May 2018 Short-Term Energy Outlook

for
Williston Basin Petroleum Conference
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by
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Brent crude oil prices are forecast to average about $71/b in 2018 and $66/b in 2019, with WTI prices $5/b lower in both years.

Various events could lead to physical changes to global supply or demand that could push future crude oil prices higher or lower than in the current STEO forecast.

<table>
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<th>Potential Events</th>
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<td><strong>Increase Prices</strong></td>
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<td>Reduction in Iranian oil production because of renewed sanctions</td>
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<td>Venezuela's oil production declines faster than expected</td>
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<td>U.S. crude oil production rises more slowly than expected</td>
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<td>Major geopolitical or weather related unanticipated supply disruption</td>
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<td><strong>Decrease Prices</strong></td>
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<td>U.S. crude oil production continues to increase faster than expected</td>
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<td>Weaker than expected economic and oil demand growth</td>
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<td>OPEC increases production in 2019 following expiration of the supply reduction agreement</td>
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<td>Removal of price subsidies creates greater price sensitivity, reducing demand</td>
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EIA has four main reports estimating domestic crude oil production

• Petroleum Supply Monthly Survey Data (PSM)
• Weekly Petroleum Status Report (WPSR)
• Short-Term Energy Outlook (STEO)
• Drilling Productivity Report (DPR)
Main sources of monthly oil and natural gas data are the EIA-914 survey and state administrative data

EIA-914 survey requires roughly 375 operators, representing a minimum of 85% of production, to report state-level oil and natural gas production

• Data is report individually for 15 states (AR, CA, CO, KS, LA, MT, NM, ND, OH, OK, PA, TX, UT, WV, WY), the Federal GOM, and an other states group excluding AK
• Responses due 40 days after the close of the production month. Published monthly 60 days after the close of the production month.
• EIA forecasts are benchmarked to this data

State agencies also collect and release state-level data, plus well or lease level production data

• Available 45 days to 2 years (or more) after close of the production month
• EIA uses this data for analysis of decline rates and sub-state production rates (e.g., how Eagle Ford differs from Permian within Texas)
Forecasts improved with expanded EIA-914 survey in 2015 because revisions to historical data dropped to generally less than half a percent.

% difference between PSM with first EIA-914 data and most recent data in the PSM


Expanded EIA-914 survey began January 2015

Expanded data became available August 2015
Monthly average FracFocus well completion filings have substantially greater variation than production data.

Source: FracFocus weekly reported completion and recompletion filings.
Sample timeline of PSM and STEO oil and natural gas production data reporting and releases

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<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
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| January 1-31   |              | **March 12** Operator reports are due for January production EIA-914 survey  
• 40 days after the last day of the production month  
**March 30** EIA releases January production in the Petroleum Supply Monthly (PSM)  
• Last day of the month | **April 11** EIA monthly forecast with January data is released in the Short-Term Energy Outlook (STEO)  
• First Tuesday after the first Thursday of the month  
• March PSM (data through Jan)  
• February and March estimates |
Global oil markets are expected to be relatively balanced in 2018, with some inventory growth expected in 2019, putting modest downward pressure on oil prices.

Global liquid fuels market balance
million barrels per day

Source: EIA Short-Term Energy Outlook, May 2018.
Global oil supply growth is forecast to increase in 2018-19 compared with 2016-17, the United States and Canada are key drivers of the increase.

Annual change in total liquid fuels production
million barrels per day

Source: EIA Short-Term Energy Outlook, May 2018.
Crude oil and hydrocarbon gas liquids (HGL) production growth—particularly of ethane and propane—support total U.S. liquids production growth in 2018-19

U.S. total liquid fuels production
million barrels per day

Components of annual change
million barrels per day

Source: EIA Short-Term Energy Outlook, May 2018.
Strong HGL consumption growth contributes to an expected increase in U.S. liquid fuels consumption growth in 2018

U.S. total liquid fuels consumption
million barrels per day

Components of annual change
million barrels per day

Source: EIA Short-Term Energy Outlook, May 2018.
With strong expected growth in crude oil production and high levels of refinery runs, EIA forecasts that net imports of petroleum will continue to decline.

U.S. total crude oil and petroleum product trade
million barrels per day

Henry Hub prices are forecast to average $3.01/MMBtu in 2018 and $3.11/MMBtu in 2019.

Source: EIA Short-Term Energy Outlook, May 2018, and Thomson Reuters.
EIA forecasts marketed natural gas production to grow by a record 7.4 Bcf/d on average in 2018

U.S. marketed natural gas production
billion cubic feet per day

Components of annual change
billion cubic feet per day

Source: EIA Short-Term Energy Outlook, May 2018.
The regular-grade gasoline retail price forecast averages $2.90 per gallon in summer 2018 compared with $2.41 per gallon last summer.

Source: Short-Term Energy Outlook, May 2018.
Household transportation expenditures in 2018 are projected to be higher than last year but similar to the average expenditures over the past decade.

Average annual household expenditures on gasoline and motor oil (dollars)

For more information

Petroleum Supply Monthly | www.eia.gov/petroleum/supply/monthly


Weekly Petroleum Status Report | www.eia.gov/petroleum/supply/weekly

Short-Term Energy Outlook | www.eia.gov/steo

Drilling Productivity Report | www.eia.gov/petroleum/drilling/

Webinar STEO 11/16/2017 | www.eia.gov/petroleum/workshop/crude_production