November. Consequently, the combined commercial and SPR crude oil inventories of 841 million barrels were at their lowest level since 2001.

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

Disposition and Supply	October			Year-to-Date		
	2022[2]	2021	% Change	2022[3]	2021	% Change
Disposition:						
Total motor gasoline	8,708	9,027	(3.5)	8,780	8,789	(0.1)
Finished reformulated	2,995	2,761	8.5	2,841	2,774	2.4
Finished conventional	5,713	6,266	(8.8)	5,939	6,014	(1.3)
Kerosene-jet	1,491	1,467	1.6	1,544	1,341	15.1
Distillate fuel oil	4,151	3,967	4.6	3,953	3,953	0.0
≤ 500 ppm sulfur	4,105	3,967	3.5	3,931	3,943	(0.3)
≤ 15 ppm sulfur	4,098	3,961	3.5	3,924	3,909	0.4
> 500 ppm sulfur	46	0	n/a	22	9	144.4
Residual fuel oil	277	357	(22.4)	340	293	16.0
All other oils (including crude losses)	5,507	5,255	4.8	5,420	5,197	4.3
Reclassified[4]	209	304	na	235	171	na
Total domestic product supplied	20,343	20,377	(0.2)	20,272	19,744	2.7
Exports	10,050	8,226	22.2	9,590	8,352	14.8
Total disposition	30,393	28,604	6.3	29,862	28,096	6.3
Supply:						
Domestic liquids production						
Crude oil (including condensate)	12,050	11,569	4.2	11,730	11,162	5.1
Natural gas liquids	6,130	5,721	7.1	5,891	5,358	20.0
Other supply[5]	1,090	1,225	(11.0)	1,199	1,127	6.3
Total domestic supply	19,270	18,514	4.1	18,819	17,647	6.6
Imports:						
Crude oil (excluding SPR imports)	6,104	5,971	2.2	6,324	6,060	4.4
From Canada	3,477	3,627	(4.1)	3,765	3,708	1.5
All other	2,627	2,344	12.1	2,559	2,352	8.8
Products	1,870	2,165	(13.6)	2,056	2,406	(14.5)
Total motor gasoline (incl. blend.comp)	517	580	(10.9)	654	845	(22.6)
All other	1,353	1,585	(14.7)	1,402	1,560	(10.1)
Total imports	7,974	8,136	(2.0)	8,380	8,466	(1.0)
Total supply	27,244	26,651	2.2	27,200	26,113	4.2
Stock change, all oils	(3,149)	(1,953)	na	(2,662)	(1,983)	na
Refinery Operations:						
Input to crude distillation units	16,148	15,604	3.5	16,445	15,561	5.7
Gasoline production	9,650	9,698	(0.5)	9,573	9,495	0.8
Kerosene-jet production	1,526	1,321	15.5	1,607	1,279	25.6
Distillate fuel production	5,037	4,727	6.6	4,974	4,613	7.8
Residual fuel production	247	222	11.3	249	210	18.6
Operable capacity	17,962	18,132	(0.9)	17,949	18,129	(1.0)
Refinery utilization[6]	89.9%	86.1%	na	91.6%	85.8%	na
Crude oil runs	15,661	15,045	4.1	15,924	15,031	5.9

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)

	October 2022	September 2022		October 2021	% Change From Month Ago	% Change From Year Ago
Stocks (at month-end, in millions of barrels):						
Crude oil (excluding lease & SPR stocks).........	438.2	431.8		436.6	1.5	0.4
Unfinished oils...	85.2	82.1		90.2	3.8	(5.5)
Total motor gasoline..	206.9	210.8		216.7	(1.9)	(4.5)
Finished reformulated...................................	0.0	0.0		0.0	0.2	61.1
Finished conventional....................................	15.1	18.7		18.3	(19.3)	(17.3)
Blending components....................................	191.8	192.1		198.4	(0.2)	(3.3)
Kerosene-jet..	36.7	36.7		40.4	0.0	(9.1)
Distillate fuel oil..	107.3	111.8		132.8	(4.0)	(19.2)
≤ 500 ppm sulfur..	99.3	103.0		123.6	(3.6)	(19.7)
≤ 15 ppm sulfur..	96.5	100.3		120.4	(3.8)	(19.8)
> 500 ppm sulfur..	8.0	8.8		9.2	(9.1)	(12.8)
Residual fuel oil...	29.9	28.3		28.7	5.7	4.1
All other oils...	314.2	313.7	R	307.6	0.1	2.1
Total all oils...	1,218.4	1,215.2	R	1,253.0	0.3	(2.8)