

Forecasting U.S. Crude Oil Production



For

EIA Webinar: Forecasting U.S. Crude Oil Production

November 16, 2017 | Washington, DC

By

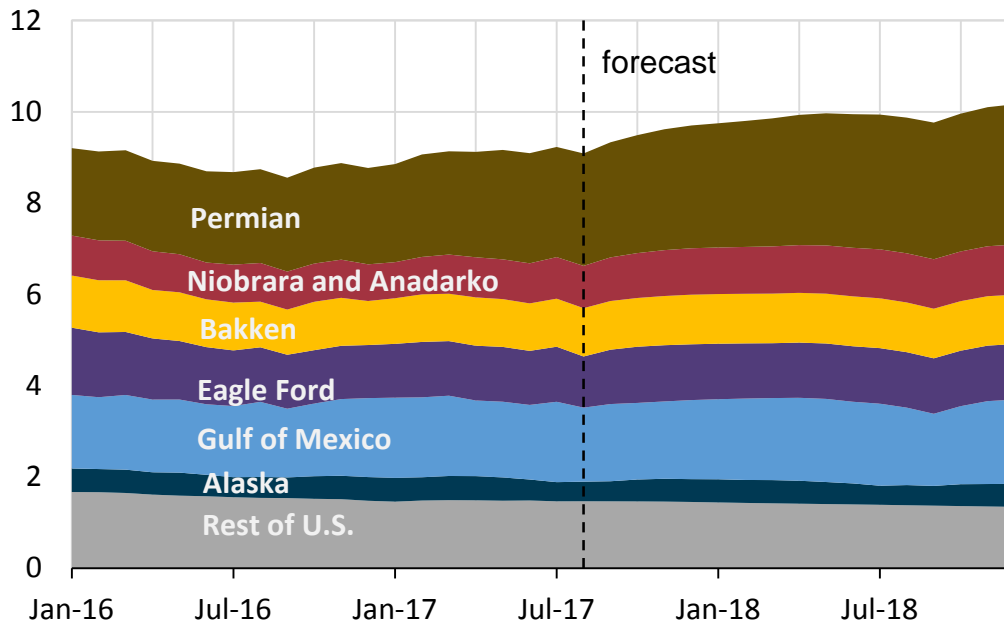
John Staub, Director, Office of Petroleum, Natural Gas & Biofuels Analysis

Key takeaways

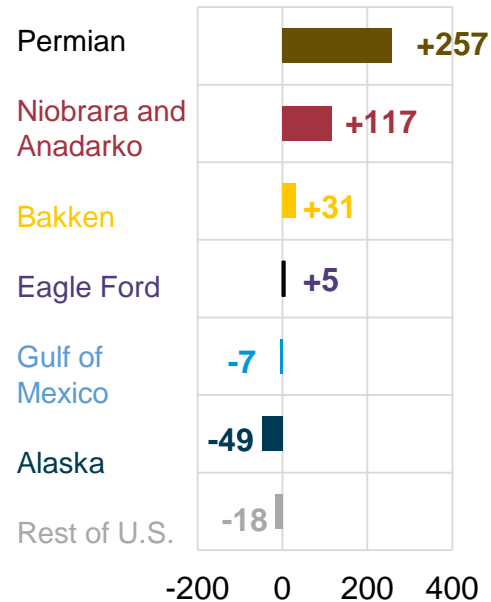
- The November *Short-Term Energy Outlook* (STEO) is forecasting U.S. oil production for December 2017 at 9.7 million barrels per day (b/d)
- U.S. oil production grew 340,000 b/d in H1 (first half) 2017 and is forecast to grow by 336,000 b/d in H2 (second half) 2017
- Production in the Permian grew by 214,000 b/d in H1 2017 and is forecast to grow by 257,000 b/d in H2 2017
- Hedging activity has likely increased with rising WTI prices
- Increased frack sand usage increases well productivity but slows well completions

November STEO forecasts Permian to lead production growth from H1 to H2 2017

Monthly U.S. crude oil production
million barrels per day



Projected change
2nd half vs 1st half 2017
thousand barrels per day

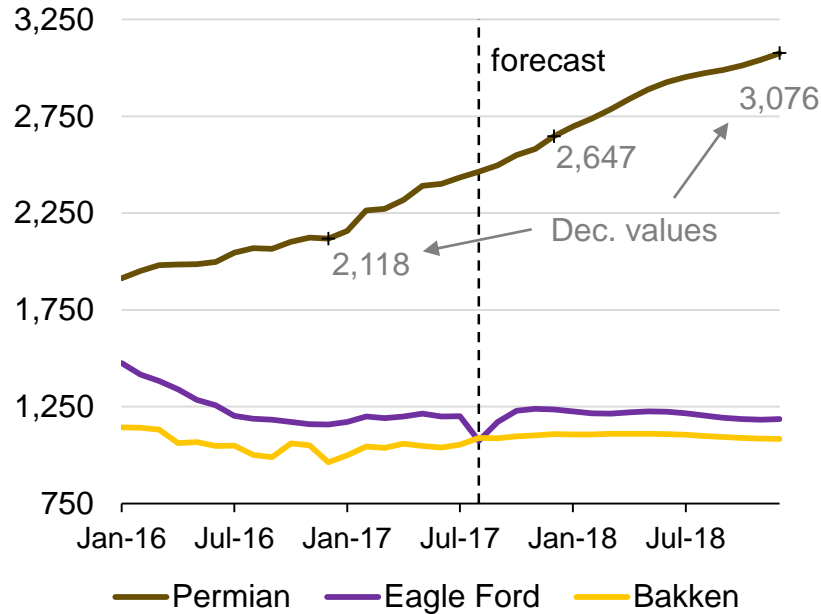


Source: EIA Short-Term Energy Outlook, November 2017

Forecasted Permian production growth stands out compared to six other key Lower 48 regions

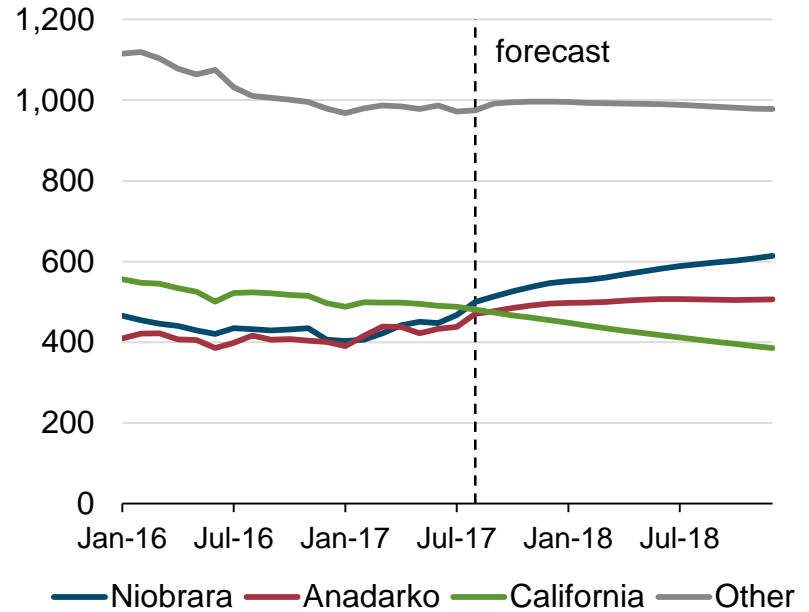
Crude oil production

thousand barrels per day



Crude oil production

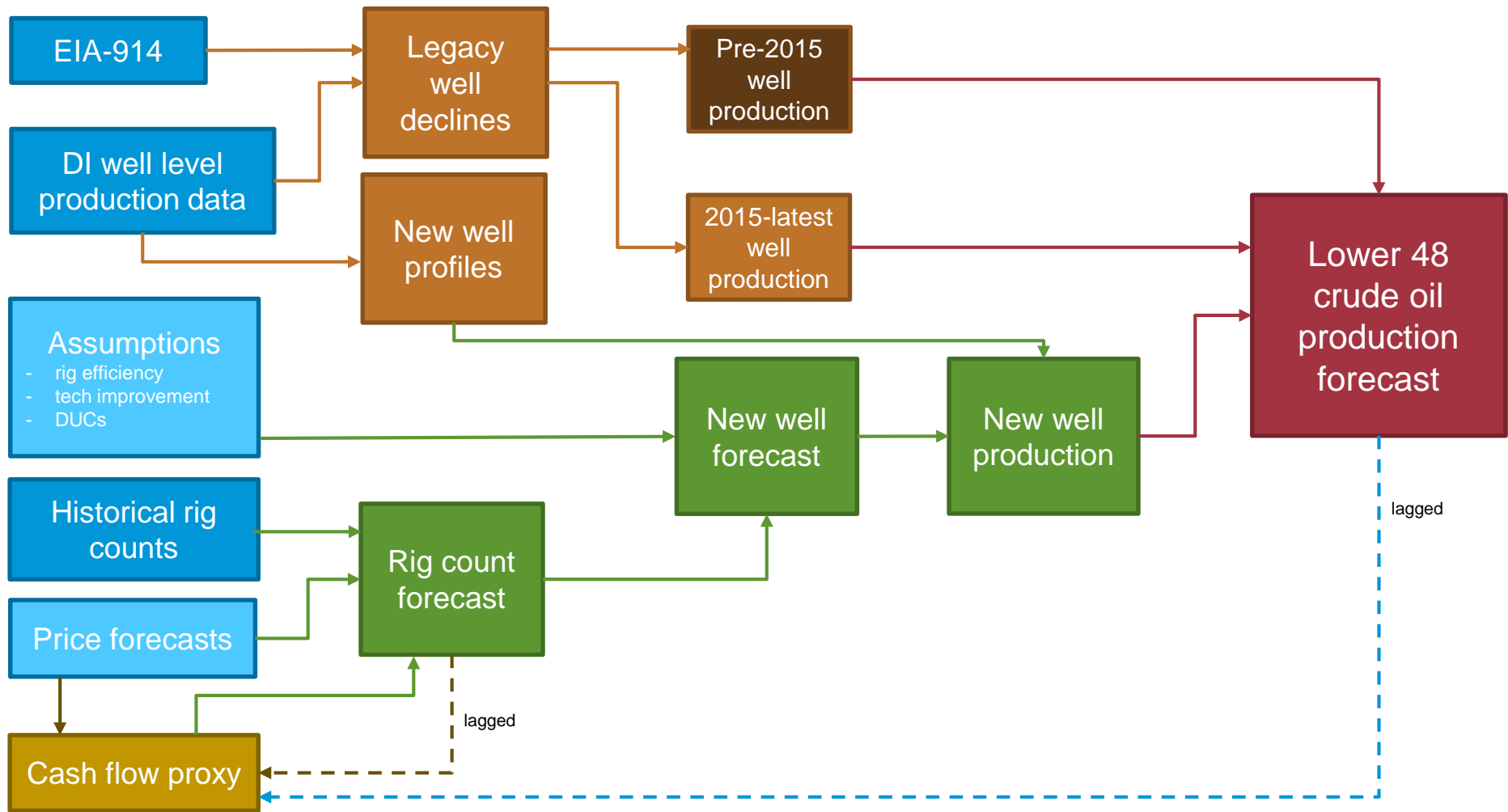
thousand barrels per day



Source: EIA Short-Term Energy Outlook, November 2017

Factors affecting EIA's *Short-Term Energy Outlook* oil production forecast

- Oil prices
- Rig counts
- EIA-914 survey of oil production by state
- Drillinginfo well-level data
- Fracfocus completion filings
- 10Ks, trade press, infrastructure reports



EIA-914

DI well level production data

Assumptions
- rig efficiency
- tech improvement
- DUCs

Historical rig counts

Price forecasts

Cash flow proxy

Legacy well declines

New well profiles

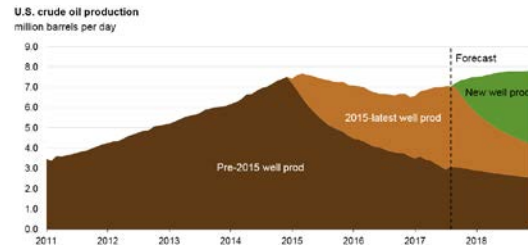
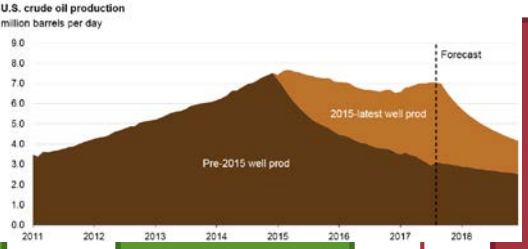
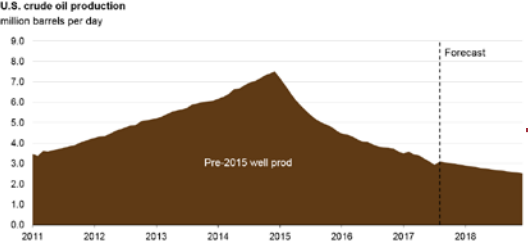
Pre-2015 well production

2015-latest well production

New well forecast

New well production

Lower 48 crude oil production forecast



lagged

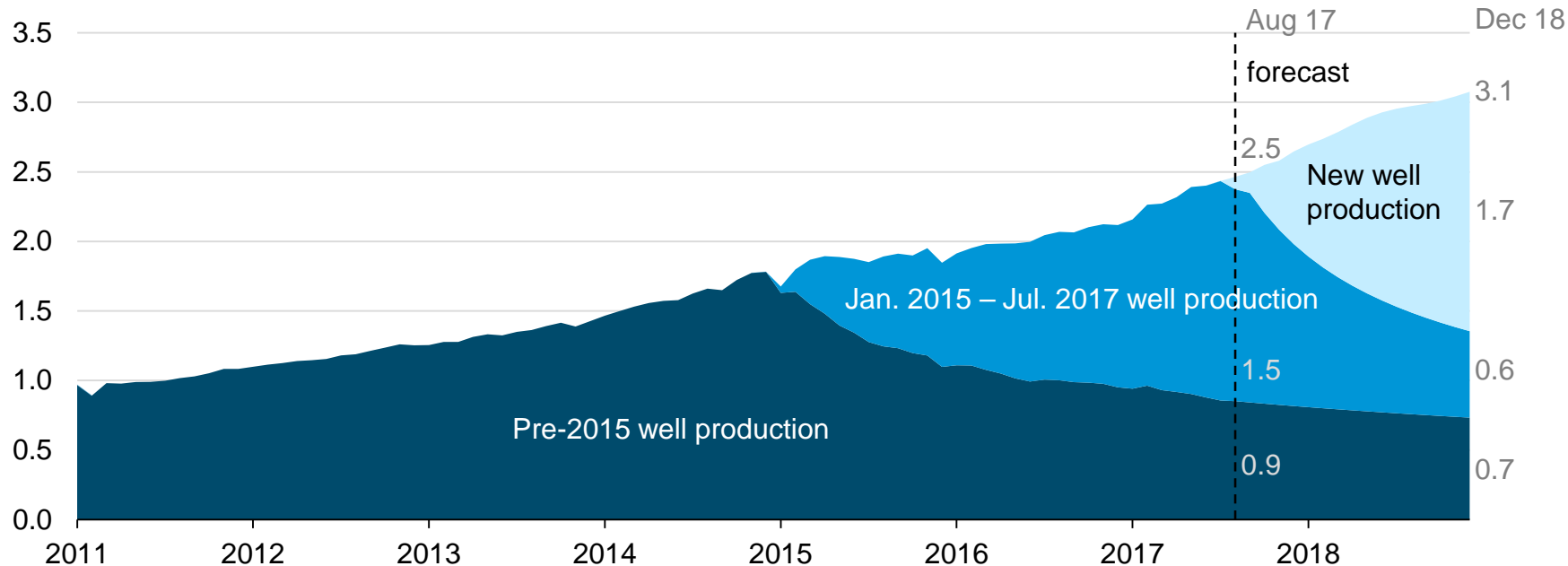
lagged



New wells completed in Permian drive the growth in H2 2017 and 2018, providing 1.7 MMb/d of production by December 2018

Permian region crude oil production

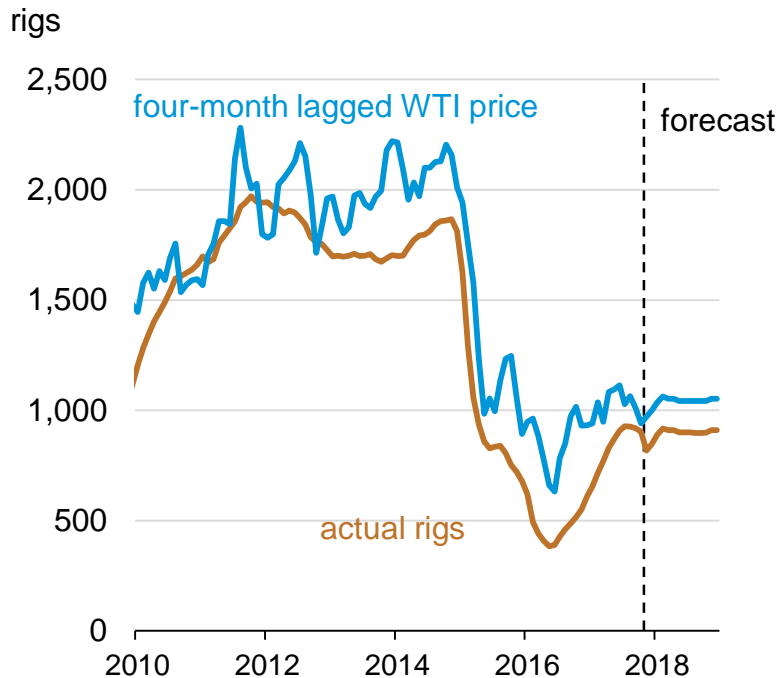
million barrels per day



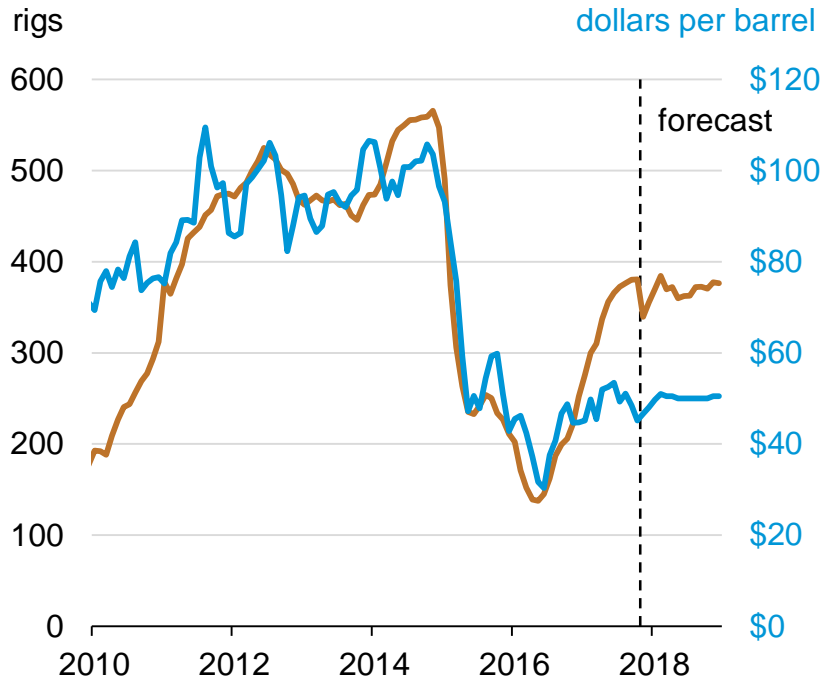
Source: EIA Short-Term Energy Outlook, November 2017

Early 2017 WTI price flattened and Permian rig count increased as rigs from other regions moved to Permian

U.S. rig counts



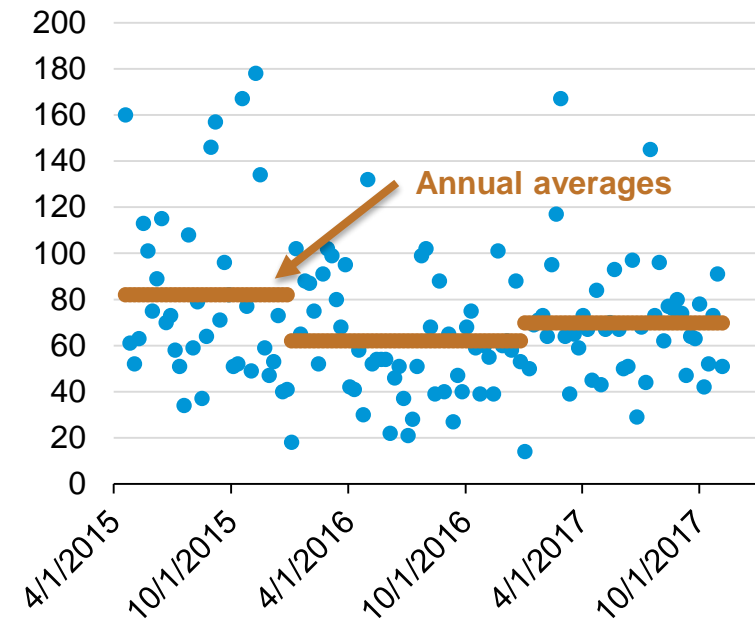
Permian rig counts



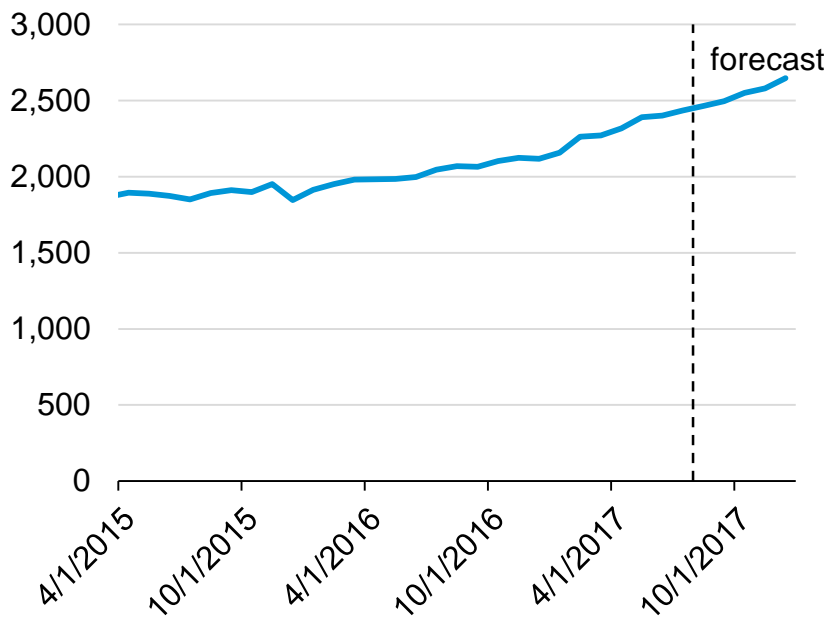
Source: Bloomberg, Baker Hughes, EIA Short-Term Energy Outlook, November 2017

Weekly Fracfocus Permian region completion filings declined in 2016 but production increased in 2016 and 2017

Fracfocus completion filings in Permian region
counts



Permian region oil production
thousand barrels per day

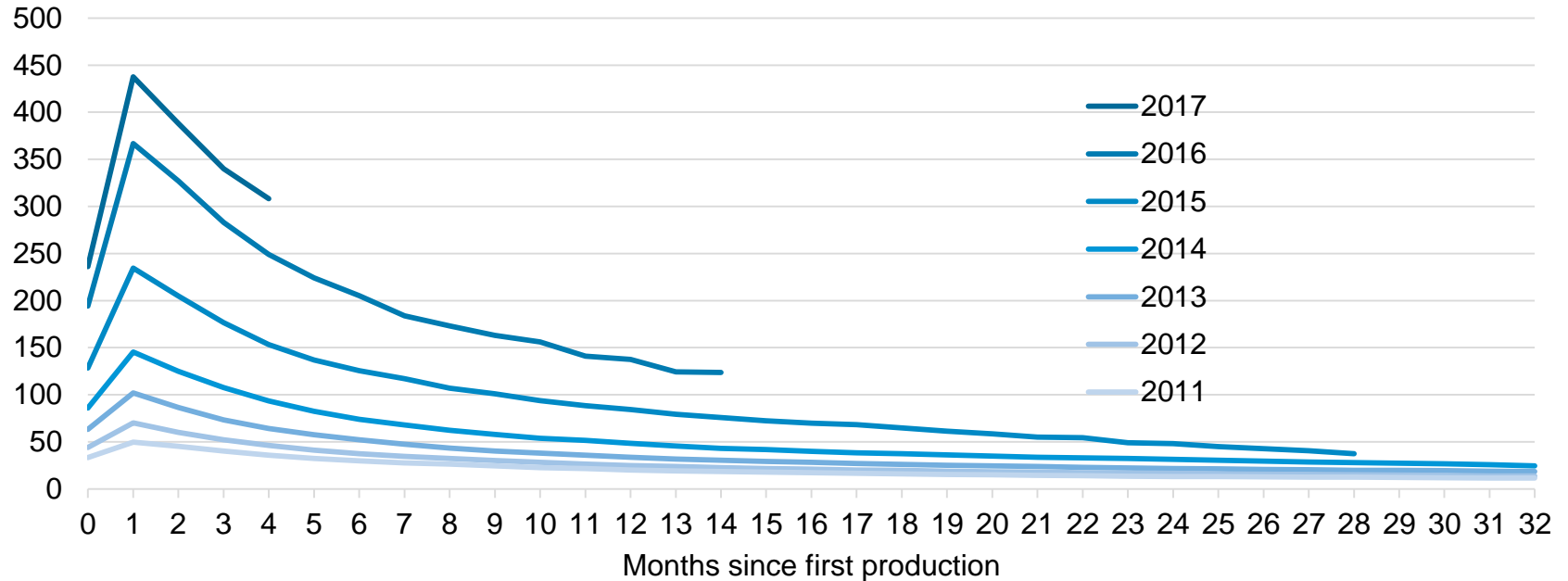


Source: FracFocus, EIA Short-Term Energy Outlook, November 2017

Permian average productivity per well continues to increase in 2017

Average new well oil production

barrels per day

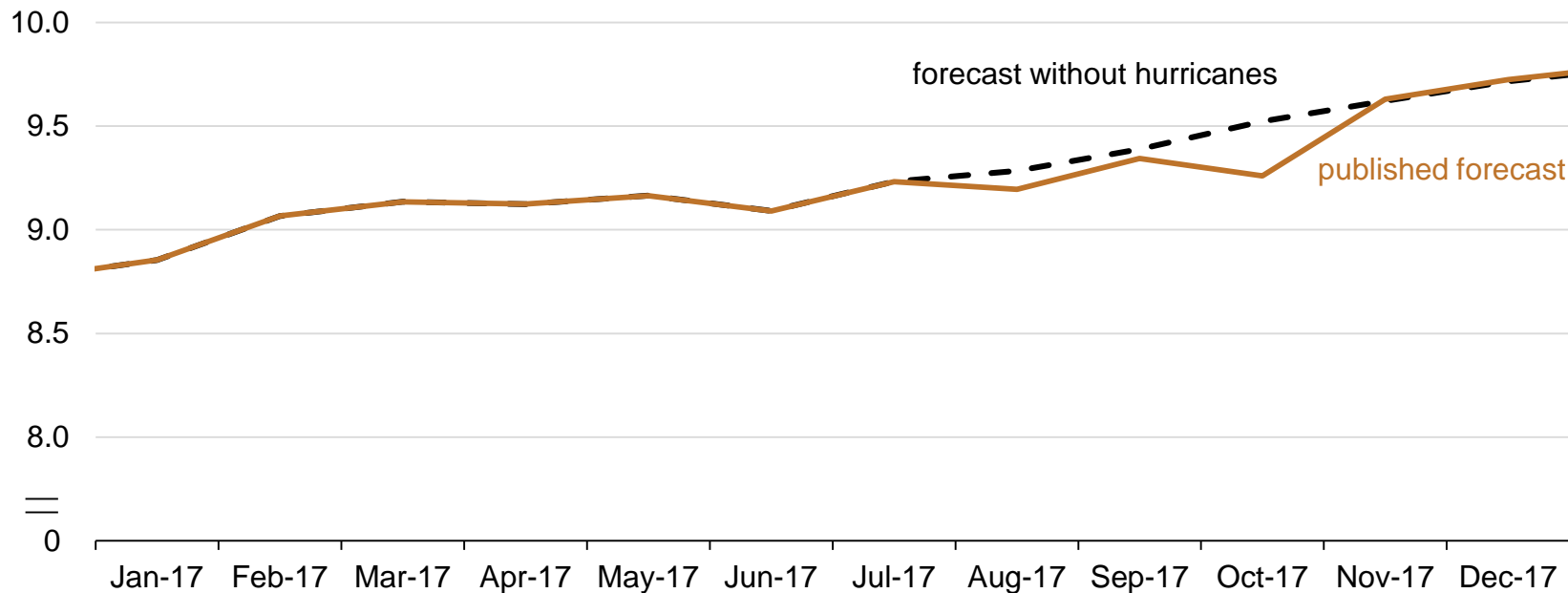


Source: EIA, Drilling Productivity Report

Exaggerated growth rate in the November STEO forecast as operations returning to normal after Hurricanes Harvey and Nate

U.S. crude oil production

million barrels per day

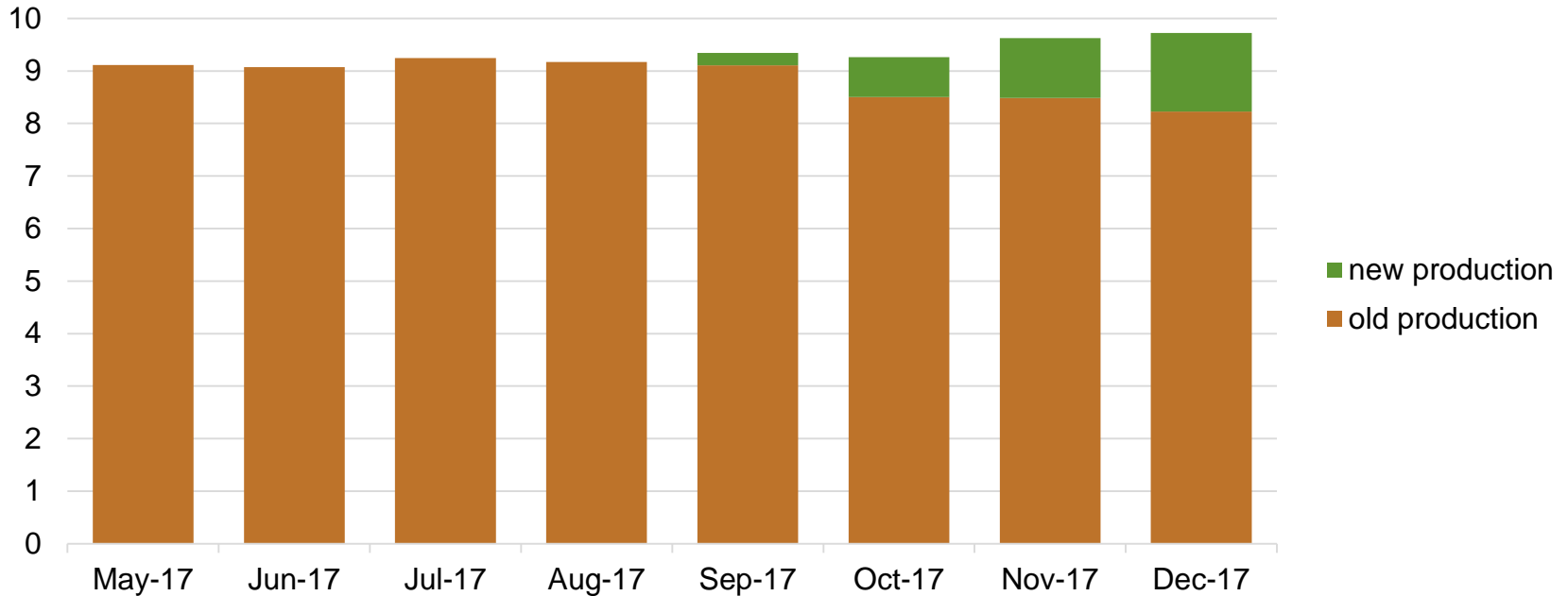


Source: EIA Short-Term Energy Outlook, November 2017

EIA forecasts 1.5 million b/d of new production in December 2017 from wells that started or will start producing in Sept. through Dec. 2017

U.S. crude oil production

million barrels per day

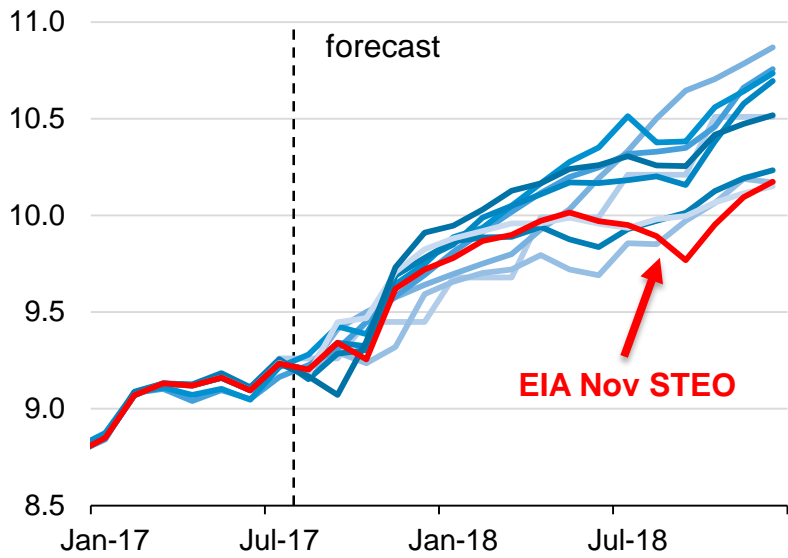


Source: EIA Short-Term Energy Outlook, November 2017

U.S. crude oil production and WTI price forecasts reflect market uncertainty

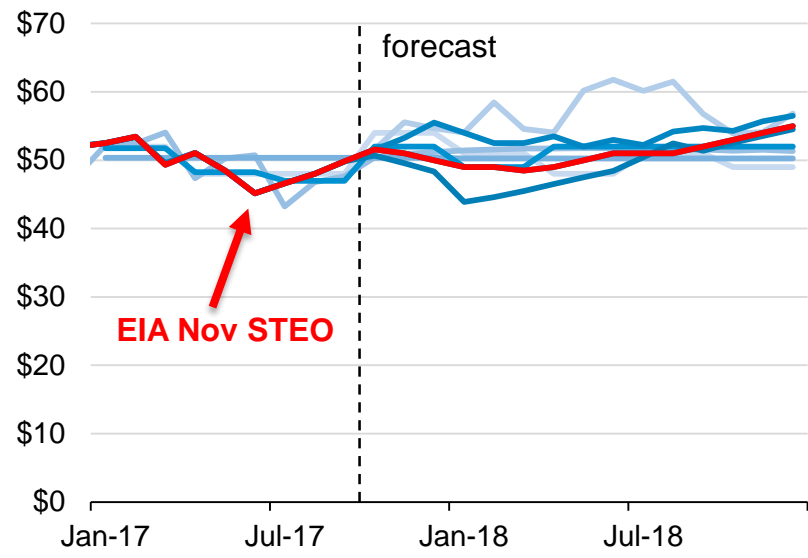
U.S. crude oil production

million barrels per day



WTI spot prices

barrels per day



Sources: Forecasts provided by Barclays, Citi, Deutsche Bank, Drillinginfo, ESAI Energy, IHS, PIRA, Raymond James, Rystad Energy during summer and fall 2017, EIA Short-Term Energy Outlook, November 2017.

For more information

U.S. Energy Information Administration | www.eia.gov

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

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

This Week in Petroleum | <https://www.eia.gov/petroleum/weekly>

Monthly Energy Review | www.eia.gov/mer

Monthly Crude Oil and Natural Gas Production | <https://www.eia.gov/petroleum/production>

Today in Energy | www.eia.gov/todayinenergy

Additional Materials

There are 57 regions in the STEO Lower 48 model

