

EIA 2016-17 Winter Fuels Outlook



*NASEO-EIA 2016-17 Winter Energy Outlook Webinar
October 13, 2016*

Overview

- Although overall expenditures are expected to be higher than last year, they are comparable to or lower than the average winters from 2010-11 through 2014-15, except for electricity, where expenditures are higher in both cases
- EIA expects heating fuel prices for homes that heat with natural gas, propane, and heating oil to be higher than prices last winter; forecast residential electricity prices are about the same as last winter
- The latest outlook from NOAA expects winter temperatures east of the Rocky Mountains to be colder than last winter, with projected heating degree days in the Northeast, Midwest, and South about 16-18% higher. In the West, this winter is expected to be similar to last winter. This winter's forecast is a return to close to normal temperatures

Expenditures are expected to be higher this winter (October 1–March 31) compared with last winter, but close to or lower than average expenditures for winters prior to last winter

Fuel	Percent change in expenditures	
	Compared to average winters 2010-14	Compared to last winter
Heating Oil	-32	38
Natural Gas	0	22
Propane *	-18	27
Electricity	5	2

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

Source: EIA Short-Term Energy Outlook, October 2016.

EIA forecasts scenarios if temperatures are 10% warmer and 10% colder than the base case

Percent change in fuel bills from last winter (forecast)

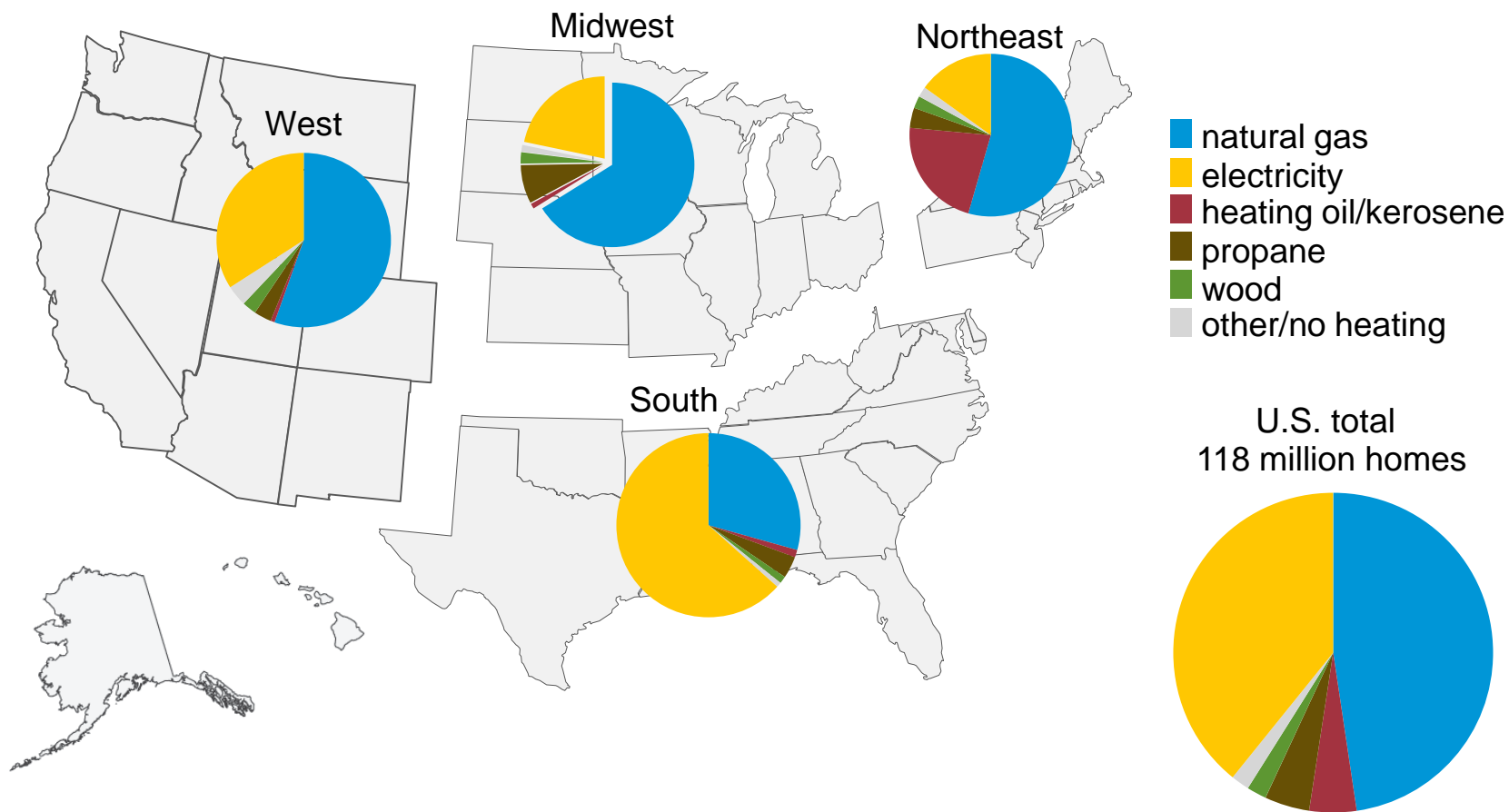
Fuel bill	Base case forecast	If 10% warmer than forecast	If 10% colder than forecast
Heating oil	38	23	56
Natural gas	22	12	31
Propane *	26	6	49
Electricity	5	2	9

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

Source: EIA Short-Term Energy Outlook, October 2016.

Heating fuel market shares vary across U.S. regions

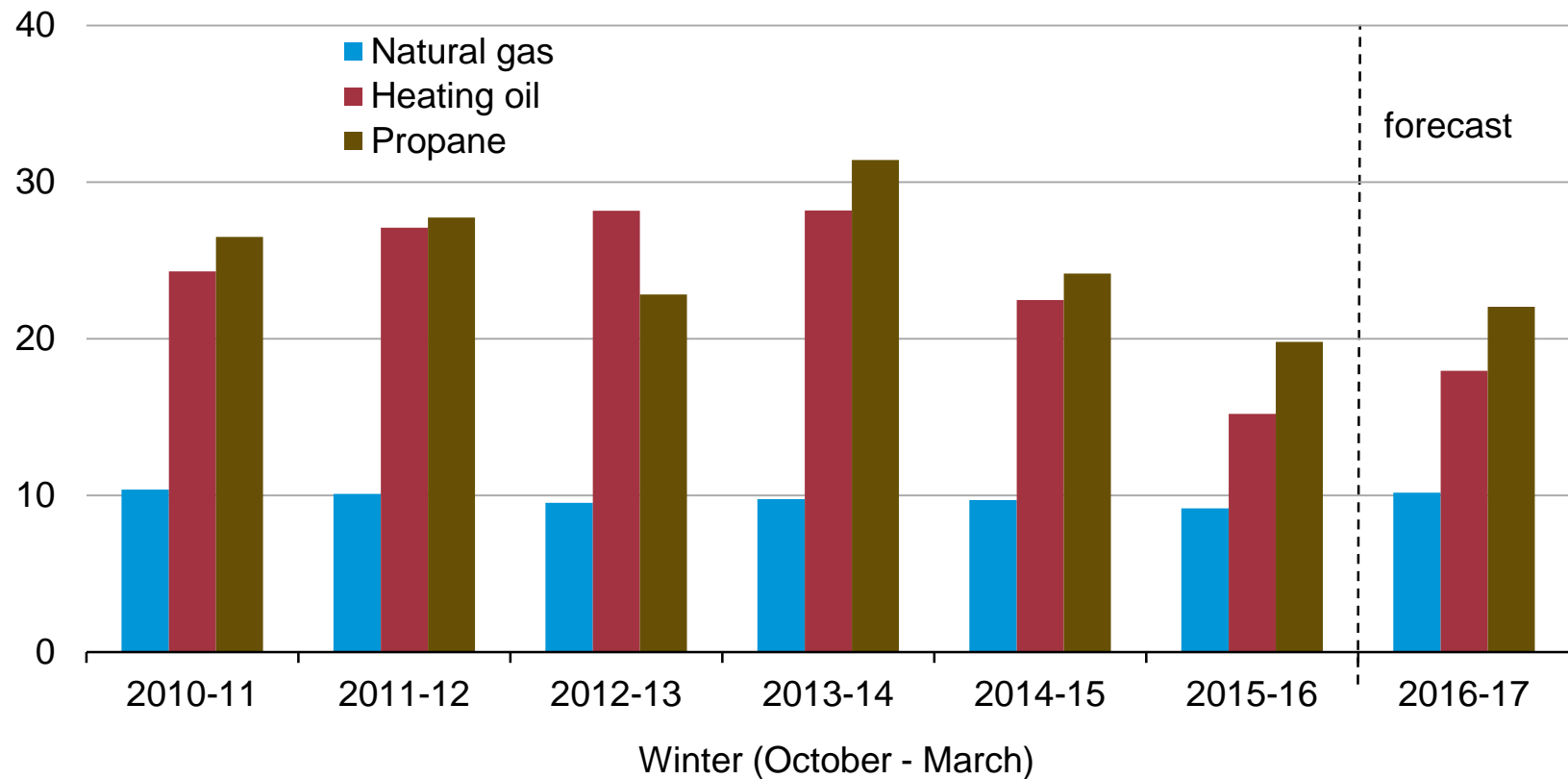
Share of homes by primary space-heating fuel and Census Region



Source: U.S. Energy Information Administration based on 2015 American Community Survey

Prices for all fuels are forecast to be higher than last winter, but heating oil and propane prices are expected to remain below levels from 2010-14 when crude oil prices were higher

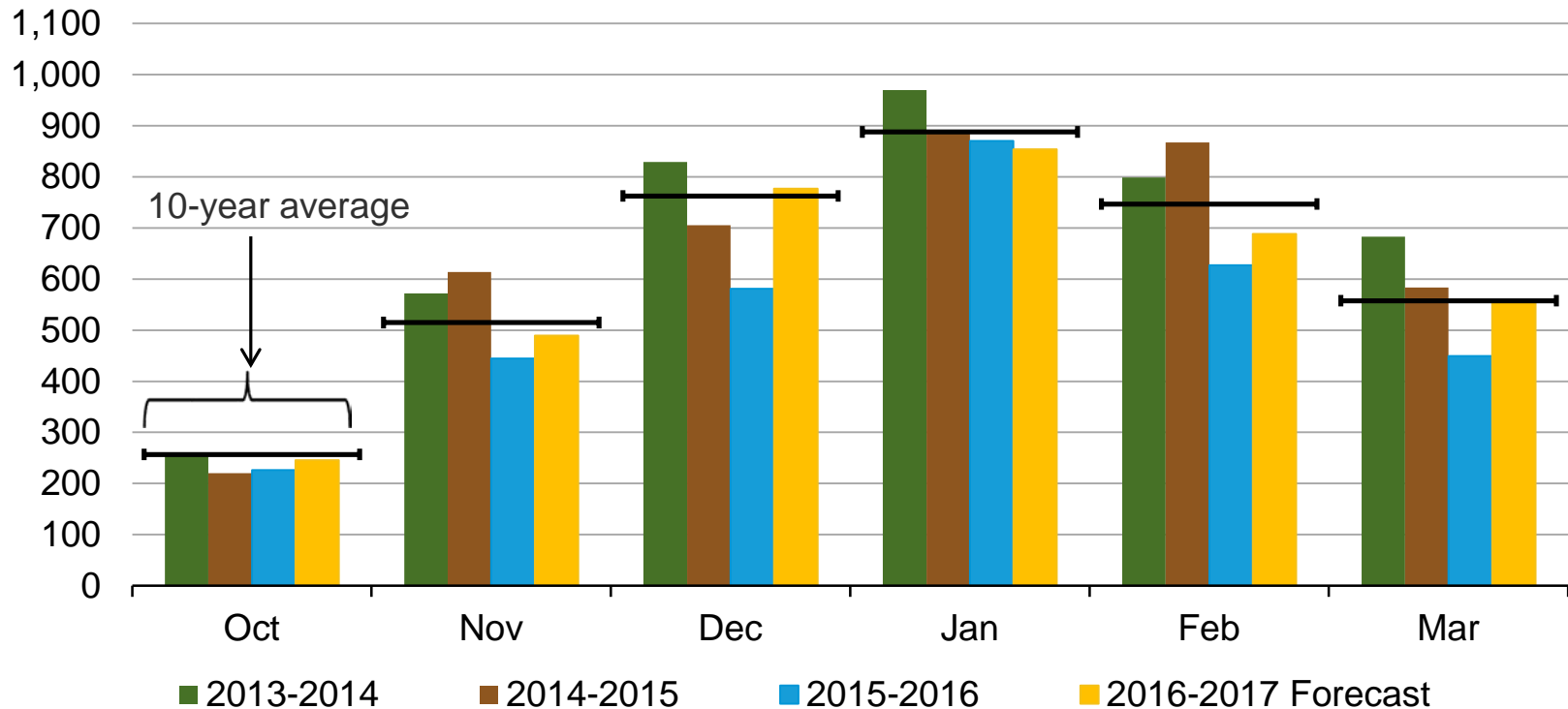
U.S. average residential winter heating fuel prices
dollars per million Btu



Source: EIA Short-Term Energy Outlook, October 2016.

NOAA forecasts U.S. heating degree days this winter to be 13% higher than last winter, but below the 10-year average

U.S. current population-weighted heating degree days



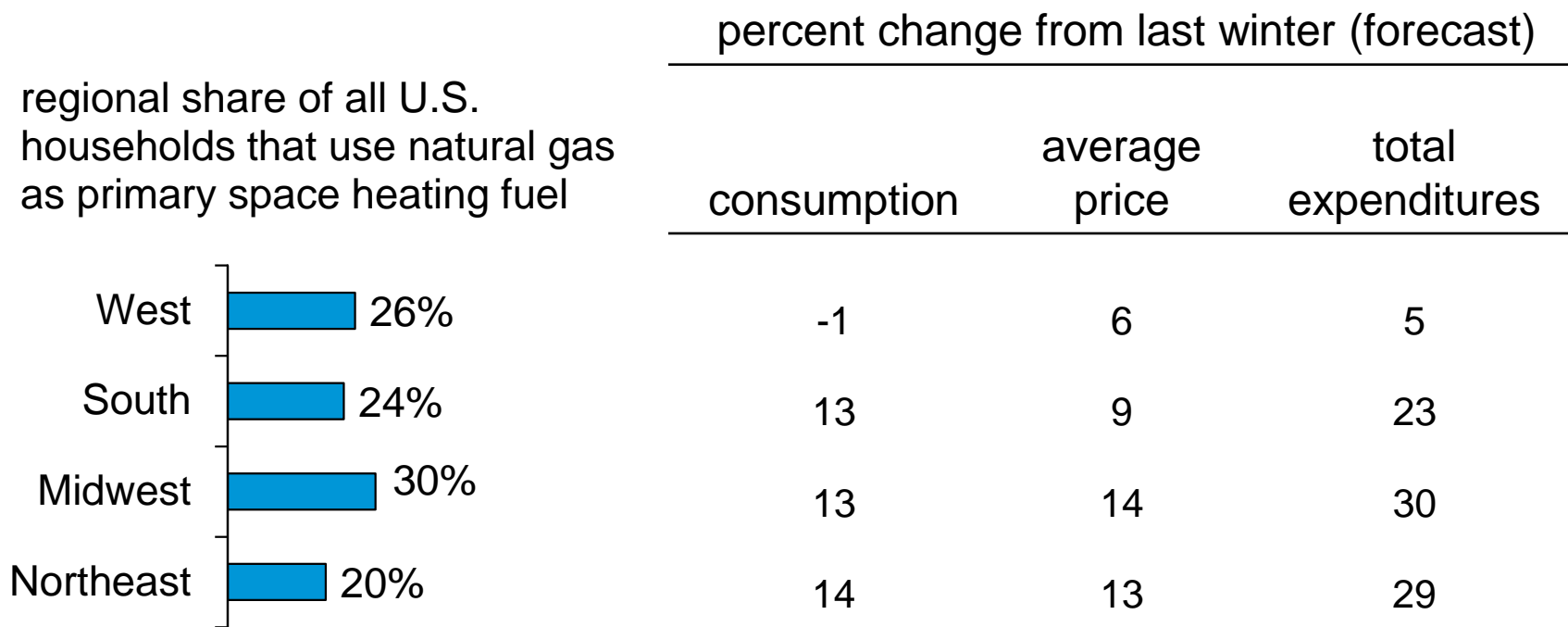
Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Horizontal lines indicate 10-year average over the period Oct. 2006 – Mar. 2016. Projections reflect NOAA's 14-16 month outlook. Source: EIA Short-Term Energy Outlook, October 2016.

Natural Gas

Winter 2016-17 takeaways – Natural gas

- As of September 30, inventories of natural gas in working storage were 2% above year-ago levels, and are expected to end October at near-record levels
- Dry natural gas production this winter is projected to average 75.2 Bcf/day, an increase of 1.7 Bcf/day (2%) compared with last winter
- Henry Hub prices were below \$3 per million Btu (MMBtu) during the last winter. However, this year lower production and increased demand contribute to the projected Henry Hub spot price averaging \$3.15/MMBtu this winter compared with \$2.06/MMBtu last winter
- Ongoing transportation constraints for delivering natural gas to Northeast consumers, especially in New England, could contribute to localized price volatility during periods of very cold temperatures

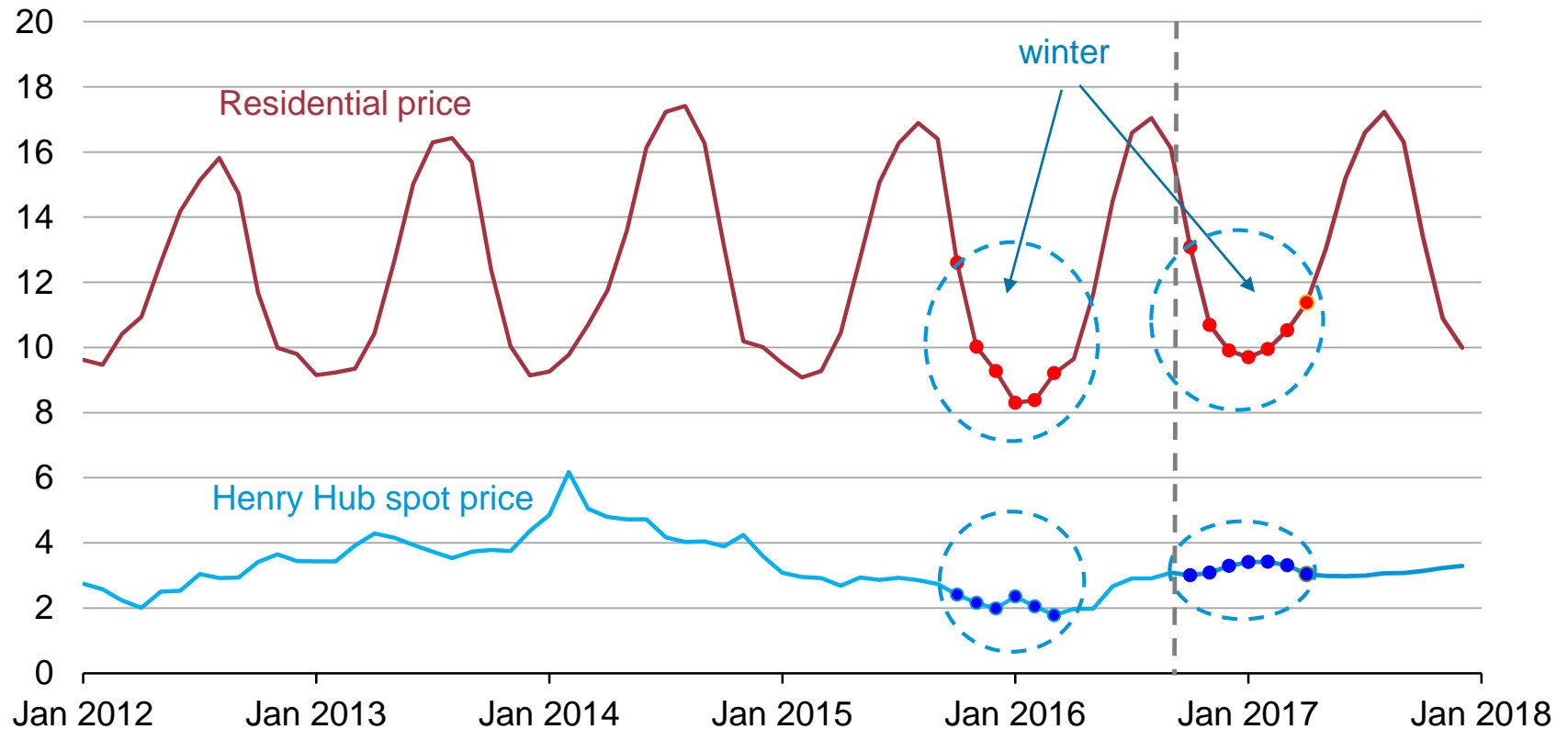
Natural gas heating expenditures are expected to increase significantly across in the eastern half of the country, but they are similar to levels from winters 2010-11 through 2014-15



Source: EIA Short-Term Energy Outlook, October 2016.

EIA expects average residential natural gas prices to be 11% above prices last winter

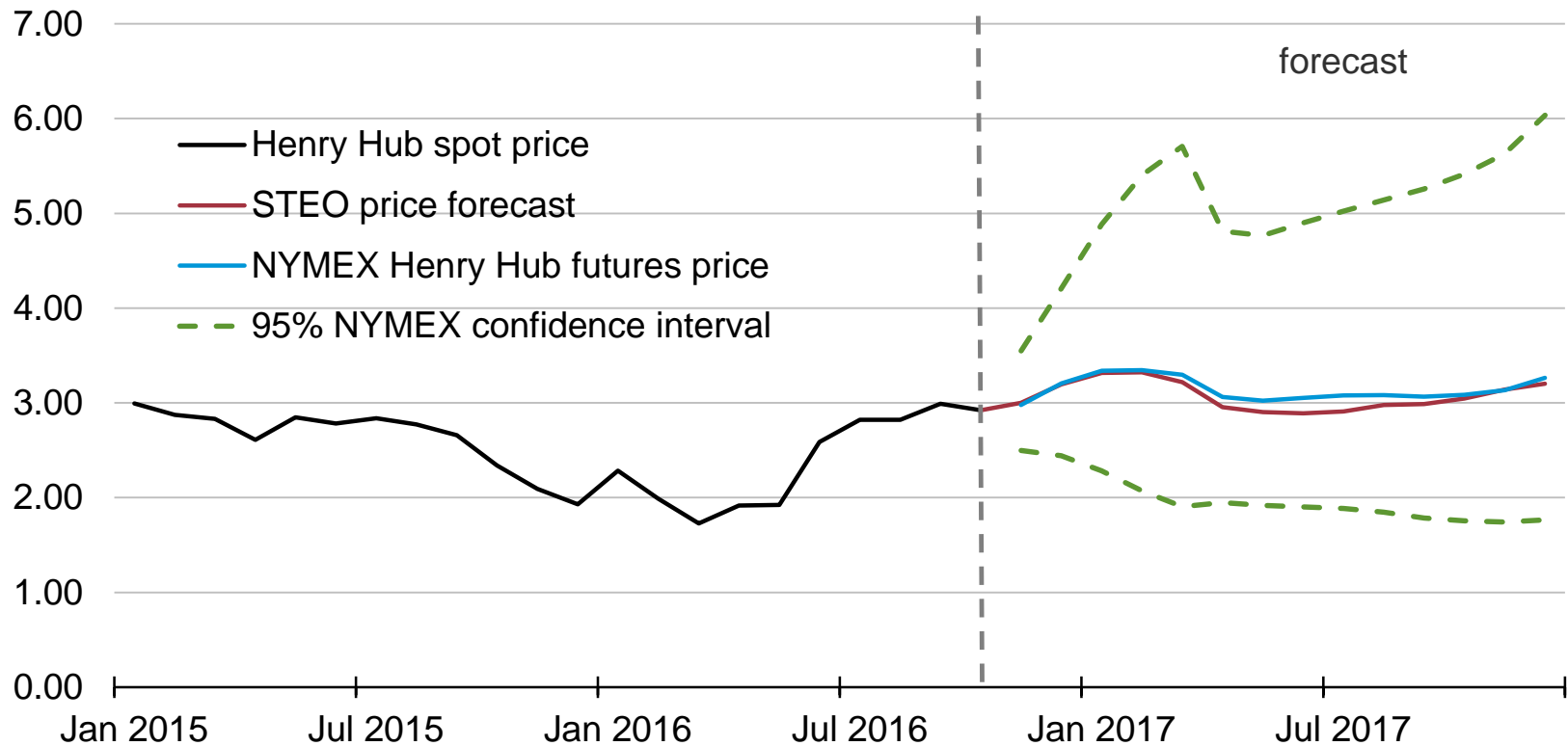
monthly average natural gas prices
dollars per thousand cubic feet (Mcf)



Source: EIA Short-Term Energy Outlook, October 2016.

EIA forecasts Henry Hub spot prices to average \$3.15/MMBtu this winter, but significant uncertainty exists (as always)

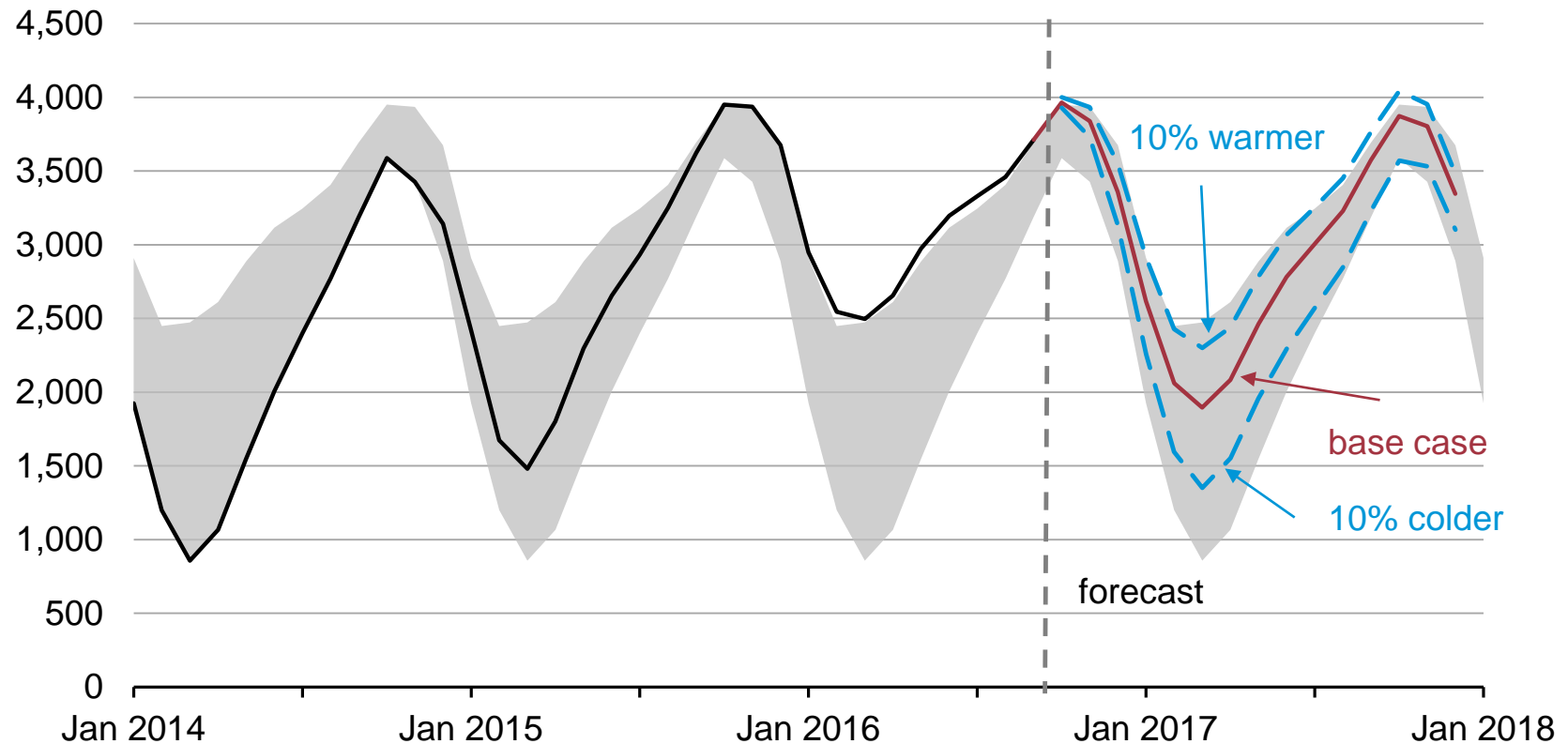
Henry Hub natural gas price
dollars per million Btu



Note: Confidence interval derived from options market information for the 5 trading days ending October 6, 2016. Intervals not calculated for months with sparse trading in near-the-money options contracts.
Source: EIA Short-Term Energy Outlook, October 2016, and CME Group.

Natural gas inventories on September 30 were 90 Bcf higher than last year and 220 Bcf above the previous five-year average

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



Note: Gray band represents the range between the minimum and maximum from 2011 to 2015

Source: EIA Short-Term Energy Outlook, October 2016.

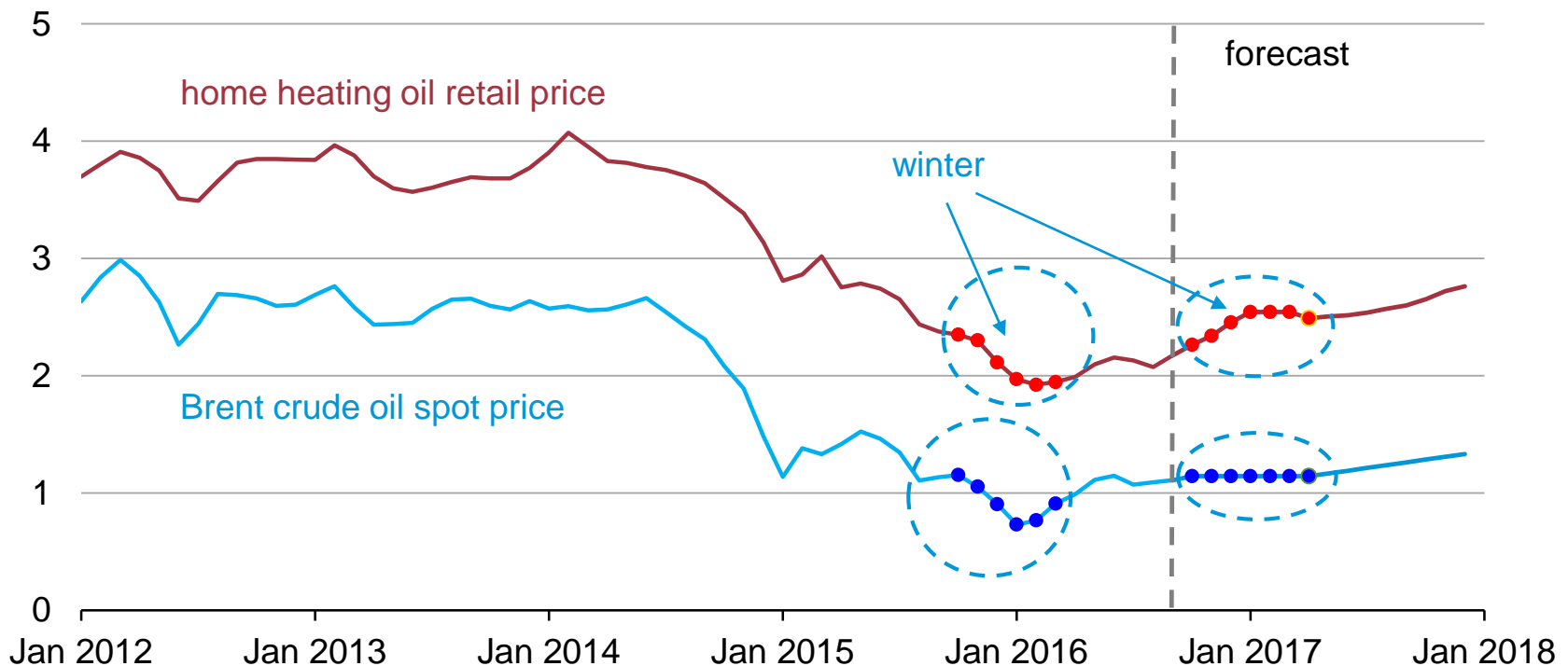
Heating Oil

Winter 2016-17 takeaways – Heating oil

- Brent crude oil spot prices are expected to average \$48 per barrel (b) this winter, \$9/b (22 cents/gal) higher than last winter, but they are not expected to return to levels seen from 2010-14; however, crude oil prices are very uncertain
- Distillate stocks in the Northeast totaled 52.3 million barrels on September 30, 6.9 million barrels (15%) above the same time last year and close to the highest level for any week since 2010
- Unless severely cold temperatures in the Northeast coincide with severely cold temperatures in Europe, ample supplies should be available to meet demand, but localized supply issues are possible

Higher forecast residential heating oil prices this winter reflect higher crude oil prices

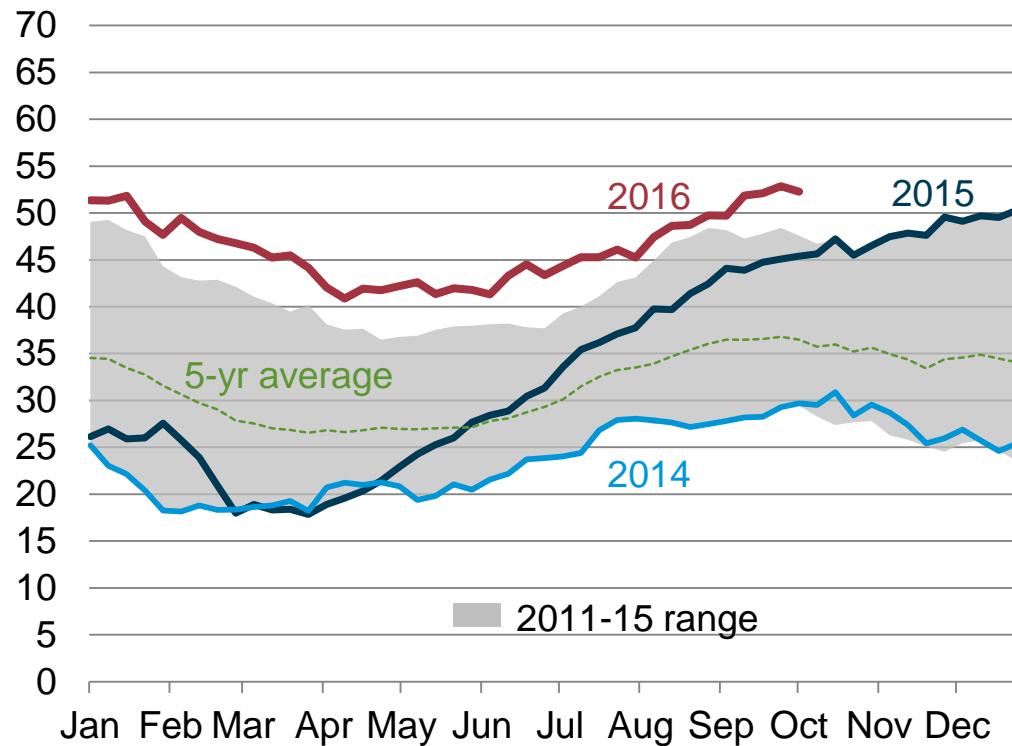
monthly average heating oil and Brent crude oil prices
dollars per gallon



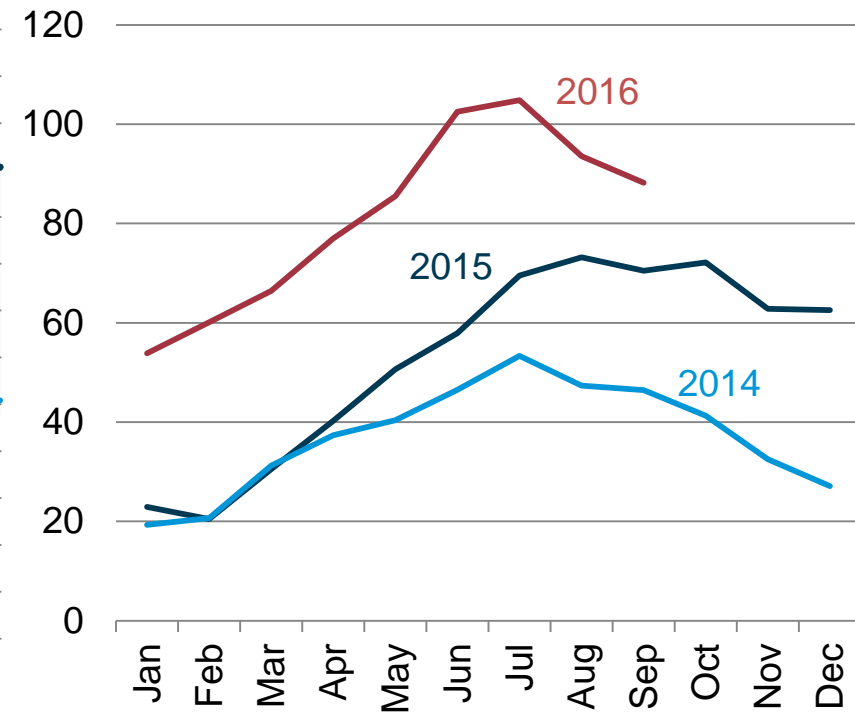
Note: Home heating oil retail price includes taxes.
Source: EIA Short-Term Energy Outlook, October 2016.

Northeast distillate inventories are high both on an absolute and days-of-supply basis

Weekly Northeast distillate inventories
million barrels



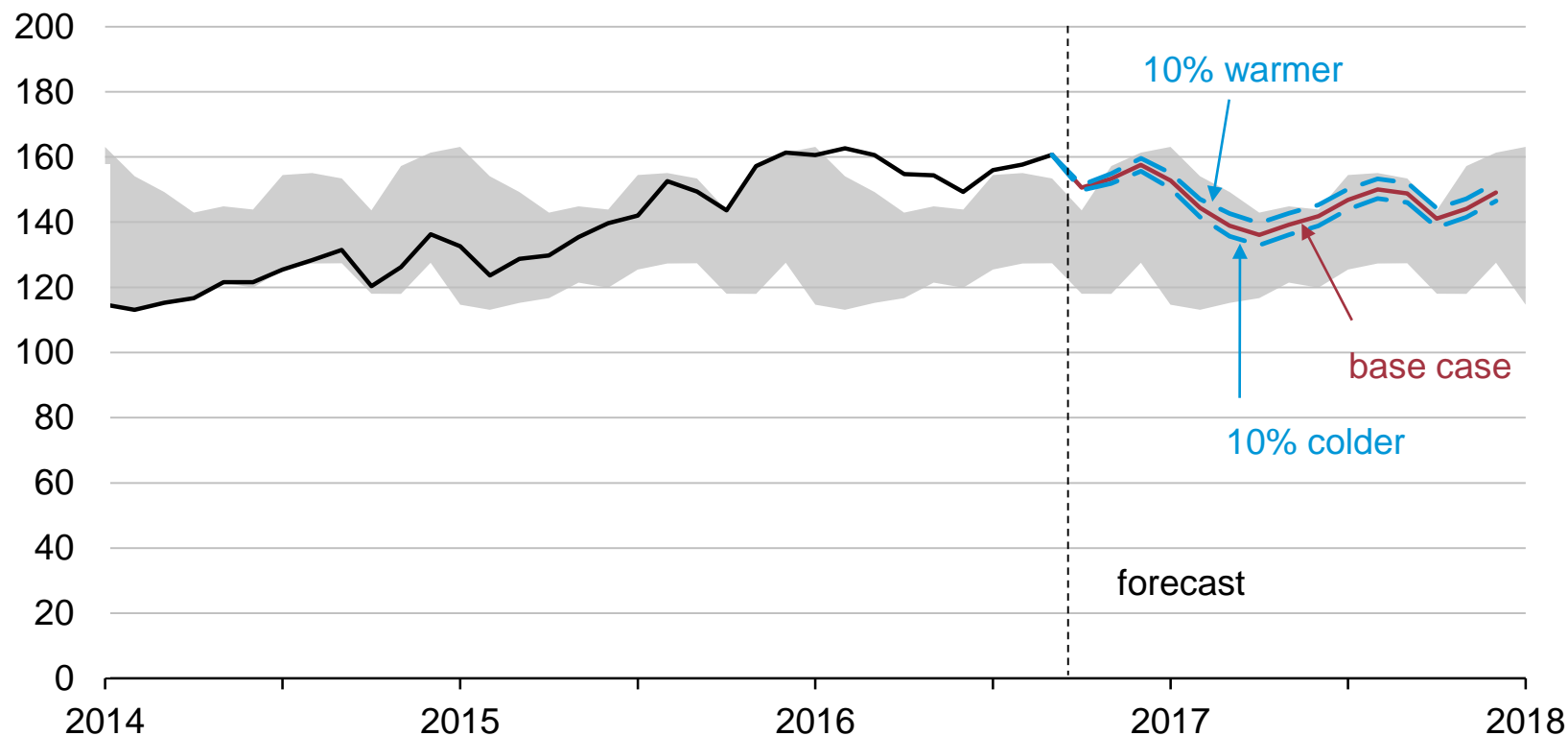
Month-end Northeast distillate inventories
days of forward supply



Source: EIA, Weekly Petroleum Status Report and Petroleum Supply Monthly.

Total U.S. distillate inventories are forecast to stay within the five-year range in a 10% colder scenario

U.S. total end-of-month distillate fuel inventories
million barrels



Note: Gray band represents the range between the minimum and maximum from 2011 to 2015

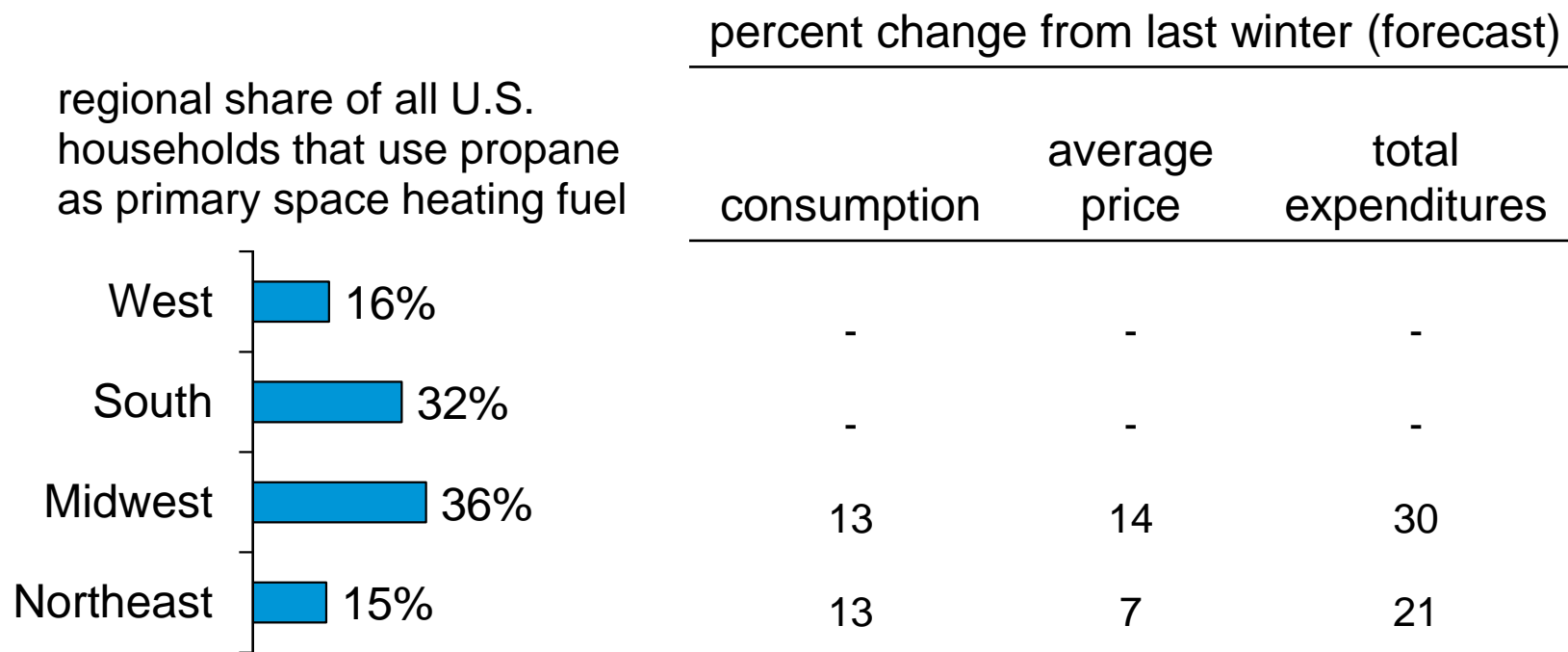
Source: EIA Short-Term Energy Outlook, October 2016

Propane

Winter 2016-17 takeaways – Propane

- U.S. propane inventories on September 30 were 4 million barrels (4%) higher than year-ago levels, and 28 million barrels (36%) above the five-year average; however, most incremental inventories above five-year average are on the Gulf Coast, distant from the main areas that use propane for heating
- Propane exports have reached record levels in 2016, increasing by 230,000 b/d (41%) during 1H2016 compared with 1H2015
- Propane production at natural gas liquids plants and refineries is expected to be 1% higher than last winter

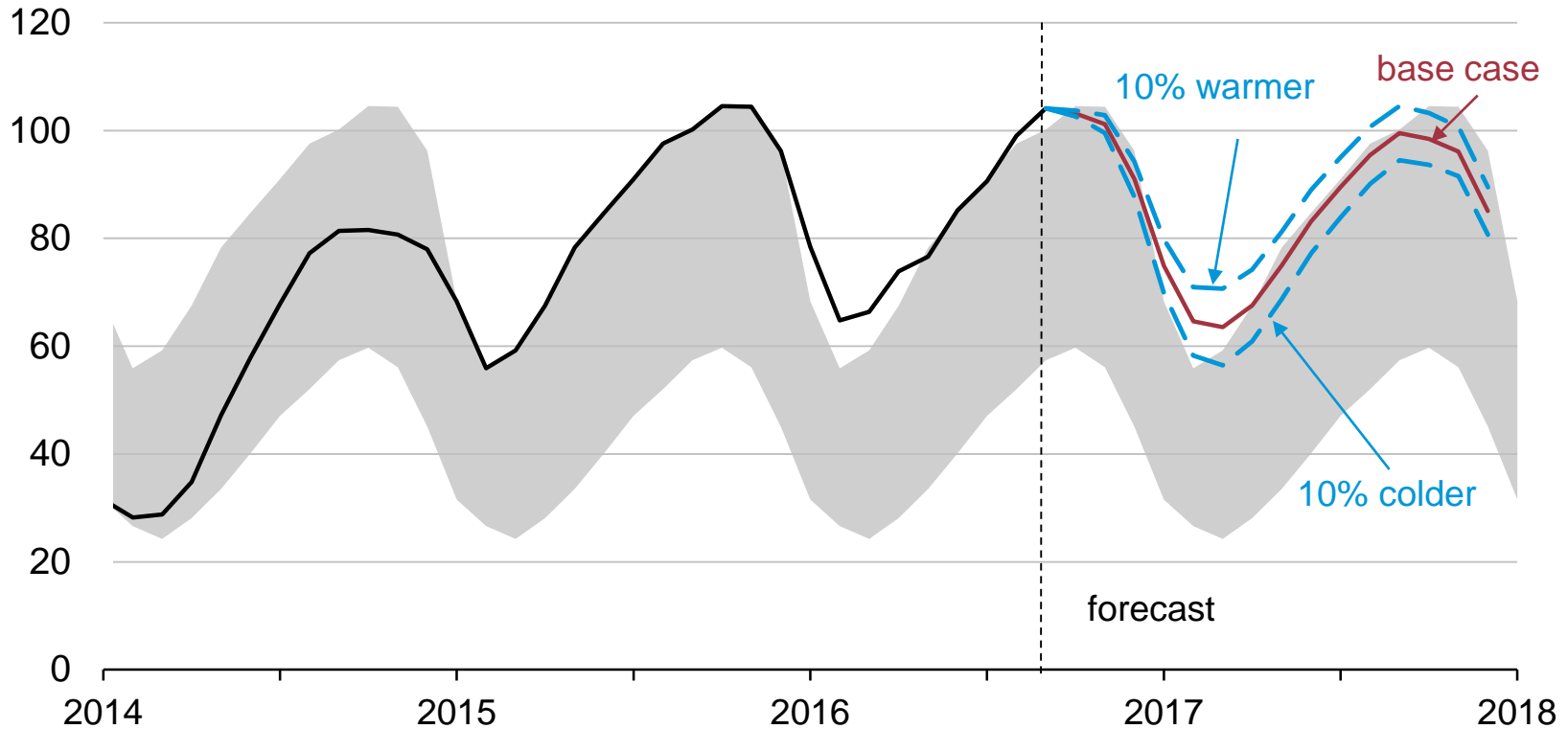
EIA's propane expenditures are expected to be higher than last winter's level but 18% lower than the average winter expenditures from 2010-11 through 2014-15



Source: EIA Short-Term Energy Outlook, October 2016

U.S. propane inventories begin this winter similar to year-ago levels, but near the top of the five-year range

U.S. total end-of-month propane and propylene inventories
million barrels



Note: Gray band represents the range between the minimum and maximum from 2011 to 2015

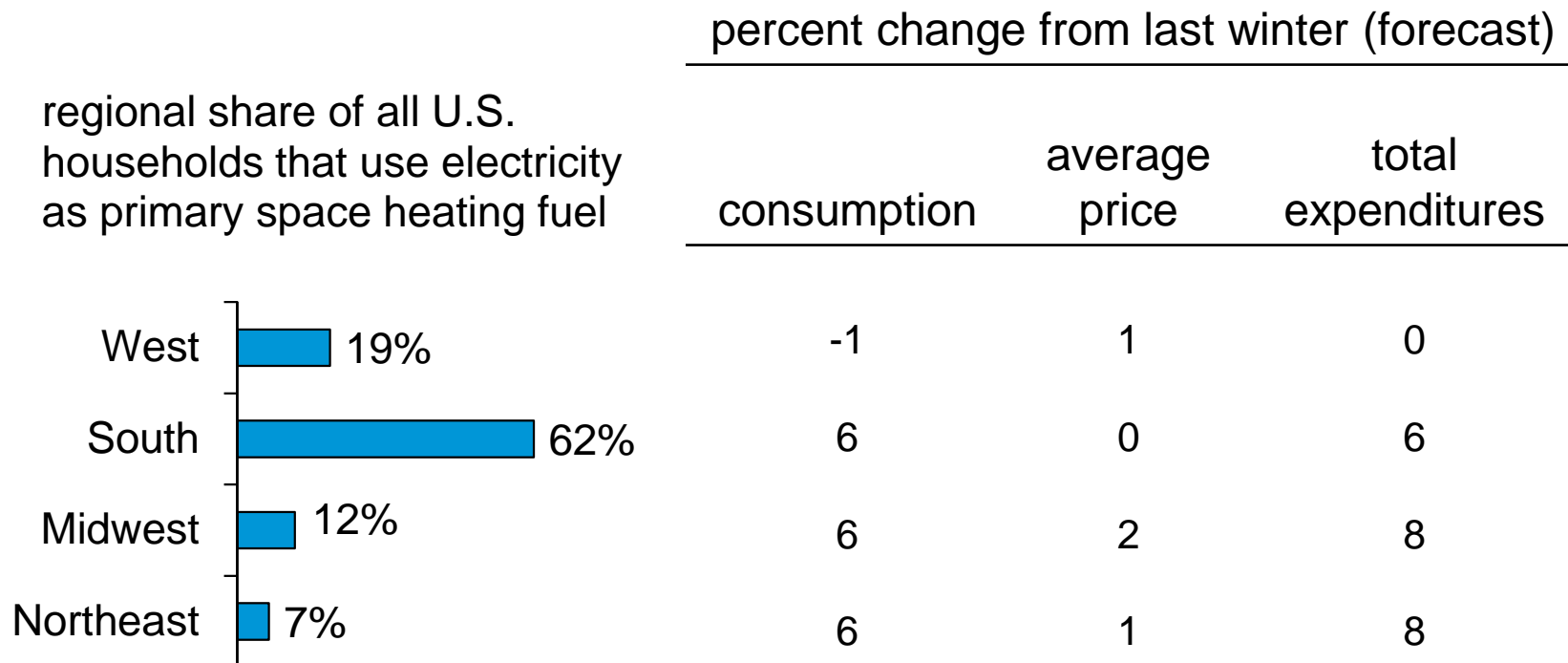
Source: EIA Short-Term Energy Outlook, October 2016

Electricity

Winter 2016–17 takeaways – Electricity

- Although residential electricity prices for much of 2016 have been lower than 2015, EIA expects winter residential prices to be slightly higher than last winter
- Because wholesale price increases are slow to pass through to consumers, yearly expenditure deviations are driven more by temperatures
- New natural gas pipeline capacity into New England should help alleviate some competition for the fuel between power generators and residential space heating, but Northeast electricity markets could still be affected by constrained natural gas supplies into the region

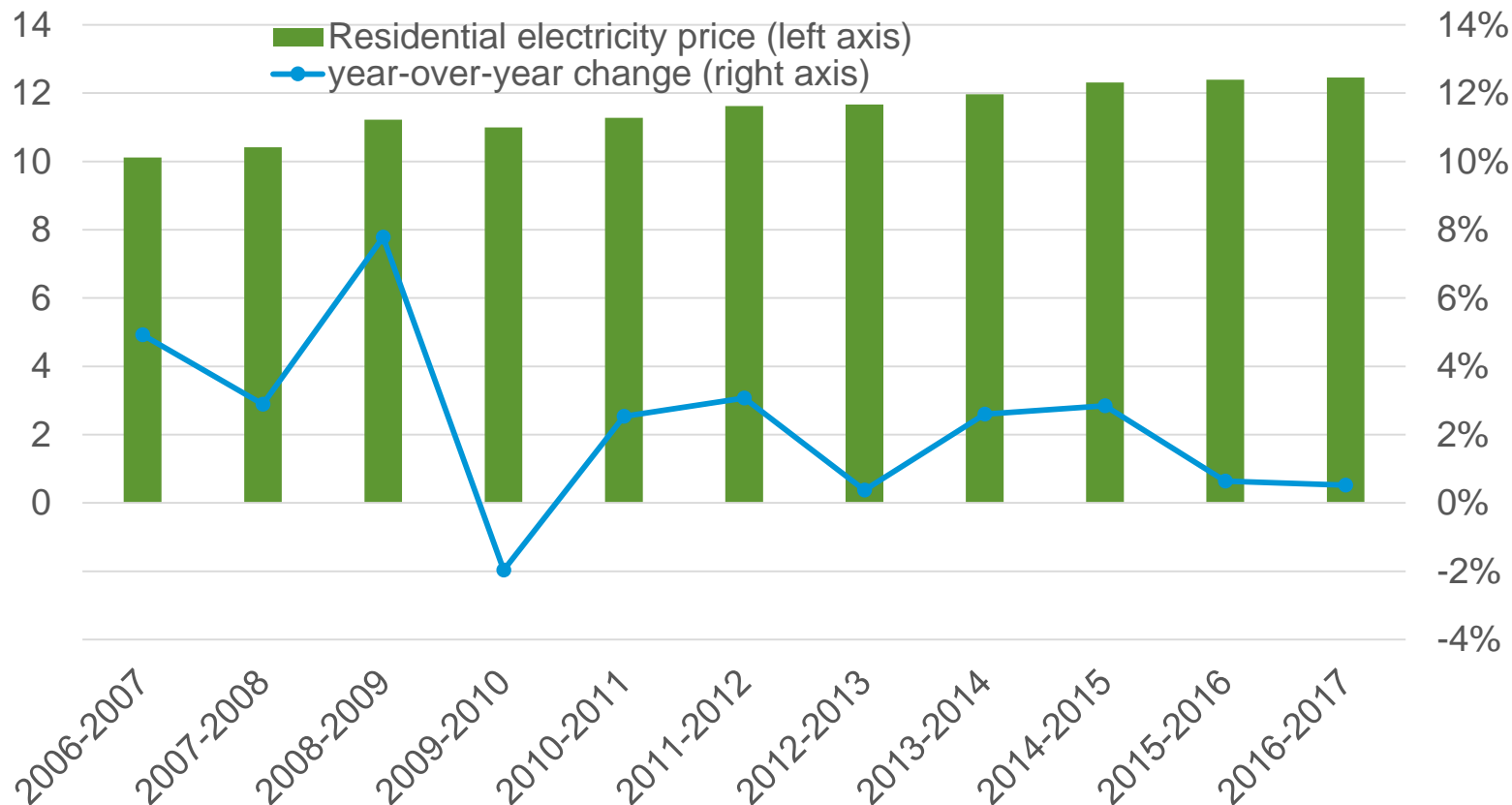
Winter electricity bills are expected to be higher compared with last winter in regions east of the Rocky Mountains



Source: EIA Short-Term Energy Outlook, October 2016

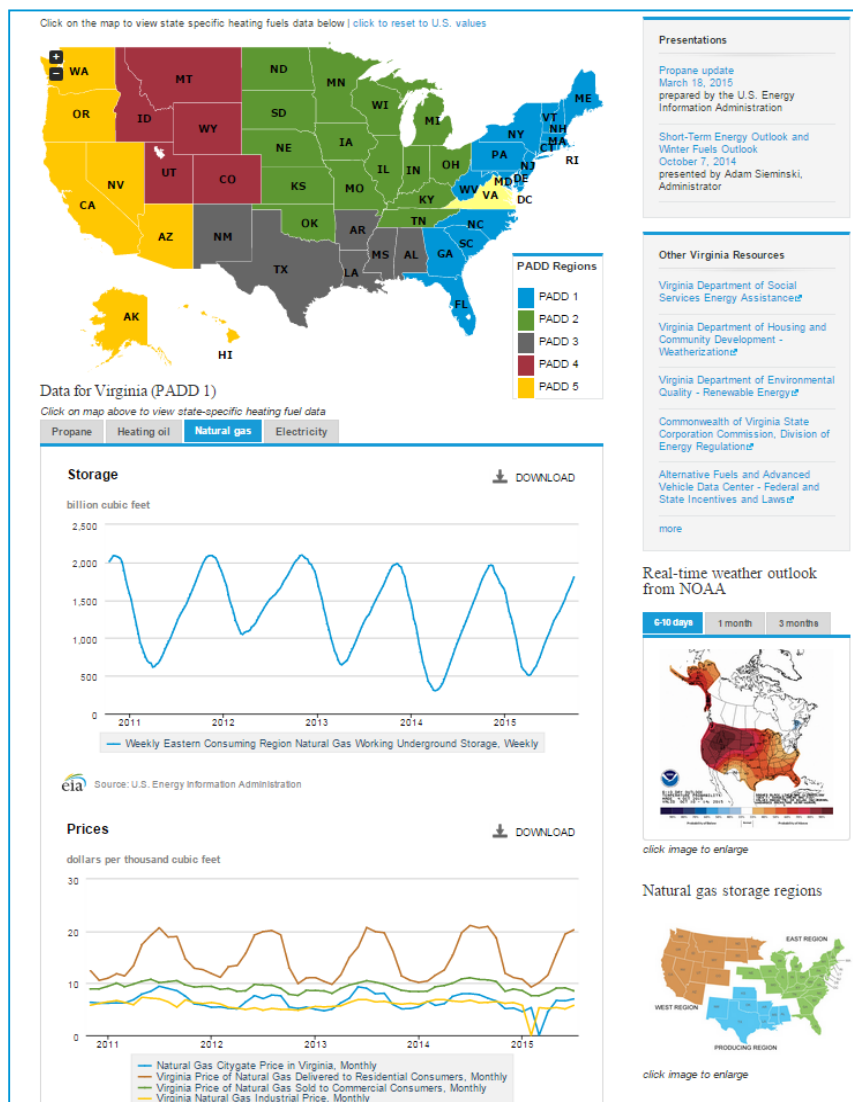
Growth in residential electricity prices has slowed in recent years

U.S. winter average residential electricity price
cents/kilowatthour



Source: EIA Short-Term Energy Outlook, October 2016

Winter Heating Fuels Webpage



www.eia.gov/special/heatingfuels

- Availability and pricing for the four principals heating fuels
 1. propane
 2. heating oil
 3. natural gas
 4. electricity
- Data relevant to each state available through clickable map
- Links to resources for each state
- Current week and 3-month weather forecasts from NOAA
- Every graph can be downloaded as an image or as a spreadsheet

For more information

U.S. Energy Information Administration home page / www.eia.gov

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

Winter Heating Fuels Webpage / www.eia.gov/special/heatingfuels

Annual Energy Outlook / www.eia.gov/aeo

International Energy Outlook / www.eia.gov/ieo

Monthly Energy Review / www.eia.gov/mer

Today in Energy / www.eia.gov/todayinenergy