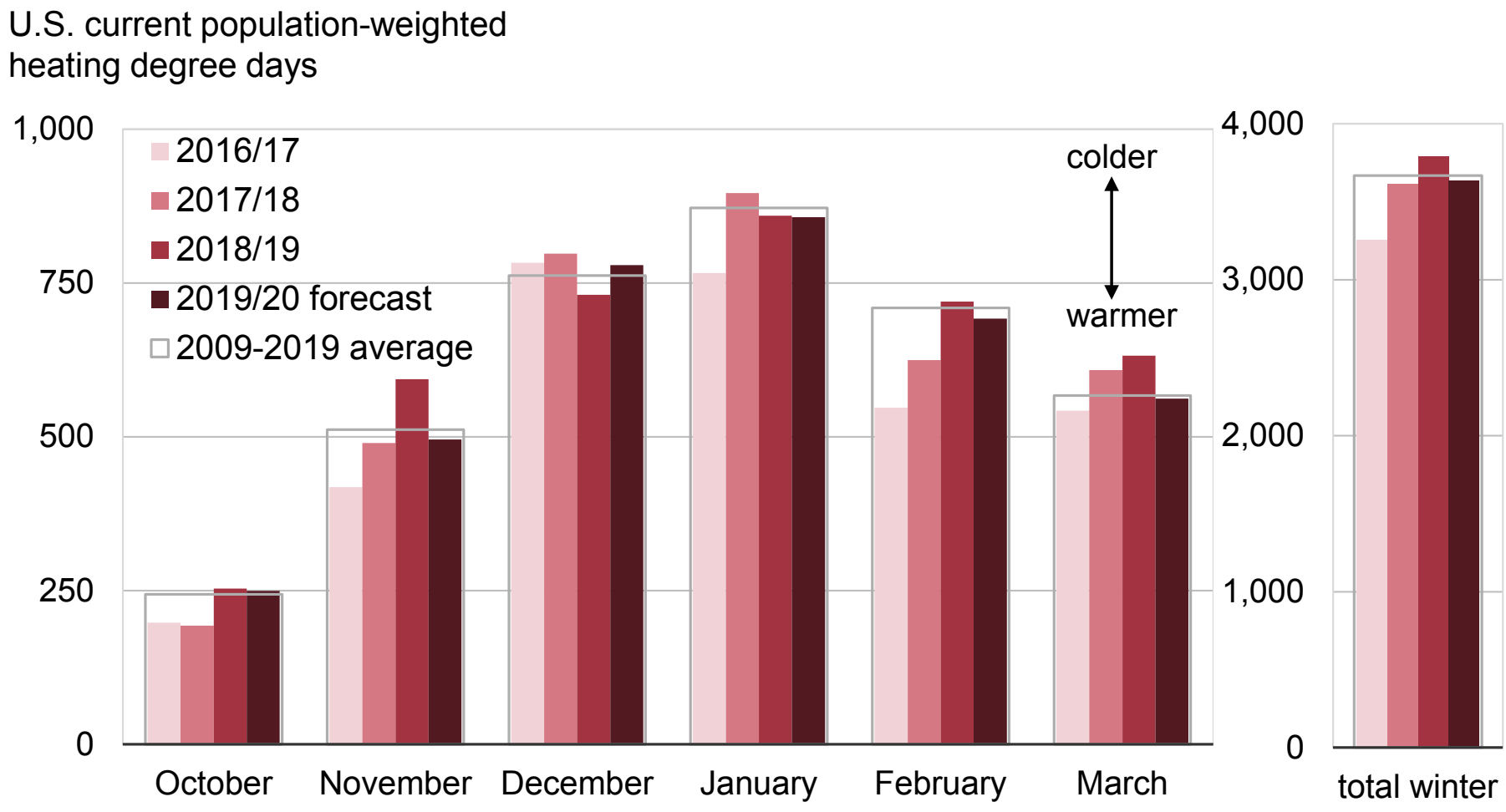
EIA 2019–20 Winter Fuels Outlook

The Energy Forum
New York, NY
October 15, 2019

Outline and main takeaways

- Winter expenditures
  - EIA expects household heating fuel expenditures to generally be down compared with last winter, but magnitude of decline varies by fuel
  - This expectation is based on forecasts from the National Oceanic and Atmospheric Administration that heating degree days will be down 4% from last winter on average for the United States
- U.S. natural gas market outlook
  - EIA forecasts Henry Hub prices will average $2.56/MMBtu this winter
  - Production is forecast to be up over last winter, but EIA expects growth to level off into 2020
- Global oil market outlook
  - EIA forecast Brent will average $59/b this winter and $57/b in the first quarter of 2020
  - Risks to the forecast include slowing demand growth, supply disruptions, and IMO 2020

NOAA forecasts U.S. heating degree days this winter to be 4% lower than last winter and 1% lower than the 10-year average

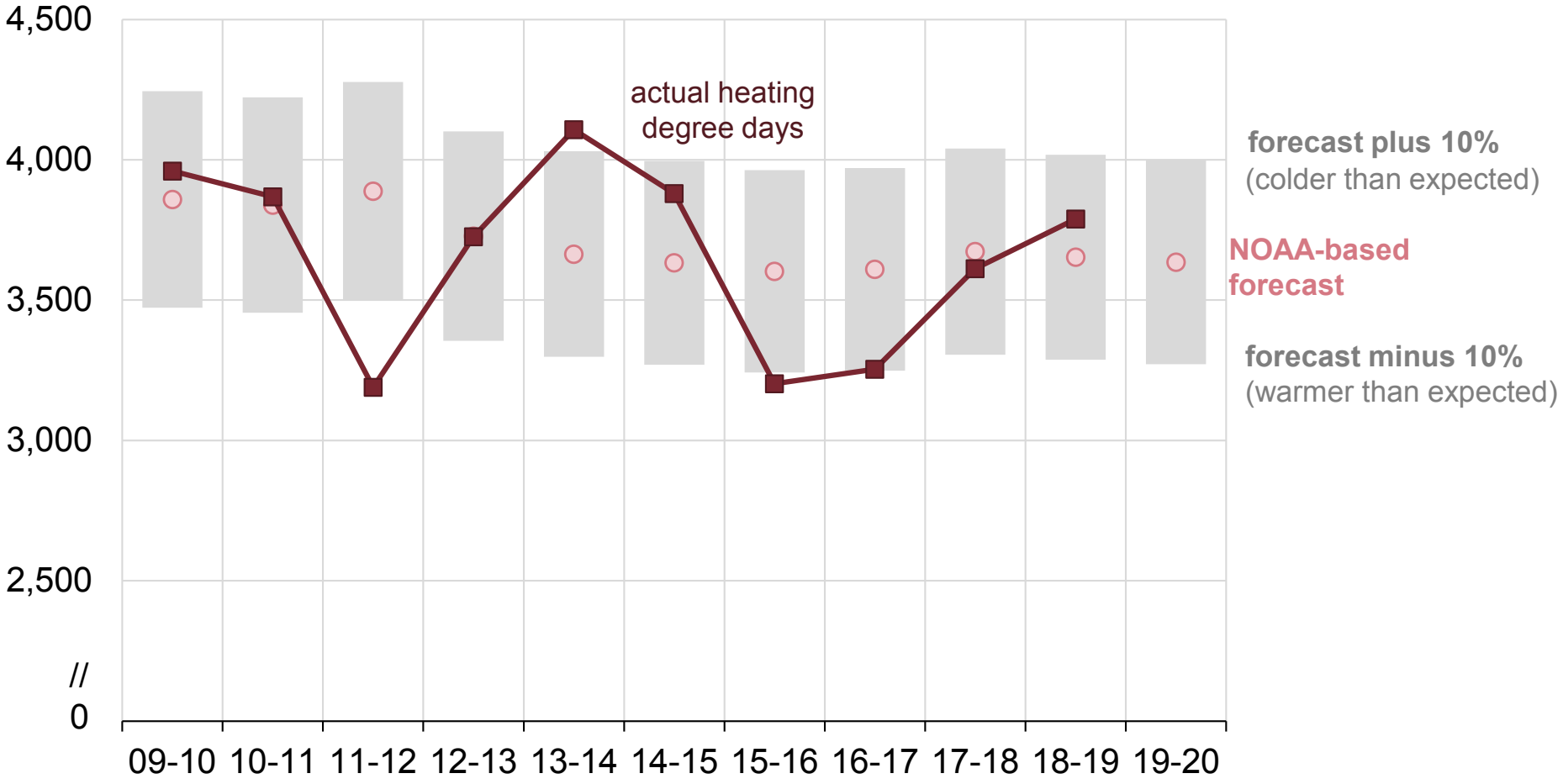


Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. The gray box represents the 10-year average for October 2009–March 2019. Projections reflect NOAA's 14–16 month outlook.

Source: U.S. Energy Information Administration, *Short-Term Energy Outlook,* October 2019.

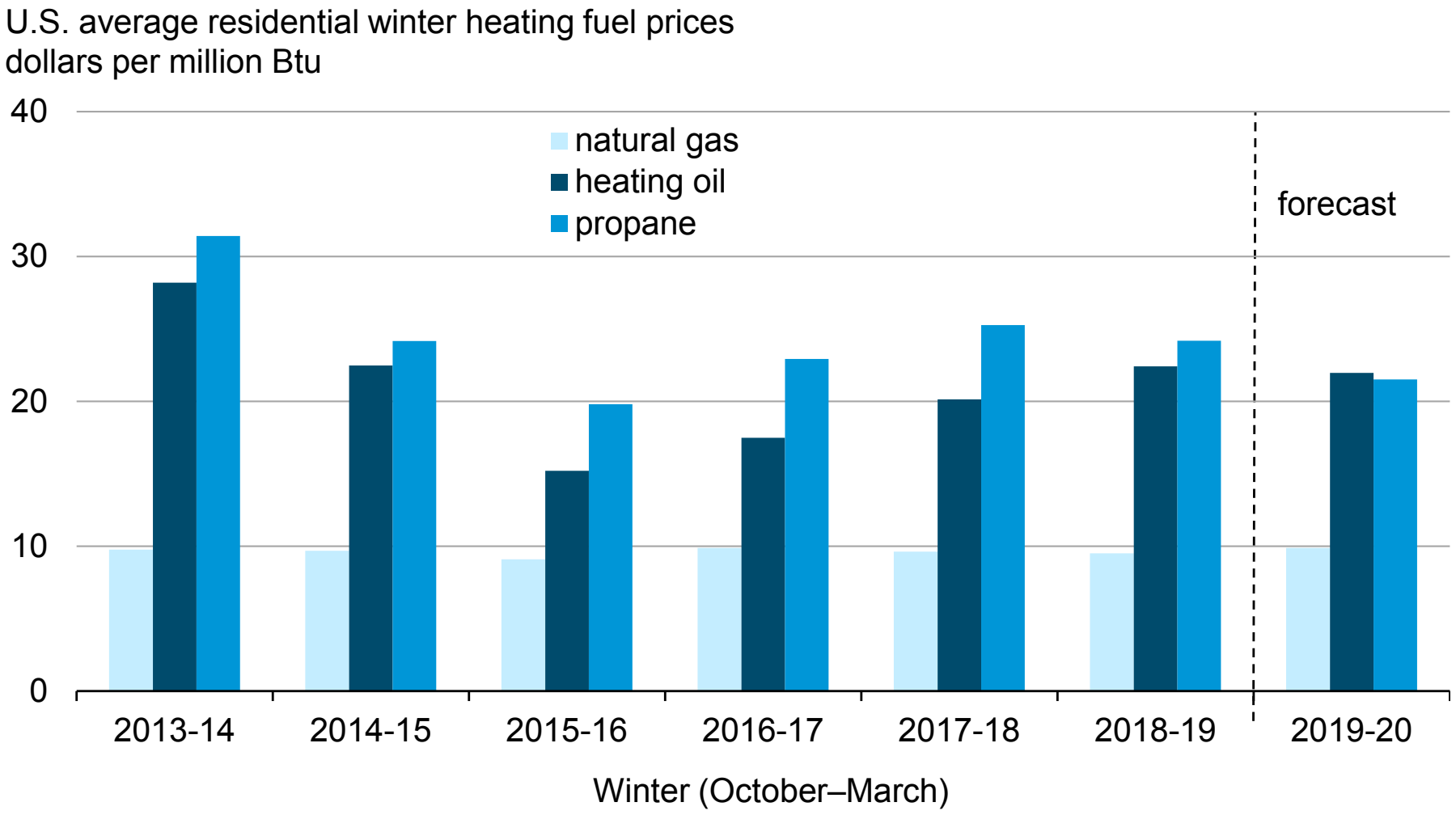
Temperature outcomes can vary significantly from beginning of winter forecasts

U.S. total heating degree days in winter months (October through March)
heating degree days



U.S. Energy Information Administration, *Winter Fuels Outlooks 2009 through 2019.*

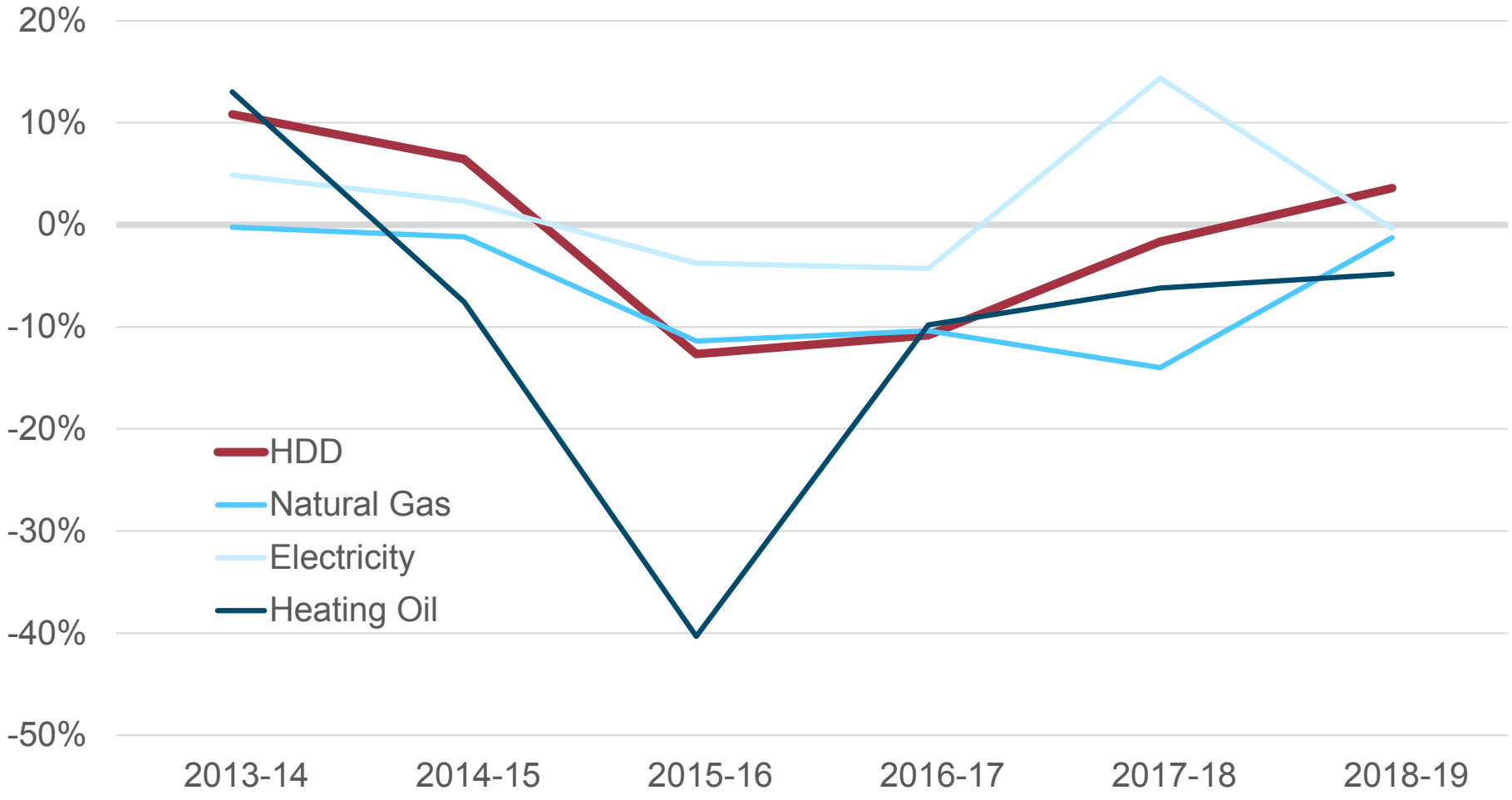
EIA forecasts propane prices to drop below heating oil prices this winter on a heat-content basis



Source: U.S. Energy Information Administration, *Short-Term Energy Outlook,* October 2019.

Actual expenditures compared with EIA's October forecast are largely a function of weather outcomes

Percentage change in expenditures and heating degree days
March end-of-winter STEO versus October STEO



U.S. Energy Information Administration, *Winter Fuels Outlooks 2013 through 2018*

Fuel expenditures are generally expected to be lower this winter (October 1–March 31) compared with last winter, but propane is the only fuel below the five-year average

Change in base case forecast fuel expenditures		
Fuel	Compared with previous five-winter average	Compared with last winter
Heating oil*	**13%**	**-4%**
Natural gas	**5%**	**-1%**
Propane *	**-6%**	**-16%**
Electricity	**4%**	**-1%**

*Note: * Propane expenditures are a volume-weighted average of the Northeast and Midwest regions. All other fuels are U.S. volume-weighted averages. Propane and heating oil prices do not reflect prices locked in before the winter heating season starts.*

Source: U.S. Energy Information Administration, Short-Term Energy Outlook, October 2019.

Colder or warmer (+/- 10% HDD) than forecast winters can swing expected expenditures by as much as 25% compared with last winter

Change in forecast fuel expenditures from last winter			
Fuel	Base Case	If 10% warmer than forecast	If 10% colder than forecast
Heating oil*	**-4%**	**-14%**	**7%**
Natural gas	**-1%**	**-9%**	**7%**
Propane *	**-16%**	**-25%**	**4%**
Electricity	**-1%**	**-7%**	**4%**

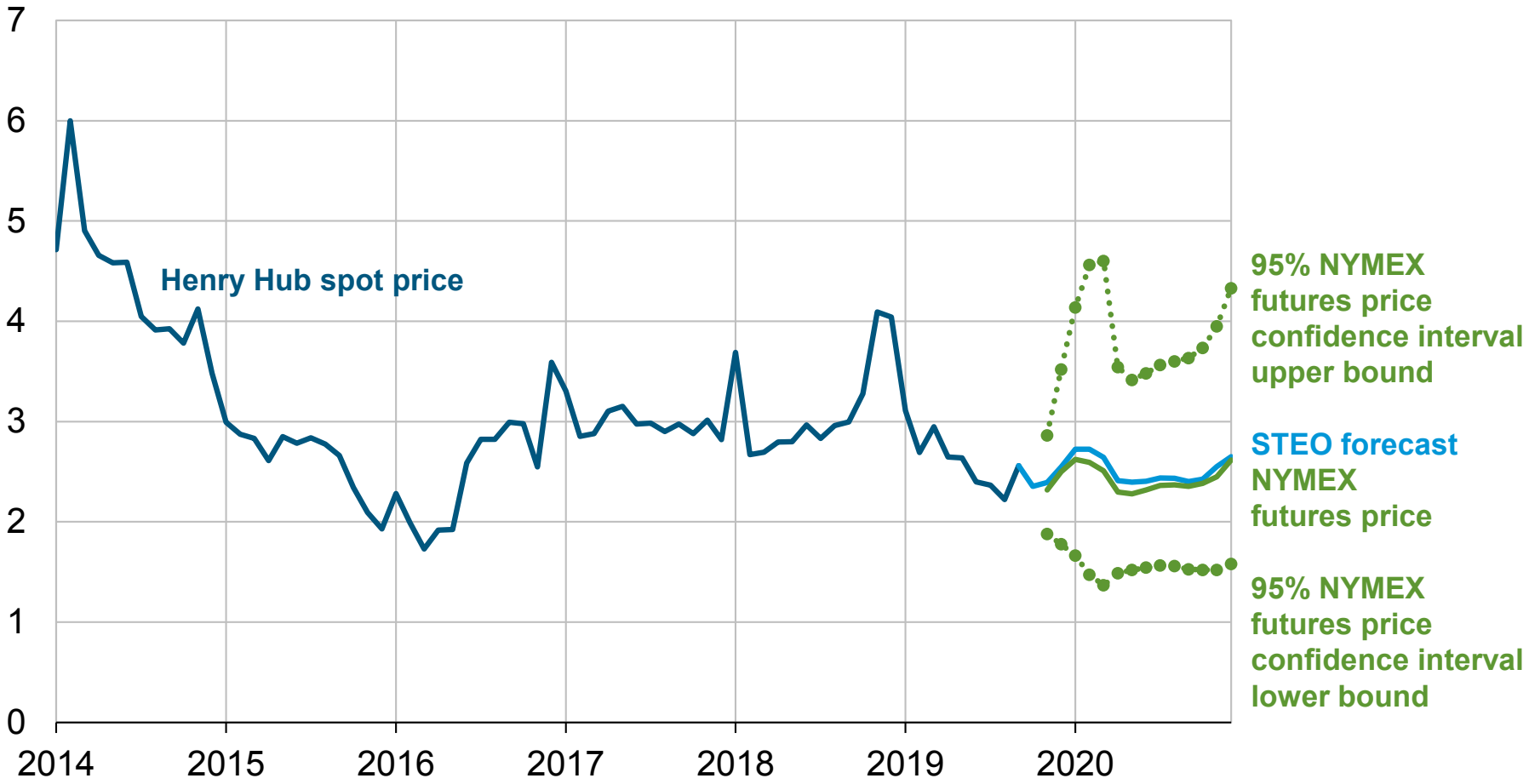
*Note: * Propane expenditures are a volume-weighted average of the Northeast and Midwest regions. All other fuels are U.S. volume-weighted averages. Propane and heating oil prices do not reflect prices locked in before the winter heating season starts.*

Source: U.S. Energy Information Administration, *Short-Term Energy Outlook,* October 2019.

Natural Gas

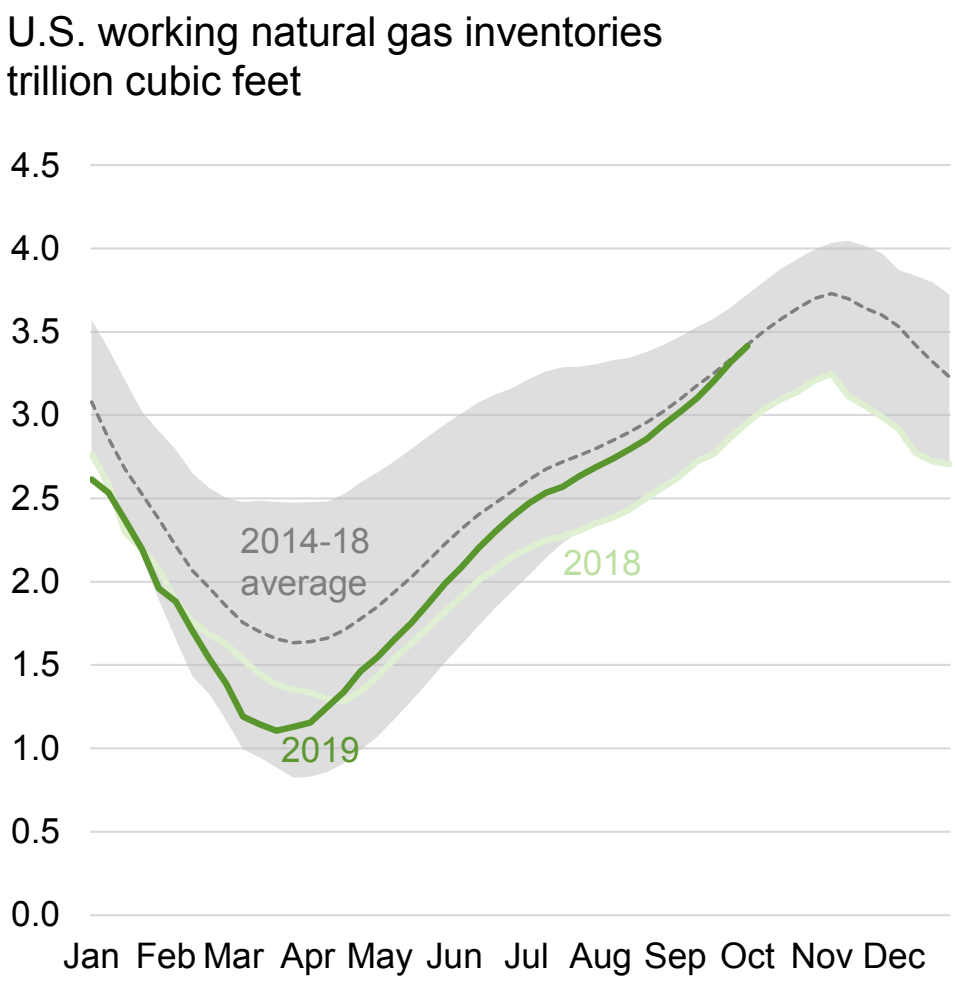
After steady declines in 2019, EIA forecasts Henry Hub spot prices to average $2.56/MMBtu this winter

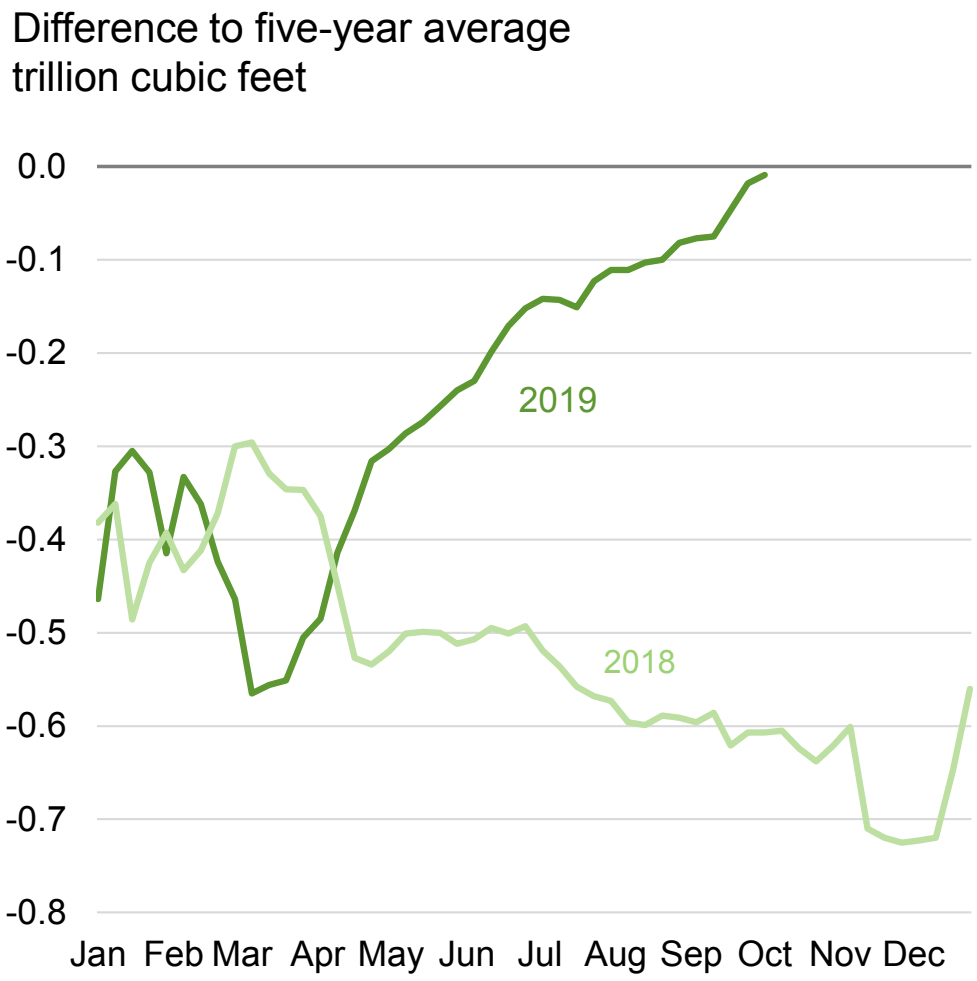
Henry Hub natural gas price
dollars per million Btu



Note: Confidence interval and futures prices derived from market information for the five trading days ending October 3, 2019. Intervals not calculated for months with sparse trading in near-the-money options contracts.
Source: U.S. Energy Information Administration, *Short-Term Energy Outlook,* October 2019.

U.S. natural gas inventories have almost returned to five-year average levels over the 2019 injection season

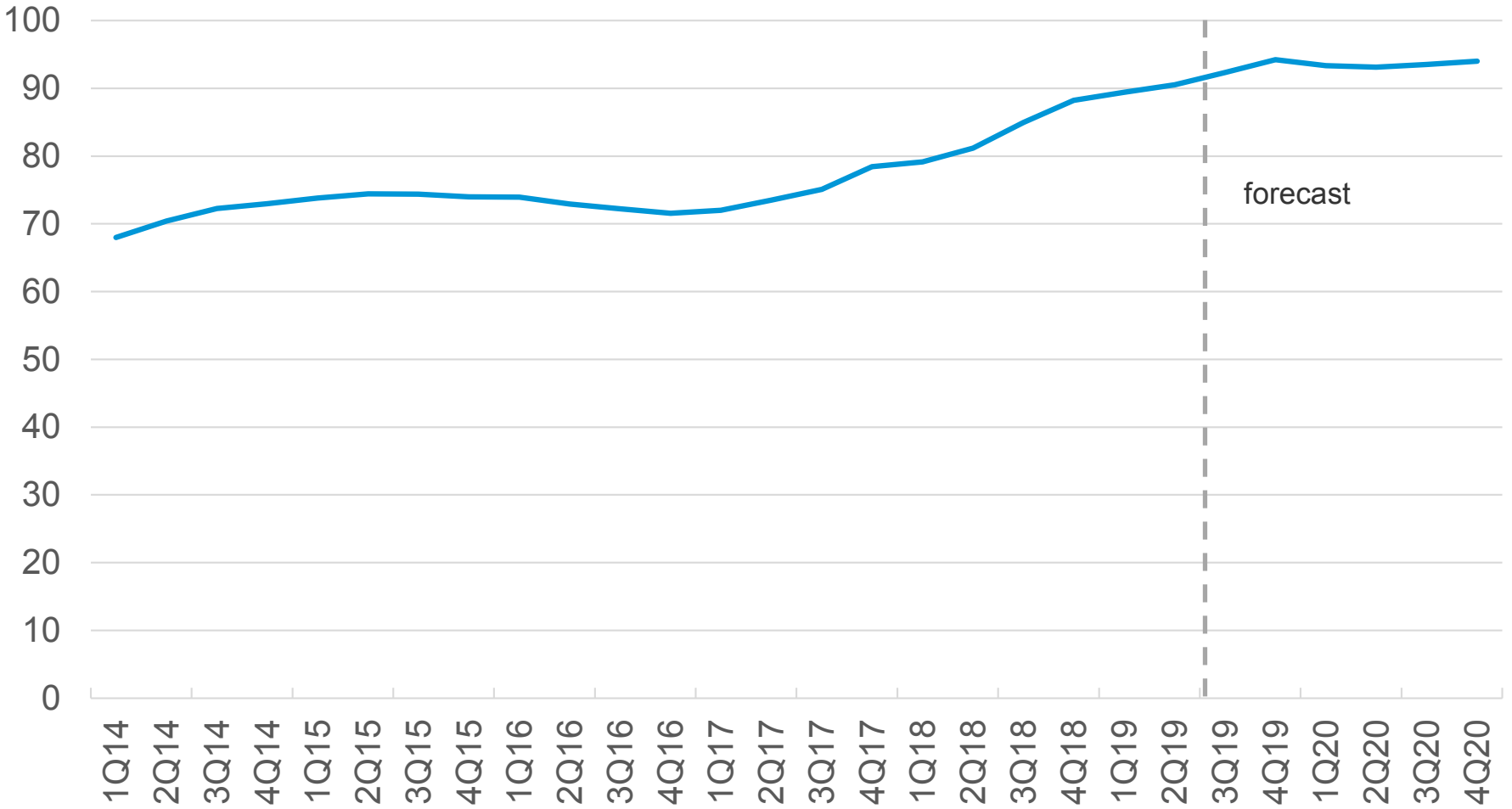




.Note: Gray band represents the range between the minimum and maximum from 2014 to 2018.
Source: U.S. Energy Information Administration, *Weekly Natural Gas Storage Report.*

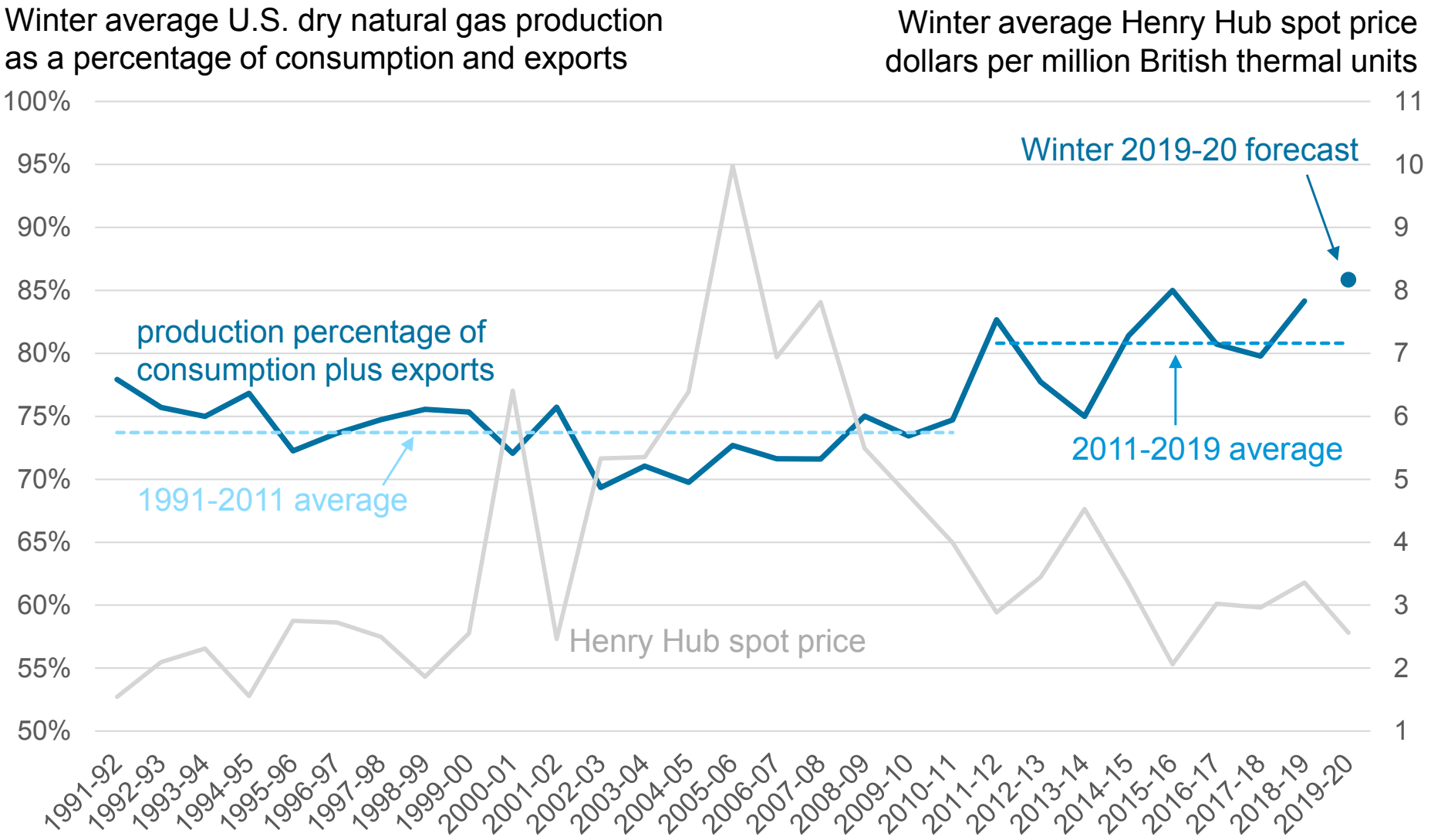
Natural gas production has grown by about 20 Bcf/d over the since the end of 2016, but EIA expects growth to slow

U.S. dry natural gas production (quarterly average)
billion cubic feet per day



Source: U.S. Energy Information Administration, *Short-Term Energy Outlook,* October 2019.

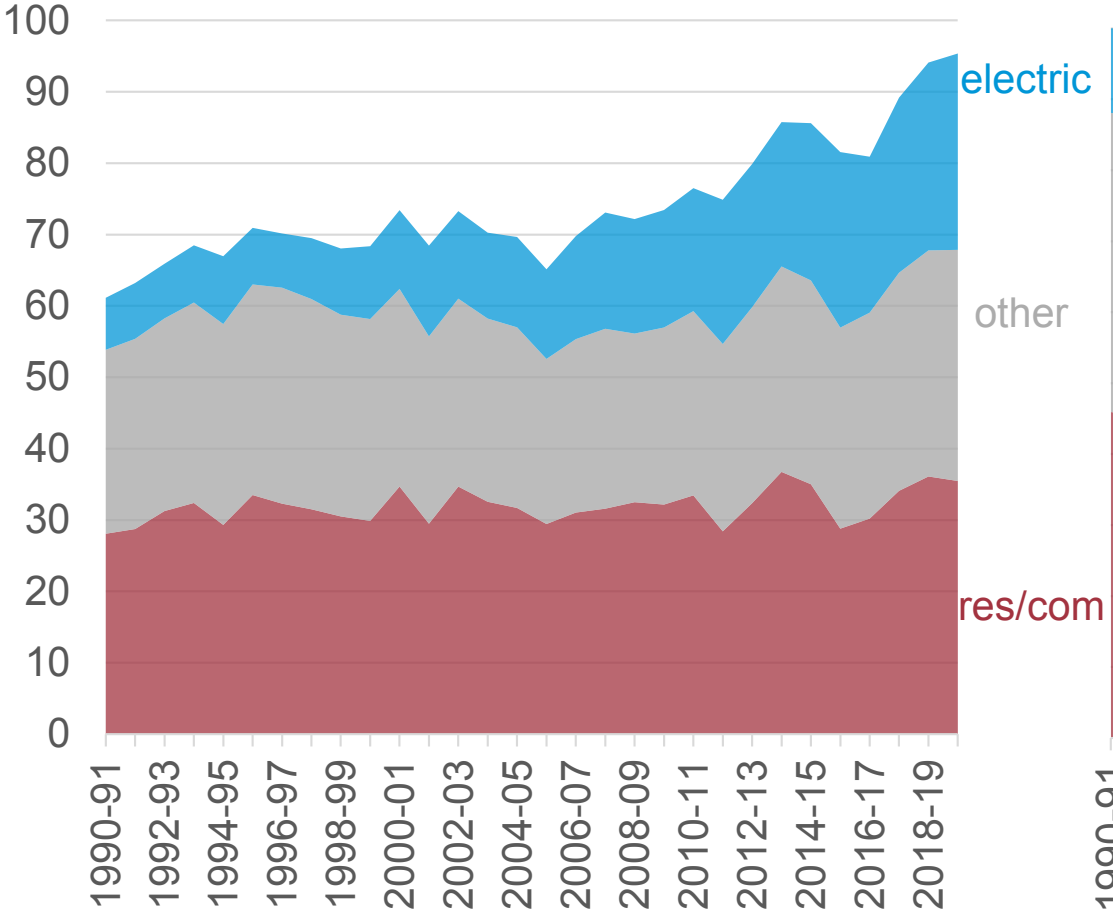
U.S. natural gas production has covered an increasing share of winter consumption in recent years



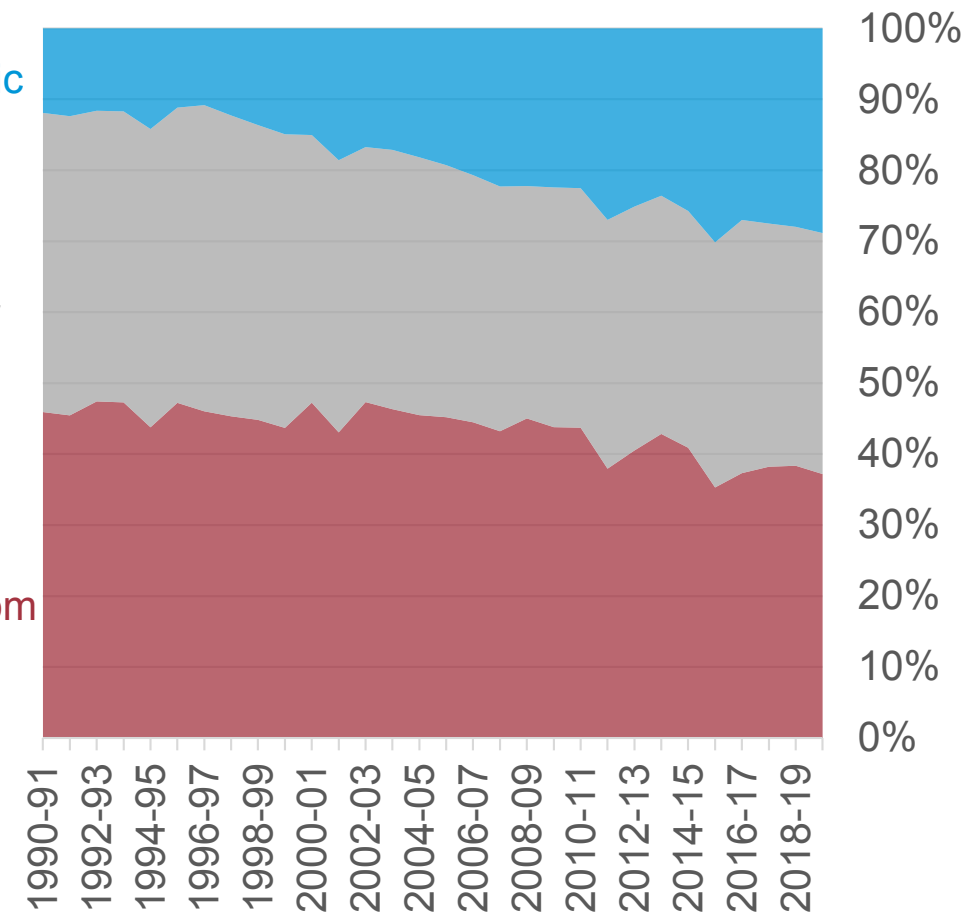
Source: U.S. Energy Information Administration, *Short-Term Energy Outlook, October 2019*

Electricity generation now accounts for about 30% of total natural gas demand during winter months

Winter average natural gas consumption
billion cubic feet per day



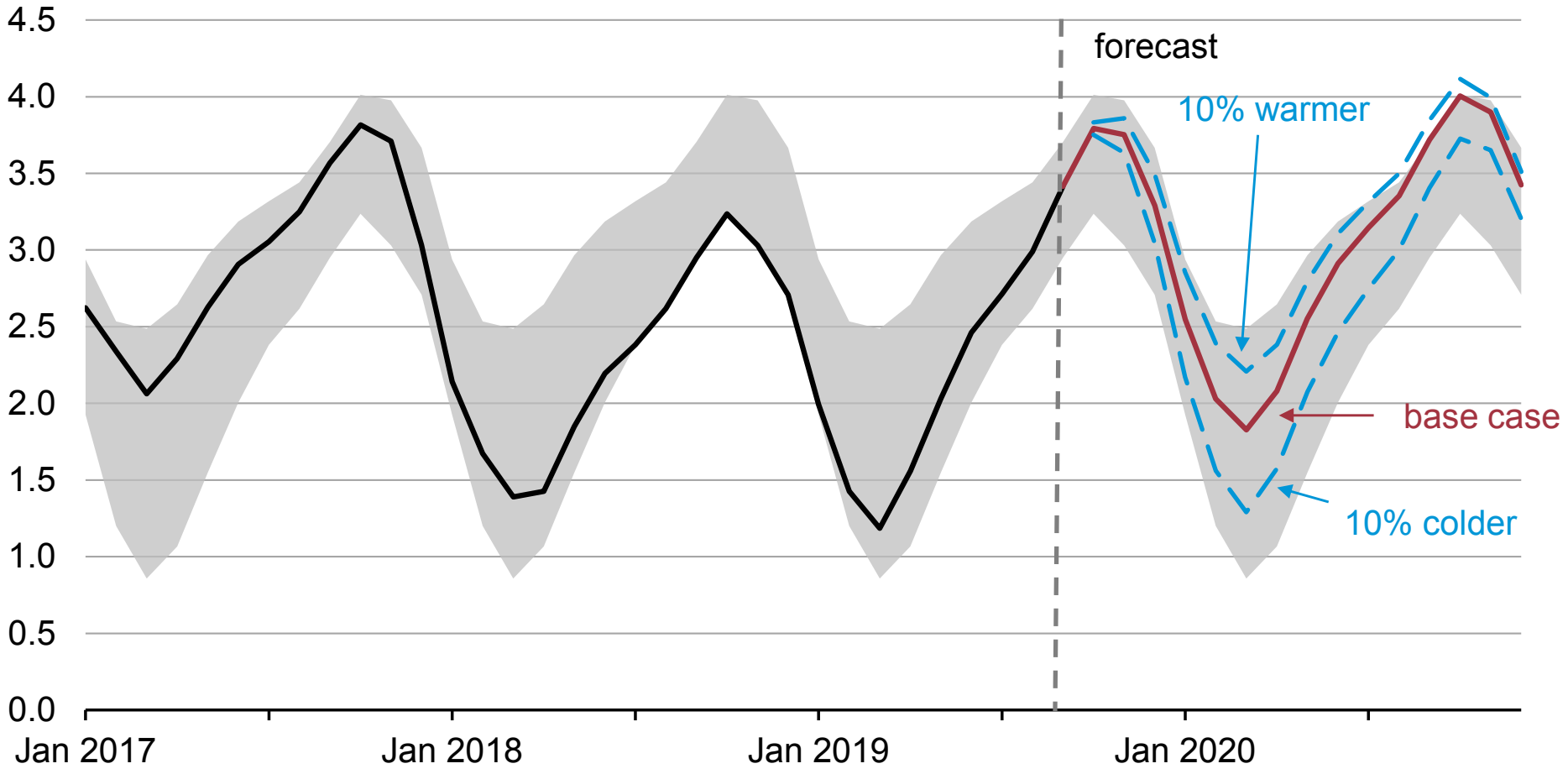
Winter average natural gas consumption
percent of total



Source: U.S. Energy Information Administration, *Short-Term Energy Outlook, October 2019*

In a 10% colder-than-forecast scenario, EIA expects natural gas inventories to end the winter within the five-year range

U.S. total end-of-month working natural gas inventories
trillion cubic feet

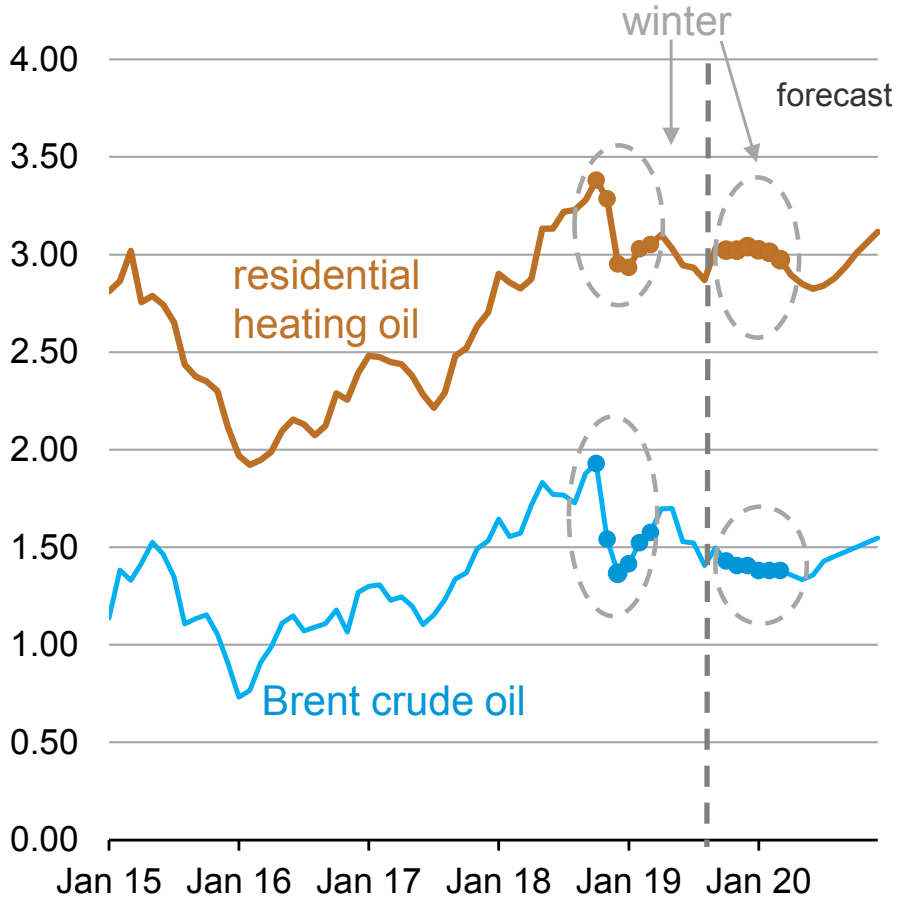


Note: Gray band represents the range between the minimum and maximum from 2014 to 2018.
Source: U.S. Energy Information Administration, *Short-Term Energy Outlook,* October 2019.

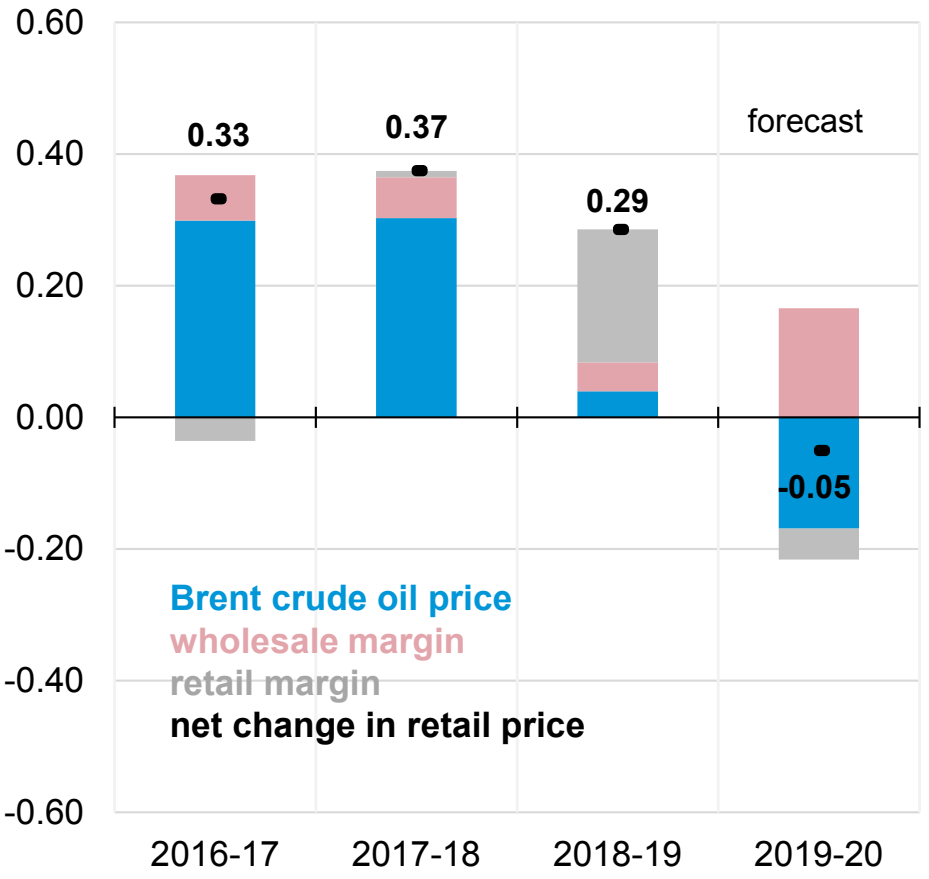
Petroleum

For heating oil, EIA expects lower crude oil prices to offset the effects of higher distillate margins this winter

monthly average heating oil and Brent prices
dollars per gallon



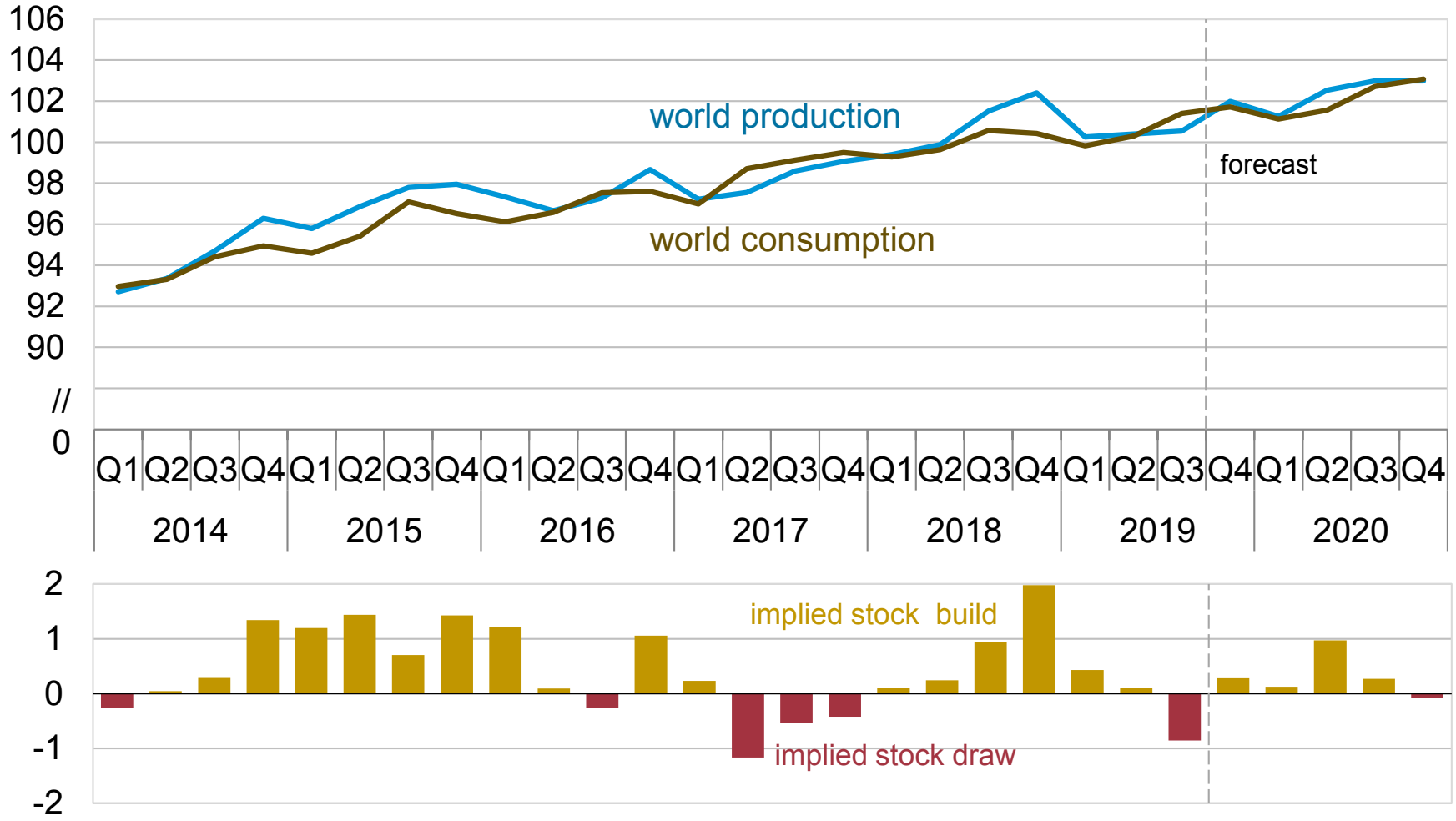
Winter-over-winter average change
dollars per gallon



Source: U.S. Energy Information Administration, *Short-Term Energy Outlook,* October 2019, *and Refinitiv.*

EIA forecast Brent prices to average $57/b in the first half of 2020 as oil market balances soften

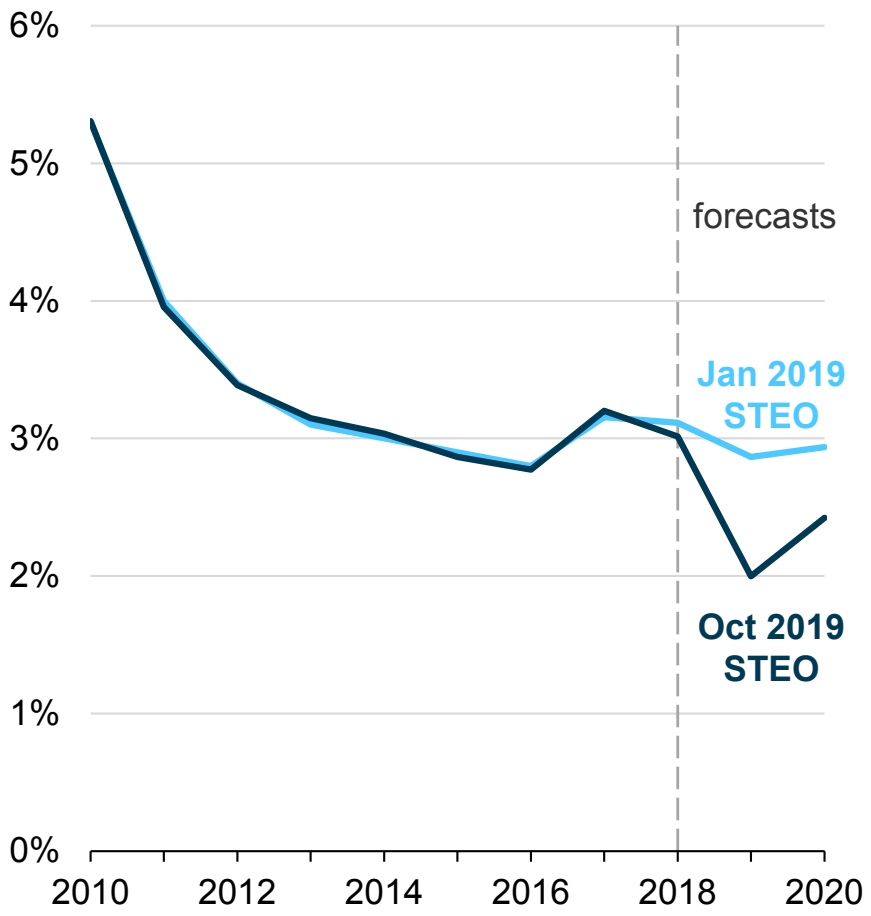
Global liquid fuels market balance
million barrels per day



Source: U.S. Energy Information Administration, *Short-Term Energy Outlook,* October 2019.

EIA has revised down it's 2019 global oil demand growth forecast by 0.7 million b/d since January on the back of lower GDP growth

Global oil consumption-weighted GDP growth
percentage (annual change)

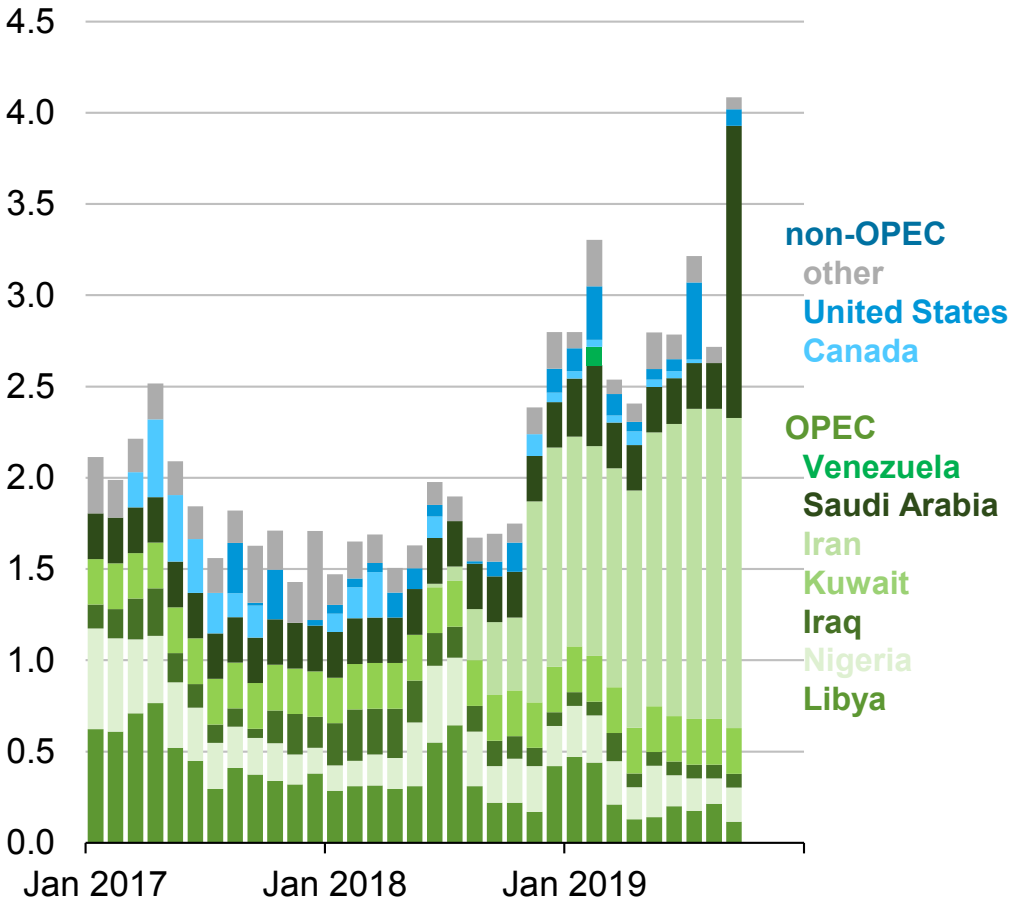


Global oil consumption growth
million barrels per day (annual change)

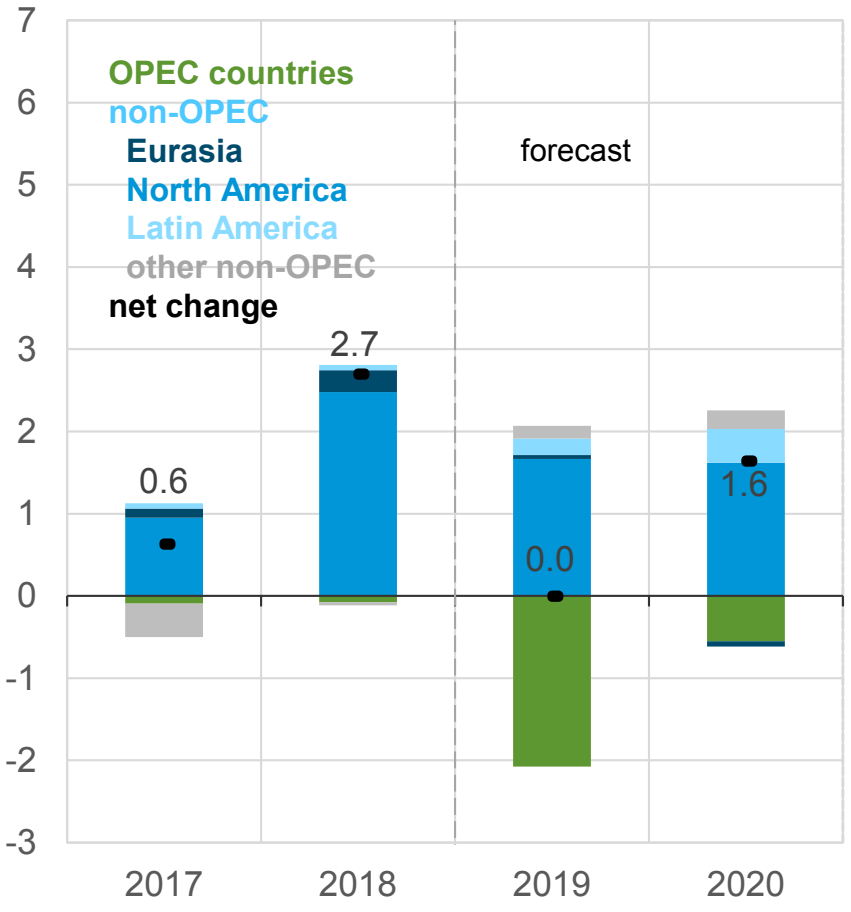
Source: U.S. Energy Information Administration, *Short-Term Energy Outlook,* January 2019 and October 2019, Oxford Economics.

Declining OPEC production and rising non-OPEC production have offset each other in 2019, leading to no growth in global liquids

Unplanned production outages
million barrels per day

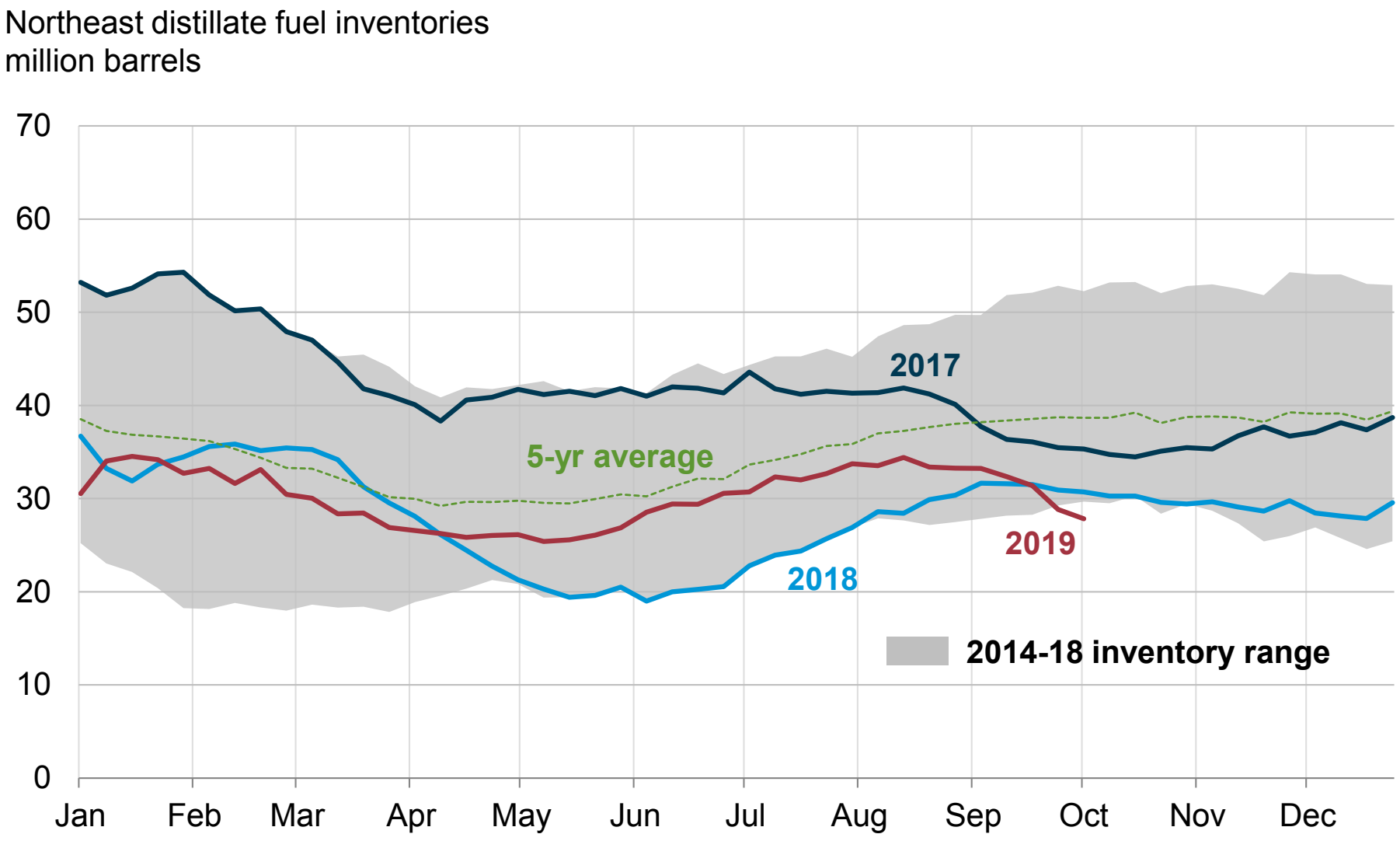


Global oil liquid fuels production growth
million barrels per day (annual average change)



Source: U.S. Energy Information Administration, *Short-Term Energy Outlook,* October 2019.

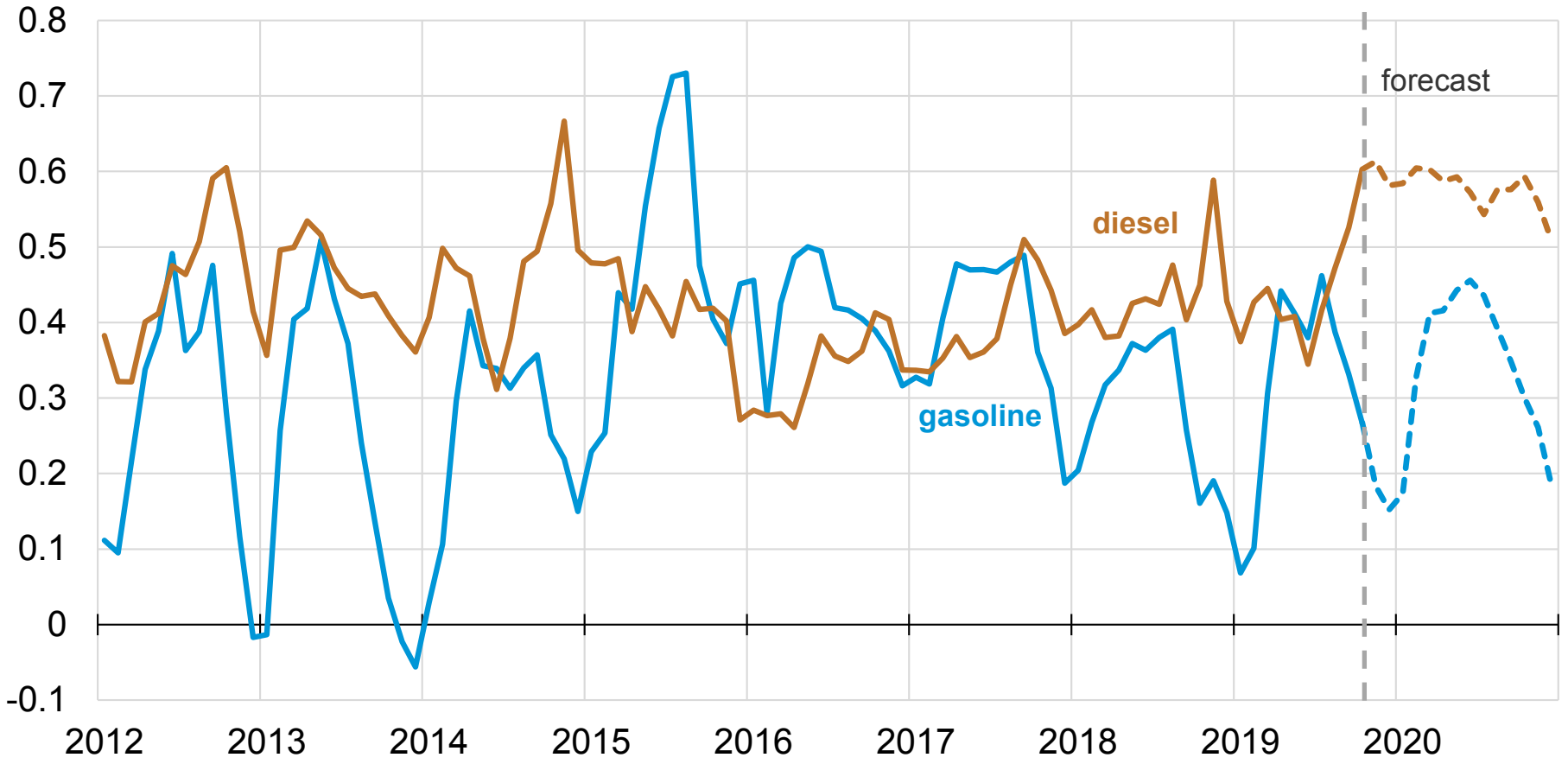
Northeast distillate fuel inventories are 28% below the five-year average and recently dipped below year-ago levels



Source: U.S. Energy Information Administration, *Weekly Petroleum Status Report*

EIA forecasts IMO 2020 to increase global demand for distillates and push U.S. refining margins higher

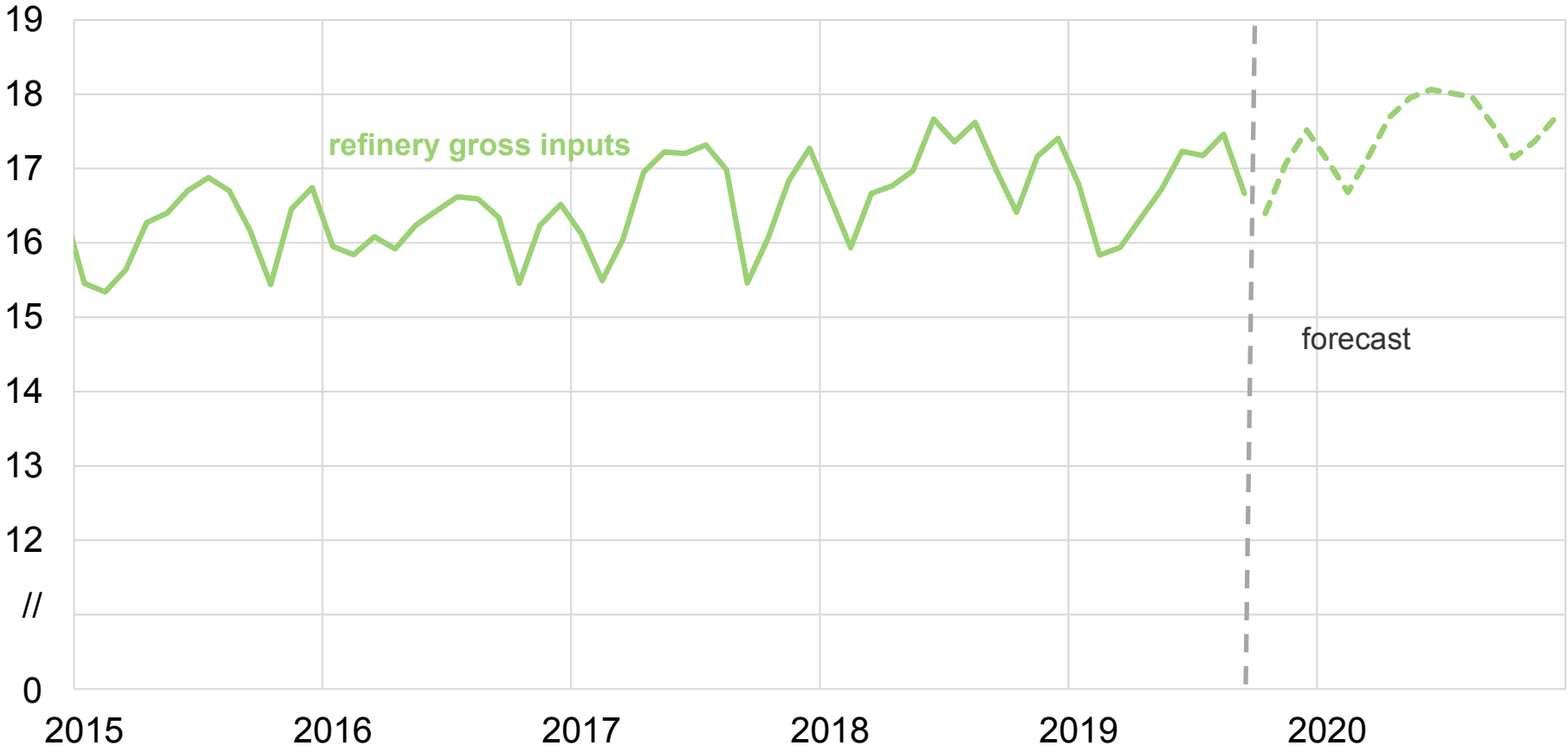
Refining margins
dollars per gallon (monthly average)



Source: U.S. Energy Information Administration, *Short-Term Energy Outlook,* October 2019.

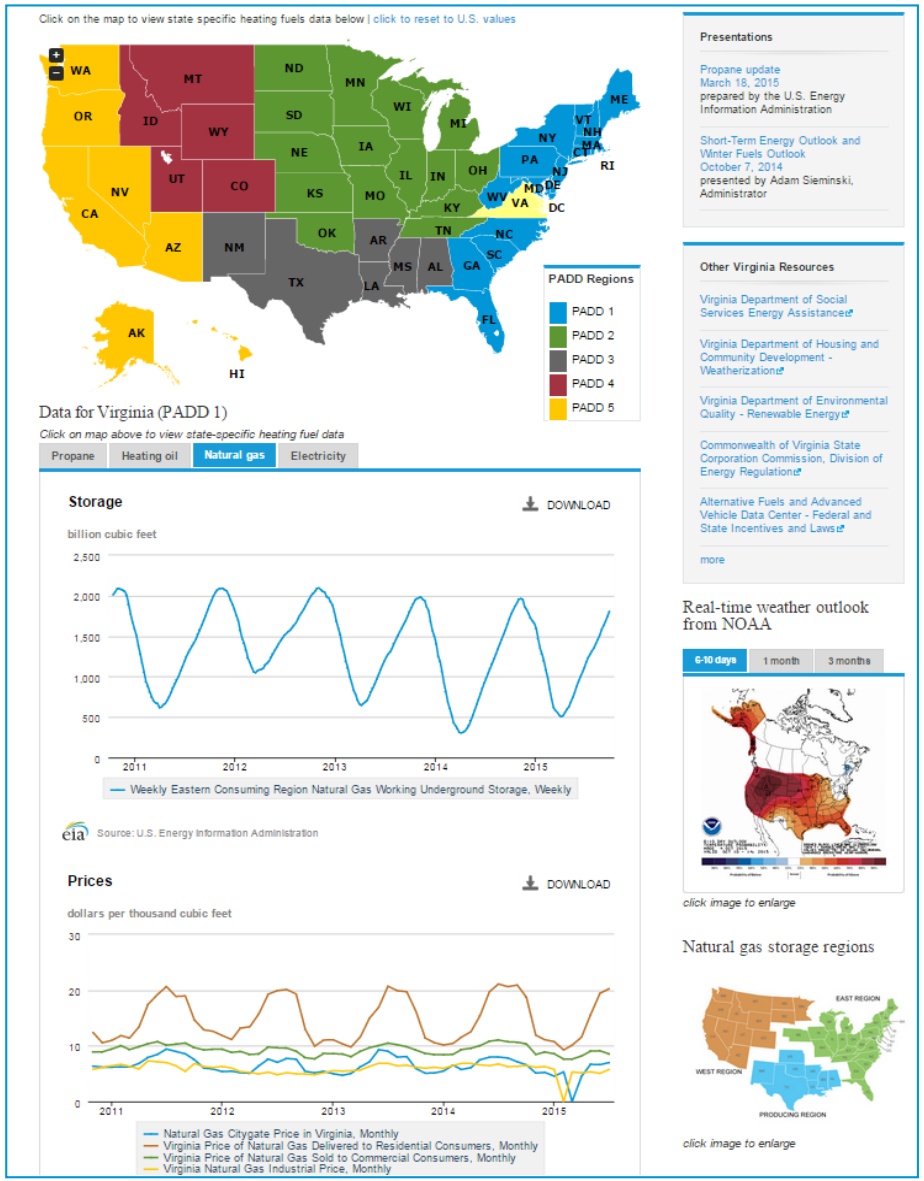
EIA expects refinery utilization to be 93% in 2020, with refinery runs hitting record levels because of high distillate margins

U.S. gross refinery inputs
million barrels per day



Source: U.S. Energy Information Administration, *Short-Term Energy Outlook,* October 2019.

EIA's winter Heating Fuels Webpage provides more detailed information on winter fuel supply and prices



www.eia.gov/special/heatingfuels

- Availability and pricing for the four principals heating fuels
  - Propane
  - Heating oil
  - Natural gas
  - Electricity
- Data for each state are available on the clickable map
- Links to resources for each state
- Current week and three-month weather forecasts from NOAA
- Downloadable graphs as an image or as a spreadsheet