

Vol. 43 No. 2

Published March 14, 2019

February 2019

EXECUTIVE SUMMARY

Just as every [March Madness](#) tournament selection begins with top seeds as well as some teams on the proverbial bubble, so it is with U.S. oil market performance in our March report based on data through February.

Our top seeds go to

- ▶ U.S. crude oil production, a monthly record eclipsing 12.1 million barrels per day (mb/d) in February; and,
- ▶ U.S. total petroleum demand, led by solid annual growth in distillates, gasoline and jet fuel.

On the bubble, however, we have U.S. petroleum net imports, which appeared to backslide to 2.7 mb/d in January but should have set a modern record by falling to 1.1 mb/d in February. However, in the wake of the Federal government furlough, there were material data revisions going back to November 2018 that retroactively suggest petroleum net imports were even lower in November and December than previously reported. Details follow, but the gist is that, by these measures, the global demand responsiveness to lower prices has remained strong, and the U.S. has grown closer to energy independence.

Looking forward, API's proprietary economic indicator – the Distillate Economic and Financial Indicator (DEFI) – decreased by 0.1 percentage points in February and for the third consecutive month correctly anticipated slowing in year-over-year growth of U.S. industrial production. Please see the [following chart](#) for comparisons with U.S. total industrial production.

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

Demand

- **U.S. petroleum demand 20.4 mb/d in February – strongest for the month since 2007.**
 - Gasoline demand (8.9 mb/d) grew by 1.0 percent y/y in February.
 - Distillate demand (4.2 mb/d) strongest for February since 2015.
 - Strongest February jet fuel demand (1.6 mb/d) since 2005.
 - Residual fuel oil demand (0.3 mb/d) lowest for February in three years.
 - Refinery and petrochemical feedstock demand (5.5 mb/d) highest for February on record.

Prices & Macroeconomy

- Oil and gasoline prices continued to rebound in February.
- Mixed signals continue from U.S. leading economic indicators.

Supply

- Record U.S. crude oil production (12.1 mb/d).

International trade

- U.S. petroleum net imports of 1.1 mb/d.

Industry operations

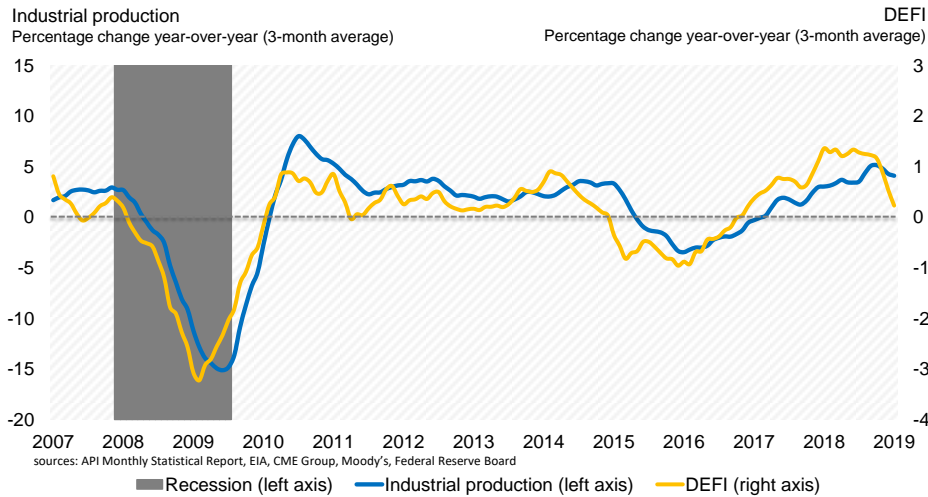
- Refinery throughput (16.1 mb/d) and capacity utilization (86.7 percent) for February.

Inventories

- Total petroleum inventories 4.1 percent above the 5-year average.

API Distillate Economic and Financial Indicator (DEFI) – Feb. 2019

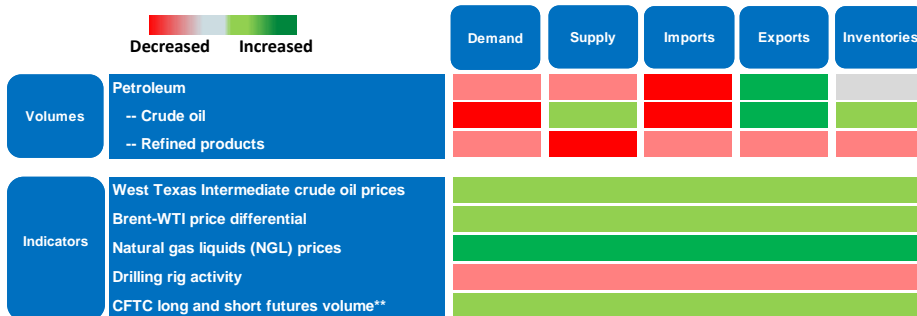
- ▶ The DEFI value of 0.2 for February and three-month average of 0.2 suggests a continued slowing of industrial production from relatively strong levels



MSR heat map – February 2019

Heat map of monthly percentage changes – February 2019 compared with January 2019*

- ▶ Crude oil prices increased in February with rising exports compensating for weakened refining activity and domestic demand
- ▶ Total inventories held steady, but those of crude oil grew while refined products shrank



* Boldest colored increases and decreases reflect changes vs. prior month that are in the top or bottom quartile for the past five years

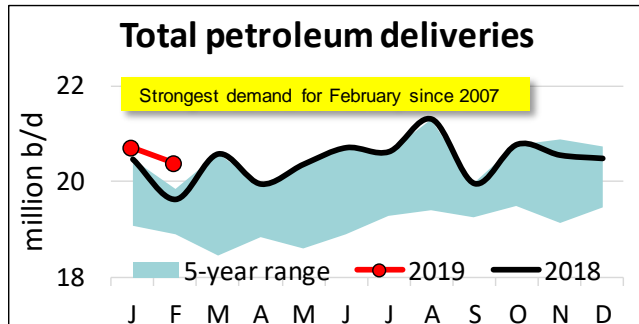
** CFTC long/short open interest comparisons based on month versus same month in prior year

sources: API Monthly Statistical Report, EIA, CFTC, Baker Hughes

Details by section

Demand

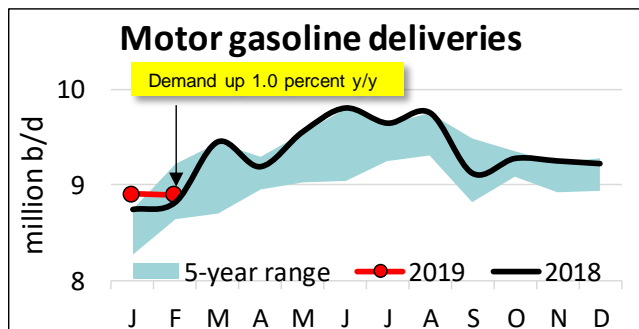
U.S. petroleum demand 20.4 mb/d in February – strongest for the month since 2007



U.S. petroleum demand, as measured by total domestic petroleum deliveries, was 20.4 mb/d in February, which was down 1.5 percent from January but up 3.8 percent compared with February 2018. This was the strongest petroleum demand for the month of February since 2007.

Gasoline

Gasoline demand (8.9 mb/d) grew 1.0 percent y/y in February

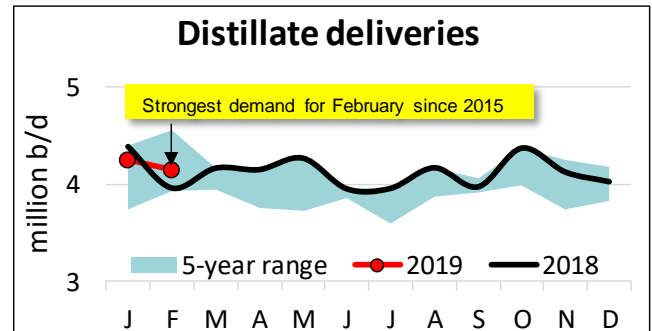


Consumer gasoline demand, measured by total motor gasoline deliveries, was 8.9 mb/d in February. This was almost identical to January and a 1.0 percent increase compared with February 2018.

Demand for reformulated-type gasoline, which is consumed primarily in urban areas, increased by 1.7 percent y/y to 3.0 mb/d in February. By contrast, conventional gasoline is used more in rural areas and increased 0.6 percent y/y to 5.9 mb/d.

Distillate Fuel Oil

Distillate demand strongest for February since 2015



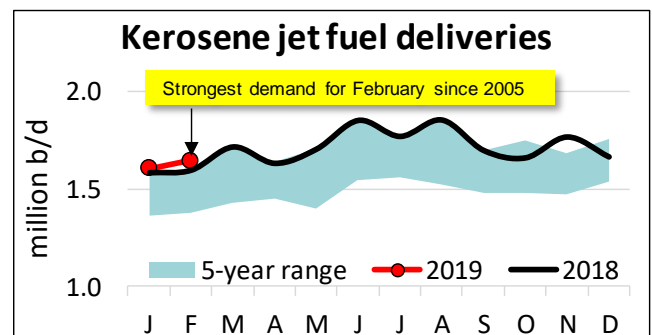
In February, distillate deliveries of 4.2 mb/d decreased seasonally by 2.3 percent from January but increased 4.7 percent compared with February 2018.

About 97.0 percent of distillate demand in February was for ultra-low sulfur distillate (ULSD), which is driven mainly by road freight transportation activity. Indicators of freight trucking activity have remained solid, with the Bureau of Labor Statistics' (BLS) Producer Price Index for freight trucking up by 7.9 percent y/y in February, and the nationwide shortage of truckers [gaining traction](#).

The remaining 3.0 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 February, HSD deliveries of 132 thousand barrels per day (kb/d) fell by 15.9 percent from January and 32.3 percent compared with February 2018. This was the lowest HSD demand on record for the month of February.

Kerosene Jet Fuel

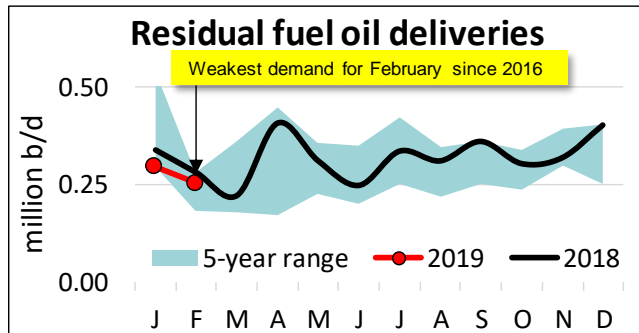
Strongest February jet fuel demand since 2005



In February, kerosene jet fuel deliveries of 1.6 mb/d increased by 2.4 percent compared with January and were up by 3.0 percent versus February 2018, which made for the strongest demand for the month of February since 2005. The increase generally was consistent with the [International Air Transport Association \(IATA\)](#) latest report, which showed U.S. domestic air passenger kilometers traveled increased by 5.8 percent y/y in January.

Residual Fuel Oil

Residual fuel oil demand (0.3 mb/d) lowest for February in three years

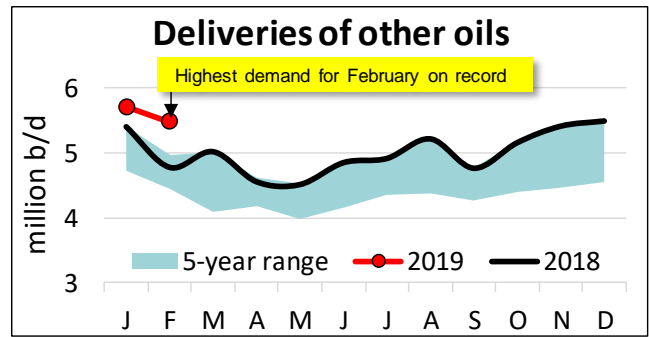


Residual fuel oil is used in electric power production, space heating, marine vessel bunkering and other industrial applications. Residual fuel oil demand was 254 kb/d in February, a decrease of 14.5 percent from January and 9.9 percent versus February 2018. The decrease came despite February 2019 bringing the United States an average of 12 percent more heating degree days than one year ago, according to [EIA](#).

Rather, diminished marine vessel bunkering demand appears to be the root cause. [Tightening sulfur regulations](#) are generally expected to decrease residual fuel oil demand beginning in January 2020, but the decrease in February appears to be driven by the decrease in shipping activity. As a measure of international shipping prices and activity, the Baltic Dry Index monthly average has dropped by 48.2 percent year-to-date through February.

Other Oils

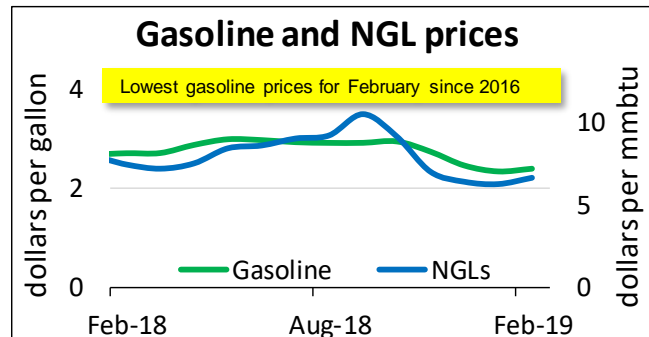
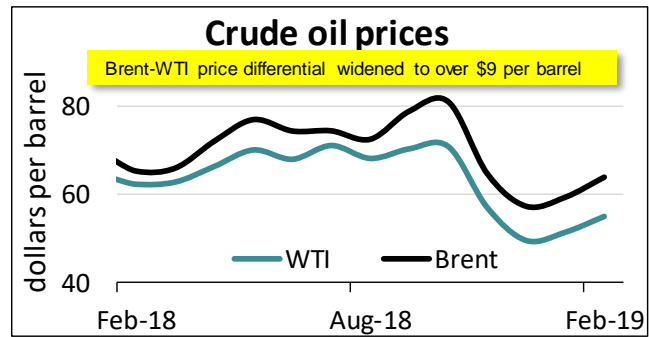
Refinery and petrochemical feedstock demand (5.5 mb/d) highest for February on record



Refining and petrochemical demand for liquid feedstocks, naphtha, and gasoil (“other oils”) was 5.5 mb/d in February, a decrease of 3.9 percent from January but an increase of 14.7 percent — 0.7 mb/d — above February 2018. This was the highest other oils’ demand for February on record. It also is indication of refining and petrochemical expansions and throughput.

Prices

Oil and gasoline prices continued to rebound in February



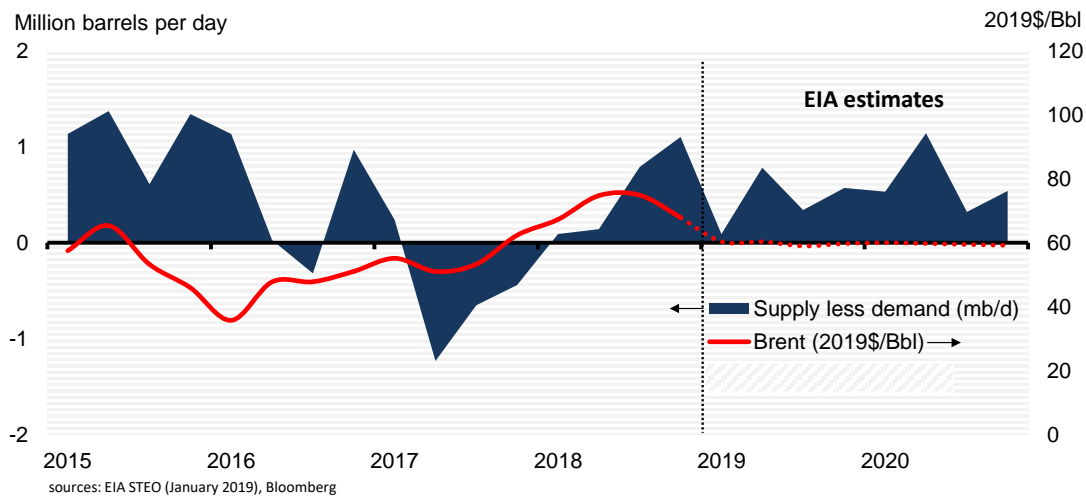
Domestic WTI crude oil prices averaged \$54.95 per barrel in February, an increase of 6.9 percent (\$3.57 per barrel) from January but a decrease of 11.7 percent (\$7.28 per barrel) from February 2018. Similarly, international Brent crude oil prices averaged \$63.96 per barrel, up 7.7 percent (\$4.55 per barrel) from January. As prices continued to rebound in February, the difference between Brent

EIA suggests the global oil market should maintain a surplus



➤ EIA estimates global oil demand growth to slow in 2019 and be met almost entirely by the U.S.

EIA global supply/demand estimates as of February 2019



and WTI crude oil prices widened to over \$9.0 per barrel in February from \$8.0 per barrel in January.

In its short-term energy outlook [EIA](#) expects a global oil market surplus to persist through 2019 but oil prices to remain steady around \$60 per barrel. [EIA](#) also reports crude oil has remained the top input cost to produce gasoline. As WTI crude oil prices fell, the average U.S. gasoline price increased to \$2.39 per gallon in February from \$2.34 per gallon in January, according to [AAA](#) reports.

Natural gas liquids (NGL) prices averaged \$6.62 per million Btu (MMBtu) in February, which was an increase of 6.1 percent from January. Among the constituent NGLs, Bloomberg data show ethane, which makes up more than 40 percent of typical NGL production, fell in price by 3.6 percent in February, but the prices of propane, butane and field natural gasoline each rose during the month.

Macroeconomy

Mixed signals continue from U.S. leading economic indicators

The [University of Michigan's consumer sentiment index](#) edged up to a final reading of 93.8 in February from 91.2 in January. The survey notes, while the overall level of confidence diminished from a reading of 99.7 in February 2018, the present reading is still positive. They suggest that personal consumption expenditures should grow by 2.6 percent in 2019, so this strength in consumer spending would imply that the expansion is expected to set a new record length by mid-year.

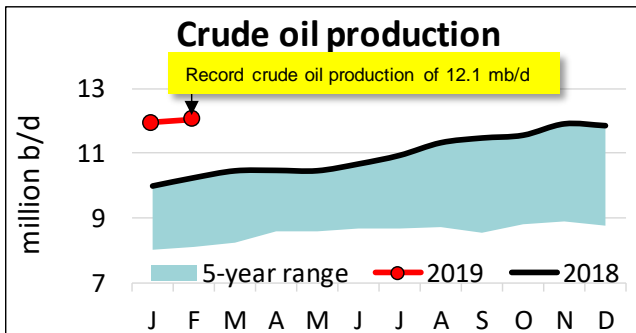
The [Institute for Supply Management's Purchasing Managers Index \(PMI\)](#) registered 54.2 in February, which was a decrease of 2.4 percentage points from a reading of 56.6 in January. Any value above 50.0 suggests an expansion. New orders, production and employment increased. Growth occurred in 16 of the 18 manufacturing sectors surveyed (two more than in January).

API's Distillate Economic and Financial Indicator (DEFI), which combines industry fundamentals with prices and interest rates, decreased by 0.1 percentage points in February and has correctly identified the continued slowing growth of U.S. industrial production for three consecutive months.

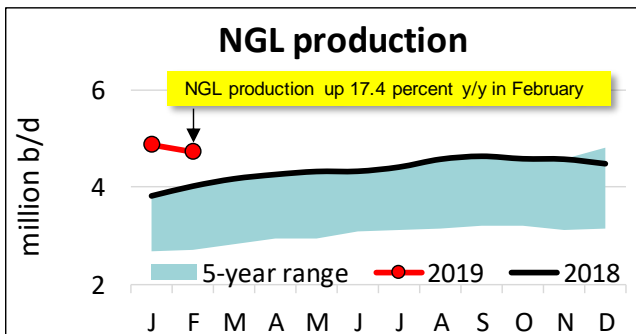
According to the [Bureau of Labor Statistics \(BLS\)](#), labor markets remained tight, as the unemployment rates decreased to 3.8 percent in February from 4.0 percent in January. The unemployment rate fell in February despite U.S. non-farm payrolls having grown by just 20,000 in February – well below [consensus expectations](#) of 180,000.

Supply

Record U.S. oil (12.1 mb/d) production



Record U.S. crude oil production of 12.1 mb/d in February – #1 in the world – marked another new high for monthly output. The increased production reflects the rise in drilling activity over the past quarter, which [Baker Hughes](#) reported an average of 878 oil-targeted rigs in Q4 2018, up from 863 oil rigs in Q3 2018. The rig count slipped to an average of 853 in February, however, so further production growth may hinge on the extent of productivity and bringing down the backlog of drilled but uncompleted wells (DUCs) that the [EIA](#) estimated hit a new high of 8,800 DUCs in January.



Natural gas liquids (NGL) production, a co-product of natural gas production, was 4.7 mb/d in

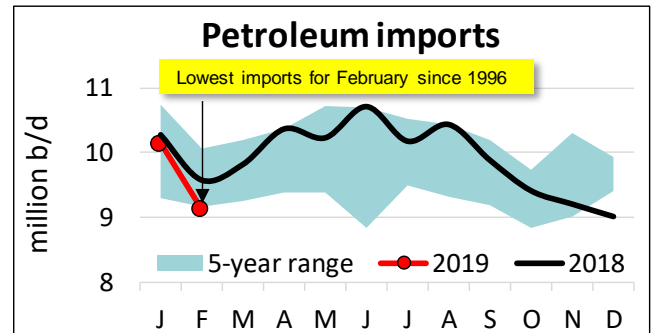
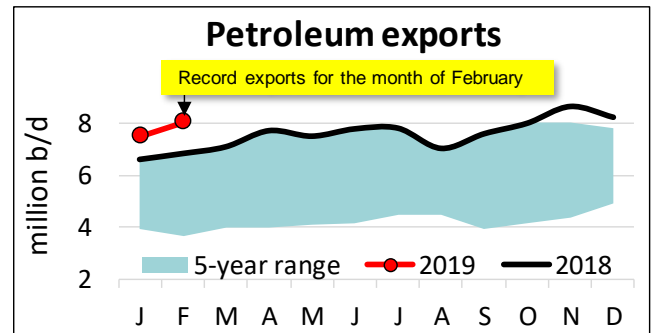
February, an increase of 17.4 percent y/y compared with February 2018.

International trade

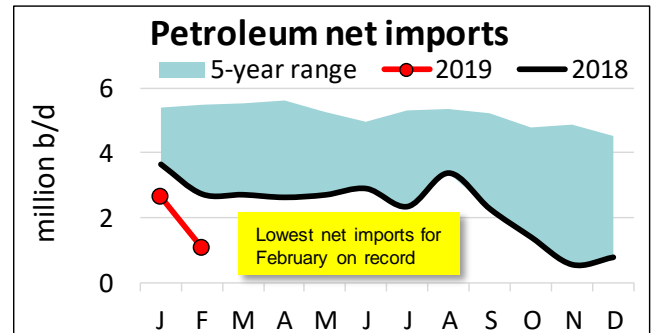
U.S. petroleum net imports of 1.1 mb/d

International trade offers some of the most interesting plots this month.

On the heels of its record crude oil production, the United States' crude oil exports eclipsed 3.0 mb/d for the first time, the highest on record. Including refined products, this propelled total U.S. petroleum exports to 8.1 mb/d, the highest on record for the month of February.



At the same time, crude oil imports fell by nearly 1.0 mb/d between January and February, 0.2 mb/d of which was from Canada.



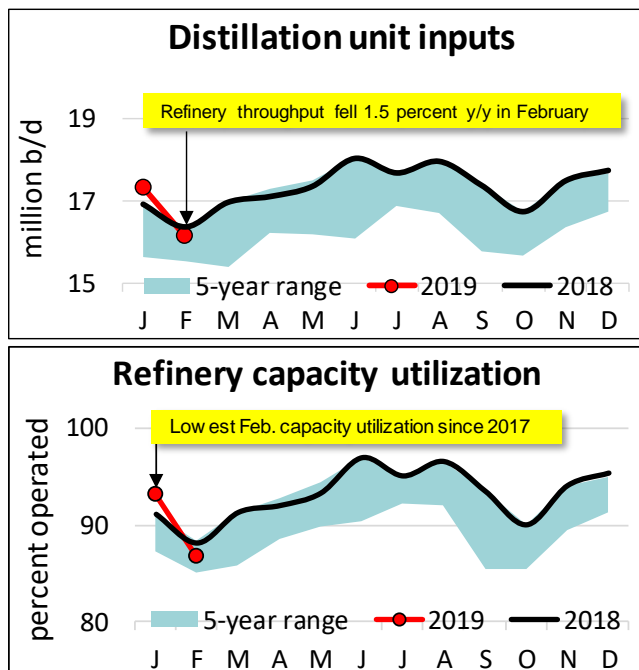
The change February imports ranked among the largest monthly decreases on record since 1973, well beyond typical seasonality.

The combination of record exports with the sharp fall in imports suggests U.S. net imports of petroleum fell to 1.1 mb/d in February.

This would be a new record for the lowest monthly petroleum net imports since the 1960s if it were not for official revisions to U.S. trade data extending back to November 2018. The most consequential revision was to refined product exports, which on a revised basis for November 2018 were 800 kb/d above the initial estimate from November. Consequently, the history of U.S. net petroleum imports now suggests the U.S. was a net importer of just 0.5 mb/d in November and 0.8 mb/d in December. Retroactively, this is remarkably close to the U.S. becoming a net exporter of petroleum as it already is for natural gas.

Industry operations

Refinery throughput (16.1 mb/d) and capacity utilization (86.7 percent) for February



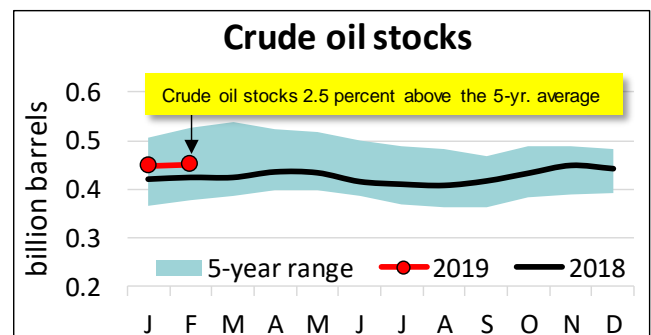
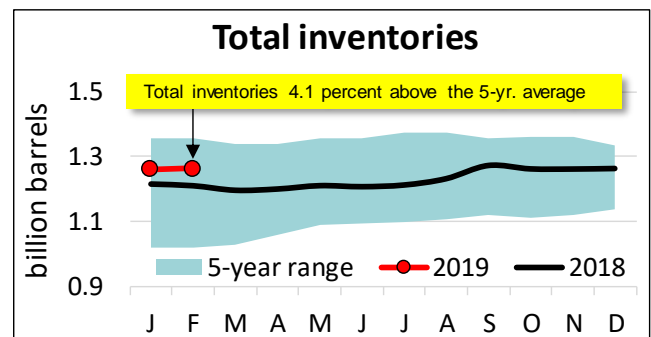
In February, U.S. refinery throughput normalized to 16.1 mb/d, implying a capacity utilization rate of 86.7 percent. These rates were both more than 6.0

percent below their respective levels in January, as Bloomberg reported outages of crude distillation units doubled to 1.4 mb/d in February from 0.7 mb/d in January. Most of this appeared to result from scheduled maintenance, and outages fell to 0.8 mb/d as of March 1.

Inventories

Total petroleum inventories 4.1 percent above the 5-year average

In February, total petroleum inventories were 1.26 billion barrels, which an increase of 0.1 percent from January and 4.3 percent over February 2018. Total inventories are now 4.1 percent above the average of the 5-year range. Within the February total, crude oil inventories rose 0.7 percent m/m, while refined product stocks fell 0.3 percent m/m.



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

Disposition and Supply	February			Year-to-Date		
	2019 ²	2018	% Change	2019 ³	2018	% Change
Disposition:						
Total motor gasoline.....	8,904	8,817	1.0	8,905	8,778	1.5
Finished reformulated.....	3,046	2,994	1.7	2,960	2,922	1.3
Finished conventional.....	5,858	5,823	0.6	5,945	5,856	1.5
Kerosene-jet.....	1,647	1,599	3.0	1,627	1,592	2.2
Distillate fuel oil.....	4,150	3,962	4.7	4,201	4,189	0.3
≤ 500 ppm sulfur.....	4,018	3,767	6.7	4,057	3,997	1.5
≤ 15 ppm sulfur.....	4,007	3,756	6.7	4,045	3,974	1.8
> 500 ppm sulfur.....	132	195	(32.3)	145	192	(24.5)
Residual fuel oil.....	254	282	(9.9)	277	313	(11.5)
All other oils (including crude losses)	5,478	4,777	14.7	5,596	5,053	10.8
Reclassified ⁴	(64)	183	na	(69)	138	na
Total domestic product supplied.....	20,369	19,619	3.8	20,537	20,062	2.4
Exports.....	8,057	6,844	17.7	7,758	6,723	15.4
Total disposition.....	28,426	26,463	7.4	28,295	26,785	5.6
Supply:						
Domestic liquids production						
Crude oil (including condensate).....	12,059	10,248	17.7	11,994	10,115	18.6
Natural gas liquids.....	4,725	4,023	17.4	4,799	3,919	22.4
Other supply ⁵	1,200	1,236	(2.9)	1,233	1,228	0.5
Total domestic supply.....	17,984	15,508	16.0	18,026	15,262	18.1
Imports:						
Crude oil (excluding SPR imports).....	6,680	7,493	(10.8)	7,187	7,766	(7.5)
From Canada.....	3,320	3,587	(7.5)	3,441	3,687	(6.7)
All other.....	3,360	3,906	(14.0)	3,746	4,078	(8.2)
Products.....	2,448	2,087	17.3	2,475	2,179	13.6
Total motor gasoline (incl. blend.comp).....	494	537	(8.0)	512	519	(1.3)
All other.....	1,954	1,550	26.0	1,963	1,660	18.3
Total imports.....	9,128	9,580	(4.7)	9,662	9,945	(2.8)
Total supply.....	27,112	25,088	8.1	27,689	25,206	9.8
Stock change, all oils.....	(1,314)	(1,375)	na	(606)	(1,579)	na
Refinery Operations:						
Input to crude distillation units.....	16,122	16,360	(1.5)	16,753	16,653	0.6
Gasoline production.....	9,785	9,800	(0.2)	9,769	9,652	1.2
Kerosene-jet production.....	1,701	1,690	0.7	1,740	1,690	3.0
Distillate fuel production.....	4,852	4,584	5.8	5,075	4,808	5.5
Residual fuel production.....	295	462	(36.1)	352	465	(24.3)
Operable capacity.....	18,604	18,567	0.2	18,604	18,567	0.2
Refinery utilization ⁶	86.7%	88.1%	na	90.0%	89.7%	na
Crude oil runs.....	15,862	15,932	(0.4)	16,469	16,282	1.1

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 BALANCE¹
(Daily average in thousands of 42 gallon barrels)

	February 2019	January 2019	February 2018	% Change From	
				Month Ago	Year Ago
Stocks (at month-end, in millions of barrels):					
Crude oil (excluding lease & SPR stocks).....	451.5	448.2	423.5	0.7	6.6
Unfinished oils.....	89.2	87.0	90.3	2.5	(1.3)
Total motor gasoline.....	253.1	258.2	252.6	(2.0)	0.2
Finished reformulated.....	0.1	0.0	0.1	0.3	1.9
Finished conventional.....	25.5	27.7	24.9	(7.9)	2.2
Blending components.....	227.5	230.5	227.6	(1.3)	(0.0)
Kerosene-jet.....	42.6	42.1	43.0	1.2	(0.8)
Distillate fuel oil.....	135.8	141.7	138.6	(4.2)	(2.0)
≤ 500 ppm sulfur.....	124.6	130.5	127.2	(4.5)	(2.0)
≤ 15 ppm sulfur.....	121.5	127.1	121.2	(4.4)	0.2
> 500 ppm sulfur.....	11.2	11.2	11.4	0.0	(1.6)
Residual fuel oil.....	28.6	28.7	32.8	(0.3)	(12.7)
All other oils.....	261.8	255.5 R	229.3	2.5	14.1
Total all oils.....	1,262.6	1,261.4 R	1,210.1	0.1	4.3