

January 2, 2019 | 6:57 PM EST

# Untangling the American oil & gas industry: price trends, production, and transports impact

## Overview

We expect West Texas Intermediate crude prices to be range-bound in the near- and mid-term based on slow global economic growth and steadily growing domestic production. When coupled with a rapid expansion of pipeline takeaway capacity from the Permian Basin to the Gulf Coast, even a hot oil market will have a muted impact on U.S. surface transportation.

Fracking requires the movement of water, sand, chemicals and equipment to a multitude of well sites whose production tends to decay rapidly, necessitating further exploration and drilling. Inbound demand to those sites will be stable, but we think that capacity will be more balanced in 2020 than it was in 2017 or 2018.

In the case of a downside surprise to commodity prices and industrial production, oilfield services companies will see hits to their revenue. In the case of an upside surprise caused by an unexpectedly disciplined OPEC, Middle East conflict or a meaningful U.S. policy shift to fiscal easing, domestic production will grow moderately but not at the pace of the prior decade.

## Commodity Prices (YTD y/y change)

Brent	\$69.26 (+28.1%)
WTI	\$61.72 (+33.3%)
ULSD	\$2.059 (+20.9%)
Brent/WTI spread	\$7.54 (-2.7%)

## U.S. Crude Oil Production in thousands (y/y change as of October)

United States	392,305 (+8.8%)
Texas	163,465 (+11.6%)
Gulf of Mexico (+8.7%)	59,015
North Dakota	45,709 (+7.1%)
New Mexico	30,435 (+26.7%)

## Flatbed trucking spot rates ex. fuel (\$/mi)

New Orleans to Houston	\$2.47/mi (+4.66%)
Shreveport to Houston	\$2.31/mi (-6.48%)
Houston to Dallas	\$2.23/mi (-5.51%)
Houston to Oklahoma City	\$1.84/mi (-8.00%)

## JP Hampstead

Director, Passport Research  
 jphampstead@freightwaves.com  
 (865) 388-1708

## Hunter Carroll

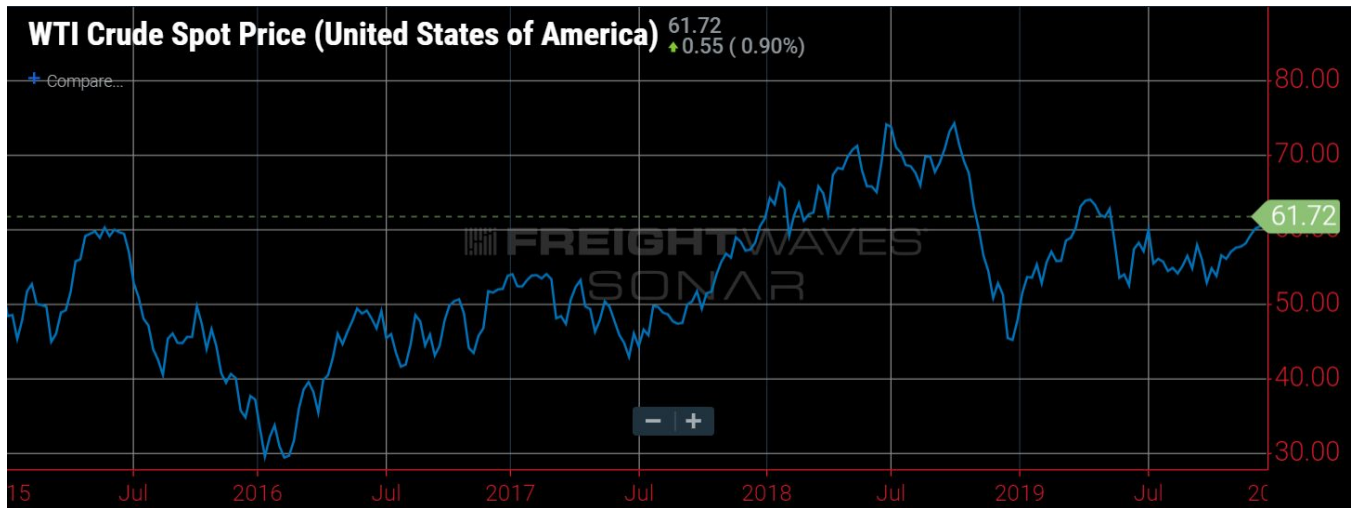
Research Associate  
 hcarroll@freightwaves.com  
 (423) 650-5702

## Tony Mulvey

Research Associate  
 tmulvey@freightwaves.com  
 (423) 637-1940

January 2, 2019 | 6:57 PM EST

**Price trends**



WTI spot prices have been volatile over the past four years. Prices crashed to lows in early 2016 which wiped out smaller wildcatters in the Permian Basin and contributed to the consolidation of the E&P industry. OPEC cuts and strong economic growth helped WTI go on a two-and-a-half year bull run, leading to a substantial increase in supply throughout 2017 and 2018. Since then, prices have moderated and have for the most part been range-bound between \$55-\$60 a barrel.

We expect solid economic growth and moderating crude production to keep oil prices in the same range in the near- to mid-term future. We believe there are some risks to this thesis, such as any surprising economic news. Any news out of OPEC regarding a larger cut in production or member nations not abiding by the agreed-upon cuts could impact prices.



Until 2011, WTI had been priced at a small but consistent premium over Brent crude. This all changed with the Arab Spring and an explosion in fracking activity in the United States. Political unrest tends to elevate oil prices whereas fracking in West Texas was associated with lower production costs. This leads to increased supply and with all else constant will lower oil prices. With

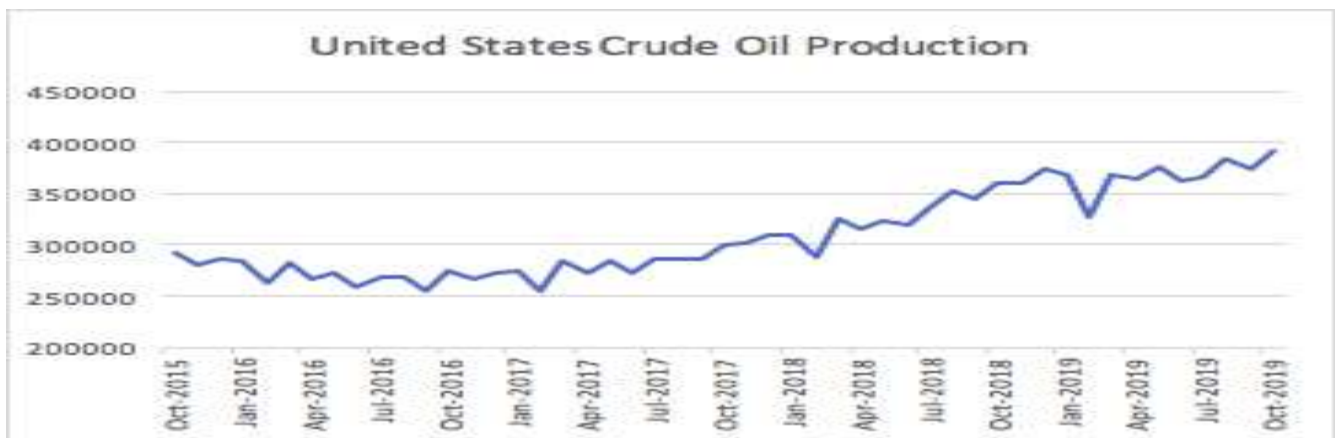
January 2, 2019 | 6:57 PM EST

these two factors at play, there was a breakout higher in the Brent/WTI spread, which has stayed positive for the majority of the past four years.

When the Brent-WTI spread widens, it can become economical to move crude oil by rail and truck instead of by pipeline, so production can expand beyond existing infrastructure.

**Production**

United States crude oil production has risen since the beginning of 2017, coinciding with an increase in WTI prices. This is not a surprise as there will be more production as prices increase and wells that were previously unprofitable turn profitable. The rate of growth in oil production has slowed this year. The vast majority of growth in oil production has stemmed from the Gulf Coast EIA district, which includes all of Texas. This is not surprising as this is one of the key areas for fracking.



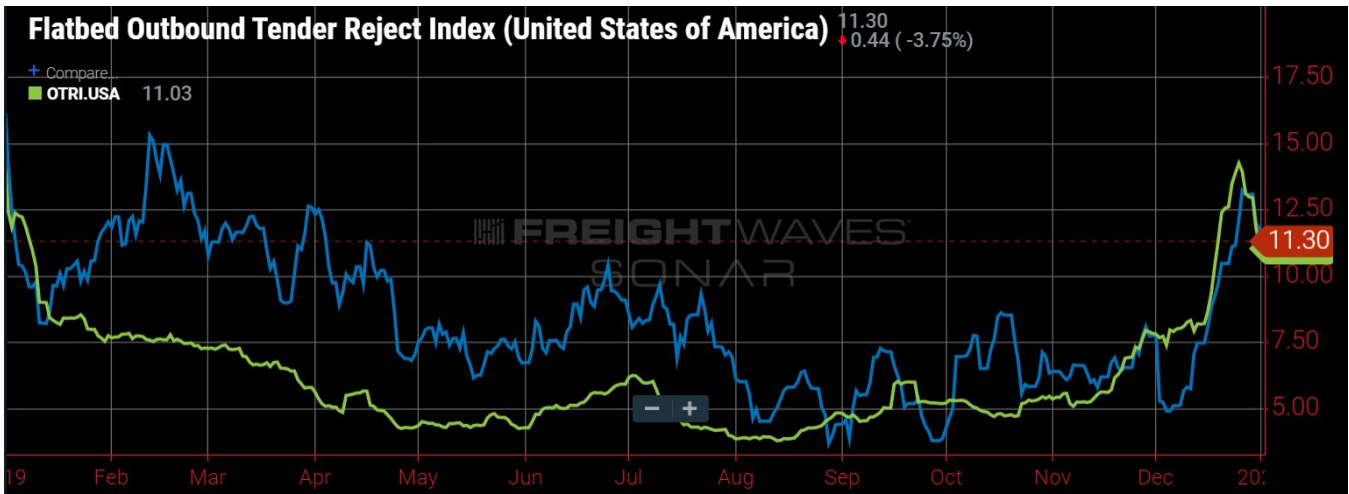
(U.S. oil production in thousands of barrels/month)

“EIA assumes that OPEC will limit production through all of 2020, amid a forecast of rising oil inventories. EIA forecasts OPEC crude oil production will average 29.3 million b/d in 2020, down by 0.5 million b/d from 2019,” the EIA said in its Short-Term Energy Outlook on Dec. 10.

The EIA had this to say about domestic oil production: “EIA expects U.S. crude oil production to average 13.2 million b/d in 2020, an increase of 0.9 million b/d from the 2019 level. Expected 2020 growth is slower than 2018 growth of 1.6 million b/d and 2019 growth of 1.3 million b/d. Slowing crude oil production growth results from a decline in drilling rigs over the past year that EIA expects to continue into 2020.”

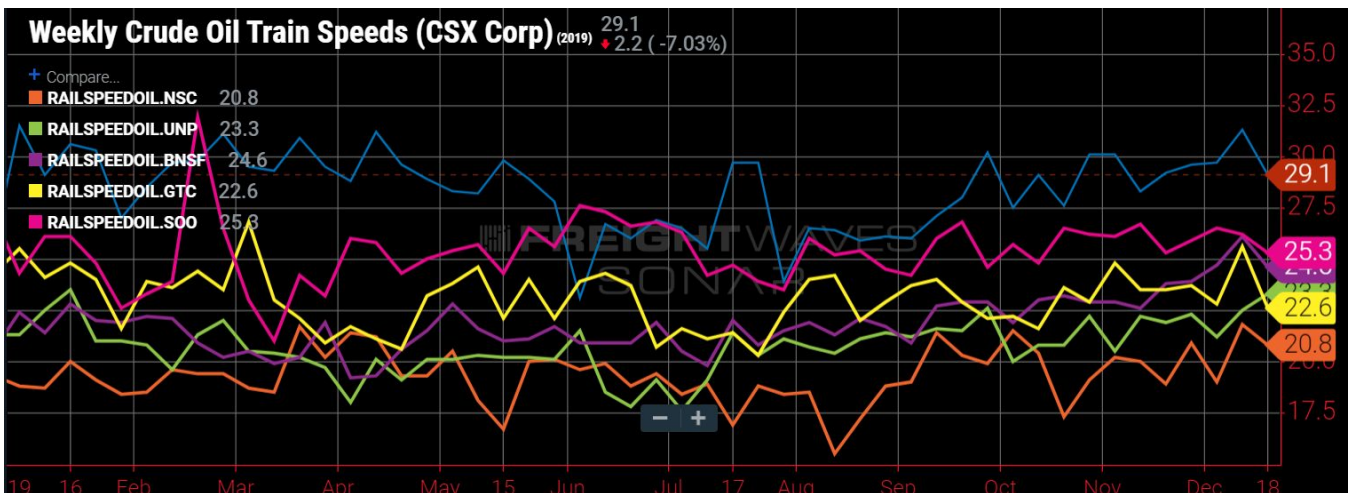
January 2, 2019 | 6:57 PM EST

**Transports impact**



(Chart: FreightWaves SONAR. Flatbed tender rejections compared with all trucking tender rejections. Flatbed capacity is far more volatile than dry van.)

Oil markets have a major impact on the transportation industry. Fracking is a truck-intensive technique and requires many flatbed and specialized trucks carrying sand, water, chemicals and equipment to well sites that move more frequently than in conventional production. Flatbed tender rejections (FOTRI.USA) measure the rate at which carriers turn away contracted freight and opt to look in the spot market for other freight. Flatbed capacity is naturally tighter than the overall trucking market because it is less commodified and networks are more imbalanced. Flatbed trucking into fracking areas will always be into backhaul markets because the commodity being moved out, crude oil, is moving by pipeline, rail or tanker truck. Much like the capacity constraints in flatbed trucking, spot rates are typically higher than van rates. On the major lanes related to oil, Houston to Dallas had an average spot rate in 2019 of almost \$2.50/mi (ex. fuel) which is one of the shorter lanes but is about \$0.10/mi more expensive than the next closest lane in price.



(Chart: FreightWaves SONAR. Weekly crude oil Class I railroad average speeds)

January 2, 2019 | 6:57 PM EST

All Class I railroads except Norfolk Southern have experienced growth in petroleum products volume (which includes crude oil) transported in 2019. Canadian Pacific faces the largest exposure to the oil market with 8.2% of carloads being petroleum products. The largest U.S. Class I railroad oil market participant is Kansas City Southern, whose network runs through the refinery-laden Gulf Coast. Railroads have been undergoing a change to increase their service levels while demarketing lanes and reducing headcount. Monitoring train velocity shows the effort that rails are making to continue their service improvement. CSX has consistently had the highest crude train speed in the past year, but less than 3% of overall carloads are petroleum products.

The expansion and new construction of pipelines will ultimately have an impact on both trucking and rail traffic. As pipelines are able to move oil directly to refineries, the demand for shipping oil via rail and truck will deteriorate. New pipelines will continue to come online over the upcoming years. By 2021, there will be 2.4 million barrels/day moving through the new and expanded pipelines. For reference, the newer tanker railcars, which are being phased in due to safety concerns, carry about 675 barrels each. The new pipelines will therefore replace roughly 3,555 railcars worth of crude-by-rail demand each day.