U.S. Energy DATABOOK

A summary of national and global energy indicators



NOVEMBER 20, 2019

FEDERAL RESERVE BANK of KANSAS CITY

SUMMARY OF CURRENT ENERGY CONDITIONS

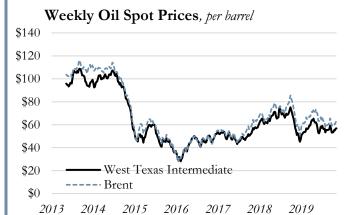
In November, the number of total active drilling rigs in the United States continued to decrease, falling 5.3 percent from a month ago and 25.5 percent from a year ago. In August 2019, U.S. crude oil production rose 5.1 percent and natural gas production expanded 2.5 percent. For the week ending November 15th, West Texas Intermediate (WTI) crude oil averaged \$56.85 per barrel and North Sea Brent averaged \$62.56 per barrel, an increase of 6.3 percent and 5.5 percent in the last month, respectively. The Henry Hub natural gas spot price averaged \$2.73 per million Btu for the week ending November 15th, jumping up 21.3 percent in the last month. U.S. crude oil and petroleum products imports and exports inched down by 0.1 percent and 2.9 percent in the last month, respectively. Global demand for petroleum edged up 1.4 percent in the third quarter of 2019 and global petroleum production grew 1.8 percent in October 2019.

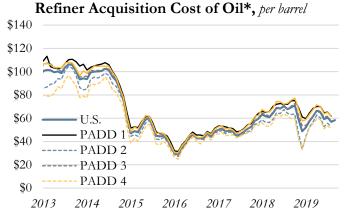
This databook provides current economic indicators to help monitor trends and allow comparison of past information. These indicators include: oil and natural gas prices; global petroleum production and demand; U.S. oil production and petroleum demand; U.S. crude oil stocks; OECD petroleum stocks; U.S. 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 November 15, 2019



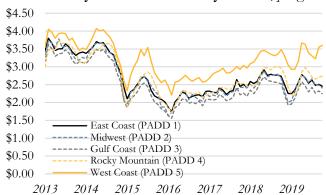


\$9

Weekly Natural Gas Spot Prices, per mmbtu

\$8 \$7 \$6 \$5 \$4 \$3 \$2 \$1 -Henry Hub

Monthly Gasoline Prices by PADD, per gallon



Weekly Spot Prices, Change from

2016

2017

2018

2019

2015

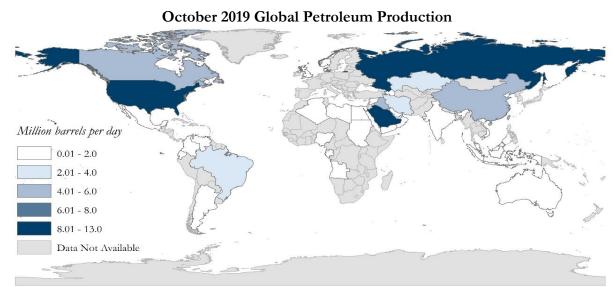
2013

Weekly Spot Prices	Current 11/15/19	1 Week	1 Month	3 months	6 Months	1 Year
J	\$56.85	Ago \$0.16	Ago \$3.36	Ago \$1.54	Ago -\$5.25	Ago -\$0.07
Brent	\$62.56	\$0.17	\$3.24	\$4.31	-\$10.76	-\$3.65
Henry Hub	\$2.73	-\$0.08	\$0.48	\$0.52	\$0.06	-\$1.50

Monthly Gasoline Spot Prices, Change from

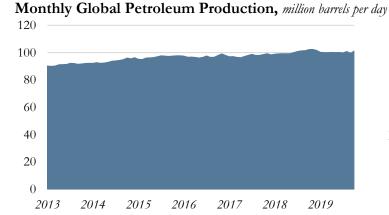
	Current	1 Month	3 months	6 Months	1 Year
Geographic Area	Oct-19	Ago	Ago	Ago	Ago
East Coast (PADD 1)	\$2.45	-\$0.05	-\$0.18	-\$0.33	-\$0.28
Midwest (PADD 2)	\$2.41	-\$0.08	-\$0.25	-\$0.36	-\$0.27
Gulf Coast (PADD 3)	\$2.25	-\$0.08	-\$0.18	-\$0.34	-\$0.28
Rocky Mountain (PADD 4)	\$2.74	\$0.03	\$0.03	-\$0.11	-\$0.22
West Coast (PADD 5)	\$3.60	\$0.05	\$0.30	-\$0.07	\$0.12

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



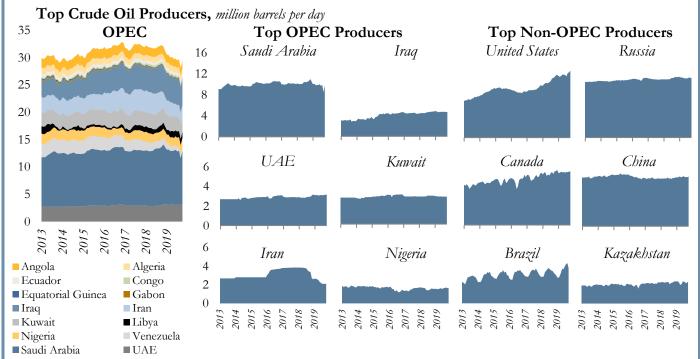
Source: Energy Information Administration/ Haver Analytics

October 2019



Regional Share of Production OPEC Middle East* 3.1% North America 27.5% United States 12.7% Europe 4.0% FSU & East Europe 14.5% Asia-Pacific 9.3% 1.5% Africa

*Excludes OPEC



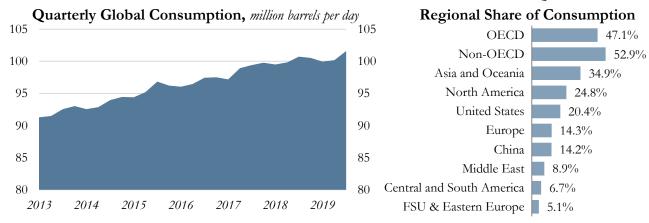
Note: OPEC country production values are for crude oil and non-OPEC country data is for petroleum production.



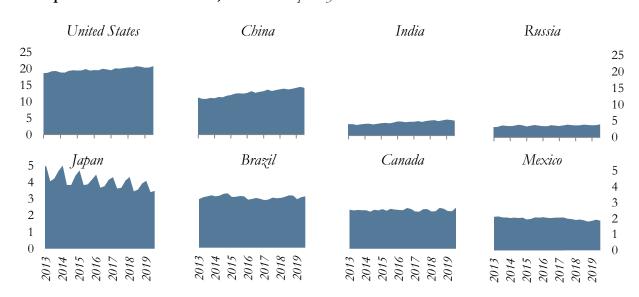


Source: Energy Information Administration/Haver Analytics

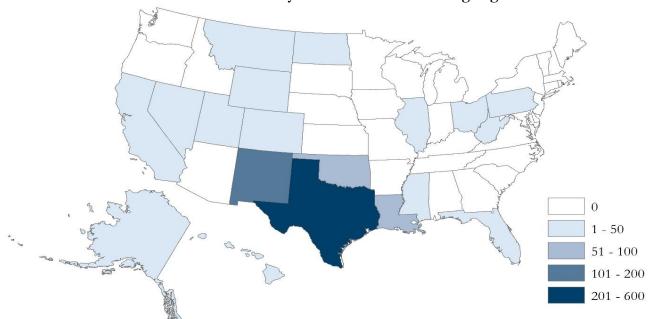
Third Quarter 2019



Top Petroleum Consumers, million barrels per day



November 2019 Weekly Active Oil & Gas Drilling Rig Counts

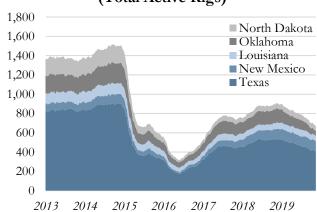


Source: Baker Hughes/Haver Analytics

U.S. Active Drilling Rigs by Trajectory

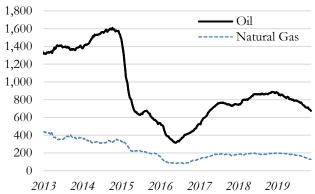
1,800 Horizontal 1,600 --- Directional 1,400 Vertical 1,200 1,000 800 600 400 200 2019 2013 2015 2016 2017 2018

Top Five States for Drilling Activity (Total Active Rigs)



November 15, 2019

U.S. Active Drilling Rigs by Type



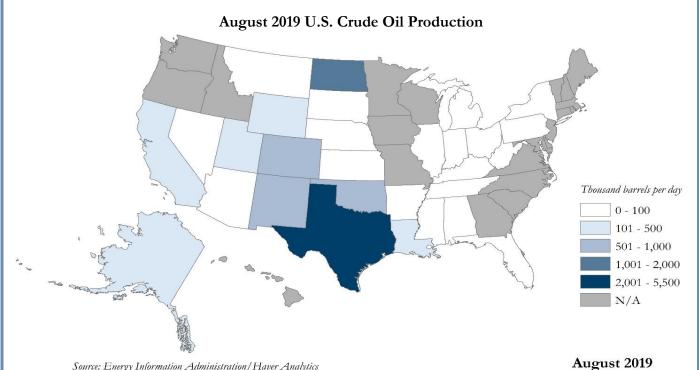
Rig Count By Type

	Current	1 Month	3 Months	1 Year
Rig Type	Week	Ago	Ago	Ago
Oil	674	713	770	888
Gas	129	137	165	194
Misc	3	1	0	0
Total	806	851	935	1082

Rig Count By Type, Change from

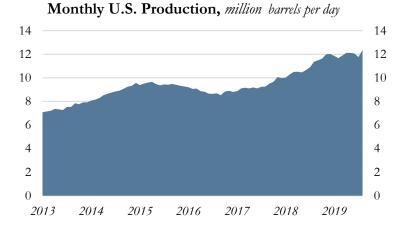
	Current	1 Month	3 Months	1 Year
Rig Type	Week	Ago	Ago	Ago
Oil	-	-5.5%	-12.5%	-24.1%
Gas	-	-5.8%	-21.8%	-33.5%
Misc	-	200.0%	-	-
Total	-	-5.3%	-13.8%	-25.5%

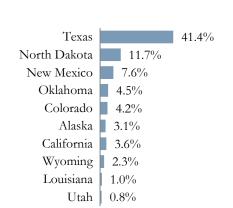
Source: Baker Hughes/Haver Analytics

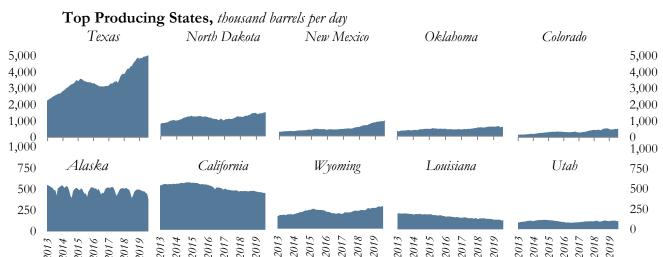


Source: Energy Information Administration/Haver Analytics

Share of Production

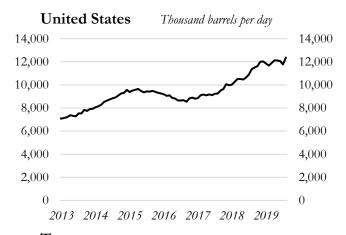






Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

Data through August 2019



	United States Thousand barrels per day	
Aug-19	12,365	from
Month Ago	11,766	5.1%
3 Months Ago	12,113	2.1%
6 Months Ago	11,669	6.0%
1 Year Ago	11,361	8.8%

1 exas	
6,000	6,000
5,000	5,000
4,000	4, 000
3,000	3,000
2,000	2,000
1,000	1,000
0	0
2013 2014 2015 2016 2017 2018 2019	

	Texas	Change
Thousand barre	ls per day	from
Aug-19	5,121	
Month Ago	5,023	2.0%
3 Months Ago	4,963	3.2%
6 Months Ago	4,878	5.0%
1 Year Ago	4,523	13.2%
Share of U.S. Pro	oduction	41.4%

North Dakota	
1,500	1,500
1,200	1,200
900	900
600	600
300	300
0	0
2013 2014 2015 2016 2017 2018 2019	

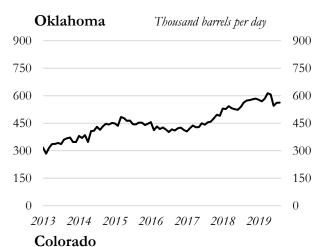
North	D akota	Change
Thousand barre	els per day	from
Aug-19	1,443	
Month Ago	1,415	2.0%
3 Months Ago	1,367	5.5%
6 Months Ago	1,310	10.1%
1 Year Ago	1,279	12.8%
Share of U.S. Pr	oduction	11.7%

New Mexico	1,000
800	800
600	600
400	400
200	200
00 2013 2014 2015 2016 2017 2	0

New N	Change	
Thousand barrels	per day	from
Aug-19	936	
Month Ago	893	4.8%
3 Months Ago	898	4.2%
6 Months Ago	861	8.7%
1 Year Ago	711	31.6%
Share of U.S. Prod	duction	7.6%

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

Data through August 2019



Oklahoma Thousand barrels per day		Change from
Aug-19	563	
Month Ago	561	0.2%
3 Months Ago	607	-7.3%
6 Months Ago	569	-1.2%
1 Year Ago	562	0.0%
Share of U.S. Pro	duction	4.5%

600 —	600
\wedge	
500	500
400	400
300	300
200	200
100	100
0	0
2013 2014 2015 2016 2017 2018 2019	

C Thousand barre	olorado	Change from
Aug-19	520	jrom
Month Ago	508	2.3%
3 Months Ago	498	4.5%
6 Months Ago	487	6.9%
1 Year Ago	519	0.3%
Share of U.S. Pro	oduction	4.2%

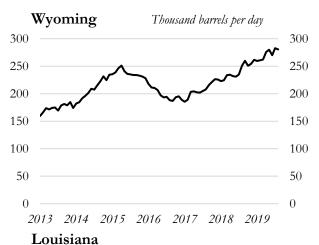
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Alaska	Change
per day	from
382	
448	-14.8%
474	-19.5%
488	-21.7%
428	-10.7%
luction	3.1%
	382 448 474 488 428

California	
00	600
	500
0 —	400
0	300
0 ———	200
0 ———	100
0 ————————————————————————————————————	0

C	Change	
Thousand barre	els per day	from
Aug-19	439	
Month Ago	442	-0.7%
3 Months Ago	451	-2.7%
6 Months Ago	456	-3.7%
1 Year Ago	461	-4.8%
Share of U.S. Pr	oduction	3.6%

Data through August 2019



W	Change	
Thousand barrel	ls per day	from
Aug-19	280	
Month Ago	283	-0.8%
3 Months Ago	280	0.2%
6 Months Ago	261	7.5%
1 Year Ago	251	11.8%
Share of U.S. Pro	duction	2.3%

800				
,00				

	l Change	
Thousand b	arrels per day	from
Aug-19	9 124	
Month Ago	o 109	14.1%
3 Months Ago	122	1.9%
6 Months Ago	122	1.5%
1 Year Ago	132	-5.9%
Share of U.S.	Production	1.0%

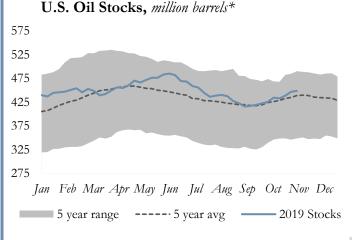
300	300
250	250
200 ~~~~	200
150	150
100	100
50	50
0	0
2013 2014 2015 2016 2017 2016	8 2019
Utah	

	Utah	Change
Thousand barrels	per day	from
Aug-19	100	
Month Ago	101	-0.9%
3 Months Ago	106	-5.4%
6 Months Ago	103	-2.9%
1 Year Ago	103	-3.1%
Share of U.S. Production		0.8%

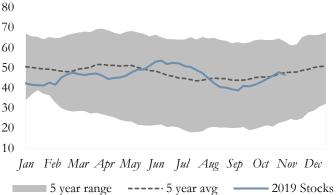
Utan	
150	150
125	125
100	100
75	75
50 ———	50
25 ———	25
0 ————————————————————————————————————	0

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

November 2019 Weekly U.S. Crude Oil Stocks



Cushing, OK Oil Stocks, million barrels



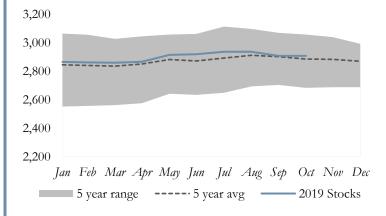
40	U.S. Oil Days of Supply, days
35	
30	
25	
20	
15	
J	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
	5 year range 5 year avg — 2019 Days

Crude Oil Stocks	1 Week	1 Year
Change from	Ago	Ago
U.S.	0.5%	1.6%
Cushing, OK	-2.6%	31.2%
Days of Supply	0.0%	4.8%
East Coast (PADD 1)	0.1%	-24.7%
Midwest (PADD 2)	-0.7%	5.8%
Gulf Coast (PADD 3)	1.2%	0.7%
Rocky Mountain (PADD 4)	2.8%	3.5%
West Coast (PADD 5)	-0.2%	1.4%

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

October 2019 OECD Commercial Petroleum Inventory

OECD Commercial Petroleum Inventory, million barrels

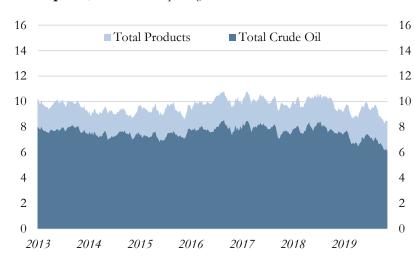


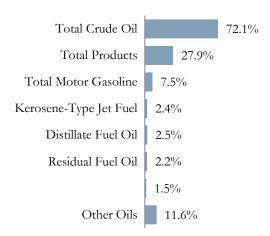
Petroleum	Petroleum Stocks			
Mill	lion Barrels	from		
Current Month	2,909			
1 Month Ago	2,908	0.0%		
3 Months Ago	2,937	-1.0%		
6 Months Ago	2,867	1.5%		
1 Year Ago	2,840	2.4%		

November 2019 Weekly U.S. Imports of Crude Oil & Petroleum Products 4-Week Averages

Imports, million barrels per day

Share of Total Imports





U.S. Imports by Product*

Thousand barrels per day

	<i>Current</i> 11/8/19	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
Total Crude Oil	6,095	6,297	7,138	7,217	7,503
Total Products	2,362	2,166	2,634	2,449	1,737
Total Motor Gasoline	636	734	1,031	885	384
Kerosene-Type Jet Fuel	200	136	191	202	102
Distillate Fuel Oil	208	108	147	115	194
Residual Fuel Oil	190	130	181	135	172
Propane/Propylene	124	107	108	125	157
Other Oils	983	922	967	987	715
Total Imports	8,457	8,463	9,772	9,666	9,240

U.S. Imports by Product, Change from

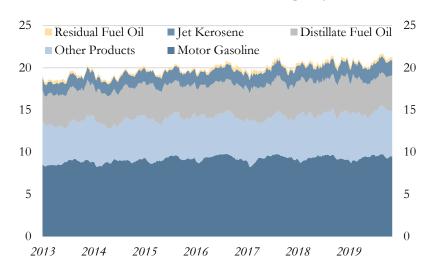
	Current	1 Month	3 Months	6 Months	1 Year
	11/8/19	Ago	Ago	Ago	Ago
Total Crude Oil	-	-3.2%	-14.6%	-15.5%	-18.8%
Total Products	-	9.0%	-10.3%	-3.6%	36.0%
Total Motor Gasoline	-	-13.4%	-38.3%	-28.1%	65.6%
Kerosene-Type Jet Fuel	-	47.1%	4.7%	-1.0%	96.1%
Distillate Fuel Oil	-	92.6%	41.5%	80.9%	7.2%
Residual Fuel Oil	-	46.2%	5.0%	40.7%	10.5%
Propane/Propylene	-	15.9%	14.8%	-0.8%	-21.0%
Other Oils	-	6.6%	1.7%	-0.4%	37.5%
Total Imports	-	-0.1%	-13.5%	-12.5%	-8.5%

^{*}Totals may not sum due to component rounding

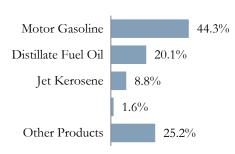
November 2019 Weekly U.S. Demand for Petroleum Products

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

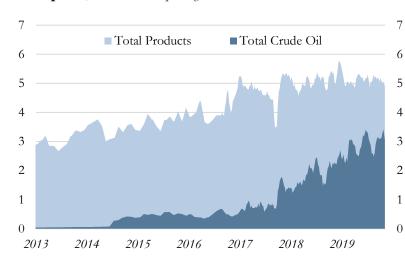
	Current 11/8/19	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
All Products	21,349	21,061	21,610	20,121	21,315
Motor Gasoline	9,460	9,324	9,704	9,414	9,219
Distillate Fuel Oil	4,292	4,065	3,973	4,000	4,346
Jet Kerosene	1,870	1,661	1,890	1,811	1,772
Residual Fuel Oil	341	349	325	197	332
Other Products	5,386	5,662	5,718	4,699	5,646

U.S. Consumption by Product, Change from

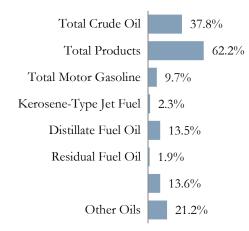
	Current 11/8/19	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
All Products	-	1.4%	-1.2%	6.1%	0.2%
Motor Gasoline	-	1.5%	-2.5%	0.5%	2.6%
Distillate Fuel Oil	-	5.6%	8.0%	7.3%	-1.2%
Jet Kerosene	-	12.6%	-1.1%	3.3%	5.5%
Residual Fuel Oil	-	-2.3%	4.9%	73.1%	2.7%
Other Products	-	-4.9%	-5.8%	14.6%	-4.6%

November 2019 Weekly U.S. Exports of Crude Oil & Petroleum Products 4-Week Averages

Exports, million barrels per day



Share of Total Exports



U.S. Exports by Product*

Thousand barrels per day

	<i>Current</i> 11/8/19	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
Total Crude Oil	3,004	3,125	2,604	2,740	2,280
Total Products	4,946	5,059	5,159	5,287	5,010
Total Motor Gasoline	775	826	649	628	854
Kerosene-Type Jet Fuel	179	206	203	174	206
Distillate Fuel Oil	1,073	1,348	1,385	1,324	1,300
Residual Fuel Oil	148	137	209	300	270
Propane/Propylene	1,084	1,108	1,112	1,319	773
Other Oils	1,688	1,435	1,603	1,542	1,607
Total Exports	7,950	8,184	7,763	8,027	7,290

U.S. Exports by Product, Change from

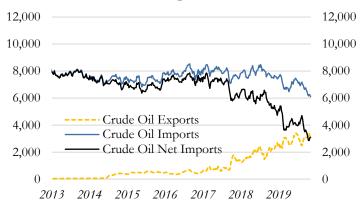
	Current	1 Month	3 Months	6 Months	1 Year
	11/8/19	Ago	Ago	Ago	Ago
Total Crude Oil	-	-3.9%	15.4%	9.6%	31.8%
Total Products	-	-2.2%	-4.1%	-6.4%	-1.3%
Total Motor Gasoline	-	-6.2%	19.4%	23.4%	-9.3%
Kerosene-Type Jet Fuel	-	-13.1%	-11.8%	2.9%	-13.1%
Distillate Fuel Oil	-	-20.4%	-22.5%	-19.0%	-17.5%
Residual Fuel Oil	-	8.0%	-29.2%	-50.7%	-45.2%
Propane/Propylene	-	-2.2%	-2.5%	-17.8%	40.2%
Other Oils	-	17.6%	5.3%	9.5%	5.0%
Total Exports	-	-2.9%	2.4%	-1.0%	9.1%

^{*}Totals may not sum due to rounding

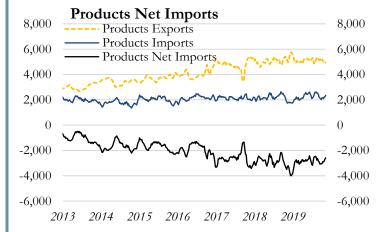
November 2019 Weekly U.S. Net Imports of Crude Oil & Petroleum Products

4-Week Averages, Thousand barrels per day

Crude Oil Net Imports



Crude Oil Net Imports Thousand barrels per day			
11/8/19	3,092		
Month Ago	3,173	-2.6%	
3 Months Ago	4,535	-31.8%	
6 Months Ago	4,477	-30.9%	
1 Year Ago	5,223	-40.8%	



Products Net Thousand barre	-	Change from
11/8/19	-2,584	
Month Ago	-2,893	-
3 Months Ago	-2,525	-
6 Months Ago	-2,838	-
1 Year Ago	-3,273	-

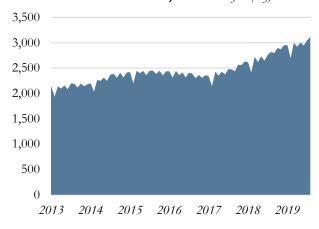
	Total Net Imports	
14,000	Total Exports	14,000
12,000	—— Total Imports	12,000
	—— Total Net Imports	,
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2	013 2014 2015 2016 2017 2018 2019	

Total Net l	Change	
Thousand barre	from	
11/8/19	508	
Month Ago	280	81.4%
3 Months Ago	2,010	-74.7%
6 Months Ago	1,639	-69.0%
1 Year Ago	1,951	-74.0%

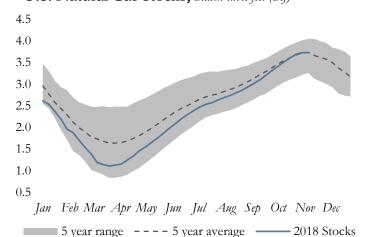
Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

U.S. Natural Gas Production & Stocks

August 2019 Production
Total U.S. Production, Billion cubic feet (Bcf)



November 2019 Weekly Stocks U.S. Natural Gas Stocks, Billion cubic feet (Bcf)



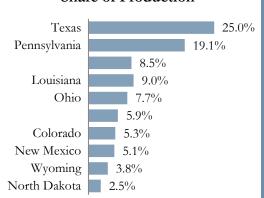
U.S. Natural Gas, Billion cubic feet (Bcf)

	Current	1 Month	3 Months	6 Months	1 Year	
	Period*	Ago	Ago	Ago	Ago	
U.S. Production	3,116	3,041	3,003	2,694	2,815	
U.S. Stocks	3,732	3,519	2,738	1,653	3,247	

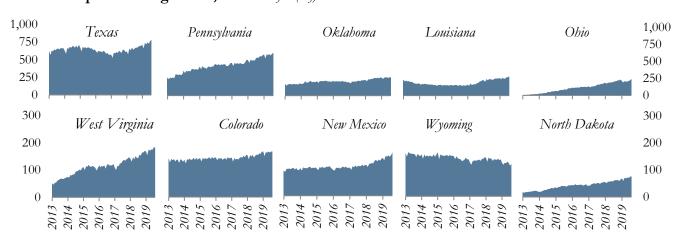
U.S. Natural Gas, Change from

	Current Period*	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
U.S. Production	-	2.5%	3.8%	15.7%	10.7%
U.S. Stocks	-	6.1%	36.3%	125.8%	14.9%

Share of Production



Top Producing States, Billion cubic feet (Bcf)



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

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 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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