

# THE U.S. Energy DATABOOK

*A summary of national and global energy indicators*



NOVEMBER 8, 2023

FEDERAL RESERVE BANK *of* KANSAS CITY

## SUMMARY OF CURRENT ENERGY CONDITIONS

Since the last edition of the U.S. Energy Databook, activity in the energy sector decreased moderately. For the week ending October 27, West Texas Intermediate (WTI) crude oil averaged \$85.20 per barrel and North Sea Brent averaged \$89.84 per barrel, increasing 6.9% and 7.5% respectively over the last quarter. The Henry Hub natural gas spot price averaged \$2.89 per million Btu for the week ending October 27, increasing 11.6% over the last three months. In October, the total number of active drilling rigs in the United States declined by 5.9% from three months ago. U.S. crude oil production increased 0.7% from a month ago and is up 2.8% from three months ago. U.S. crude oil and petroleum products exports increased 1.5% in the last quarter and imports decreased 6.6%. Global demand for petroleum increased 0.7% and global petroleum production declined roughly 0.1% over the last quarter.

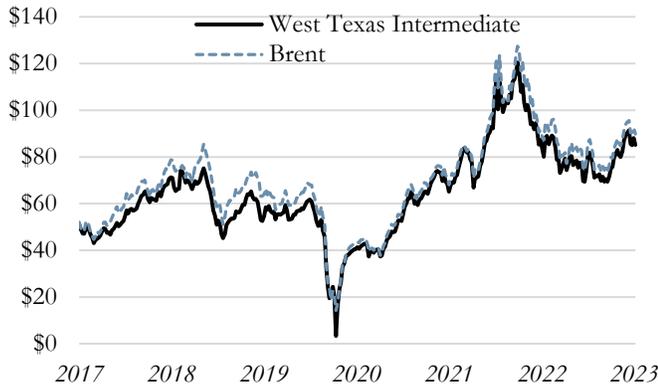
This databook provides current economic indicators to help monitor trends and allow comparison of past information. These indicators include: oil and natural gas prices; global petroleum production and demand; U.S. oil production and petroleum demand; U.S. crude oil stocks; OECD petroleum stocks; U.S.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



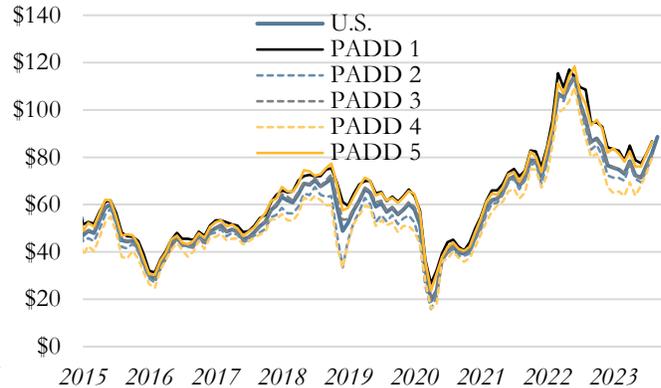
The Federal Reserve Bank of Kansas City's headquarters is located at 1 Memorial Drive in the heart of Kansas City, Missouri. The Federal Reserve Bank of Kansas City serves the Tenth Federal Reserve District, which includes Colorado, Kansas, western Missouri, Nebraska, northern New Mexico, Oklahoma and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

Weekly data through October 27, 2023

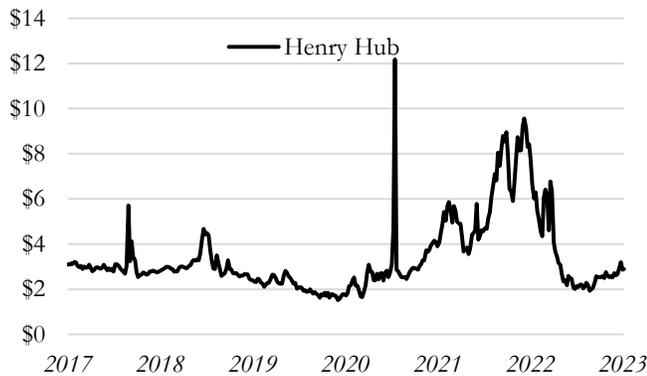
Weekly Oil Spot Prices, per barrel



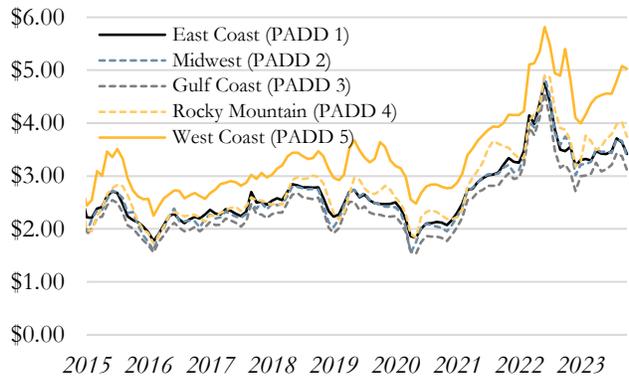
Refiner Acquisition Cost of Oil\*, per barrel



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	10/27/23	Ago	Ago	Ago	Ago	Ago
West Texas Intermediate	\$85.20	-\$2.83	-\$6.24	\$5.52	\$8.89	-\$2.67
Brent	\$89.84	-\$2.63	-\$5.77	\$6.29	\$8.44	-\$3.17
Henry Hub	\$2.89	\$0.03	\$0.23	\$0.30	\$0.68	-\$2.23

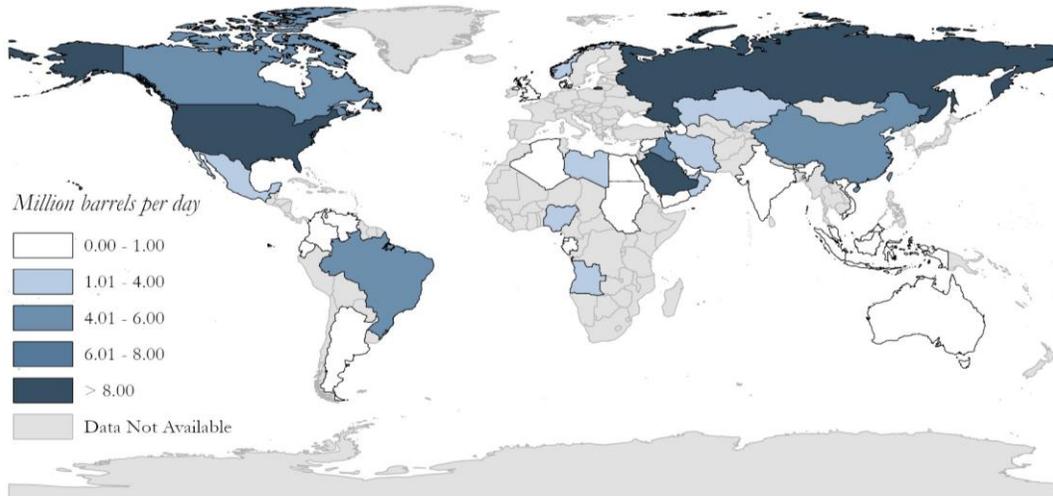
Monthly Gasoline Spot Prices, Change from

	Current	1 Month	3 months	6 Months	1 Year
Geographic Area	Oct-23	Ago	Ago	Ago	Ago
East Coast (PADD 1)	\$3.42	-\$0.22	-\$0.05	-\$0.05	-\$0.05
Midwest (PADD 2)	\$3.37	-\$0.29	-\$0.06	-\$0.14	-\$0.37
Gulf Coast (PADD 3)	\$3.11	-\$0.27	-\$0.10	-\$0.14	-\$0.11
Rocky Mountain (PADD 4)	\$3.74	-\$0.28	-\$0.04	\$0.25	-\$0.13
West Coast (PADD 5)	\$5.03	-\$0.05	\$0.47	\$0.55	-\$0.37

\*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

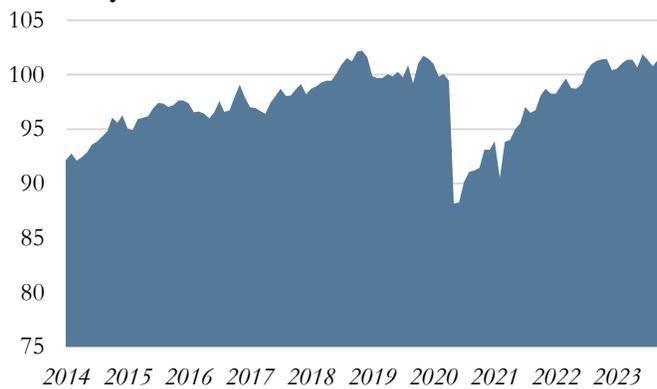
September 2023 Global Petroleum Production



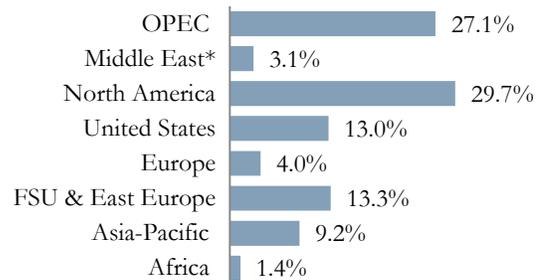
Source: Energy Information Administration/Haver Analytics

September 2023

Monthly Global Petroleum Production, million barrels per day

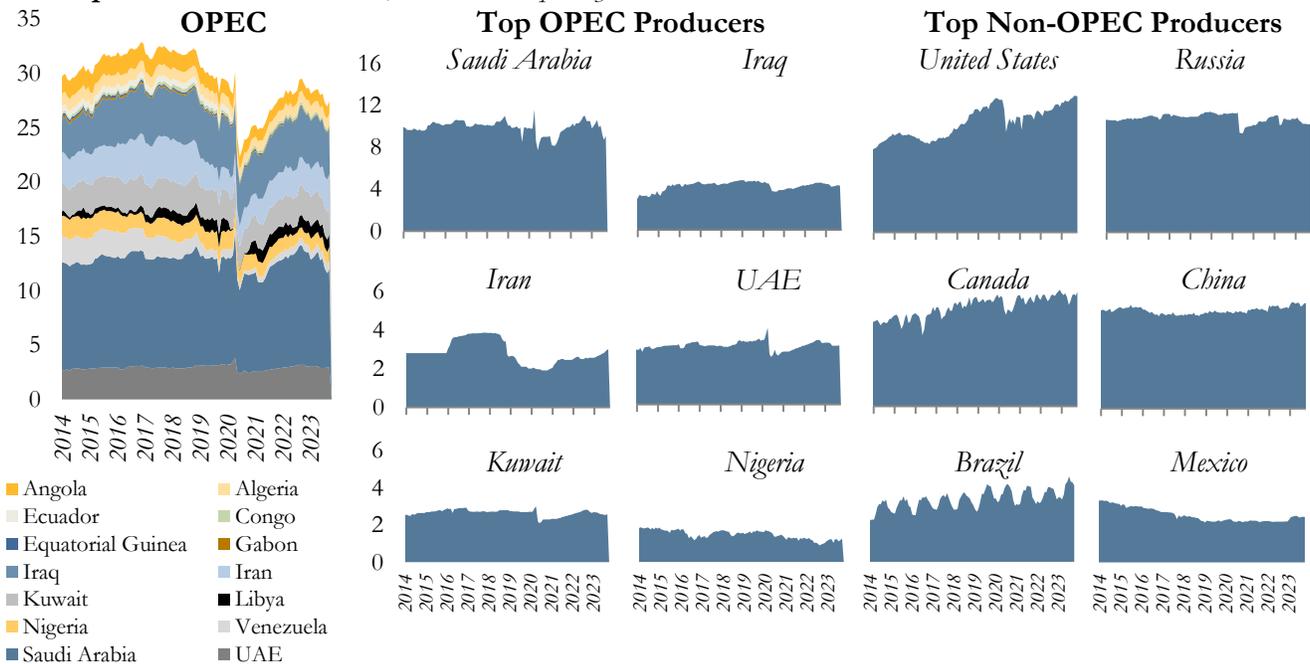


Regional Share of Production



\*Excludes OPEC

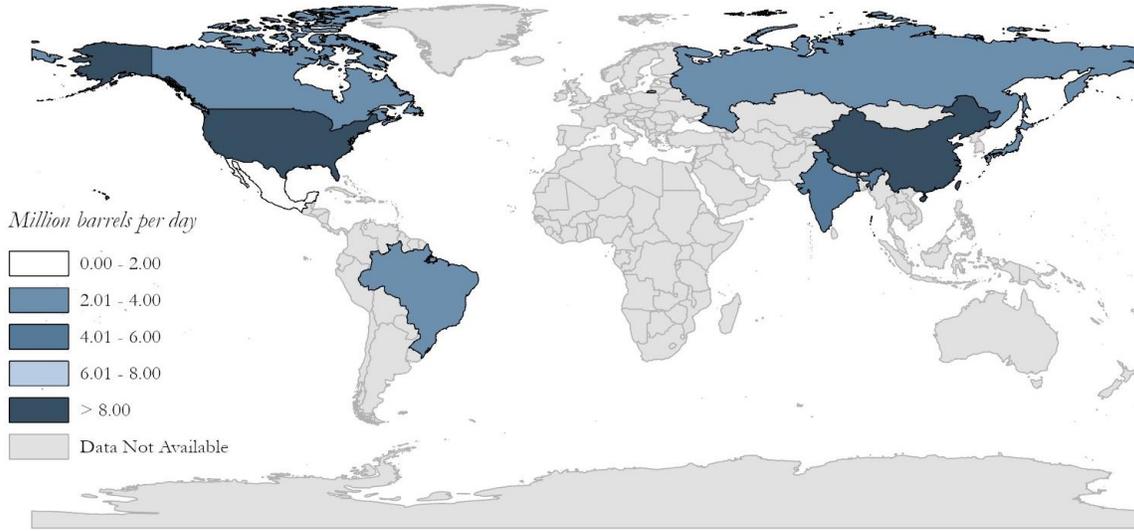
Top Crude Oil Producers, million barrels per day



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

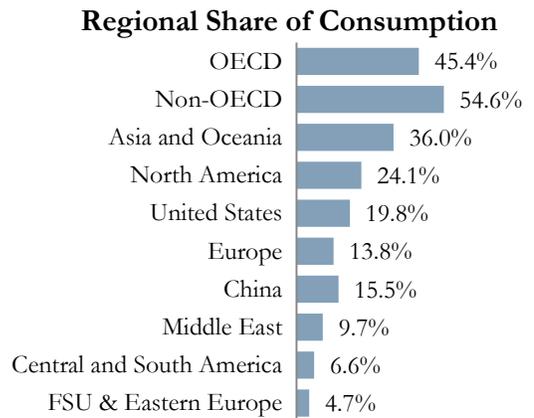
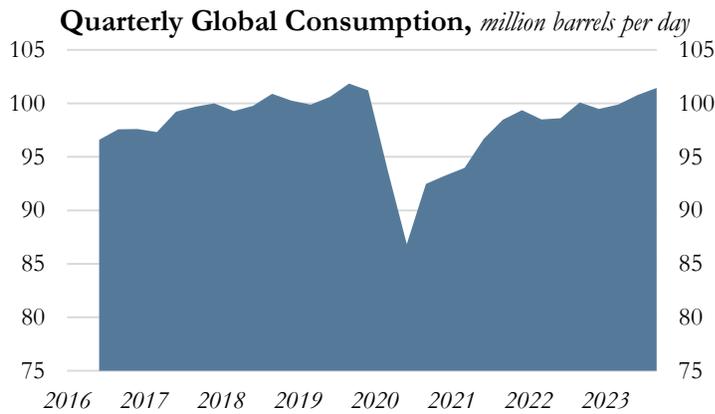
Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

Third Quarter 2023 Global Petroleum Consumption

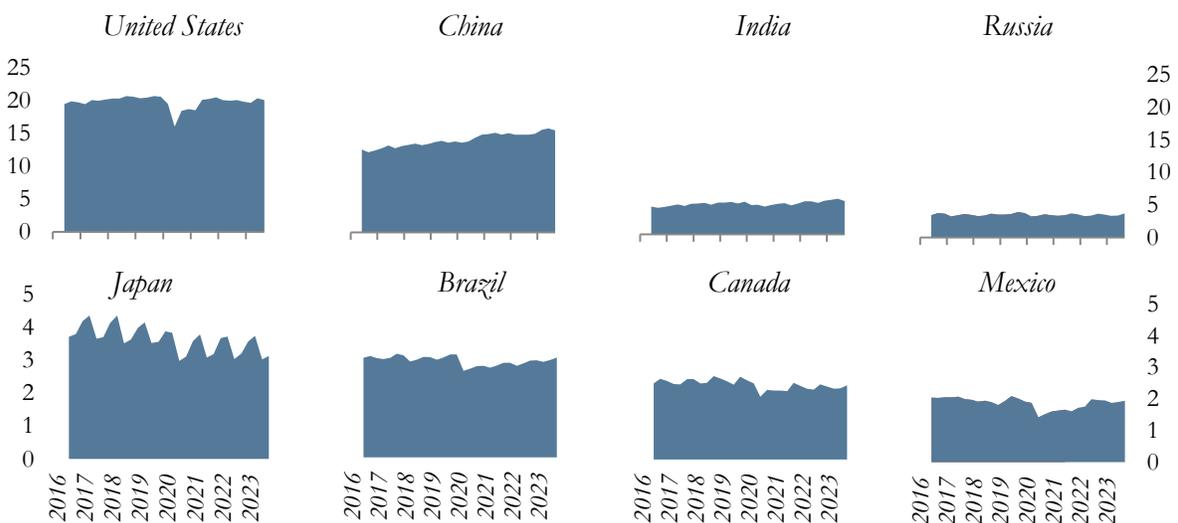


Source: Energy Information Administration/Haver Analytics

Third Quarter 2023

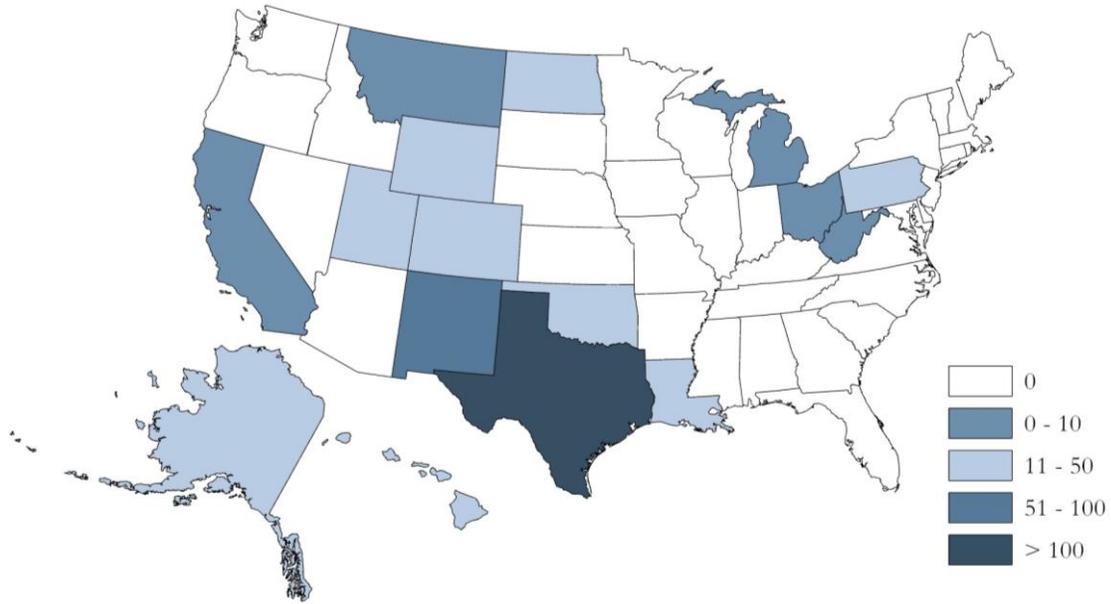


Top Petroleum Consumers, million barrels per day



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

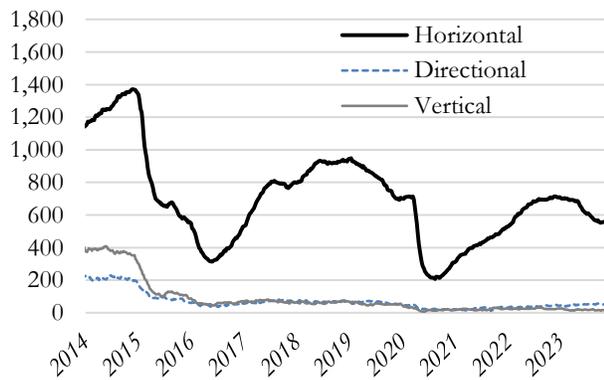
October 2023 Weekly Active Oil & Gas Drilling Rig Counts



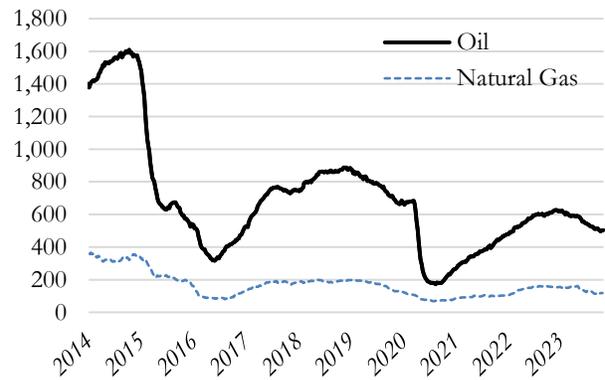
Source: Baker Hughes/Haver Analytics

October 27, 2023

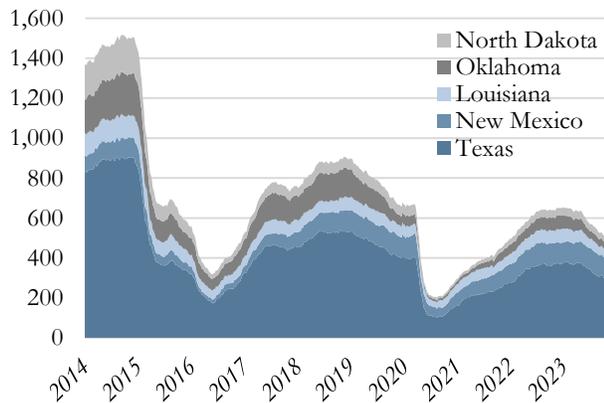
U.S. Active Drilling Rigs by Trajectory



U.S. Active Drilling Rigs by Type



Top Five States for Drilling Activity (Total Active Rigs)



Rig Count By Type

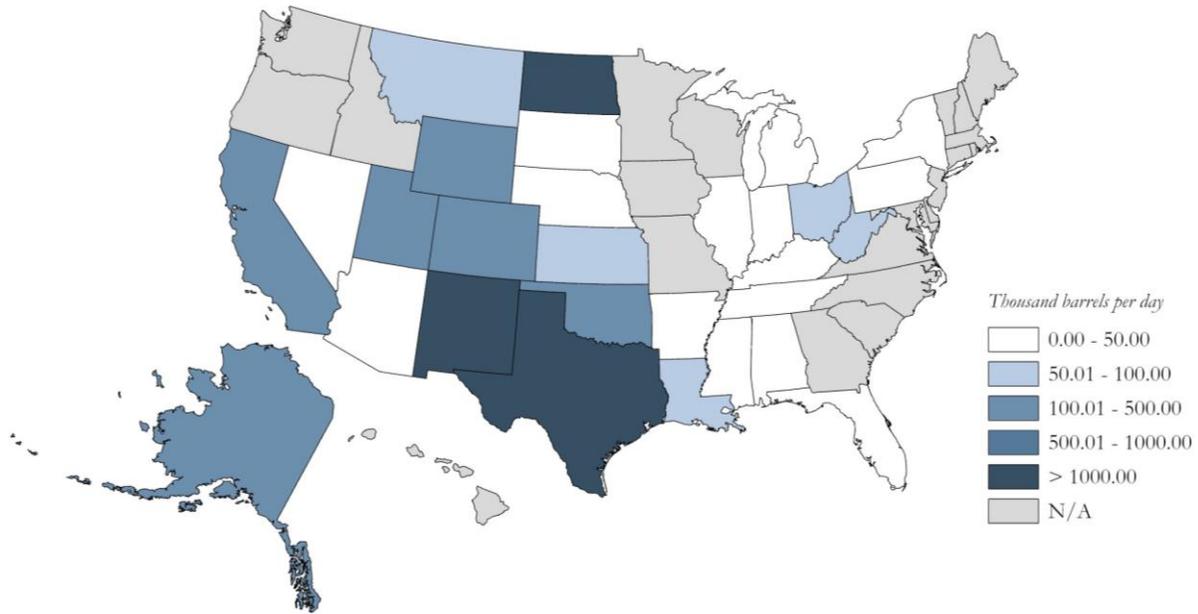
Rig Type	Current Week	1 Month Ago	3 Months Ago	1 Year Ago
Oil	504	502	529	610
Gas	117	116	128	156
Misc	4	5	7	2
<b>Total</b>	<b>625</b>	<b>623</b>	<b>664</b>	<b>768</b>

Rig Count By Type, Change from

Rig Type	Current Week	1 Month Ago	3 Months Ago	1 Year Ago
Oil	-	0.4%	-4.7%	-17.4%
Gas	-	0.9%	-8.6%	-25.0%
Misc	-	-20.0%	-42.9%	100.0%
<b>Total</b>	-	<b>0.3%</b>	<b>-5.9%</b>	<b>-18.6%</b>

Source: Baker Hughes/Haver Analytics

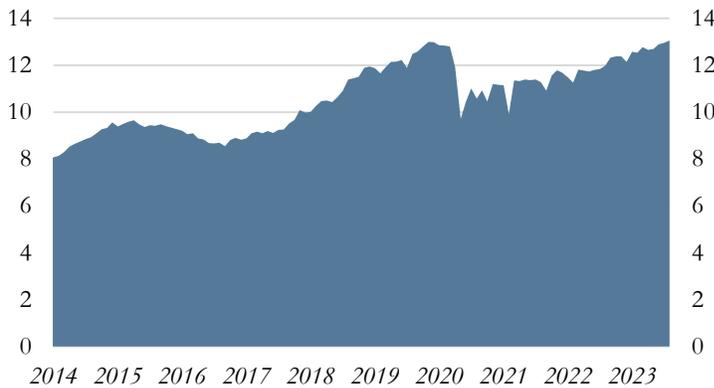
August 2023 U.S. Crude Oil Production



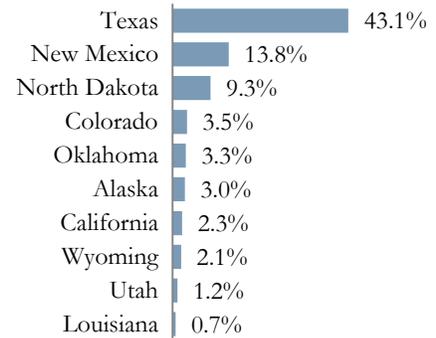
Source: Energy Information Administration/Haver Analytics

August 2023

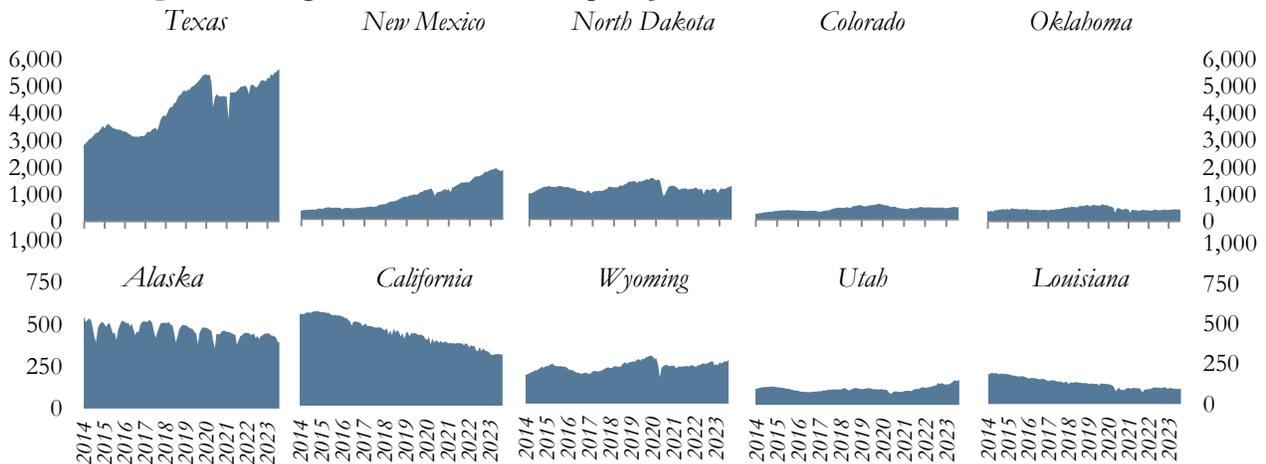
Monthly U.S. Production, million barrels per day



Share of Production



Top Producing States, thousand barrels per day



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

Data through August 2023

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



<b>United States</b>		<i>Change</i>
<i>Thousand barrels per day</i>		<i>from</i>
Aug-23	13,053	
Month Ago	12,959	0.7%
3 Months Ago	12,694	2.8%
6 Months Ago	12,532	4.2%
1 Year Ago	11,985	8.9%

**Texas**



<b>Texas</b>		<i>Change</i>
<i>Thousand barrels per day</i>		<i>from</i>
Aug-23	5,631	
Month Ago	5,606	0.5%
3 Months Ago	5,500	2.4%
6 Months Ago	5,306	6.1%
1 Year Ago	5,092	10.6%
Share of U.S. Production		43.1%

**New Mexico**



<b>New Mexico</b>		<i>Change</i>
<i>Thousand barrels per day</i>		<i>from</i>
Aug-23	1,797	
Month Ago	1,757	2.3%
3 Months Ago	1,806	-0.5%
6 Months Ago	1,799	-0.1%
1 Year Ago	1,609	11.6%
Share of U.S. Production		13.8%

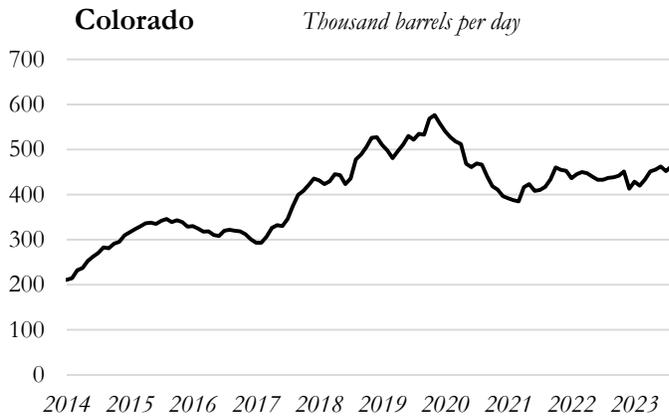
**North Dakota**



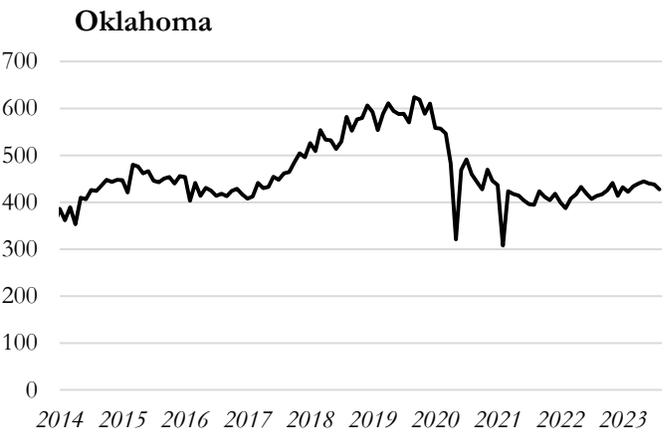
<b>North Dakota</b>		<i>Change</i>
<i>Thousand barrels per day</i>		<i>from</i>
Aug-23	1,217	
Month Ago	1,180	3.2%
3 Months Ago	1,122	8.5%
6 Months Ago	1,128	7.9%
1 Year Ago	1,062	14.6%
Share of U.S. Production		9.3%

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

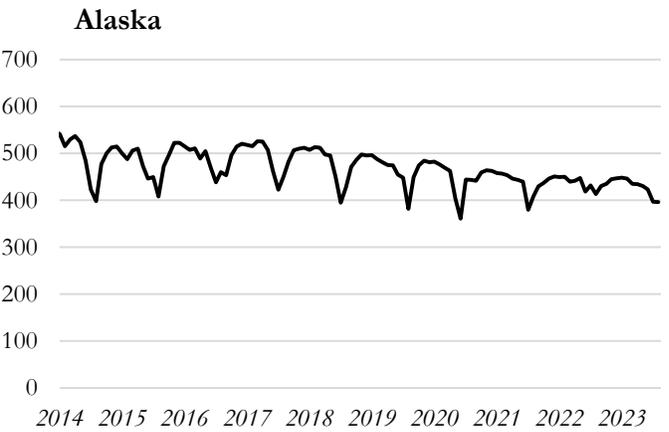
Data through August 2023



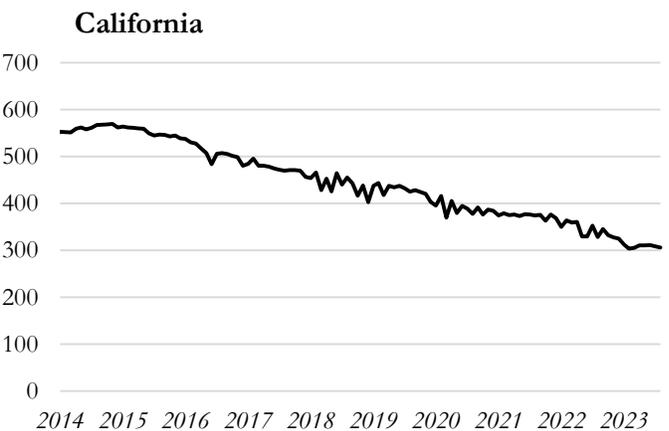
Colorado		Change from
Thousand barrels per day		
Aug-23	463	
Month Ago	452	2.4%
3 Months Ago	456	1.6%
6 Months Ago	420	10.2%
1 Year Ago	437	5.8%
Share of U.S. Production		3.5%



Oklahoma		Change from
Thousand barrels per day		
Aug-23	428	
Month Ago	438	-2.4%
3 Months Ago	444	-3.8%
6 Months Ago	422	1.2%
1 Year Ago	414	3.3%
Share of U.S. Production		3.3%



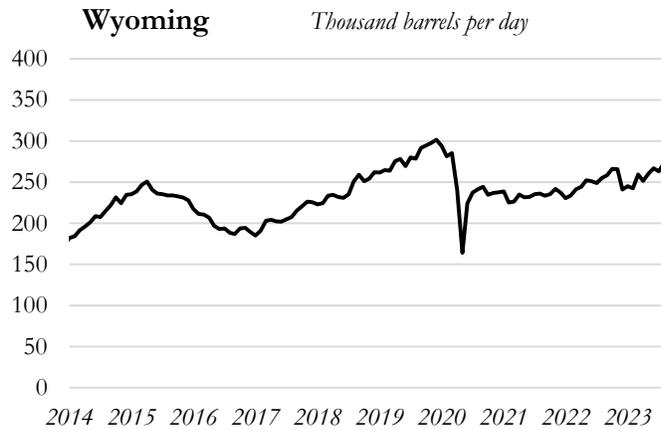
Alaska		Change from
Thousand barrels per day		
Aug-23	396	
Month Ago	397	-0.3%
3 Months Ago	430	-8.0%
6 Months Ago	446	-11.3%
1 Year Ago	413	-4.2%
Share of U.S. Production		3.0%



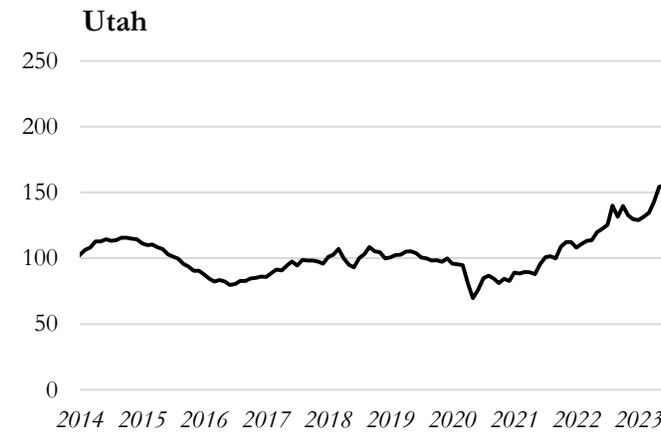
California		Change from
Thousand barrels per day		
Aug-23	306	
Month Ago	308	-0.7%
3 Months Ago	310	-1.4%
6 Months Ago	303	0.9%
1 Year Ago	328	-6.8%
Share of U.S. Production		2.3%

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

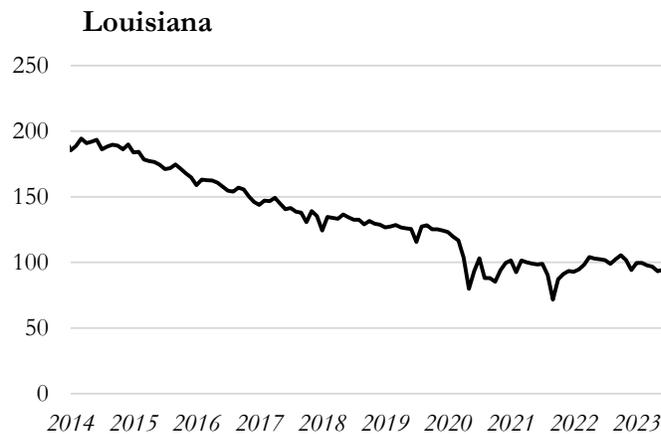
Data through August 2023



Wyoming		Change from
Thousand barrels per day		
Aug-23	273	
Month Ago	263	3.6%
3 Months Ago	260	4.8%
6 Months Ago	243	12.4%
1 Year Ago	255	7.1%
Share of U.S. Production		2.1%



Utah		Change from
Thousand barrels per day		
Aug-23	159	
Month Ago	151	5.6%
3 Months Ago	154	3.0%
6 Months Ago	132	20.8%
1 Year Ago	140	13.6%
Share of U.S. Production		1.2%

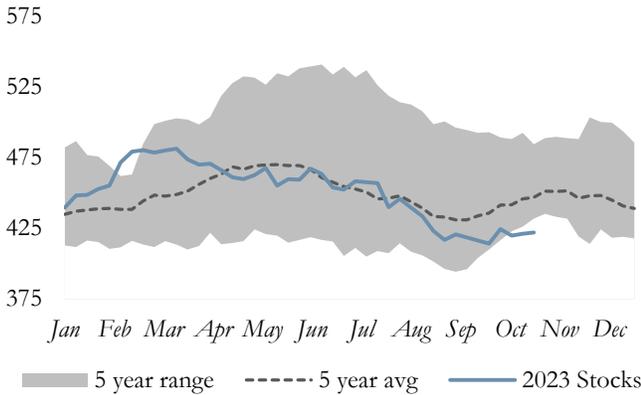


Louisiana		Change from
Thousand barrels per day		
Aug-23	96	
Month Ago	93	3.1%
3 Months Ago	93	3.2%
6 Months Ago	100	-3.4%
1 Year Ago	99	-2.5%
Share of U.S. Production		0.7%

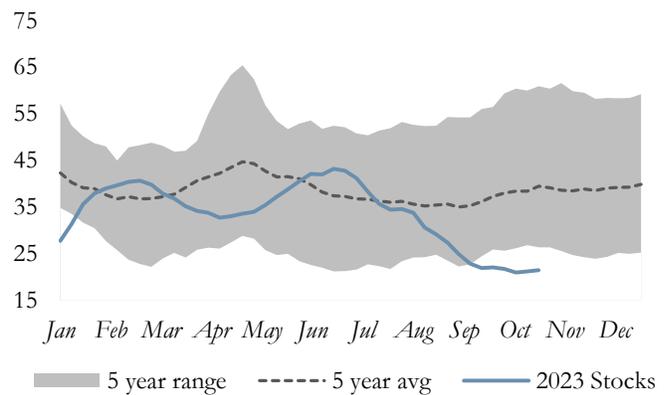
Source: U.S. Department of Energy, Energy Information Administration/Haver Analytics

October 2023 Weekly U.S. Crude Oil Stocks

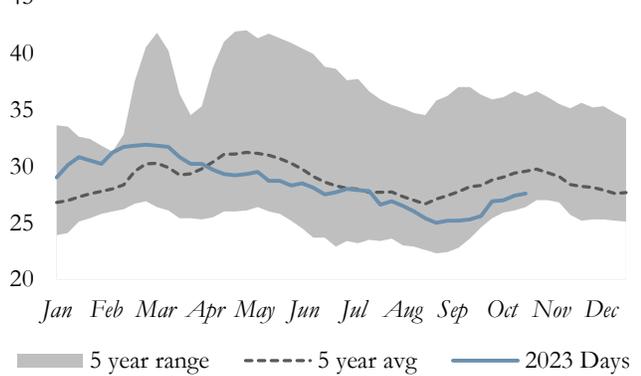
U.S. Oil Stocks, million barrels\*



Cushing, OK Oil Stocks, million barrels



U.S. Oil Days of Supply, days



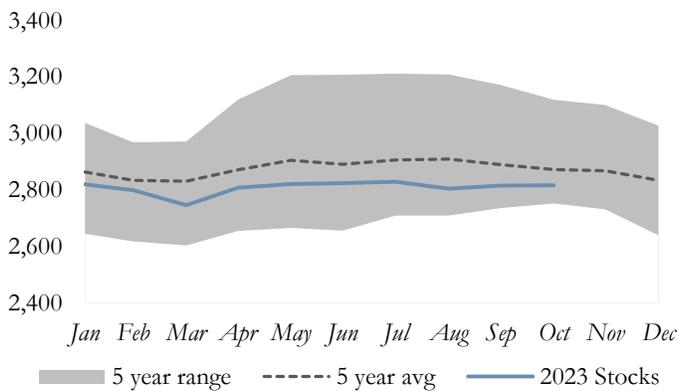
Crude Oil Stocks

	1 Week Ago	1 Year Ago
U.S.	0.2%	-3.4%
Cushing, OK	1.3%	-23.7%
Days of Supply	0.7%	-1.4%
East Coast (PADD 1)	3.7%	3.7%
Midwest (PADD 2)	1.0%	-7.8%
Gulf Coast (PADD 3)	-0.3%	-1.7%
Rocky Mountain (PADD 4)	0.2%	1.1%
West Coast (PADD 5)	0.2%	-5.2%

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

October 2023 OECD Commercial Petroleum Inventory

OECD Commercial Petroleum Inventory, million barrels



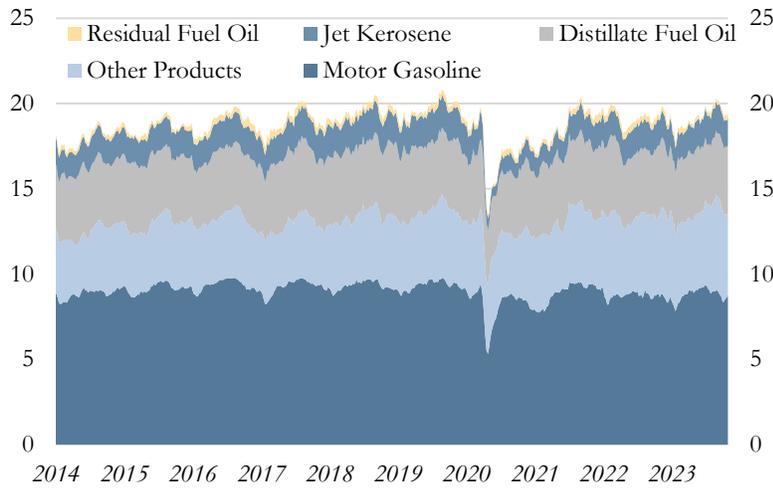
Petroleum Stocks	Million Barrels	Change from
Current Month	2,817	
1 Month Ago	2,816	0.1%
3 Months Ago	2,829	-0.4%
6 Months Ago	2,808	0.3%
1 Year Ago	2,767	1.8%

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

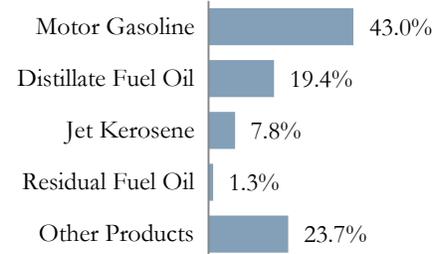
**October 2023 Weekly U.S. Demand for Petroleum Products**

*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**

	<i>Current</i> 10/27/23	<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>
All Products	20,384	20,301	20,192	19,596	20,275
Motor Gasoline	8,771	8,337	8,847	8,896	8,636
Distillate Fuel Oil	3,959	3,883	3,546	3,782	4,144
Jet Kerosene	1,600	1,688	1,663	1,555	1,481
Residual Fuel Oil	272	211	277	168	260
Other Products	4,821	5,427	5,044	4,289	4,721

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

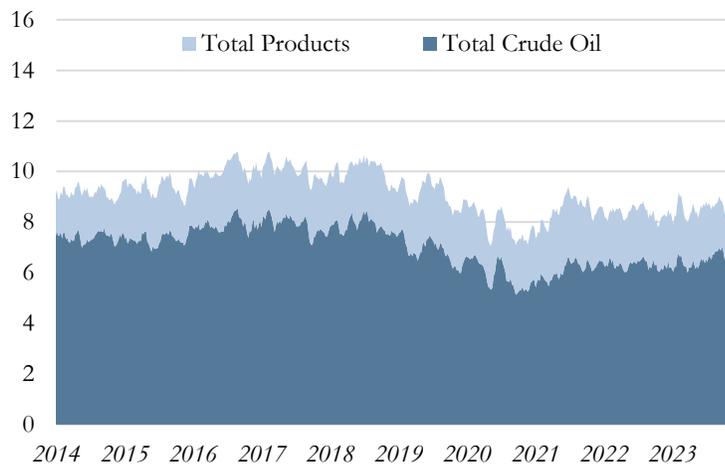
	<i>Current</i> 10/27/23	<i>1 Month</i> <i>Ago</i>	<i>3 Months</i> <i>Ago</i>	<i>6 Months</i> <i>Ago</i>	<i>1 Year</i> <i>Ago</i>
All Products	-	0.4%	1.0%	4.0%	0.5%
Motor Gasoline	-	5.2%	-0.9%	-1.4%	1.6%
Distillate Fuel Oil	-	2.0%	11.6%	4.7%	-4.5%
Jet Kerosene	-	-5.2%	-3.8%	2.9%	8.0%
Residual Fuel Oil	-	28.9%	-1.8%	61.9%	4.6%
Other Products	-	-11.2%	-4.4%	12.4%	2.1%

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

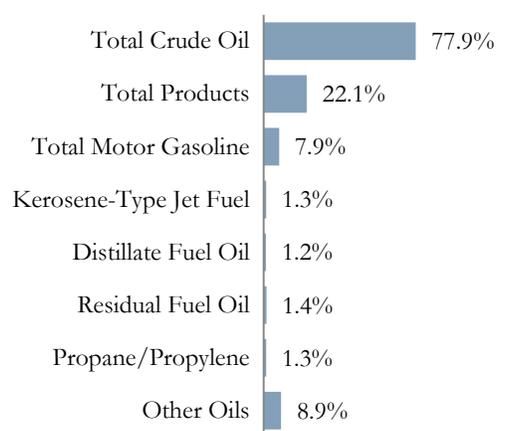
October 2023 Weekly U.S. Imports of Crude Oil & Petroleum Products

4-Week Averages

Imports, million barrels per day



Share of Total Imports



U.S. Imports by Product\*

Thousand barrels per day

	Current 10/27/23	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
<b>Total Crude Oil</b>	<b>6,177</b>	<b>6,886</b>	<b>6,523</b>	<b>6,315</b>	<b>6,089</b>
<b>Total Products</b>	<b>1,753</b>	<b>1,800</b>	<b>1,968</b>	<b>2,232</b>	<b>1,954</b>
Total Motor Gasoline	626	759	799	833	529
Kerosene-Type Jet Fuel	105	97	73	153	146
Distillate Fuel Oil	96	117	101	146	113
Residual Fuel Oil	114	93	76	89	204
Propane/Propylene	103	85	82	95	94
Other Oils	709	645	837	917	862
<b>Total Imports</b>	<b>7,930</b>	<b>8,686</b>	<b>8,491</b>	<b>8,547</b>	<b>8,043</b>

U.S. Imports by Product, Change from

	Current 10/27/23	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
<b>Total Crude Oil</b>	-	<b>-10.3%</b>	<b>-5.3%</b>	<b>-2.2%</b>	1.4%
<b>Total Products</b>	-	<b>-2.6%</b>	<b>-10.9%</b>	<b>-21.5%</b>	<b>-10.3%</b>
Total Motor Gasoline	-	-17.5%	-21.7%	-24.8%	18.3%
Kerosene-Type Jet Fuel	-	8.2%	43.8%	-31.4%	-28.1%
Distillate Fuel Oil	-	-17.9%	-5.0%	-34.2%	-15.0%
Residual Fuel Oil	-	22.6%	50.0%	28.1%	-44.1%
Propane/Propylene	-	21.2%	25.6%	8.4%	9.6%
Other Oils	-	9.9%	-15.3%	-22.7%	-17.7%
<b>Total Imports</b>	-	<b>-8.7%</b>	<b>-6.6%</b>	<b>-7.2%</b>	<b>-1.4%</b>

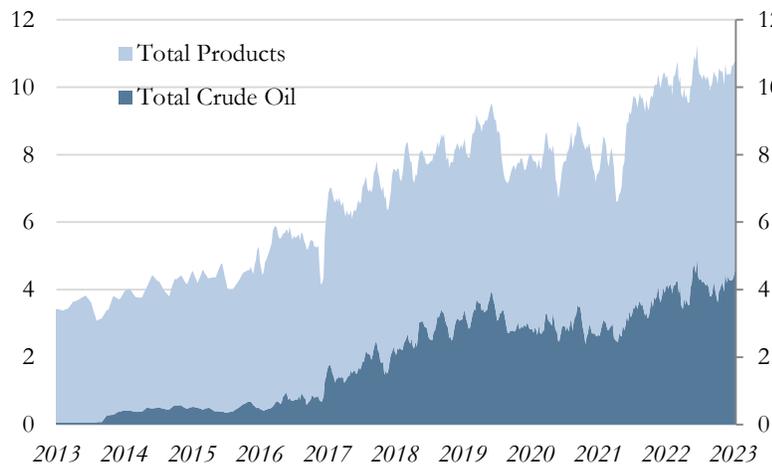
\*Totals may not sum due to component rounding

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

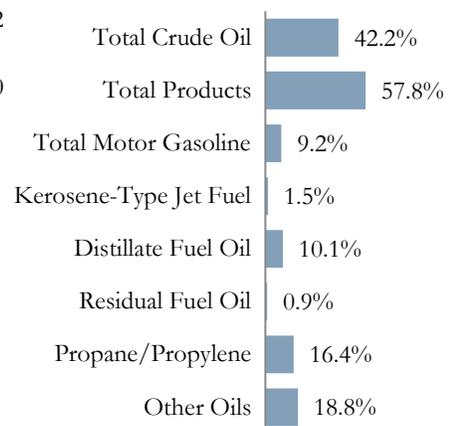
October 2023 Weekly U.S. Exports of Crude Oil & Petroleum Products

4-Week Averages

Exports, million barrels per day



Share of Total Exports



U.S. Exports by Product\*

Thousand barrels per day

	Current 10/27/23	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
<b>Total Crude Oil</b>	<b>4,525</b>	<b>4,281</b>	<b>3,958</b>	<b>4,214</b>	<b>4,016</b>
<b>Total Products</b>	<b>6,196</b>	<b>6,114</b>	<b>6,608</b>	<b>6,019</b>	<b>6,055</b>
Total Motor Gasoline	982	927	1,001	826	887
Kerosene-Type Jet Fuel	165	144	187	124	164
Distillate Fuel Oil	1,088	1,080	1,361	1,106	1,112
Residual Fuel Oil	99	113	164	121	131
Propane/Propylene	1,753	1,729	1,523	1,559	1,471
Other Oils	2,018	2,028	2,282	2,284	2,291
<b>Total Exports</b>	<b>10,720</b>	<b>10,395</b>	<b>10,566</b>	<b>10,232</b>	<b>10,071</b>

U.S. Exports by Product, Change from

	Current 10/27/23	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
<b>Total Crude Oil</b>	-	<b>5.7%</b>	<b>14.3%</b>	<b>7.4%</b>	12.7%
<b>Total Products</b>	-	<b>1.3%</b>	<b>-6.2%</b>	<b>2.9%</b>	<b>2.3%</b>
Total Motor Gasoline	-	5.9%	-1.9%	18.9%	10.7%
Kerosene-Type Jet Fuel	-	14.6%	-11.8%	33.1%	0.6%
Distillate Fuel Oil	-	0.7%	-20.1%	-1.6%	-2.2%
Residual Fuel Oil	-	-12.4%	-39.6%	-18.2%	-24.4%
Propane/Propylene	-	1.4%	15.1%	12.4%	19.2%
Other Oils	-	-0.5%	-11.6%	-11.6%	-11.9%
<b>Total Exports</b>	-	<b>3.1%</b>	<b>1.5%</b>	<b>4.8%</b>	<b>6.4%</b>

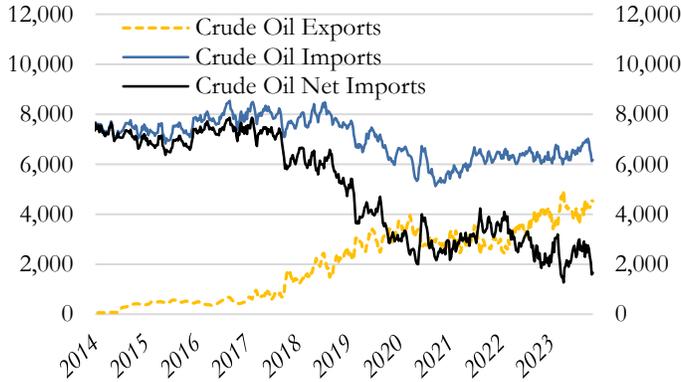
\*Totals may not sum due to rounding

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

**October 2023 Weekly U.S. Net Imports of Crude Oil & Petroleum Products**

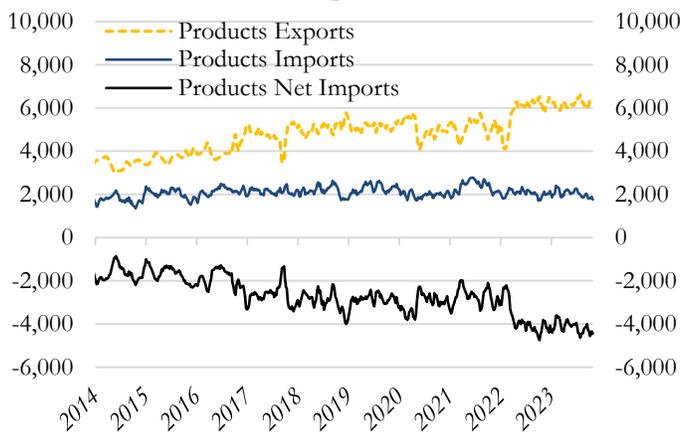
*4-Week Averages, Thousand barrels per day*

**Crude Oil Net Imports**



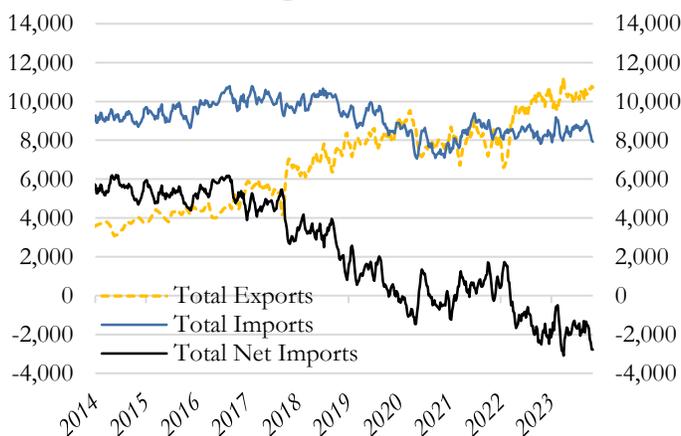
<b>Crude Oil Net Imports</b>		<i>Change from</i>
<i>Thousand barrels per day</i>		
10/27/23	1,653	
Month Ago	2,604	-36.5%
3 Months Ago	2,565	-35.6%
6 Months Ago	2,101	-21.3%
1 Year Ago	2,073	-20.3%

**Products Net Imports**



<b>Products Net Imports</b>		<i>Change from</i>
<i>Thousand barrels per day</i>		
10/27/23	-4,442	
Month Ago	-4,314	-
3 Months Ago	-4,639	-
6 Months Ago	-3,786	-
1 Year Ago	-4,101	-

**Total Net Imports**



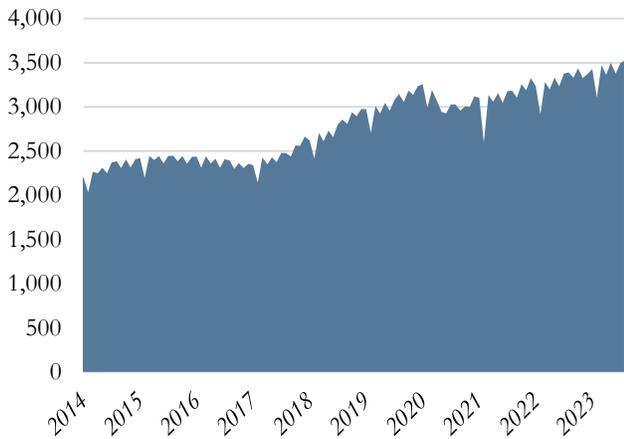
<b>Total Net Imports</b>		<i>Change from</i>
<i>Thousand barrels per day</i>		
10/27/23	-2,790	
Month Ago	-1,710	-
3 Months Ago	-2,075	-
6 Months Ago	-1,685	-
1 Year Ago	-2,028	-

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

U.S. Natural Gas Production & Stocks

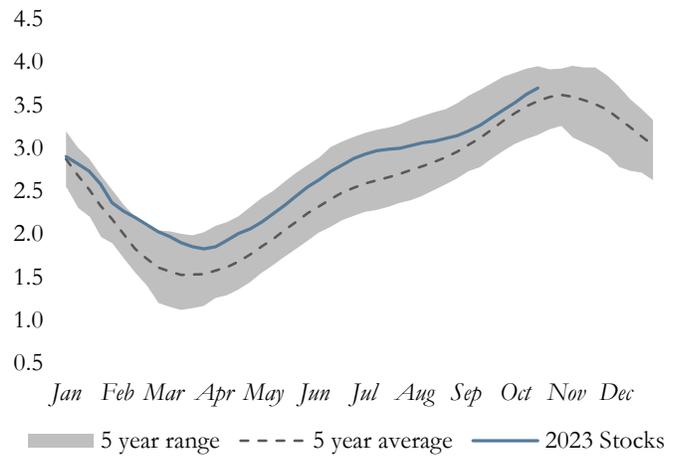
August 2023 Production

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



October 2023 Weekly Stocks

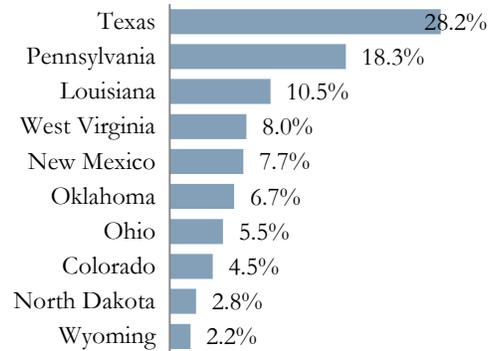
U.S. Natural Gas Stocks, Billion cubic feet (Bcf)



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	3,529	3,495	3,500	3,103	3,392
U.S. Stocks	3,700	3,359	2,987	2,009	3,394

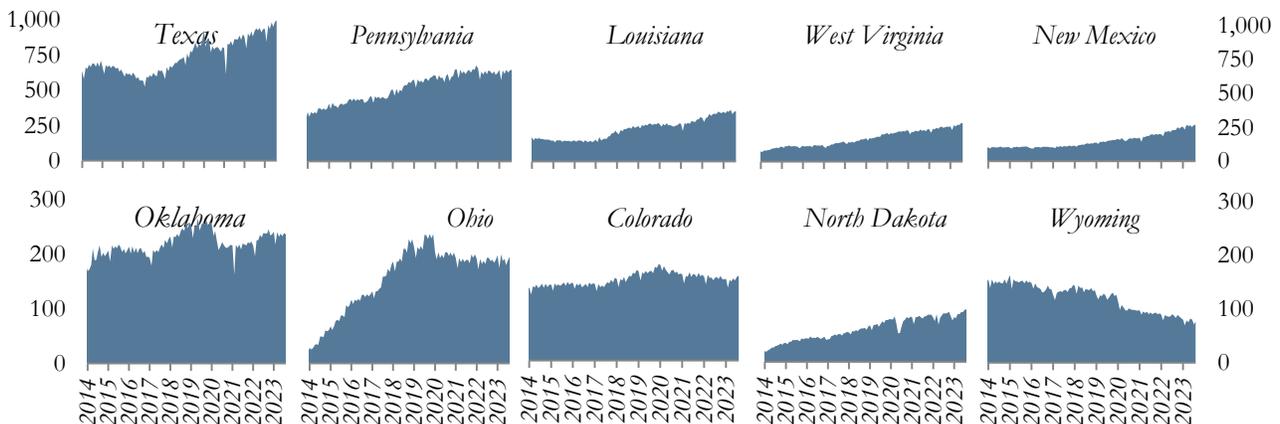
Share of Production



U.S. Natural Gas, Change from

	Current Period*	1 Month Ago	3 Months Ago	6 Months Ago	1 Year Ago
U.S. Production	-	1.0%	0.8%	13.7%	4.0%
U.S. Stocks	-	10.2%	23.9%	84.2%	9.0%

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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