

# THE U.S. Energy DATABOOK

*A summary of national and global energy indicators*



DECEMBER 23, 2019

FEDERAL RESERVE BANK of KANSAS CITY

## SUMMARY OF CURRENT ENERGY CONDITIONS

In December, the number of total active drilling rigs in the United States continued to decline, dipping 0.9 percent from a month ago and 25.4 percent from a year ago. In September 2019, U.S. crude oil production expanded 0.5 percent, while natural gas production edged down 2.4 percent. For the week ending December 13th, West Texas Intermediate (WTI) crude oil averaged \$59.25 per barrel and North Sea Brent averaged \$66.50 per barrel, an increase of 4.2 percent and 6.3 percent in the last month, respectively. The Henry Hub natural gas spot price averaged \$2.23 per million Btu for the week ending December 13th, falling 18.3 percent in the last month. U.S. crude oil and petroleum products imports and exports increased 4.9 percent and 9.6 percent in the last month, respectively. Global demand for petroleum rose 1.2 percent in the third quarter of 2019 and global petroleum production inched up 0.3 percent in November 2019.

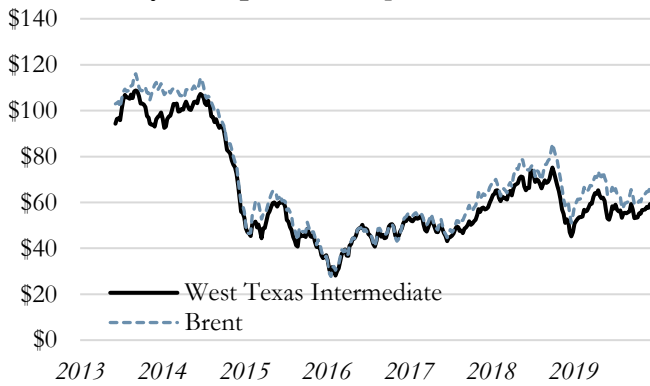
This databook provides current economic indicators to help monitor trends and allow comparison of past information. These indicators include: oil and natural gas prices; global petroleum production and demand; U.S. oil production and petroleum demand; U.S. crude oil stocks; OECD petroleum stocks; U.S. oil imports; U.S. oil exports; oil and gas drilling rig counts; and U.S. natural gas production. These indicators can be found on the following pages.



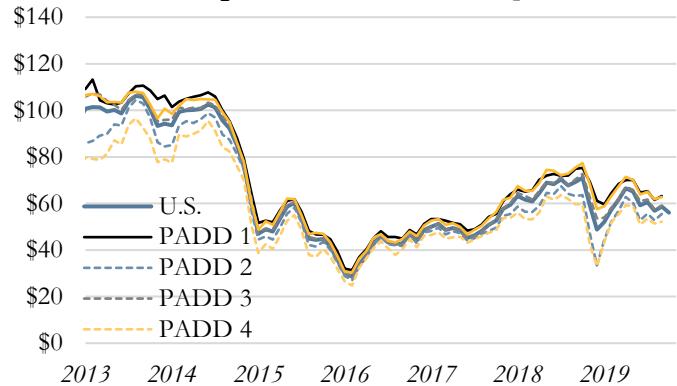
The Federal Reserve Bank of Kansas City's headquarters is located at 1 Memorial Drive in the heart of Kansas City, Missouri. The Federal Reserve Bank of Kansas City serves the Tenth Federal Reserve District, which includes Colorado, Kansas, western Missouri, Nebraska, northern New Mexico, Oklahoma and Wyoming. There are three branches across the Tenth Federal Reserve District located in Denver, Oklahoma City, and Omaha.

Weekly data through December 13, 2019

Weekly Oil Spot Prices, per barrel



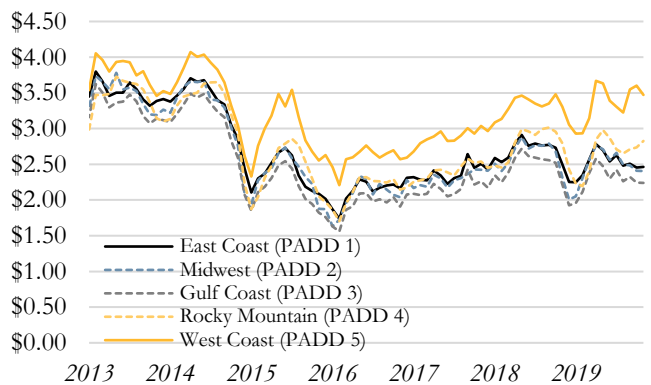
Refiner Acquisition Cost of Oil\*, per barrel



Weekly Natural Gas Spot Prices, per mmbtu



Monthly Gasoline Prices by PADD, per gallon



Weekly Spot Prices, Change from

	Current	1 Week	1 Month	3 months	6 Months	1 Year
Weekly Spot Prices	12/13/19	Ago	Ago	Ago	Ago	Ago
West Texas Intermediate	\$59.25	\$1.61	\$2.40	\$3.09	\$6.73	\$7.71
Brent	\$66.50	\$1.79	\$3.94	\$3.76	\$3.31	\$6.99
Henry Hub	\$2.23	-\$0.14	-\$0.50	-\$0.41	-\$0.18	-\$2.15

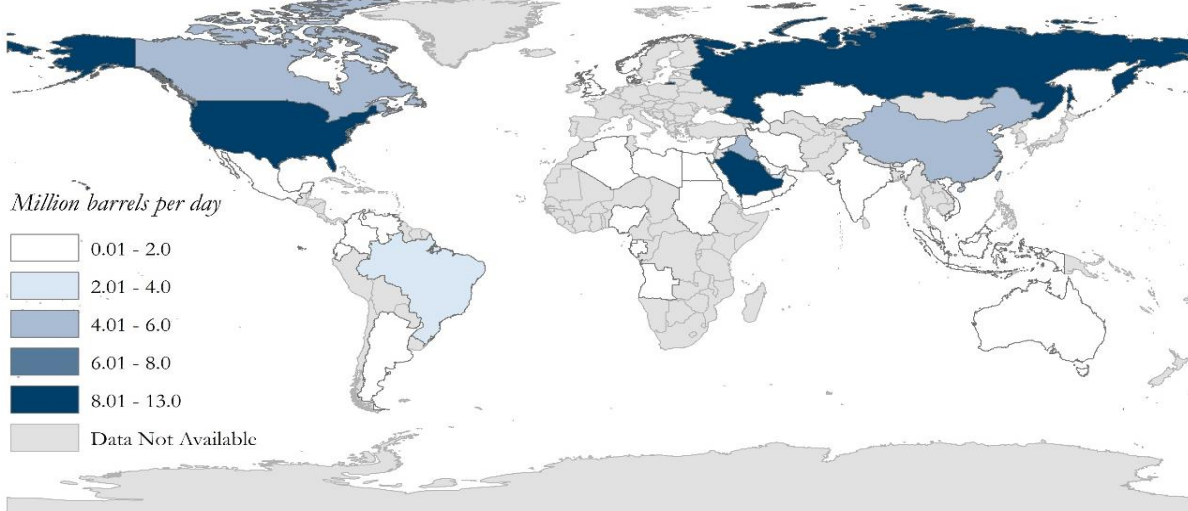
Monthly Gasoline Spot Prices, Change from

	Current	1 Month	3 months	6 Months	1 Year
Geographic Area	Nov-19	Ago	Ago	Ago	Ago
East Coast (PADD 1)	\$2.46	\$0.01	-\$0.02	-\$0.23	-\$0.04
Midwest (PADD 2)	\$2.40	-\$0.01	-\$0.09	-\$0.31	\$0.09
Gulf Coast (PADD 3)	\$2.24	-\$0.01	-\$0.02	-\$0.24	\$0.02
Rocky Mountain (PADD 4)	\$2.83	\$0.09	\$0.18	-\$0.15	\$0.03
West Coast (PADD 5)	\$3.47	-\$0.13	\$0.24	-\$0.16	\$0.16

\*The cost of crude oil, including transportation and other fees paid by the refiner.

Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

November 2019 Global Petroleum Production



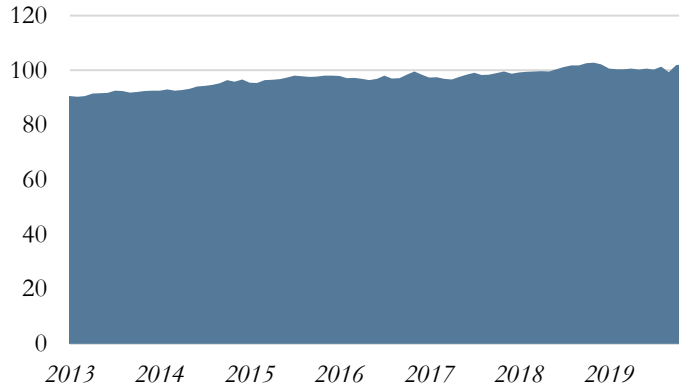
Million barrels per day

- 0.01 - 2.0
- 2.01 - 4.0
- 4.01 - 6.0
- 6.01 - 8.0
- 8.01 - 13.0
- Data Not Available

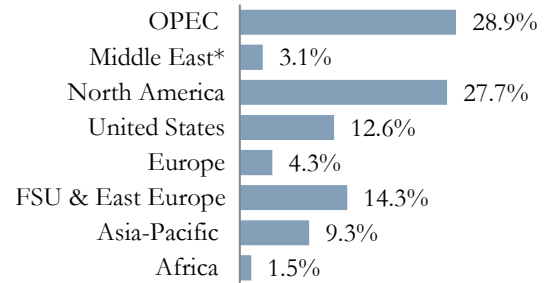
Source: Energy Information Administration/Haver Analytics

November 2019

Monthly Global Petroleum Production, million barrels per day

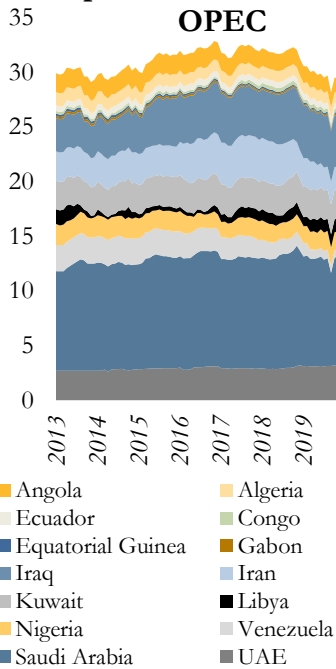


Regional Share of Production

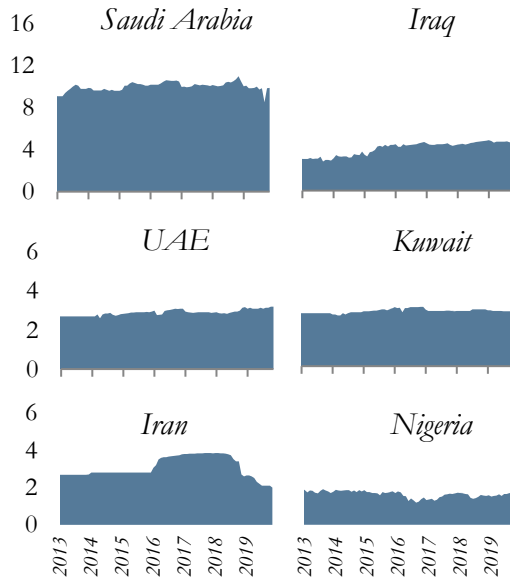


\*Excludes OPEC

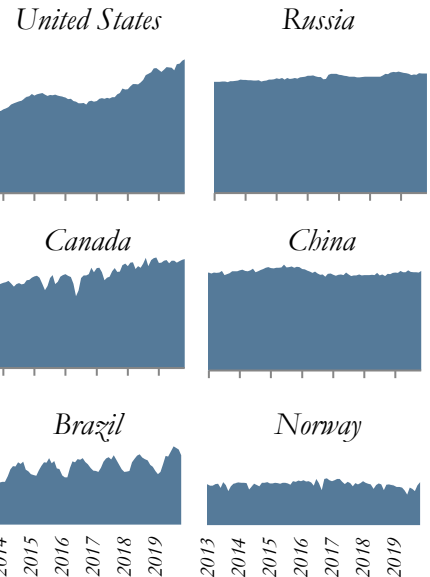
Top Crude Oil Producers, million barrels per day



Top OPEC Producers



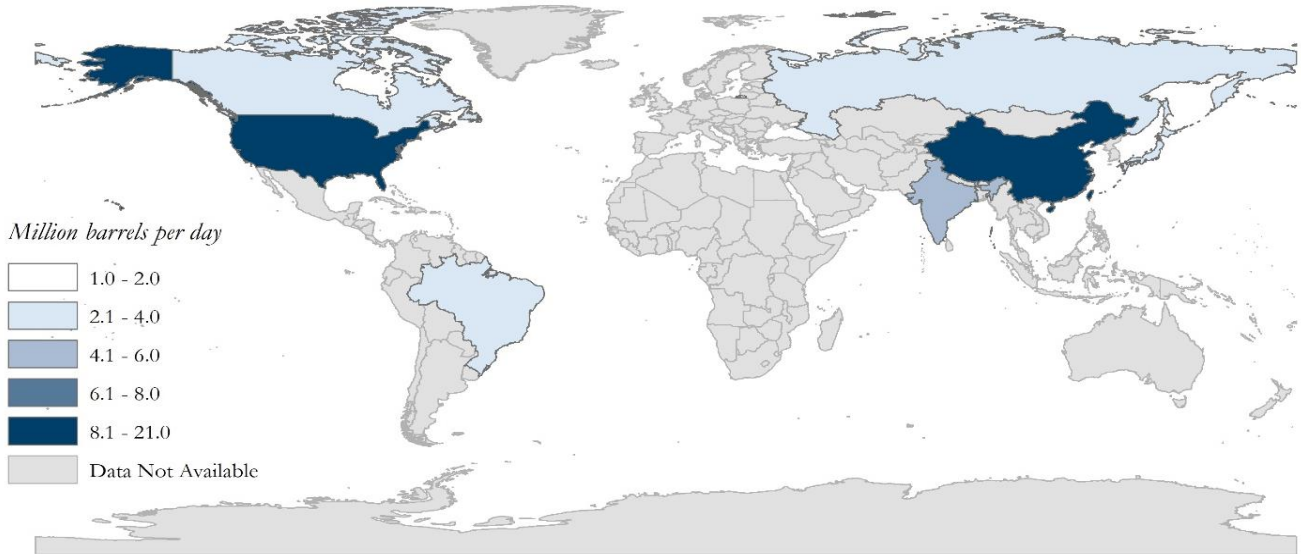
Top Non-OPEC Producers



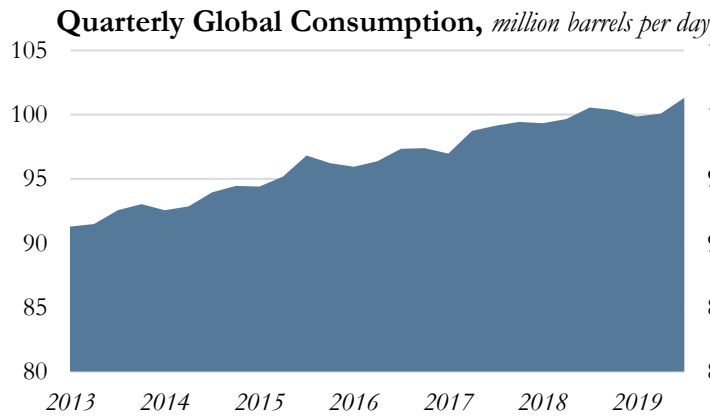
Note: OPEC country production values are for crude oil and non-OPEC country data is for petroleum production.

Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

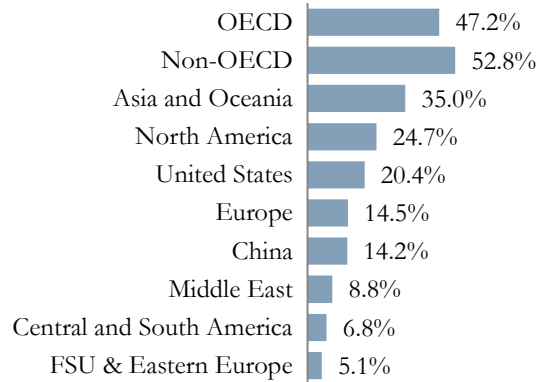
Third Quarter 2019 Global Petroleum Consumption



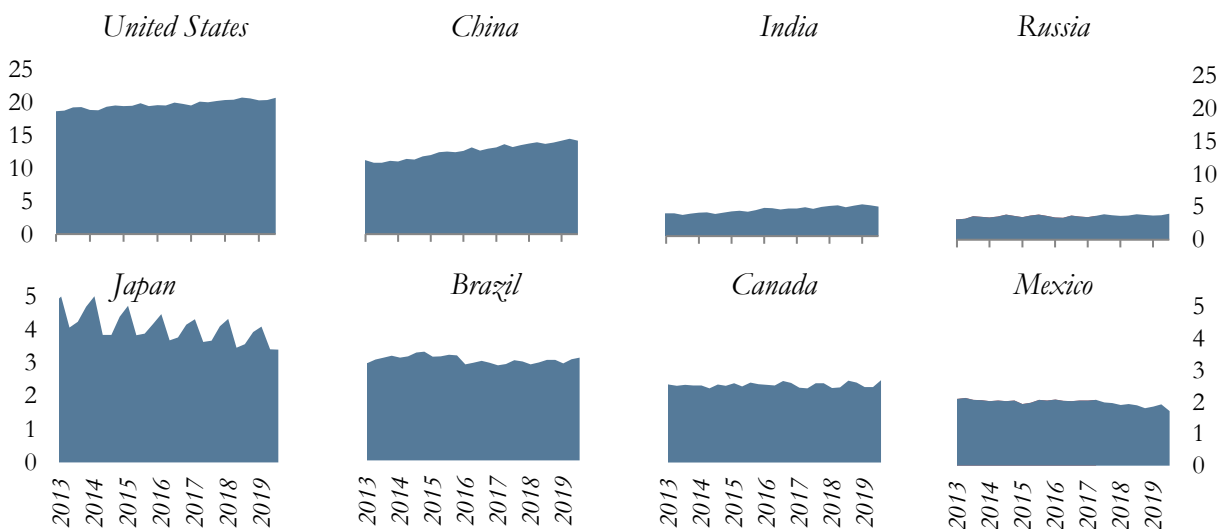
Source: Energy Information Administration/Haver Analytics



Third Quarter 2019 Regional Share of Consumption

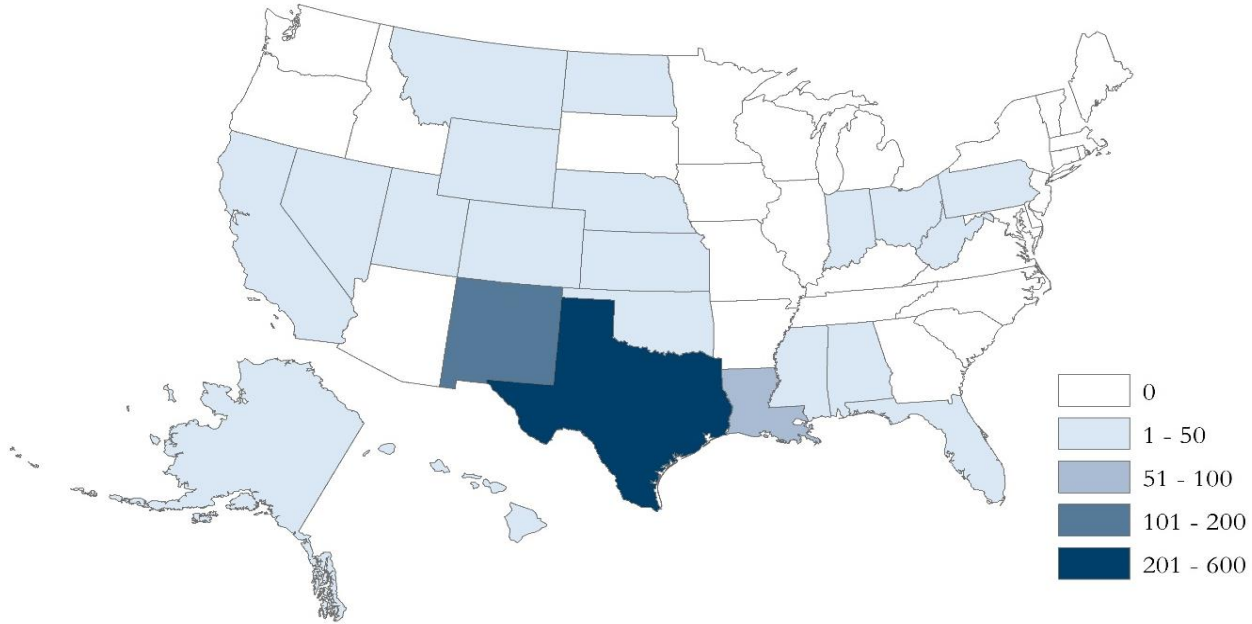


Top Petroleum Consumers, million barrels per day



Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

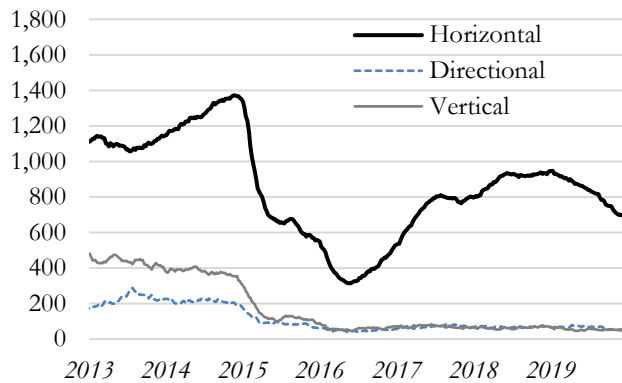
December 2019 Weekly Active Oil & Gas Drilling Rig Counts



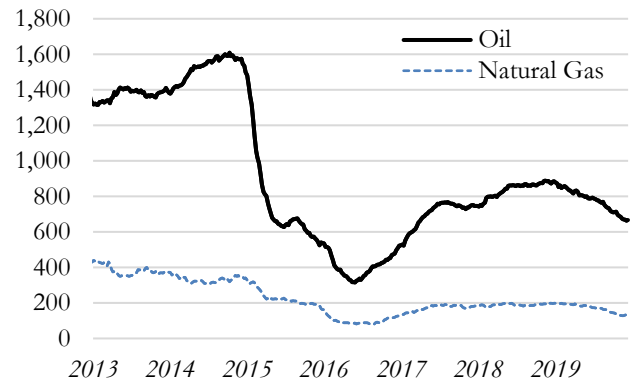
Source: Baker Hughes/Haver Analytics

December 13, 2019

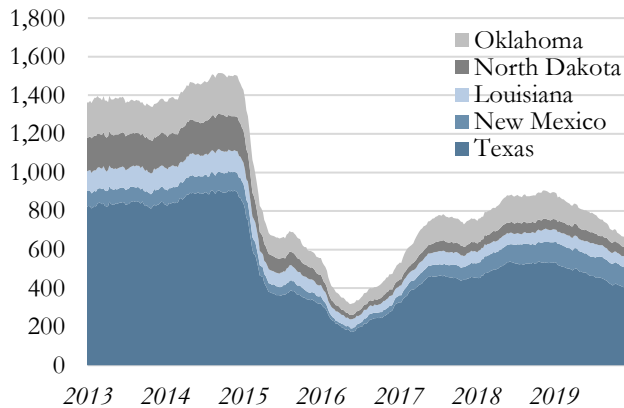
U.S. Active Drilling Rigs by Trajectory



U.S. Active Drilling Rigs by Type



Top Five States for Drilling Activity (Total Active Rigs)



Rig Count By Type

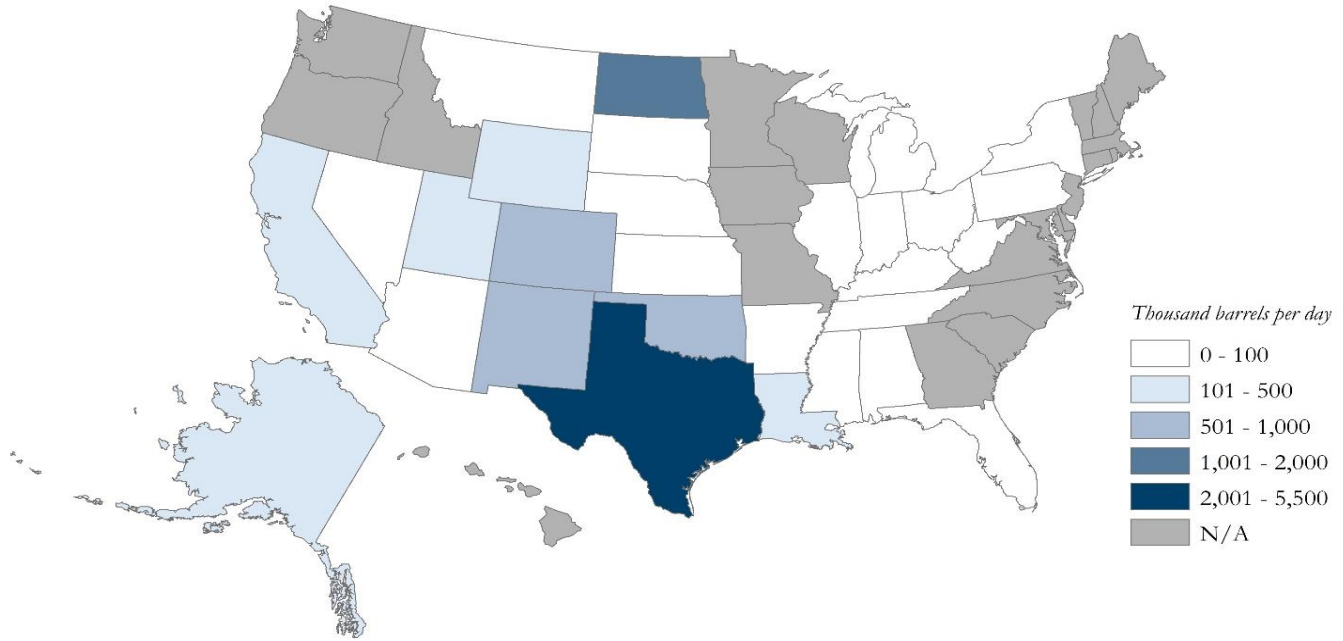
Rig Type	Current Week	1 Month Ago	3 Months Ago	1 Year Ago
Oil	667	674	733	873
Gas	129	129	153	198
Misc	3	3	0	0
<b>Total</b>	<b>799</b>	<b>806</b>	<b>886</b>	<b>1071</b>

Rig Count By Type, Change from

Rig Type	Current Week	1 Month Ago	3 Months Ago	1 Year Ago
Oil	-	-1.0%	-9.0%	-23.6%
Gas	-	0.0%	-15.7%	-34.8%
Misc	-	0.0%	-	-
<b>Total</b>	-	<b>-0.9%</b>	<b>-9.8%</b>	<b>-25.4%</b>

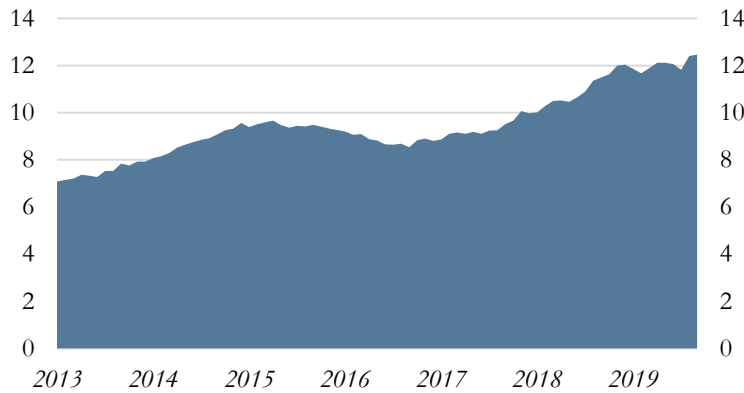
Source: Baker Hughes/Haver Analytics

September 2019 U.S. Crude Oil Production

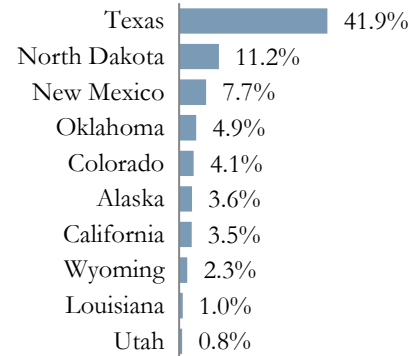


Source: Energy Information Administration/Haver Analytics

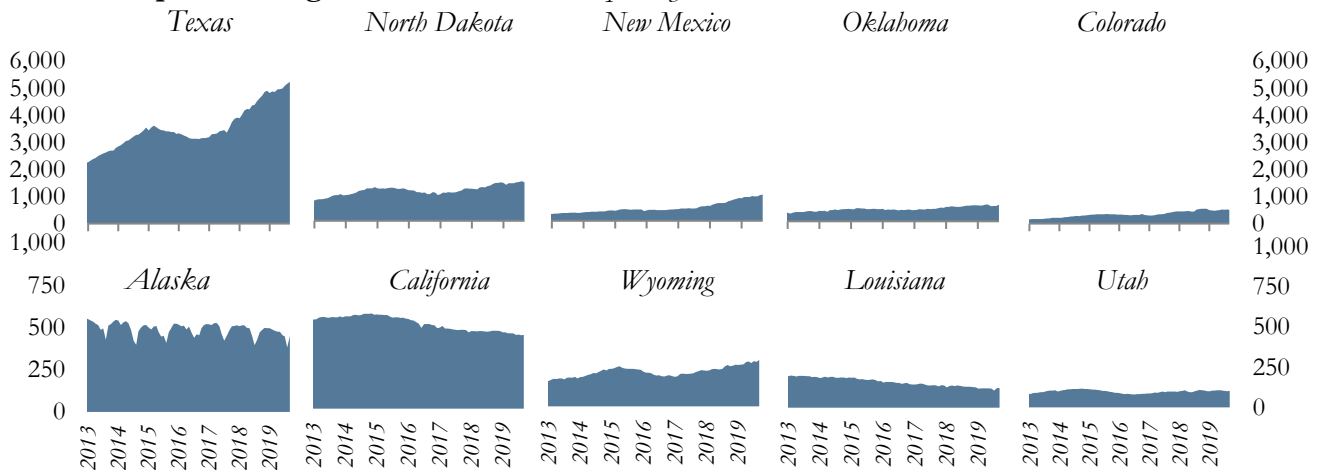
Monthly U.S. Production, million barrels per day



September 2019 Share of Production



Top Producing States, thousand barrels per day

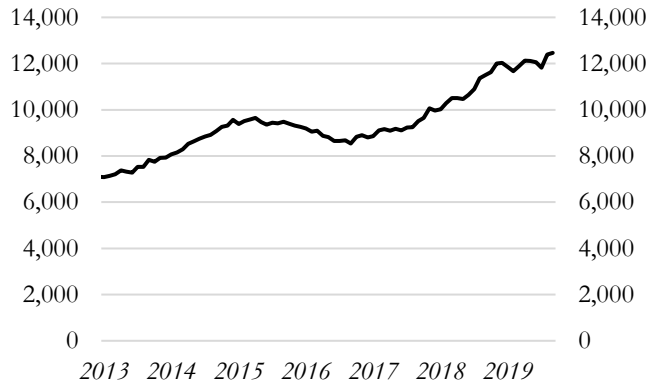


Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics



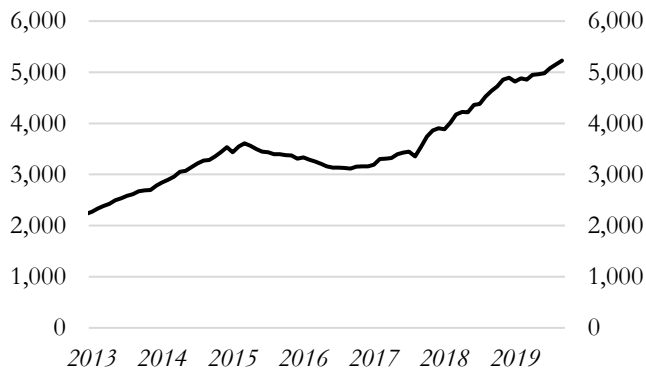
Data through September 2019

**United States** *Thousand barrels per day*



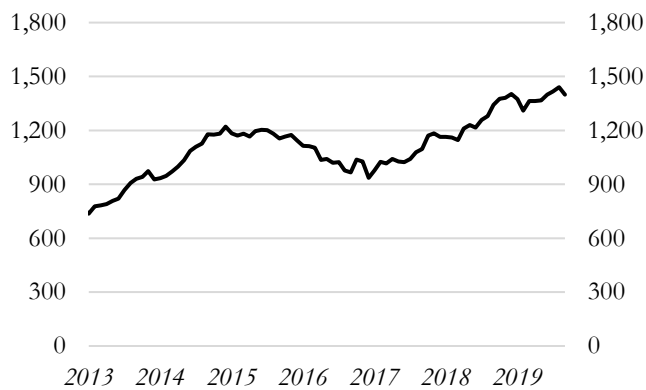
<b>United States</b>		<i>Change from</i>
<i>Thousand barrels per day</i>		
Sep-19	12,463	
Month Ago	12,397	0.5%
3 Months Ago	12,060	3.3%
6 Months Ago	11,892	4.8%
1 Year Ago	11,498	8.4%

**Texas**



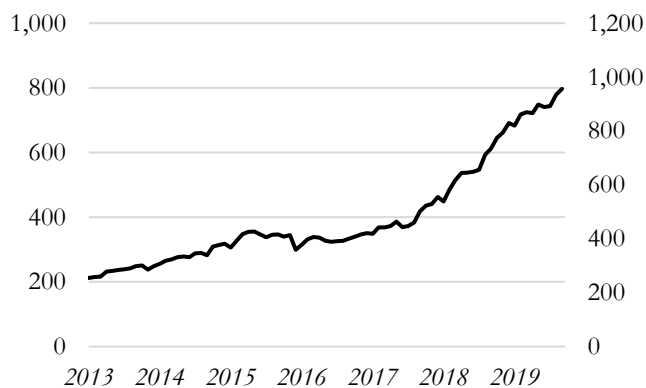
<b>Texas</b>		<i>Change from</i>
<i>Thousand barrels per day</i>		
Sep-19	5,228	
Month Ago	5,155	1.4%
3 Months Ago	4,977	5.0%
6 Months Ago	4,857	7.6%
1 Year Ago	4,634	12.8%
Share of U.S. Production		41.9%

**North Dakota**



<b>North Dakota</b>		<i>Change from</i>
<i>Thousand barrels per day</i>		
Sep-19	1,400	
Month Ago	1,440	-2.8%
3 Months Ago	1,400	0.0%
6 Months Ago	1,363	2.7%
1 Year Ago	1,342	4.3%
Share of U.S. Production		11.2%

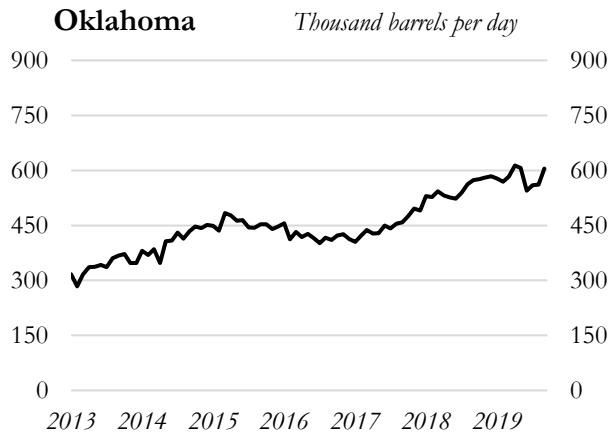
**New Mexico**



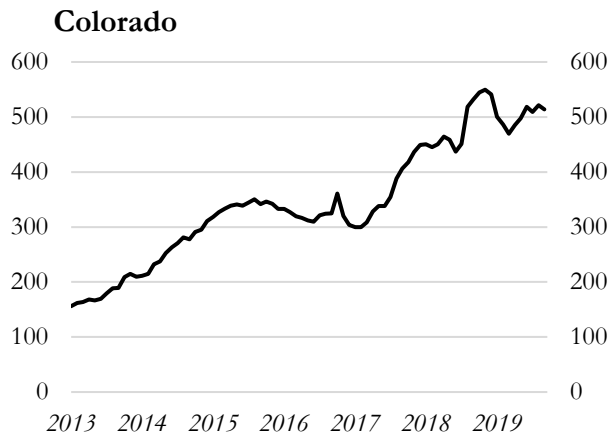
<b>New Mexico</b>		<i>Change from</i>
<i>Thousand barrels per day</i>		
Sep-19	956	
Month Ago	935	2.2%
3 Months Ago	888	7.6%
6 Months Ago	870	9.9%
1 Year Ago	734	30.2%
Share of U.S. Production		7.7%

Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

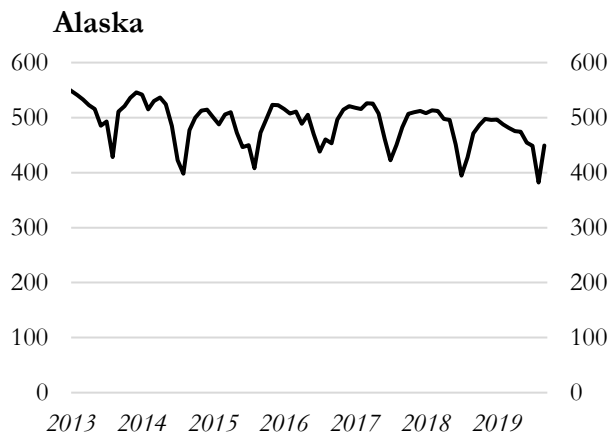
Data through September 2019



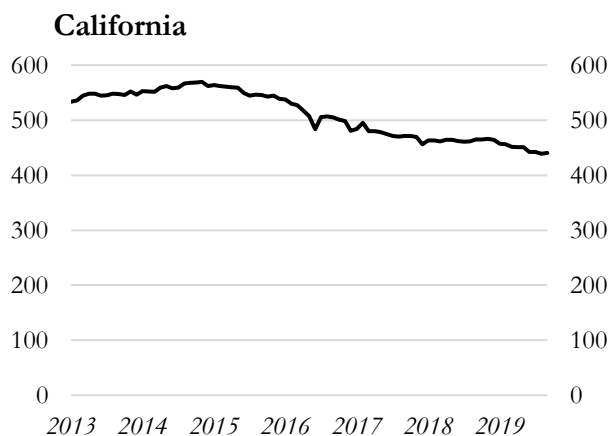
Oklahoma		Change from
Thousand barrels per day		
Sep-19	605	
Month Ago	562	7.7%
3 Months Ago	545	11.0%
6 Months Ago	583	3.7%
1 Year Ago	573	5.5%
Share of U.S. Production		4.9%



Colorado		Change from
Thousand barrels per day		
Sep-19	514	
Month Ago	521	-1.4%
3 Months Ago	519	-1.0%
6 Months Ago	470	9.4%
1 Year Ago	532	-3.4%
Share of U.S. Production		4.1%



Alaska		Change from
Thousand barrels per day		
Sep-19	449	
Month Ago	382	17.6%
3 Months Ago	455	-1.2%
6 Months Ago	481	-6.6%
1 Year Ago	471	-4.7%
Share of U.S. Production		3.6%

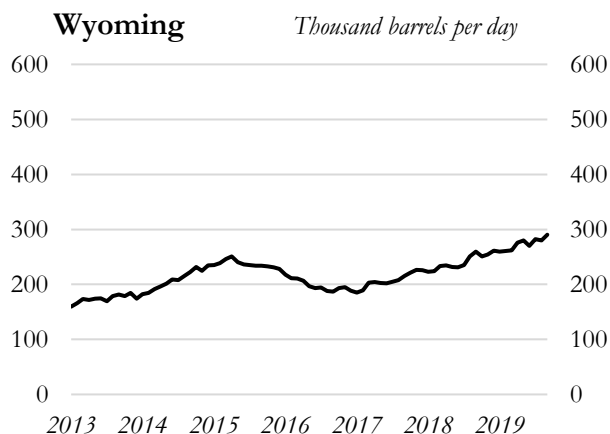


California		Change from
Thousand barrels per day		
Sep-19	440	
Month Ago	439	0.3%
3 Months Ago	442	-0.3%
6 Months Ago	452	-2.5%
1 Year Ago	465	-5.3%
Share of U.S. Production		3.5%

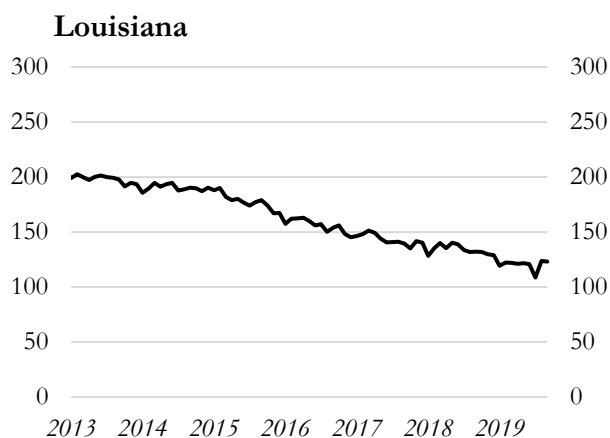
Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics



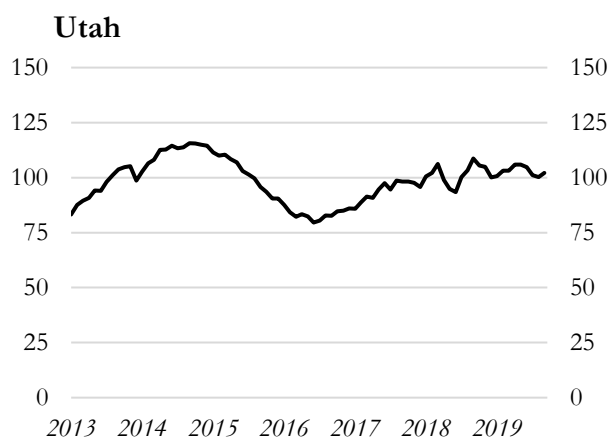
Data through September 2019



Wyoming		Change
Thousand barrels per day		from
Sep-19	290	
Month Ago	280	3.8%
3 Months Ago	270	7.6%
6 Months Ago	262	10.7%
1 Year Ago	260	11.8%
Share of U.S. Production		2.3%



Louisiana		Change
Thousand barrels per day		from
Sep-19	123	
Month Ago	124	-0.4%
3 Months Ago	121	2.0%
6 Months Ago	122	1.1%
1 Year Ago	132	-6.7%
Share of U.S. Production		1.0%

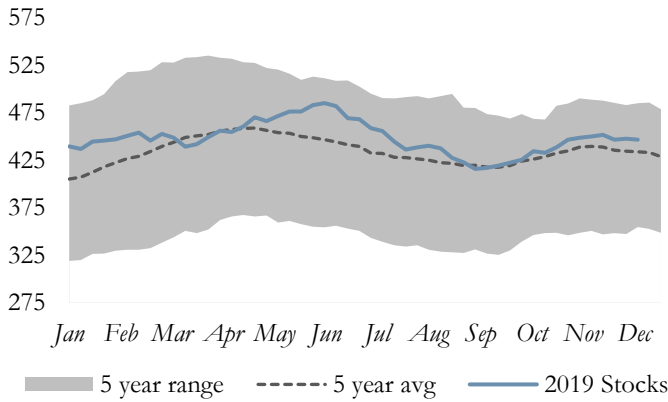


Utah		Change
Thousand barrels per day		from
Sep-19	102	
Month Ago	100	2.0%
3 Months Ago	105	-2.4%
6 Months Ago	103	-0.9%
1 Year Ago	109	-6.0%
Share of U.S. Production		0.8%

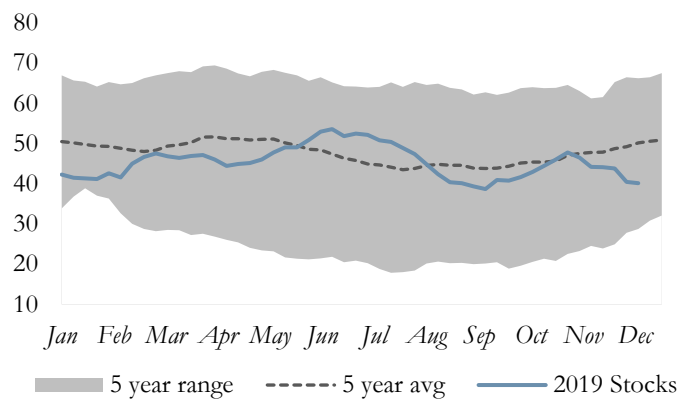
Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

December 2019 Weekly U.S. Crude Oil Stocks

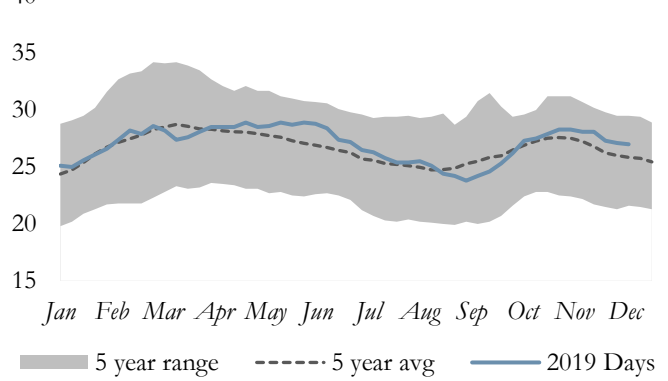
U.S. Oil Stocks, million barrels\*



Cushing, OK Oil Stocks, million barrels



U.S. Oil Days of Supply, days



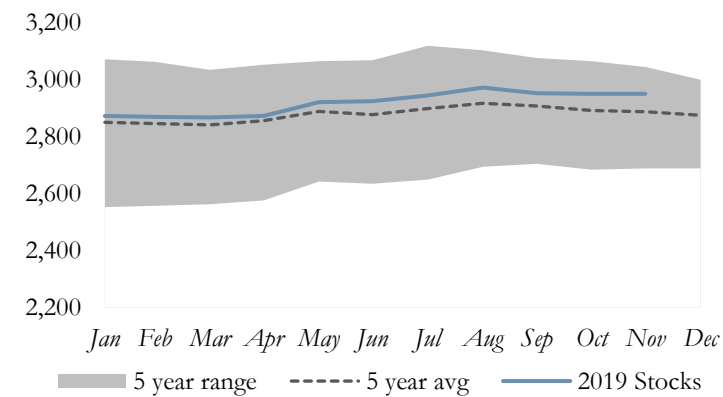
Crude Oil Stocks

	1 Week Change from Ago	1 Year Ago
U.S.	-0.2%	1.2%
Cushing, OK	-0.7%	-0.8%
Days of Supply	-0.4%	6.7%
East Coast (PADD 1)	10.1%	-2.0%
Midwest (PADD 2)	0.7%	-1.1%
Gulf Coast (PADD 3)	-1.3%	0.2%
Rocky Mountain (PADD 4)	0.4%	8.6%
West Coast (PADD 5)	-0.1%	9.7%

\*Stocks include those domestic and Customs-cleared foreign stocks held at, or in transit to, refineries and bulk terminals, and stocks in pipelines.

November 2019 OECD Commercial Petroleum Inventory

OECD Commercial Petroleum Inventory, million barrels



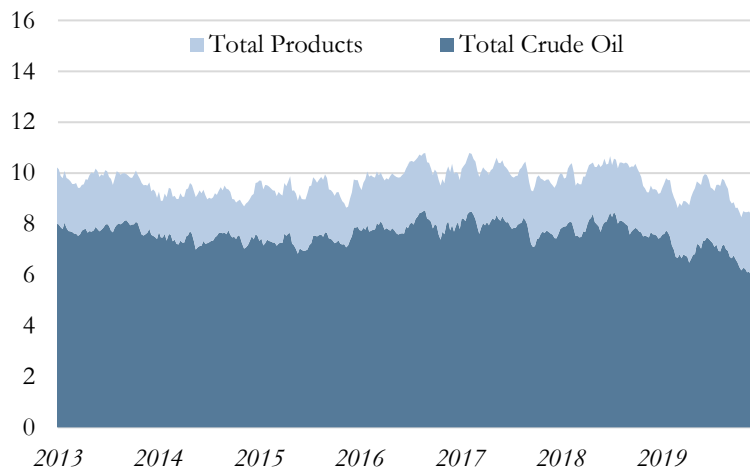
Petroleum Stocks	Million Barrels	Change from
Current Month	2,950	
1 Month Ago	2,950	0.0%
3 Months Ago	2,972	-0.7%
6 Months Ago	2,921	1.0%
1 Year Ago	2,846	3.7%

Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

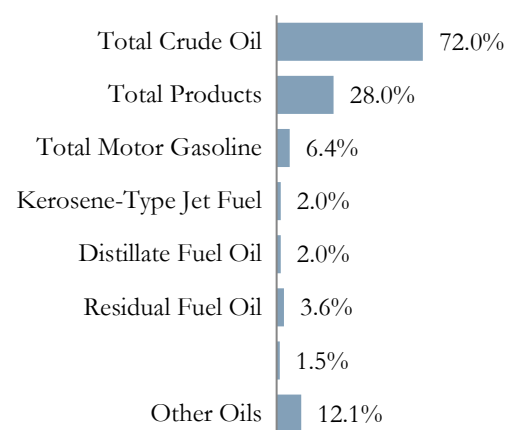
## December 2019 Weekly U.S. Imports of Crude Oil &amp; Petroleum Products

4-Week Averages

Imports, million barrels per day



Share of Total Imports



U.S. Imports by Product\*

Thousand barrels per day

	Current 12/13/19	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
<b>Total Crude Oil</b>	<b>6,411</b>	<b>6,124</b>	<b>6,652</b>	<b>7,467</b>	<b>7,549</b>
<b>Total Products</b>	<b>2,491</b>	<b>2,359</b>	<b>2,145</b>	<b>2,458</b>	<b>1,777</b>
Total Motor Gasoline	567	590	745	930	423
Kerosene-Type Jet Fuel	179	167	172	158	110
Distillate Fuel Oil	180	254	110	144	226
Residual Fuel Oil	322	221	173	177	81
Propane/Propylene	137	132	107	121	177
Other Oils	1,076	981	827	916	760
<b>Total Imports</b>	<b>8,902</b>	<b>8,483</b>	<b>8,797</b>	<b>9,925</b>	<b>9,326</b>

U.S. Imports by Product, Change from

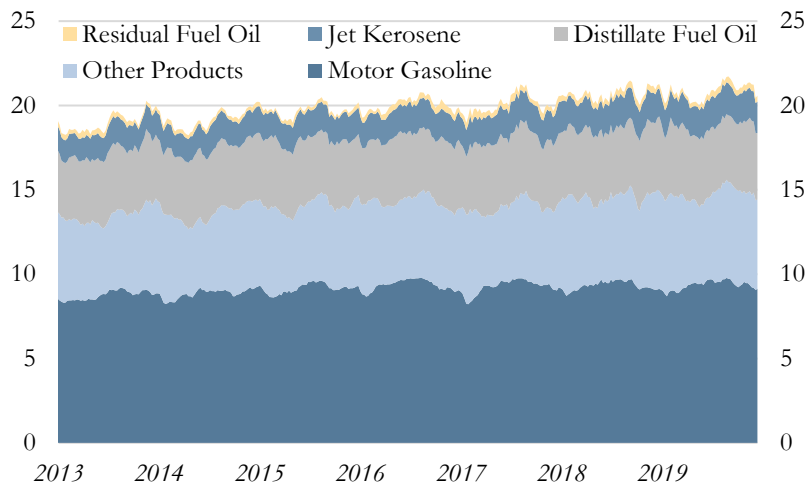
	Current 12/13/19	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
<b>Total Crude Oil</b>	-	<b>4.7%</b>	<b>-3.6%</b>	<b>-14.1%</b>	<b>-15.1%</b>
<b>Total Products</b>	-	<b>5.6%</b>	<b>16.1%</b>	<b>1.3%</b>	<b>40.2%</b>
Total Motor Gasoline	-	-3.9%	-23.9%	-39.0%	34.0%
Kerosene-Type Jet Fuel	-	7.2%	4.1%	13.3%	62.7%
Distillate Fuel Oil	-	-29.1%	63.6%	25.0%	-20.4%
Residual Fuel Oil	-	45.7%	86.1%	81.9%	297.5%
Propane/Propylene	-	3.8%	28.0%	13.2%	-22.6%
Other Oils	-	9.7%	30.1%	17.5%	41.6%
<b>Total Imports</b>	-	<b>4.9%</b>	<b>1.2%</b>	<b>-10.3%</b>	<b>-4.5%</b>

\*Totals may not sum due to component rounding

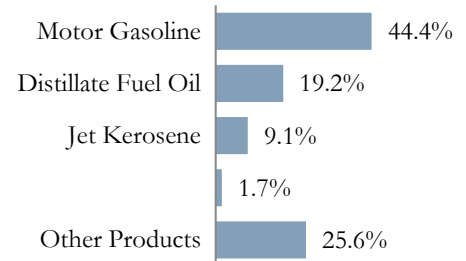
Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

**December 2019 Weekly U.S. Demand for Petroleum Products**  
4-Week Averages

**All Petroleum Products, million barrels per day**



**Share of Total Consumption**



**U.S. Consumption by Product & Percent Change**

**U.S. Consumption by Product, thousand barrels per day**

	Current 12/13/19	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
All Products	20,588	21,365	21,383	20,709	21,206
Motor Gasoline	9,132	9,360	9,529	9,660	9,086
Distillate Fuel Oil	3,950	4,354	3,961	4,025	4,240
Jet Kerosene	1,867	1,762	1,787	1,822	1,688
Residual Fuel Oil	359	329	356	331	263
Other Products	5,280	5,560	5,750	4,871	5,929

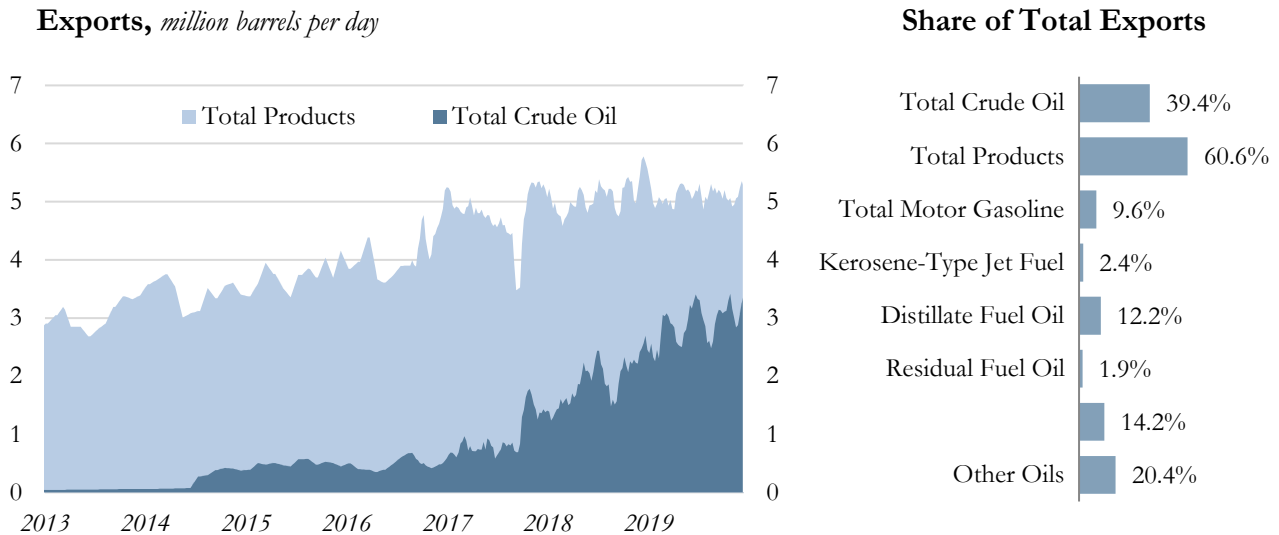
**U.S. Consumption by Product, Change from**

	Current 12/13/19	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
All Products	-	-3.6%	-3.7%	-0.6%	-2.9%
Motor Gasoline	-	-2.4%	-4.2%	-5.5%	0.5%
Distillate Fuel Oil	-	-9.3%	-0.3%	-1.9%	-6.8%
Jet Kerosene	-	6.0%	4.5%	2.5%	10.6%
Residual Fuel Oil	-	9.1%	0.8%	8.5%	36.5%
Other Products	-	-5.0%	-8.2%	8.4%	-10.9%

Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

**December 2019 Weekly U.S. Exports of Crude Oil & Petroleum Products**

*4-Week Averages*



**U.S. Exports by Product\***

*Thousand barrels per day*

	<i>Current</i> 12/13/19	<i>1 Month</i> <i>Ago</i>	<i>3 Months</i> <i>Ago</i>	<i>6 Months</i> <i>Ago</i>	<i>1 Year</i> <i>Ago</i>
<b>Total Crude Oil</b>	<b>3,412</b>	<b>2,840</b>	<b>3,138</b>	<b>3,290</b>	<b>2,561</b>
<b>Total Products</b>	<b>5,247</b>	<b>5,058</b>	<b>5,203</b>	<b>5,108</b>	<b>5,778</b>
<i>Total Motor Gasoline</i>	829	841	712	639	1,080
<i>Kerosene-Type Jet Fuel</i>	207	191	228	178	203
<i>Distillate Fuel Oil</i>	1,054	1,084	1,400	1,369	1,456
<i>Residual Fuel Oil</i>	165	148	228	259	280
<i>Propane/ Propylene</i>	1,229	1,186	977	1,139	925
<i>Other Oils</i>	1,765	1,609	1,659	1,524	1,834
<b>Total Exports</b>	<b>8,659</b>	<b>7,898</b>	<b>8,341</b>	<b>8,398</b>	<b>8,339</b>

**U.S. Exports by Product, Change from**

	<i>Current</i> 12/13/19	<i>1 Month</i> <i>Ago</i>	<i>3 Months</i> <i>Ago</i>	<i>6 Months</i> <i>Ago</i>	<i>1 Year</i> <i>Ago</i>
<b>Total Crude Oil</b>	-	<b>20.1%</b>	<b>8.7%</b>	<b>3.7%</b>	33.2%
<b>Total Products</b>	-	<b>3.7%</b>	<b>0.8%</b>	<b>2.7%</b>	<b>-9.2%</b>
<i>Total Motor Gasoline</i>	-	<b>-1.4%</b>	16.4%	29.7%	<b>-23.2%</b>
<i>Kerosene-Type Jet Fuel</i>	-	8.4%	<b>-9.2%</b>	16.3%	2.0%
<i>Distillate Fuel Oil</i>	-	<b>-2.8%</b>	<b>-24.7%</b>	<b>-23.0%</b>	<b>-27.6%</b>
<i>Residual Fuel Oil</i>	-	11.5%	<b>-27.6%</b>	<b>-36.3%</b>	<b>-41.1%</b>
<i>Propane/ Propylene</i>	-	3.6%	25.8%	7.9%	32.9%
<i>Other Oils</i>	-	9.7%	6.4%	15.8%	<b>-3.8%</b>
<b>Total Exports</b>	-	<b>9.6%</b>	<b>3.8%</b>	<b>3.1%</b>	<b>3.8%</b>

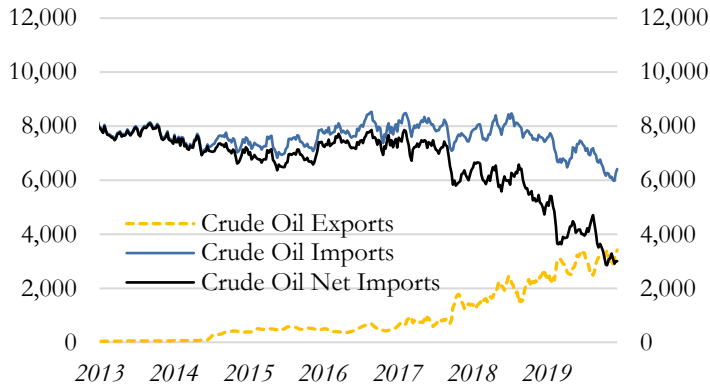
\*Totals may not sum due to rounding

Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

**December 2019 Weekly U.S. Net Imports of Crude Oil & Petroleum Products**

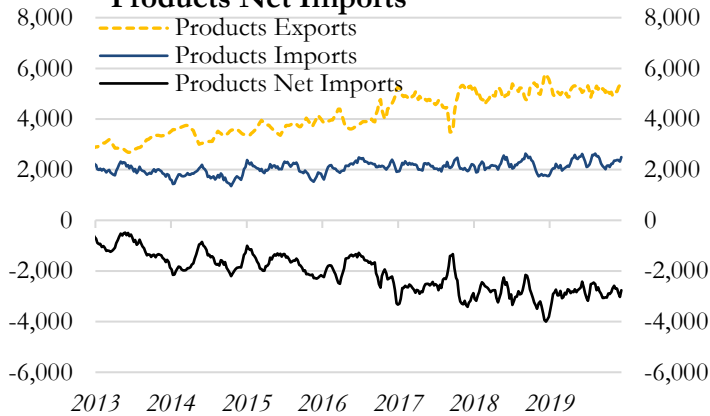
*4-Week Averages, Thousand barrels per day*

**Crude Oil Net Imports**



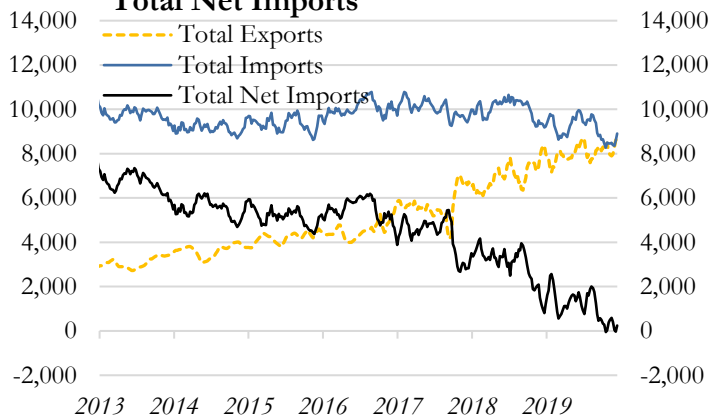
<b>Crude Oil Net Imports</b>		<i>Change from</i>
<i>Thousand barrels per day</i>		
12/13/19	2,999	
Month Ago	3,285	-8.7%
3 Months Ago	3,514	-14.7%
6 Months Ago	4,177	-28.2%
1 Year Ago	4,988	-39.9%

**Products Net Imports**



<b>Products Net Imports</b>		<i>Change from</i>
<i>Thousand barrels per day</i>		
12/13/19	-2,757	
Month Ago	-2,699	-
3 Months Ago	-3,058	-
6 Months Ago	-2,650	-
1 Year Ago	-4,001	-

**Total Net Imports**



<b>Total Net Imports</b>		<i>Change from</i>
<i>Thousand barrels per day</i>		
12/13/19	243	
Month Ago	585	-
3 Months Ago	457	-
6 Months Ago	1,527	-
1 Year Ago	988	-

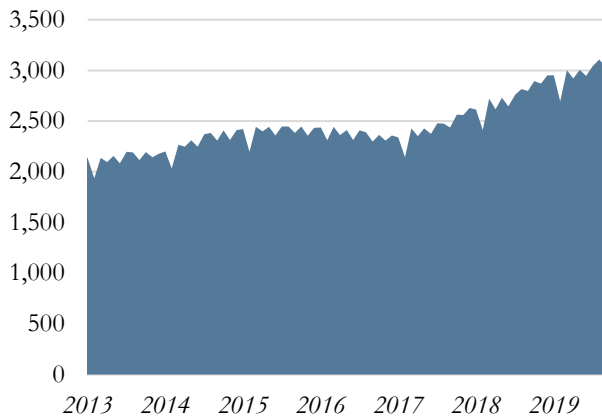
Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics



U.S. Natural Gas Production & Stocks

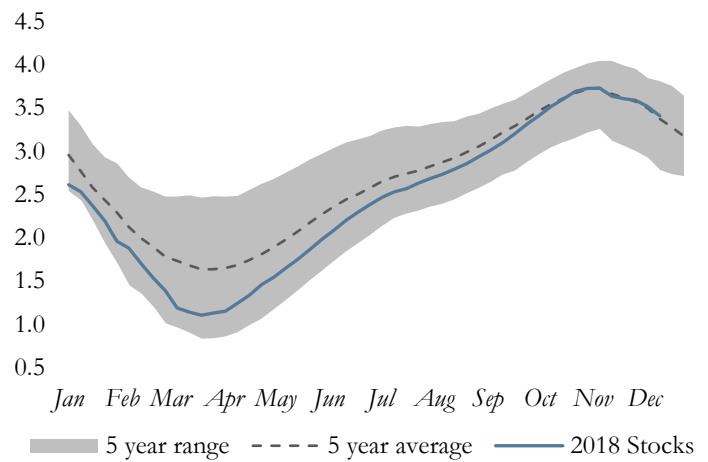
September 2019 Production

Total U.S. Production, Billion cubic feet (Bcf)



December 2019 Weekly Stocks

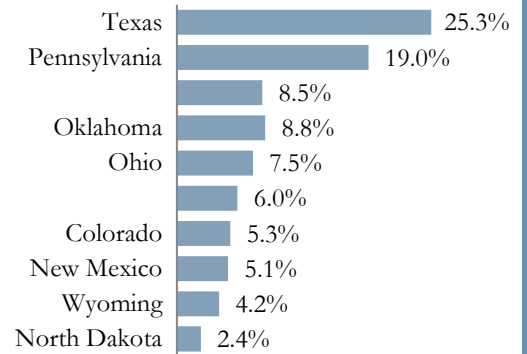
U.S. Natural Gas Stocks, Billion cubic feet (Bcf)



U.S. Natural Gas, Billion cubic feet (Bcf)

	Current Period*	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
U.S. Production	3,034	3,107	2,943	3,001	2,797
U.S. Stocks	3,411	3,638	3,103	2,203	2,773

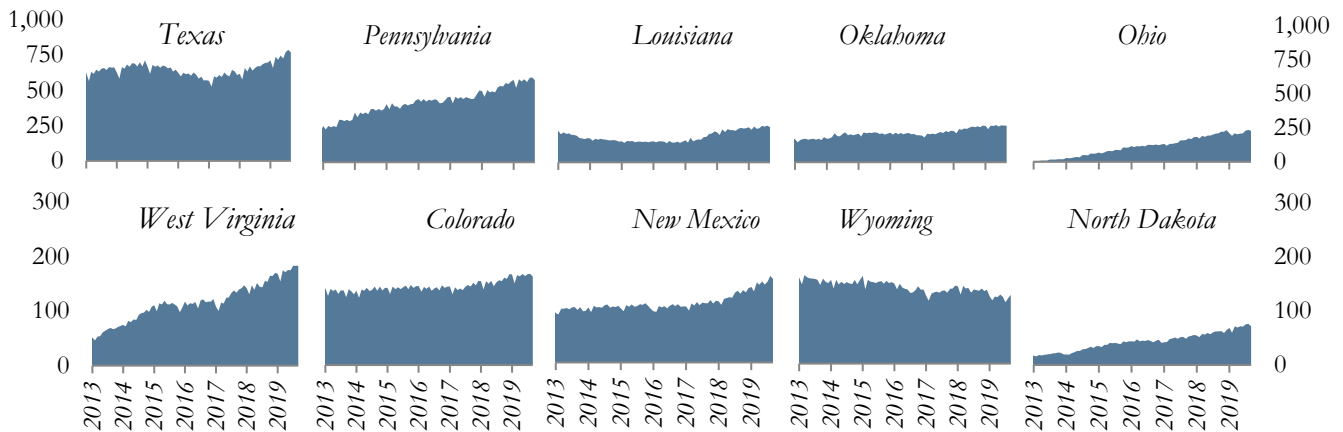
Share of Production



U.S. Natural Gas, Change from

	Current Period*	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
U.S. Production	-	-2.4%	3.1%	1.1%	8.5%
U.S. Stocks	-	-6.2%	9.9%	54.8%	23.0%

Top Producing States, Billion cubic feet (Bcf)



\*U.S. production is monthly data & stocks are weekly data

Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

*Definitions:*

West Texas Intermediate: A crude oil produced in Texas and southern Oklahoma which serves as a reference or "marker" for pricing a number of other crude streams and is traded in the domestic spot market at Cushing, Oklahoma.

Brent: A blended crude oil produced in the North Sea region which serves as a reference or "marker" for pricing a number of other international crude streams.

Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

Refined petroleum products include but are not limited to gasolines, kerosene, distillates (including No. 2 fuel oil), liquefied petroleum gas, asphalt, lubricating oils, diesel fuels, and residual fuels.

*Notes:*

*Page 2:* Petroleum Administration for Defense Districts (PADD) are geographic aggregations of the 50 States and the District of Columbia into five districts by the Petroleum Administration for Defense in 1950. These districts were originally defined during World War II for purposes of administering oil allocation. For more information, visit: <http://www.eia.gov/petroleum/supply/monthly/pdf/append.pdf>

*Page 3:* For OPEC countries & the U.S., only crude oil production data is used. For non-OPEC countries (excluding the U.S.) total petroleum production data is used. Total petroleum production includes production of crude oil (including lease condensates), natural gas plant liquids, biofuels, other liquids, and refinery processing gains.

*Page 5:* The active rig count is the number of rigs actively exploring for or developing oil or natural gas. Rig counts provide an indicator of new drilling activity and potential for expanded crude oil or natural gas production.

*Pages 10:* Crude oil stocks are stocks of crude oil and lease condensate held at refineries, in pipelines, at pipeline terminals, and on leases.

Crude oil stocks for Cushing include domestic and foreign crude oil stocks held in tank farms in Lincoln, Payne, and Creek counties in Oklahoma. Cushing, Oklahoma, is the designated delivery point for NYMEX crude oil futures contracts.

Days of supply are calculated by taking the current stock level and dividing by product supplied (used as an estimate of demand) averaged over the most recent four-week period. For crude oil, refinery inputs of crude oil are used as a proxy for demand.

*Notes:*

Page 11: Petroleum Consumption approximately represents consumption of petroleum products because it measures the disappearance of these products from primary sources, i.e., refineries, natural gas-processing plants, blending plants, pipelines, and bulk terminals.

**Data Revisions**

Most data are revised periodically to correct for errors and incorporate additional information as it becomes available. Data shown in this report are subject to change.

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