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## EXECUTIVE SUMMARY

In October, API's primary data on U.S. petroleum markets reflected a U.S. economic recovery in progress. Demand increased broadly among fuels – diesel, jet fuel and other oils. The supply of crude oil and natural gas liquids (NGLs) stood relatively strong despite historically low drilling activity and in fact for NGLs reached a record high for the month of October. Furthermore, U.S. crude oil imports fell to 5.1 million barrels per day, which was their lowest level since 1990 and propelled the U.S. to being a net exporter of total petroleum – that is, crude oil and refined products – for the fourth consecutive month.

## OCTOBER HIGHLIGHTS

- **Refining and petrochemical demand for naphtha and gasoil – plus notable increases for diesel and jet fuel – led a continued rebound in petroleum demand to 18.8 million barrels per day (mb/d).**
- **Despite drilling activity of about 70% below year-ago levels, U.S. crude oil production was 10.7 mb/d, and NGLs production set a record high for the month of October.**
- **Refinery throughput (13.9 mb/d, 74.9% capacity utilization) slipped with hurricane disruptions.**
- **The lowest crude oil imports since 1990 propelled U.S. petroleum net exports for a 4<sup>th</sup> consecutive month.**
- **Total petroleum inventories receded from record levels.**

Leading economic indicators continued with broad improvements from historically weak levels, including API's D-E-I™ (distillate/diesel economic indicator), the University of Michigan's consumer sentiment index, and the Institute of Supply Management's Purchasing Managers Index. Please see the following [chart](#) for details.

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### Demand

- **U.S. petroleum demand (18.8 mb/d) approached the 5-year range.**
  - Motor gasoline deliveries generally rose in urban areas, fell in suburban/rural areas.
  - Distillate/diesel demand was up by 5.1% m/m in October.
  - Jet fuel deliveries rose by 10.9% m/m in October.
  - Residual fuel oil decreased year-on-year for the 12th consecutive month.
  - Refining and petrochemical demand for naphtha and gasoil at a record high for the month of October.

### Prices & Macroeconomy

- **Crude oil benchmark prices held steady in October.**
- **Leading economic indicators improved.**

### Supply

- **U.S. crude oil production declined to 10.7 mb/d while NGLs set a record for October.**

### International trade

- **Lowest crude oil imports since 1990 propelled U.S. petroleum net exports for a 4th consecutive month.**

### Industry operations

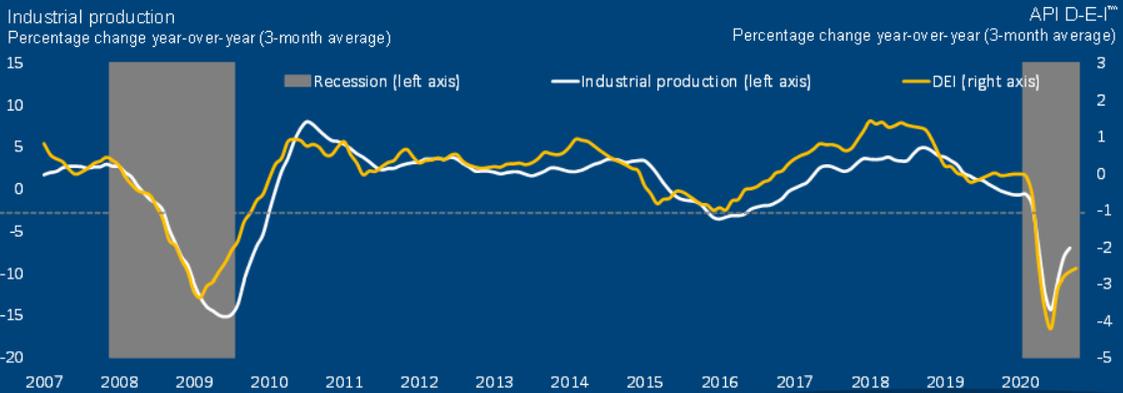
- **Refinery activity decreased with the close of hurricane season and winter fuel switching.**

### Inventories

- **Total petroleum inventories eased.**

# API's economic indicator: The API D-E-I™ - October 2020

- The D-E-I™ value of -2.3 for October 2020 and three-month average of -2.6 – gradual improvement for the second consecutive month – suggested increased monthly industrial production



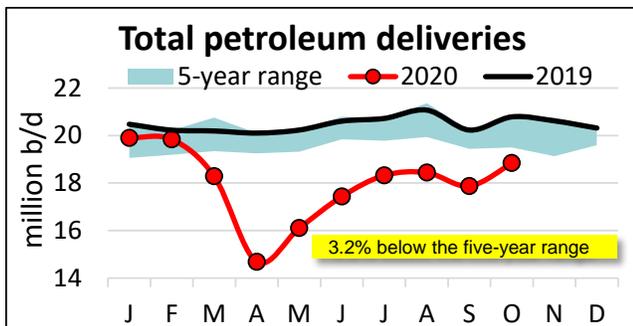
sources: API Monthly Statistical Report; EIA; OME Group; Moody's; Federal Reserve Board; API Team calculations



## Details by section

### Demand

**U.S. petroleum demand (18.8 mb/d) approached the 5-year range**



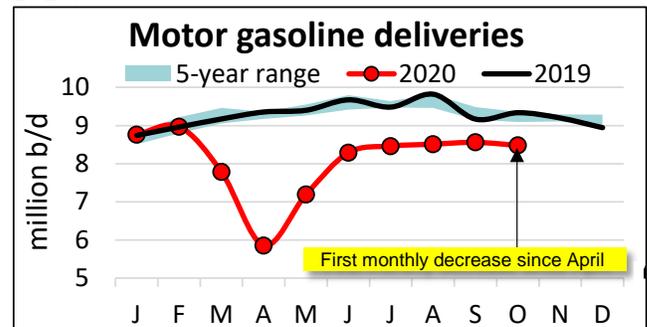
U.S. petroleum demand, as measured by total domestic petroleum deliveries, was 18.8 mb/d and reflected a 5.5% increase from September but a decrease of 9.0% compared with October 2019. Consequently, U.S. petroleum demand stood 3.2% below the bottom of the 5-year range in October – remarkable progress since its low point in April.

### Gasoline

**Motor gasoline deliveries generally rose in urban areas, fell in suburban/rural areas**

Consumer gasoline demand, measured by motor gasoline deliveries, was 8.5 mb/d in October. This was a decrease of 0.9% (0.1 mb/d) from September

and 8.9% (0.8 mb/d) below the level in October 2019.

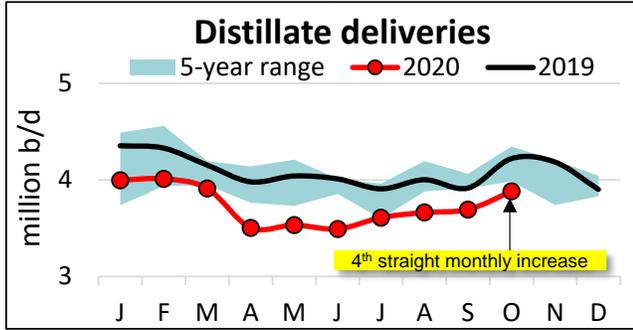


Through 2020 year-to-date, the [Apple Mobility Index](#) has correlated significantly (+0.88) with API's monthly motor gasoline deliveries data at an elasticity of approximately 0.46. That is, a 10% increase (decrease) in the index value has corresponded with a 4.6% increase (decrease) in U.S. motor gasoline deliveries.

Notably, regional gasoline consumption diverged in October, with deliveries of reformulated-type gasoline that is consumed primarily in urban areas having risen by 1.9% m/m in October, while deliveries of conventional gasoline that is consumed mainly in rural areas fell by 2.2% m/m. As state economies continued to recover from COVID-19, this could suggest some people who temporarily relocated out of urban areas may be returning.

**Distillate Fuel Oil**

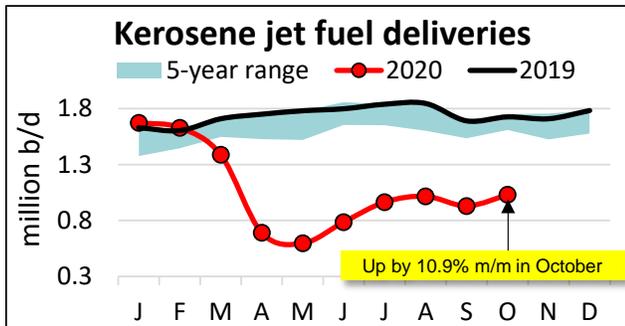
**Distillate/diesel demand up 5.1% m/m in October**



In October, distillate deliveries of 3.9 mb/d increased by 5.1% from September but were down by 8.0% y/y (0.3 mb/d). This was consistent with [DAT iQ industry trendlines](#) that showed spot trucking loads rose in October and spot freight, van and reefer rates have risen heading into the holiday season.

**Kerosene Jet Fuel**

**Jet fuel deliveries rose by 10.9% m/m in October**

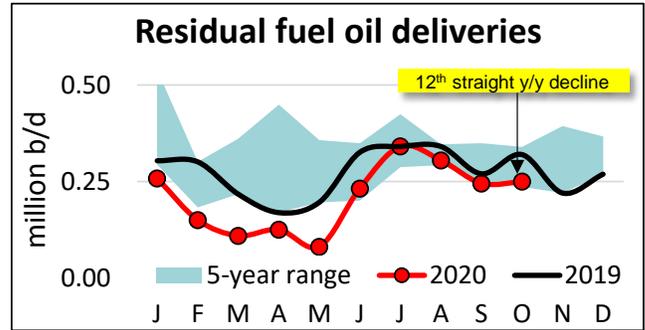


'K-Jet' deliveries of 1.0 mb/d increased by 10.9% m/m in October but remained down by 40.3% versus October 2019. Notably, the increase in jet fuel deliveries did not appear to correspond with higher reported flight activity and passenger demand per [Flightradar24](#) and [TSA](#). However, the increase was consistent with the drawdown in k-jet inventories, which have dropped by 14.8% year-to-date since January and stood at their lowest levels since November 2014.

**Residual Fuel Oil**

**Residual fuel oil decreased year-on-year for the 12<sup>th</sup> consecutive month**

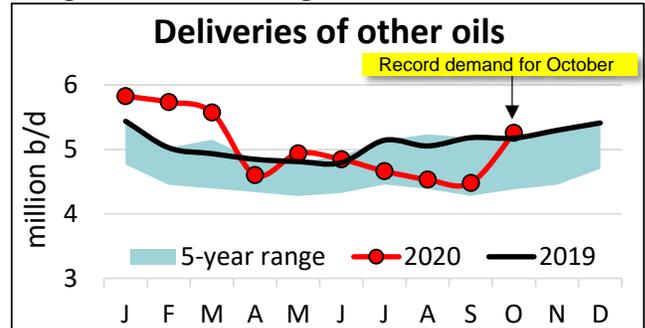
Deliveries of residual fuel oil, which is used in electric power production, space heating, industrial applications and as a marine bunker fuel, were 0.25 mb/d in October. Heading into winter, this marked



an increase of 2.0% m/m but a 21.6% decrease versus October 2019. With relatively weak industrial demand and marine fuel consumption due to [IMO 2020](#), October also represented the 12<sup>th</sup> straight year-on-year decline in residual fuel oil deliveries.

**Naphtha & Gasoil "Other Oils"**

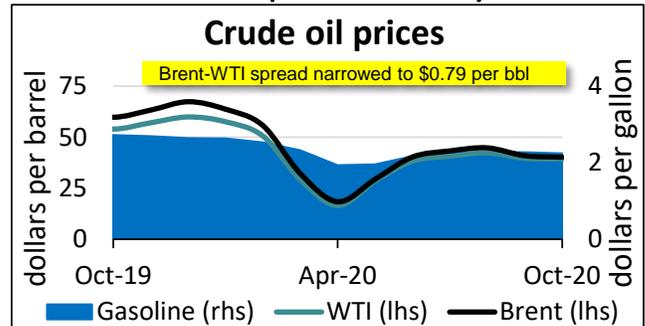
**Refining and petrochemical demand for naphtha and gasoil at a record high for October**



Deliveries of liquid feedstocks, such as naphtha and gasoil ("other oils") used in refining and petrochemical manufacturing, were 5.6 mb/d in October to a record high for the month. This was a 17.5% m/m increase, with a rebound following September's hurricane-related disruptions to Gulf Coast petrochemical activity.

**Prices**

**Crude oil benchmark prices held steady in October**



In October, West Texas Intermediate (WTI) crude oil prices fell to \$39.40 per barrel, a 0.6% decrease m/m and the 5<sup>th</sup> straight month hovering near \$40/barrel. By comparison, Brent crude oil spot prices averaged \$40.19 per barrel in October, reducing the Brent-WTI price differential to \$0.79 per barrel for the month.

The historically low oil prices continued to correspond with low gasoline prices. The U.S. average conventional gasoline price held steady at \$2.25 per gallon in October, down by 17.5% (\$0.48 per gallon) from October 2019, according to [AAA](#).

**Macroeconomy**

**Leading economic indicators improved**

API’s economic indicator, The D-E-I™, which is based primarily on diesel/distillate supply, demand and inventories, had a reading of -2.3 in October and a three-month average of -2.6. The reading indicated the year-on-year change in U.S. industrial production strengthened for the fourth consecutive month, suggesting economic activity continued to rise from a low base.

The Institute for Supply Management’s Purchasing Managers Index (PMI) had a reading of 59.3 in October, a 3.9 percentage point increase from September. Index values above 50.0 suggest an expansion. Production, new orders, trade, employment, inventories, and deliveries all increased while only prices decreased. Among the 18 manufacturing industries surveyed, 15 reported growth.

Based on [University of Michigan’s consumer sentiment index](#), consumer sentiment improved as the index rose to 81.8 in October from 80.4 in September. The survey noted that the U.S. Presidential election outcome has changed consumer expectations along party lines. While those surveyed were generally more optimistic about an economic rebound, they remained concerned by COVID-19 mitigation and vaccine development efforts.

According to the [Bureau of Labor Statistics \(BLS\)](#), non-farm payrolls increased by 638 thousand, and the unemployment rate declined to 6.9% in October from 7.9% in September.

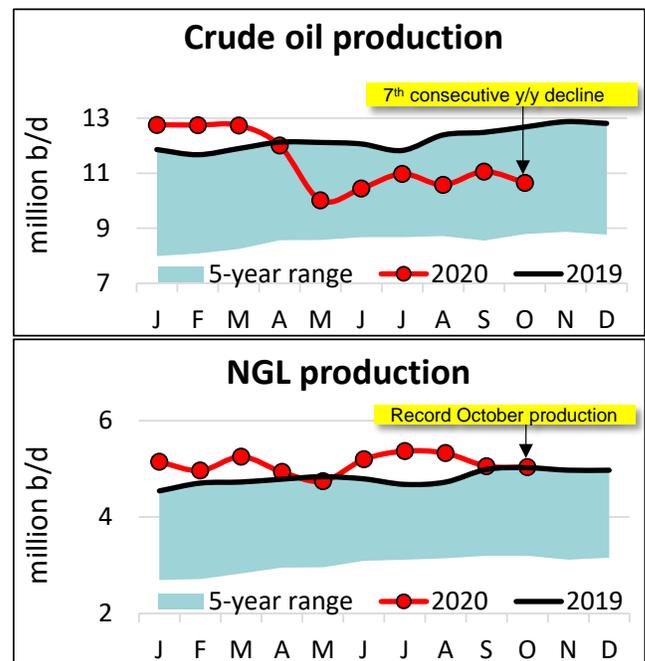
**Supply**

**U.S. crude oil production declined to 10.7 mb/d while NGLs set a record for October**

In October, U.S. crude oil production was 10.7 mb/d, a decrease of 3.7% (0.4 mb/d) m/m as increased drilling activity and onshore production was offset by Gulf Coast hurricane season shut-ins of Gulf of Mexico offshore production.

Notably, U.S. crude oil production was sustained above 10.0 mb/d for a sixth consecutive month despite an oil-directed rig count that remained down by more than 70% versus October 2019.

Specifically, [Baker Hughes](#) reported 204 active oil-directed rigs in October, down from 708 rigs one year ago. However, the 204 rigs reflected an increase from a low point of 181 rigs in July. Rig productivity rose to record levels in most basins according to the [EIA’s Drilling Productivity Report](#) as producers drilled the most prospective targets employing their best rigs and crews.



Despite natural gas-directed rigs also remaining down significantly (47.4% y/y in October), U.S. natural gas marketed production remained solid per [EIA](#), and the extraction of 5.0 mb/d (+0.3% y/y) in natural gas liquids (NGLs) set a record for the month of October and reinforced strong plant liquids demand with recovering industrial production.

**International trade**

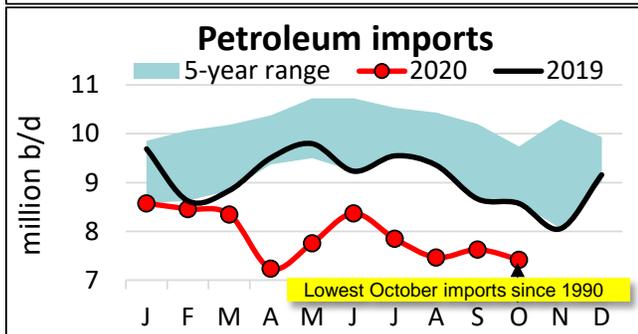
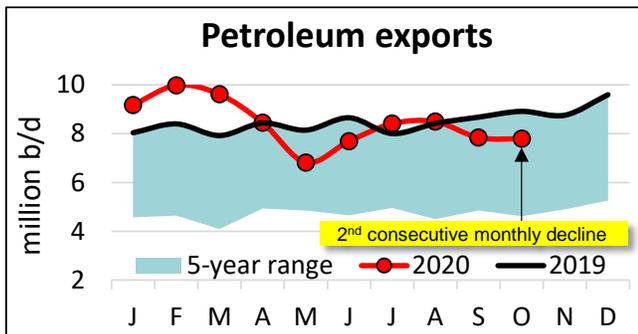
**Lowest crude oil imports since 1990 propelled U.S. petroleum net exports for a 4<sup>th</sup> consecutive month**

In October, the U.S. was a petroleum net exporter for the fourth straight month – and for 8 out of the past 10 months this year.

The U.S. imported 7.4 mb/d of crude oil and petroleum products in October. This was a 2.7% m/m (0.2 mb/d) decrease from September, driven mainly by lower crude oil imports that fell to 5.1 mb/d – their lowest level for October since 1990.

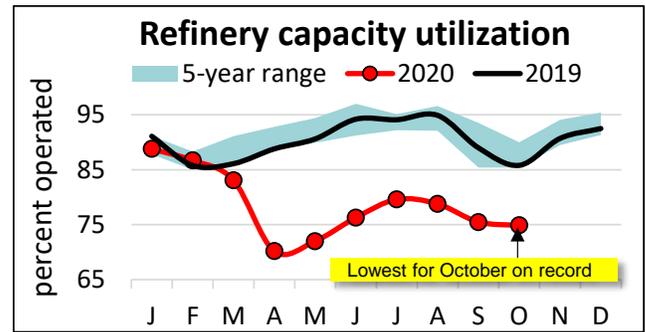
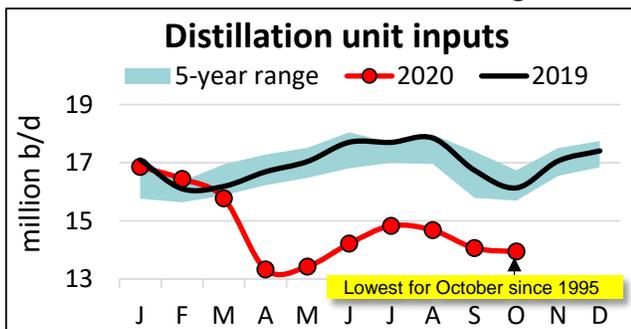
By contrast, U.S. exports of crude oil and refined products held steady at 7.8 mb/d, implying U.S. petroleum net exports of 0.4 mb/d in October.

Within the export total, 5.0 mb/d was refined products, which rose by 2.6% m/m, and the remaining 2.8 mb/d was crude oil that fell by 5.8% m/m (0.2 mb/d).



**Industry operations**

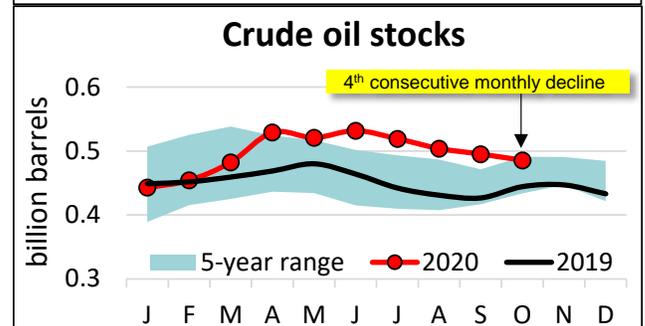
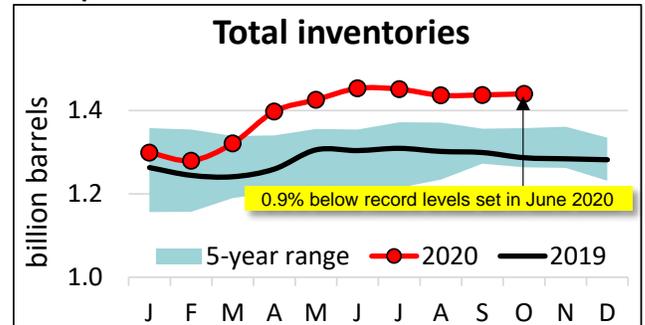
**Refinery activity decreased with the close of hurricane season and winter fuel switching**



U.S. refinery throughput of 13.9 mb/d – down by 0.8% m/m with hurricane disruptions and the winter fuels-switching process – implied a capacity utilization rate of 74.9% for October.

**Inventories**

**Total petroleum inventories eased**



U.S. total petroleum inventories, including crude oil and refined products but excluding the Strategic Petroleum Reserve were 1.44 billion barrels (+0.2% m/m) in October. This was the highest inventory on record for the month of October, though notably, 0.9% below record June levels.

Within the total, crude oil stocks of 485.7 million barrels and distillate stocks of 155.4 million barrels fell by 1.9% m/m and 10.2% m/m, respectively, in October.

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

Disposition and Supply	October			Year-to-Date		
	2020 <sup>2</sup>	2019	% Change	2020 <sup>3</sup>	2019	% Change
<b>Disposition:</b>						
Total motor gasoline.....	8,475	9,308	(8.9)	8,083	9,354	(13.6)
Finished reformulated.....	2,750	2,965	(7.3)	2,508	3,044	(17.6)
Finished conventional.....	5,725	6,343	(9.7)	5,575	6,309	(11.6)
Kerosene-jet.....	1,031	1,727	(40.3)	1,069	1,740	(38.5)
Distillate fuel oil.....	3,884	4,224	(8.0)	3,730	4,112	(9.3)
≤ 500 ppm sulfur.....	3,867	4,223	(8.4)	3,701	4,045	(8.5)
≤ 15 ppm sulfur.....	3,852	4,215	(8.6)	3,683	4,036	(8.7)
> 500 ppm sulfur.....	17	1	1,600.0	29	67	(56.7)
Residual fuel oil.....	250	319	(21.6)	181	281	(35.6)
All other oils (including crude losses).....	5,263	4,982	5.6	4,839	4,990	(3.0)
Reclassified <sup>4</sup> .....	(55)	154	na	73	58	na
Total domestic product supplied.....	18,848	20,714	(9.0)	17,975	20,534	(12.5)
Exports.....	7,795	9,039	(13.8)	8,423	8,357	0.8
Total disposition.....	26,643	29,753	(10.5)	26,397	28,891	(8.6)
<b>Supply:</b>						
Domestic liquids production						
Crude oil (including condensate).....	10,650	12,673	(16.0)	11,392	12,131	(6.1)
Natural gas liquids.....	5,038	5,022	0.3	5,104	4,791	6.5
Other supply <sup>5</sup> .....	965	1,109	(12.9)	987	1,138	(13.3)
Total domestic supply.....	16,653	18,804	(11.4)	17,483	18,060	(3.2)
Imports:						
Crude oil (excluding SPR imports).....	5,147	6,242	(17.5)	5,900	6,895	(14.4)
From Canada.....	3,253	3,760	(13.5)	3,526	3,826	(7.8)
All other.....	1,894	2,481	(23.7)	2,374	3,069	(22.6)
Products.....	2,270	2,357	(3.7)	2,006	2,347	(14.5)
Total motor gasoline (incl. blend.comp)....	555	721	(23.0)	570	832	(31.5)
All other.....	1,715	1,637	4.8	1,436	1,515	(5.2)
Total imports.....	7,417	8,599	(13.7)	7,907	9,242	(14.4)
Total supply.....	24,070	27,403	(12.2)	25,390	27,301	(7.0)
Stock change, all oils.....	(2,573)	(2,351)	na	(1,008)	(1,590)	na
<b>Refinery Operations:</b>						
Input to crude distillation units.....	13,941	16,128	(13.6)	14,751	16,947	(13.0)
Gasoline production.....	9,172	10,259	(10.6)	8,714	10,093	(13.7)
Kerosene-jet production.....	834	1,653	(49.5)	1,007	1,783	(43.6)
Distillate fuel production.....	4,238	4,794	(11.6)	4,771	5,110	(6.6)
Residual fuel production.....	170	340	(50.0)	201	377	(46.7)
Operable capacity.....	18,622	18,808	(1.0)	18,764	18,808	(0.2)
Refinery utilization <sup>6</sup> .....	74.9%	85.8%	na	78.6%	90.1%	na
Crude oil runs.....	13,446	15,681	(14.3)	14,220	16,547	(14.1)

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)

	October 2020	September 2020	October 2019	% Change From	
				Month Ago	Year Ago
<b>Stocks (at month-end, in millions of barrels):</b>					
Crude oil (excluding lease & SPR stocks).....	485.7	495.3	443.4	(1.9)	9.5
Unfinished oils.....	78.9	81.8	98.4	(3.5)	(19.8)
Total motor gasoline.....	228.4	227.9	224.5	0.2	1.7
Finished reformulated.....	0.0	0.0	0.1	(0.2)	(26.9)
Finished conventional.....	25.5	23.5	23.3	8.5	9.5
Blending components.....	202.9	204.4	201.1	(0.7)	0.9
Kerosene-jet.....	37.5	39.8	39.8	(5.8)	(5.7)
Distillate fuel oil.....	155.4	173.0	120.1	(10.2)	29.4
≤ 500 ppm sulfur.....	146.6	163.6	108.7	(10.4)	34.8
≤ 15 ppm sulfur.....	143.9	160.3	105.0	(10.2)	37.1
> 500 ppm sulfur.....	8.8	9.4	11.4	(6.4)	(22.5)
Residual fuel oil.....	31.1	32.2	29.7	(3.4)	4.8
All other oils.....	422.7	387.2 R	335.9	9.2	25.9
Total all oils.....	1,439.7	1,437.2 R	1,291.6	0.2	11.5