EIA Short-Term Energy and Winter Fuels Outlook

October 6, 2015

Overview

- EIA expects heating fuel prices for homes that heat with natural gas, propane, and heating oil to be lower than prices last winter; residential electricity prices are expected to be about the same as last winter

- The latest outlook from government weather forecasters expects winter temperatures east of the Rocky Mountains to be warmer than last winter, with projected heating degree days in the Northeast, Midwest, and South respectively about 13%, 11%, and 8% lower; in the West, this winter is expected to be 12% colder than last winter

- Projected changes in average U.S. household heating fuel expenditures from last winter are:
  - 10% lower for homes that heat primarily with natural gas
  - 25% lower for homes using oil heat
  - 18% lower for homes using propane heat
  - 3% lower for homes that heat with electricity

Expenditures are expected to be lower this winter (October 1–March 31) even if weather is significantly colder than currently forecast by NOAA

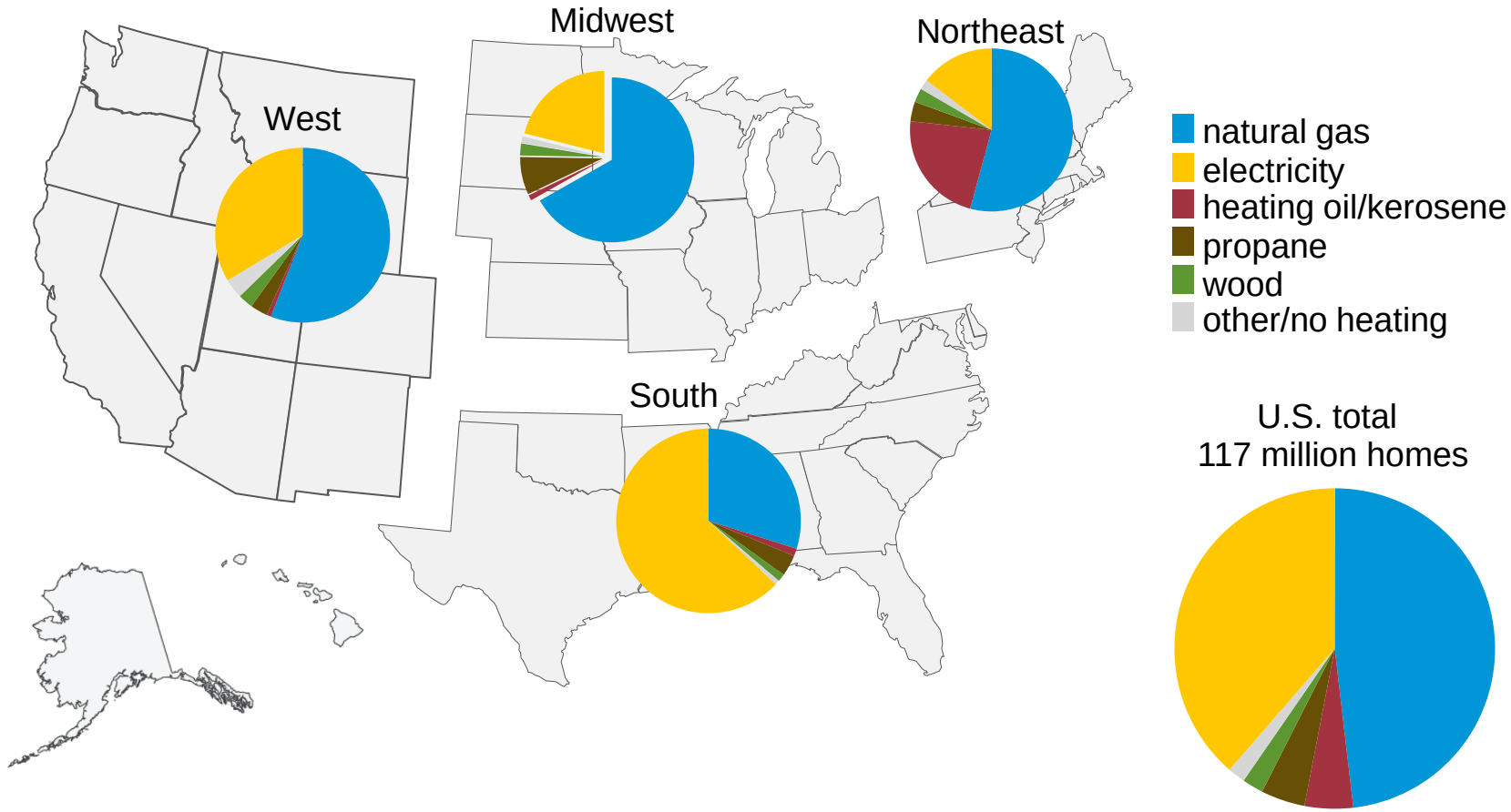
Percent change in fuel bills from last winter (forecast)

Fuel bill	Base case forecast	If 10% warmer than forecast	If 10% colder than forecast
Heating oil	**-25**	**-33**	**-16**
Natural gas	**-10**	**-17**	**-4**
Propane *	**-18**	**-30**	**-3**
Electricity	**-3**	**-7**	**0**

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 2015.

Heating fuel market shares vary across U.S. regions

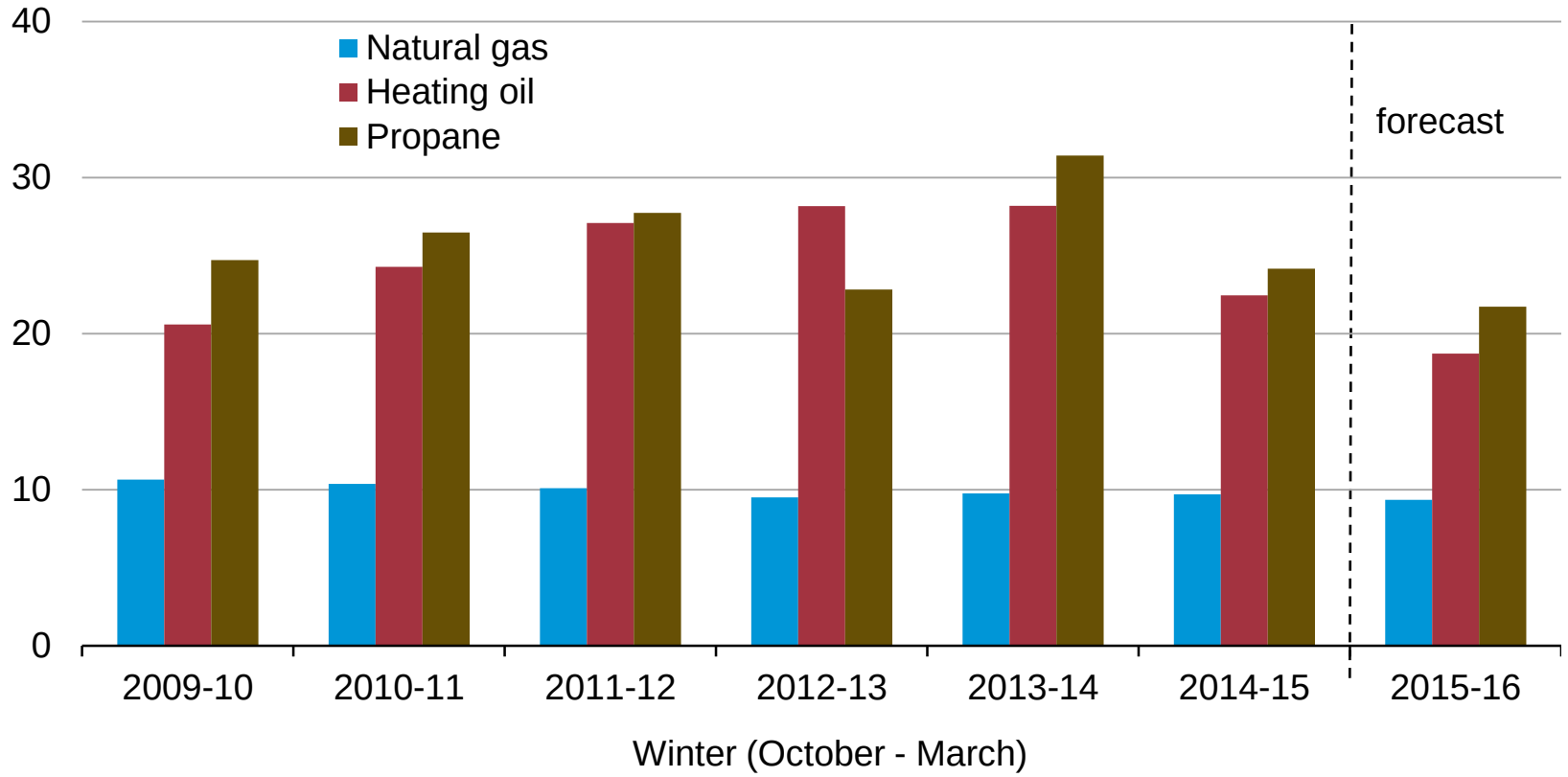
Share of homes by primary space-heating fuel and Census Region



Source: U.S. Energy Information Administration based on 2014 American Community Survey

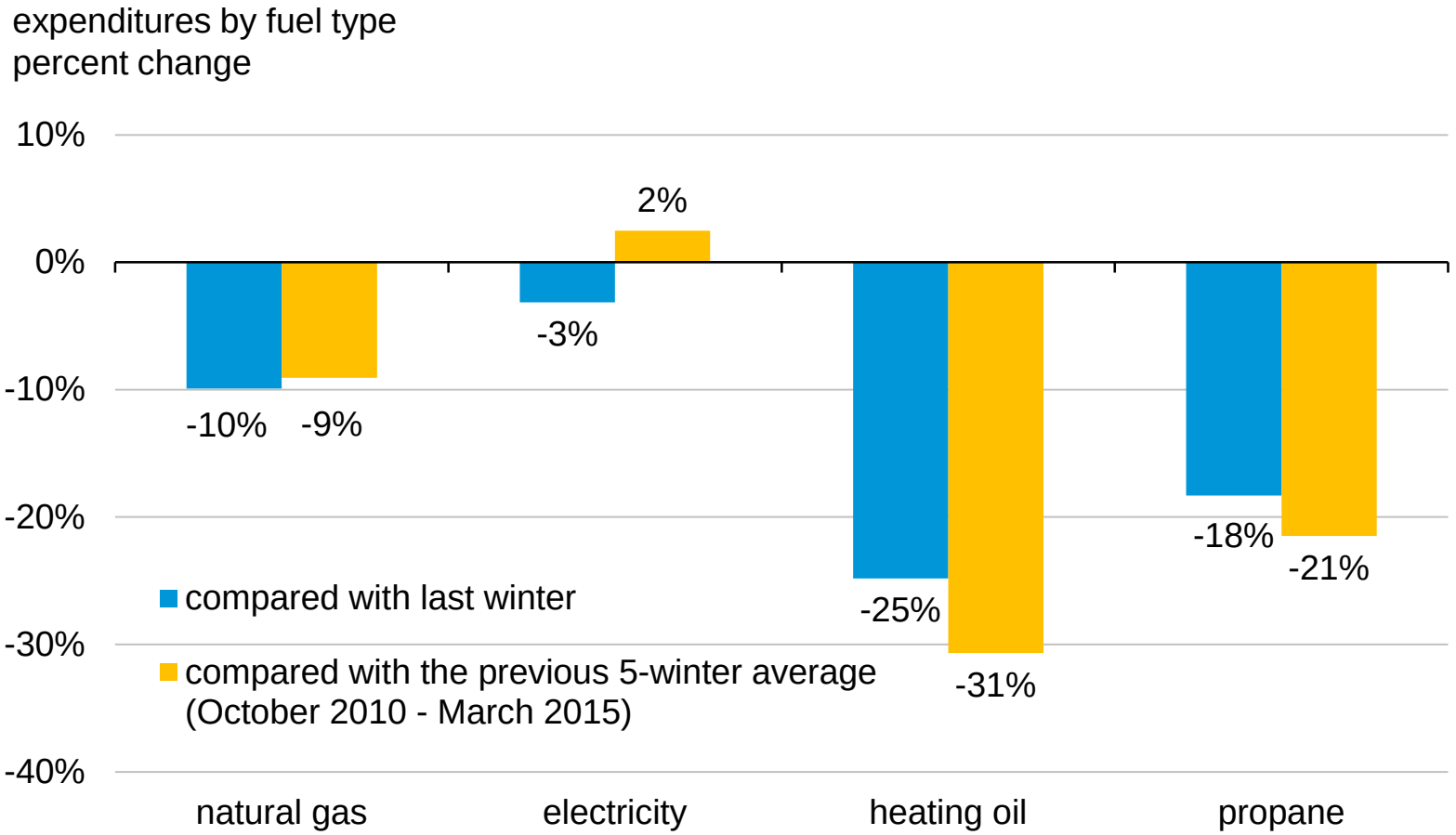
Heating oil prices are forecast to be 15% lower than last winter, propane prices are forecast to be 10% lower, and natural gas prices are forecast to be 4% lower

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



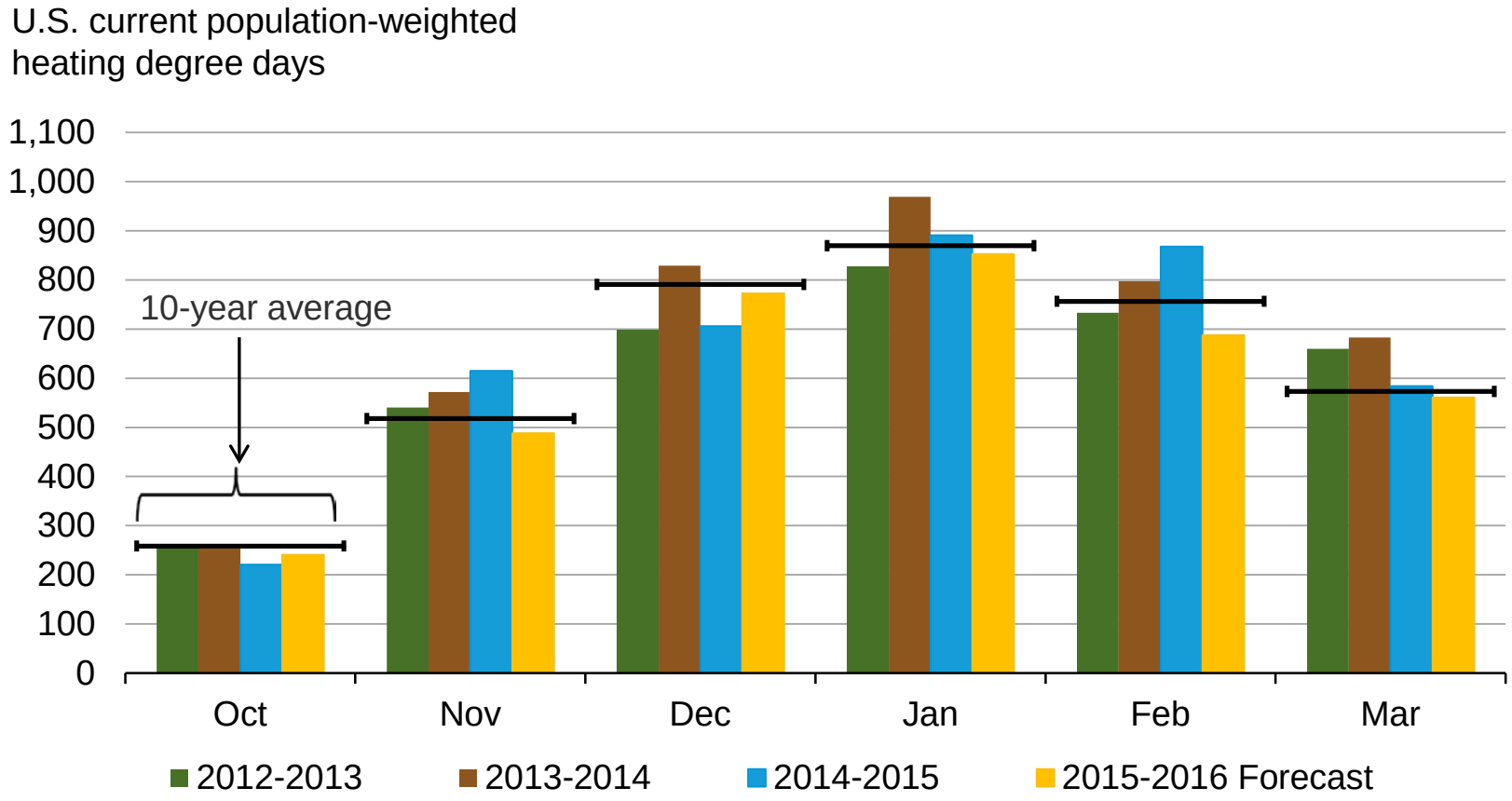
Source: EIA Short-Term Energy Outlook, October 2015.

Forecast expenditures for all fuels are lower than last winter, with only electricity higher than the previous five-winter average



Note: All prices are U.S. averages except propane, which is an average of Northeast and Midwest prices
Source: EIA Short-Term Energy Outlook, October 2015.

NOAA forecasts U.S. heating degree days this winter to be 7% lower than last winter and below the 10-year average



Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Horizontal lines indicate 10-year average over the period Oct. 2005 – Mar. 2015. Projections reflect NOAA's 14-16 month outlook.
Source: EIA Short-Term Energy Outlook, October 2015.

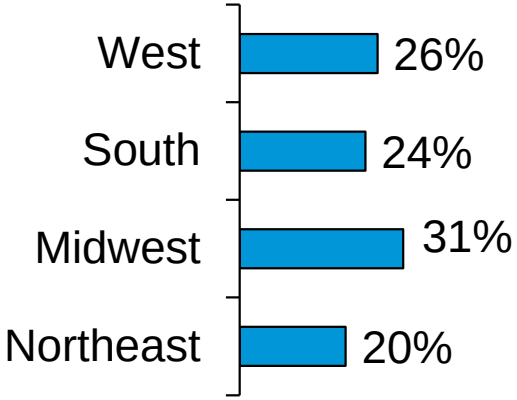
Natural Gas

Winter 2015-16 takeaways and potential issues – Natural Gas

- As of September 25, inventories of natural gas in working storage were 15% above year-ago levels
- Dry natural gas production this winter is projected to average 75.2 Bcf/day, an increase of 1.8 Bcf/day (2%) compared with last winter
- Continuing production growth and high injections this year have contributed to Henry Hub prices below $3 per million Btu (MMBtu) for most of 2015. The projected Henry Hub spot price this winter averages $2.92/MMBtu compared with $3.35/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 decline most in the Midwest and South where, both consumption and prices are forecast to be lower than last winter

regional share of all U.S. households that use natural gas as primary space heating fuel

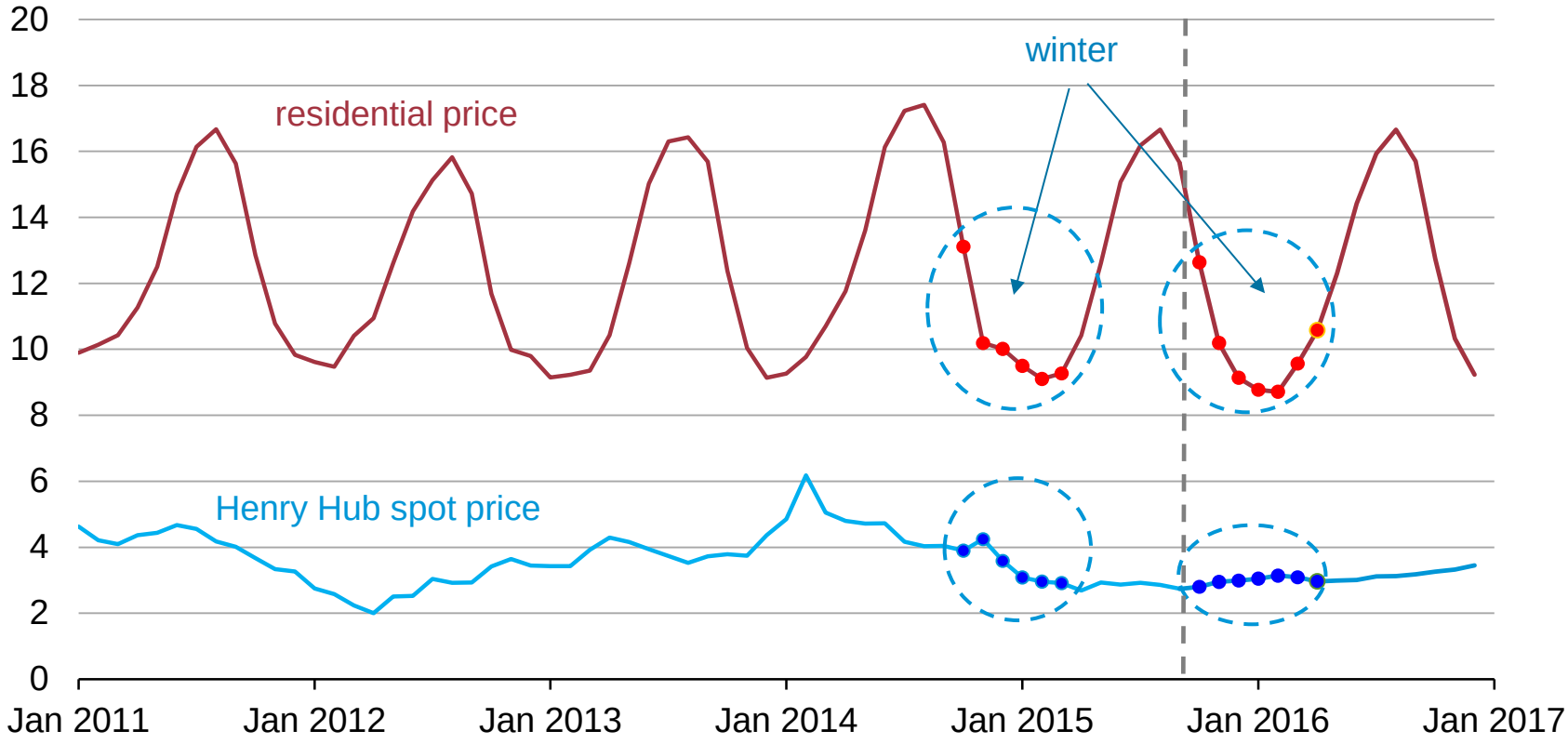


	percent change from last winter (forecast)		
	consumption	average price	total expenditures
West	9	-12	-5
South	-6	-5	-10
Midwest	-9	-5	-14
Northeast	-11	6	-6

Source: EIA Short-Term Energy Outlook, October 2015.

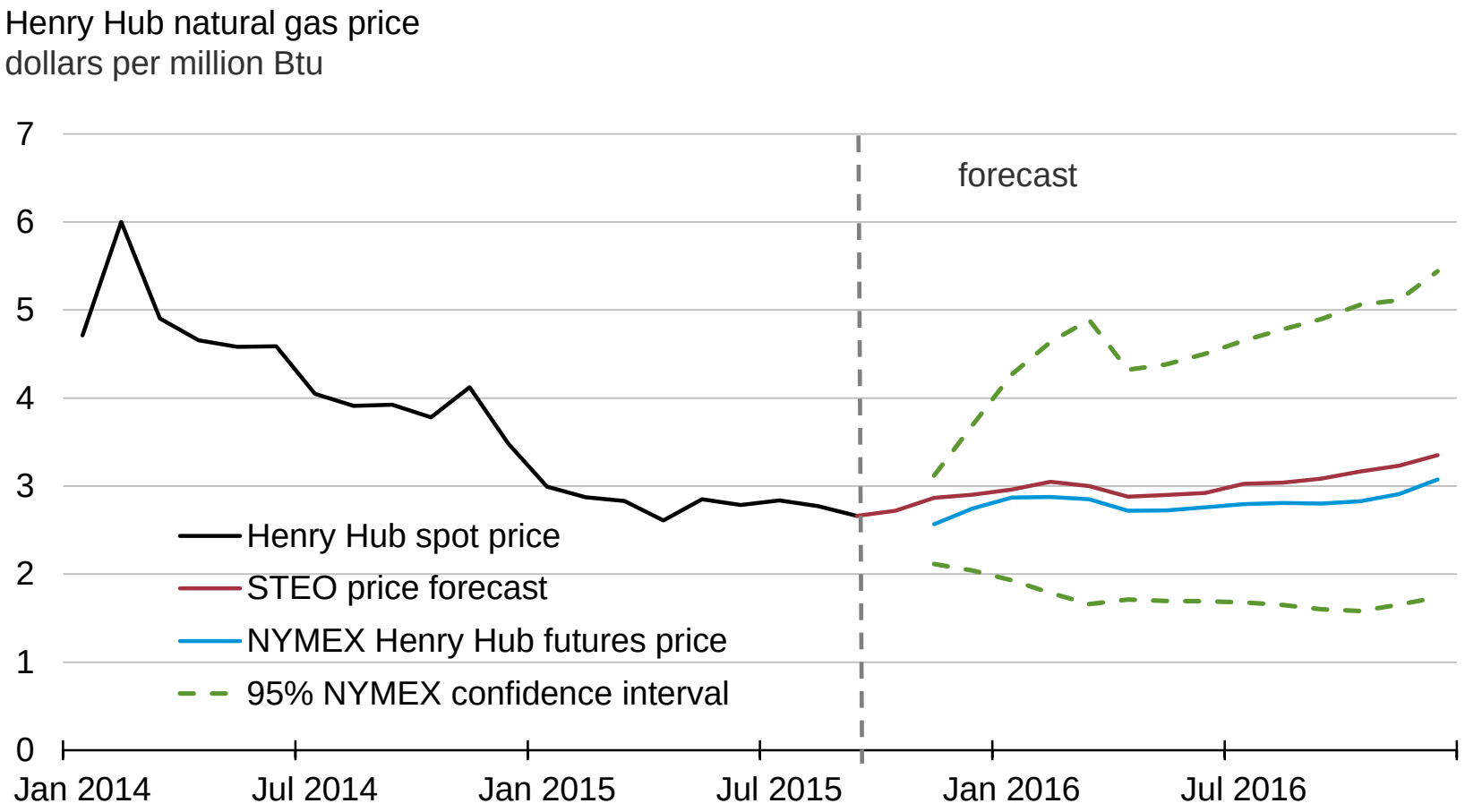
EIA expects average residential natural gas prices to be 4% below prices last winter

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



Source: EIA Short-Term Energy Outlook, October 2015.

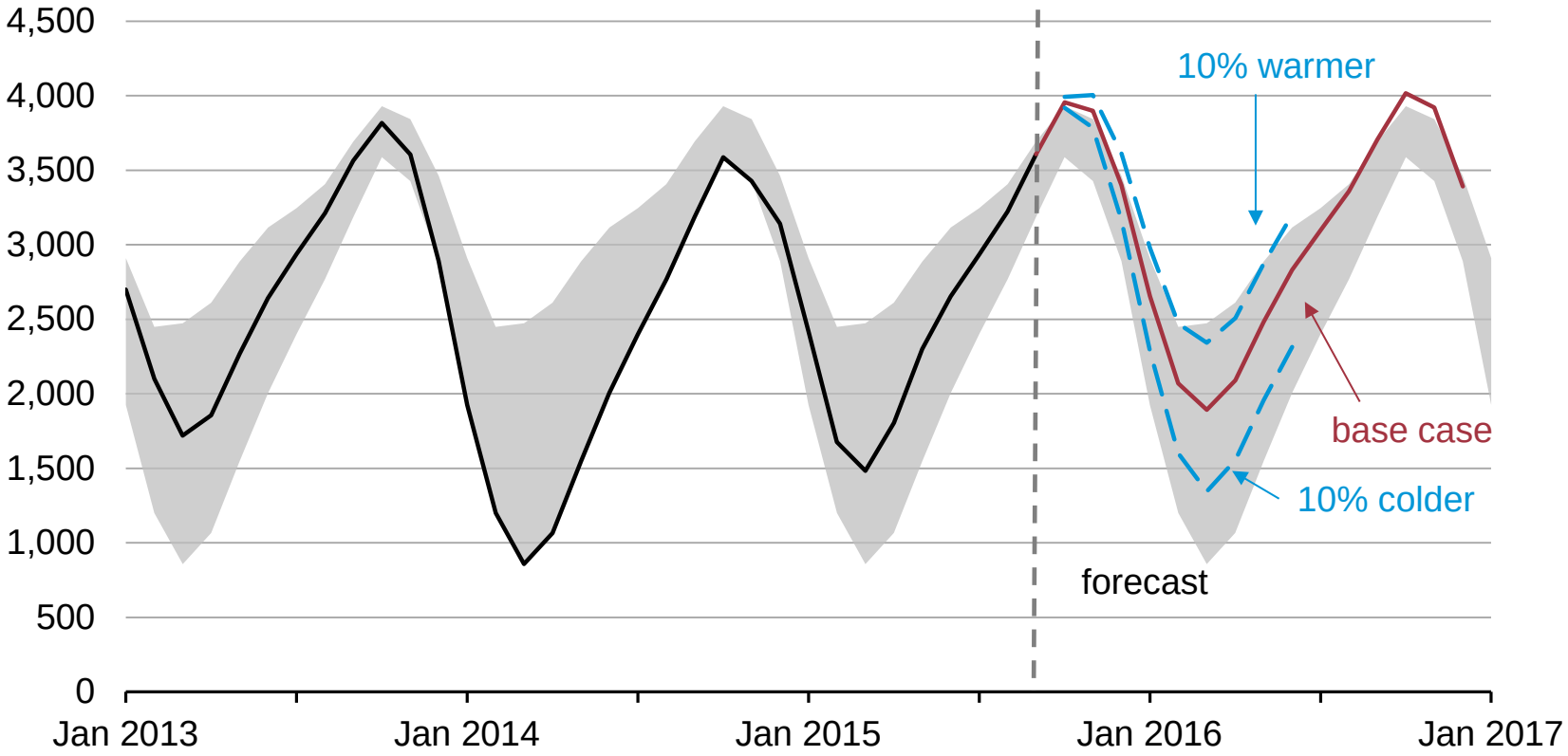
EIA forecasts Henry Hub spot prices to average $2.92/MMBtu this winter, but significant uncertainty exists (as always)



Note: Confidence interval derived from options market information for the 5 trading days ending October 1, 2015
Intervals not calculated for months with sparse trading in near-the-money options contracts.
Source: EIA Short-Term Energy Outlook, October 2015, and CME Group.

Natural gas inventories on September 25 were 454 Bcf higher than last year and 152 Bcf above the previous five-year average

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



Note: Gray band represents the range between the minimum and maximum from 2010 to 2014
Source: EIA Short-Term Energy Outlook, October 2015.

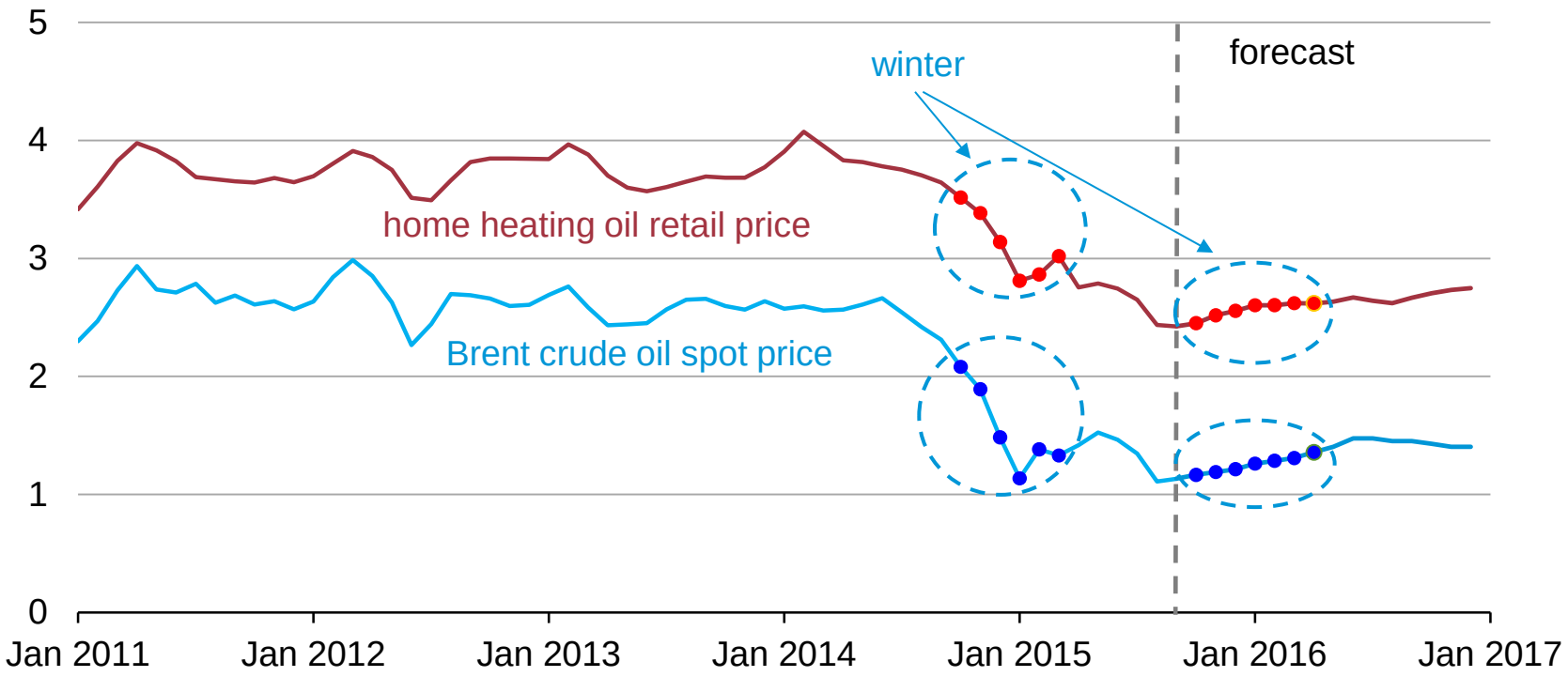
Heating Oil

Winter 2015-16 takeaways and potential issues – Heating Oil

- Brent crude oil spot prices are expected to average $52 per barrel (b) this winter, $13/b (32 cents/gal) lower than last winter; but crude oil prices are very uncertain
- Distillate stocks in the Northeast totaled 45.1 million barrels on September 25, 15.8 million barrels above the same time last year and the highest level for any week since October 2011
- Distillate inventories across global markets are also at high levels
  - high global refinery runs over the summer increased distillate supplies
  - a slowdown in manufacturing growth, particularly in emerging markets, has lowered global distillate demand growth
- Unless severely cold temperatures in the Northeast coincide with severely cold temperatures in Europe, ample supplies should be available to meet demand

Lower forecast residential heating oil prices this winter reflect lower crude oil prices

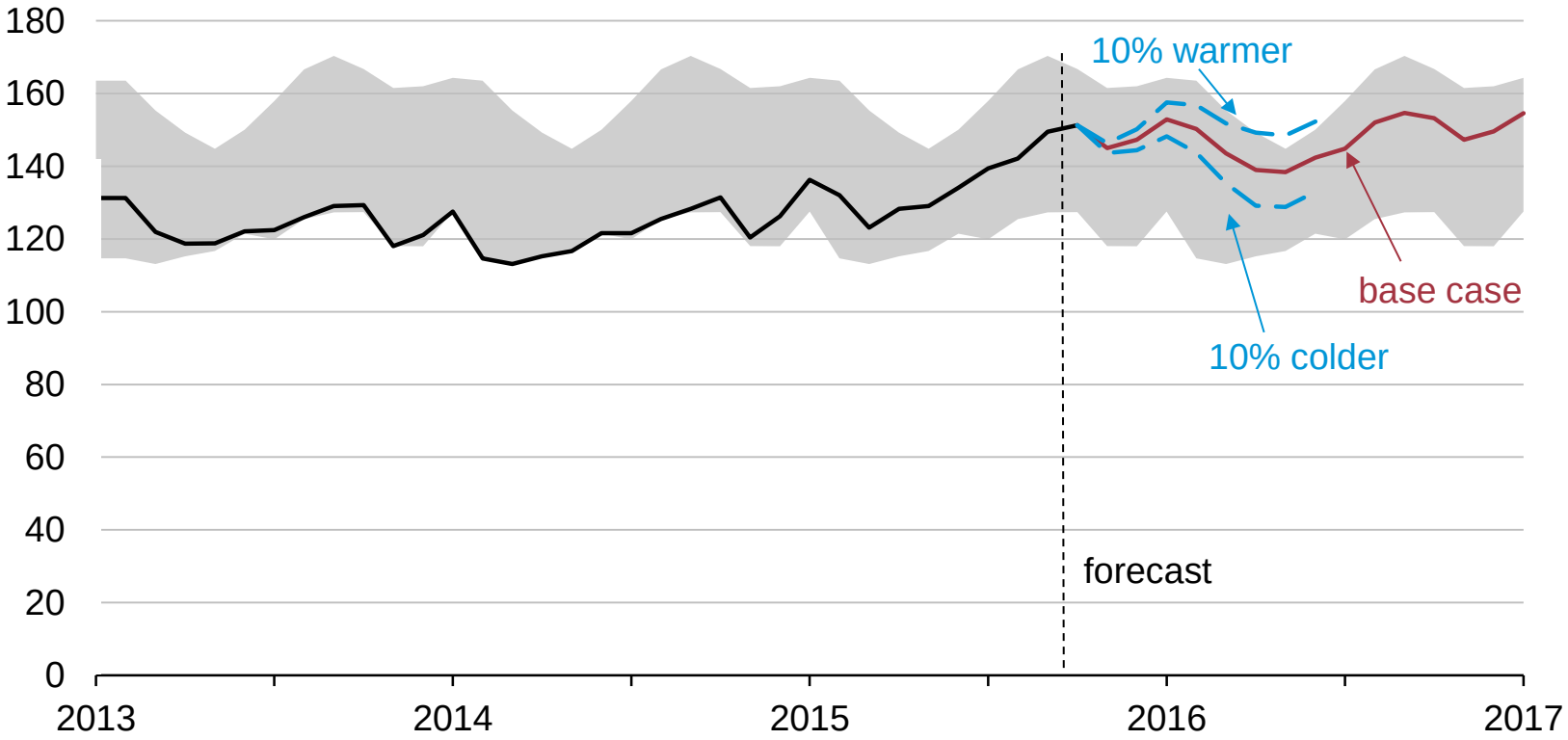
monthly average heating oil and Brent crude oil prices
dollars per gallon



Note: Home heating oil retail price includes taxes.
Source: EIA Short-Term Energy Outlook, October 2015.

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

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



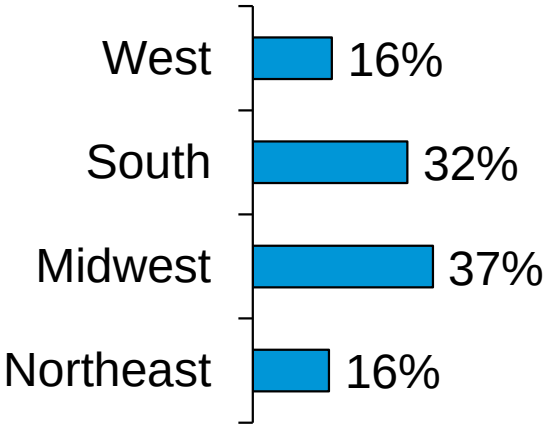
Note: Gray band represents the range between the minimum and maximum from 2010 to 2014
Source: EIA Short-Term Energy Outlook, October 2015

Propane

Winter 2015-16 takeaways and potential issues – Propane

- U.S. propane inventories on September 25 were 19 million barrels (24%) higher than year-ago levels, and 31 million barrels (45%) 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 production at natural gas liquids plants has been rising and is projected to average 1.1 million b/d this winter, 0.1 million b/d higher than last winter
- Propane supply continues to adjust to recent infrastructure changes
  - Cochin Pipeline reversal
  - New and expanded rail facilities in the Midwest
- With expanded rail capacity propane availability from Canada should be greater

EIA's propane expenditures are expected to be below last winter's level, reflecting both lower prices and lower consumption

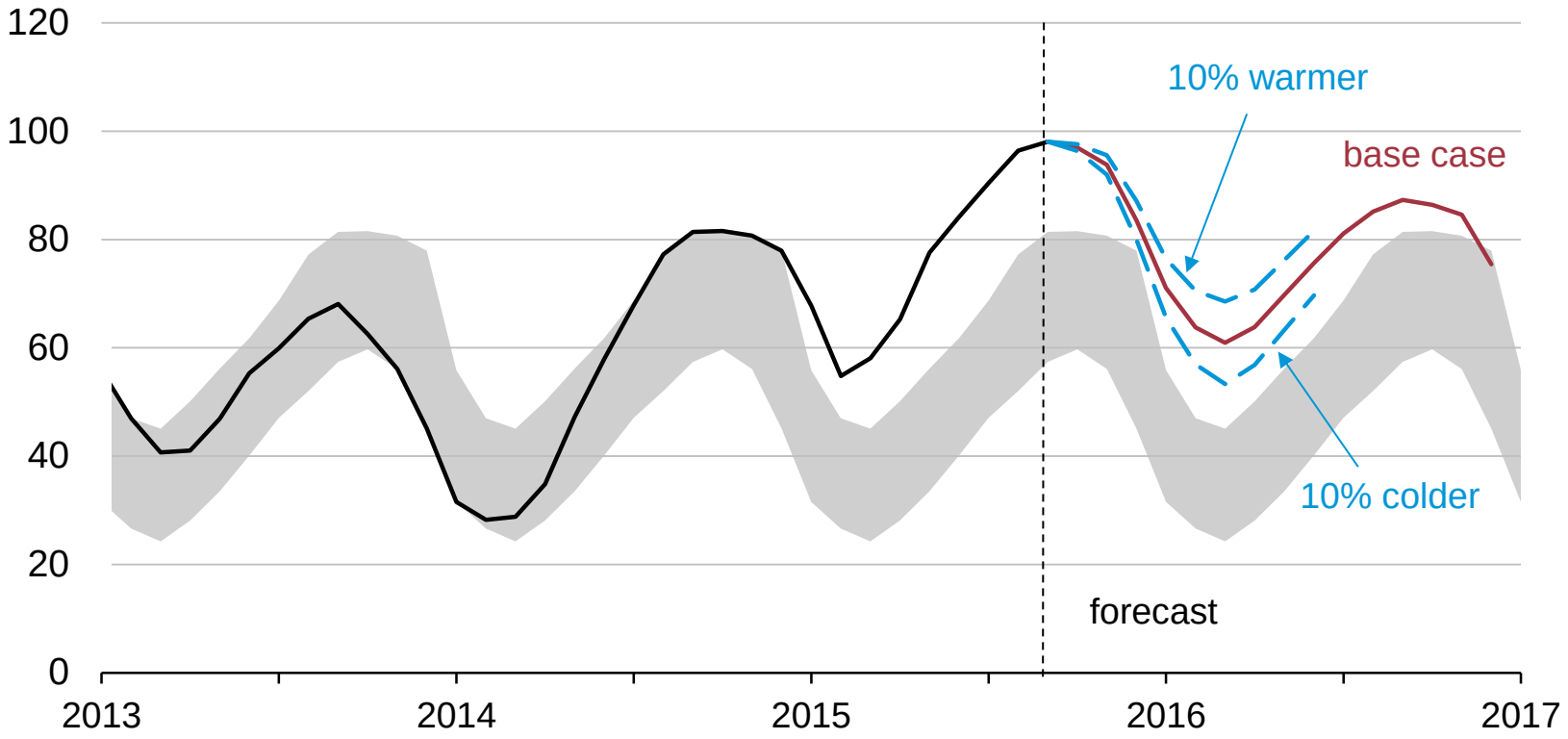


	percent change from last winter (forecast)		
	consumption	average price	total expenditures
West	-	-	-
South	-	-	-
Midwest	-9	-13	-21
Northeast	-11	-5	-15

Source: EIA Short-Term Energy Outlook, October 2015

U.S. propane inventories begin this winter about 18 million barrels higher than year-ago levels

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



Note: Gray band represents the range between the minimum and maximum from 2010 to 2014
Source: EIA Short-Term Energy Outlook, October 2015

Electricity

Winter 2015–16 takeaways and potential issues – Electricity

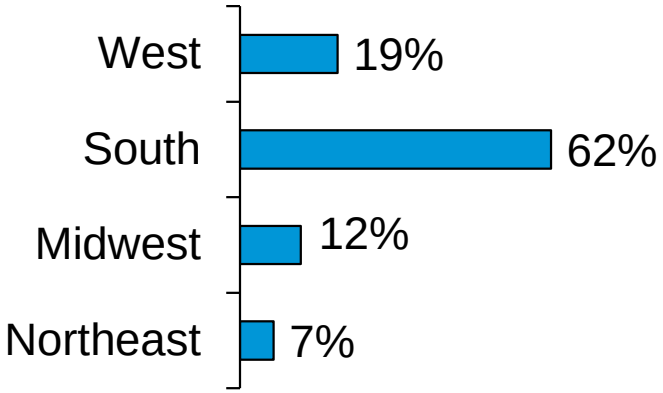
- The Northeast saw price spikes for wholesale electricity in the past two winters, mainly because of constrained natural gas supplies
- ISO–New England has implemented some market incentives for its wholesale market to help maintain adequate fuel supplies
- January 2016 forward contracts for on-peak power in New England are trading about $90/MWh, in contrast to $190/MWh at this time last year; however, the system operator warns that loss of a major non-gas unit or a natural gas supply disruption this winter could be challenging

<u>Future Developments</u>

- New England is working on a “Pay-For-Performance” strategy for its forward capacity market to ensure future capacity will be available during shortage periods (expected to be in place by 2018)

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

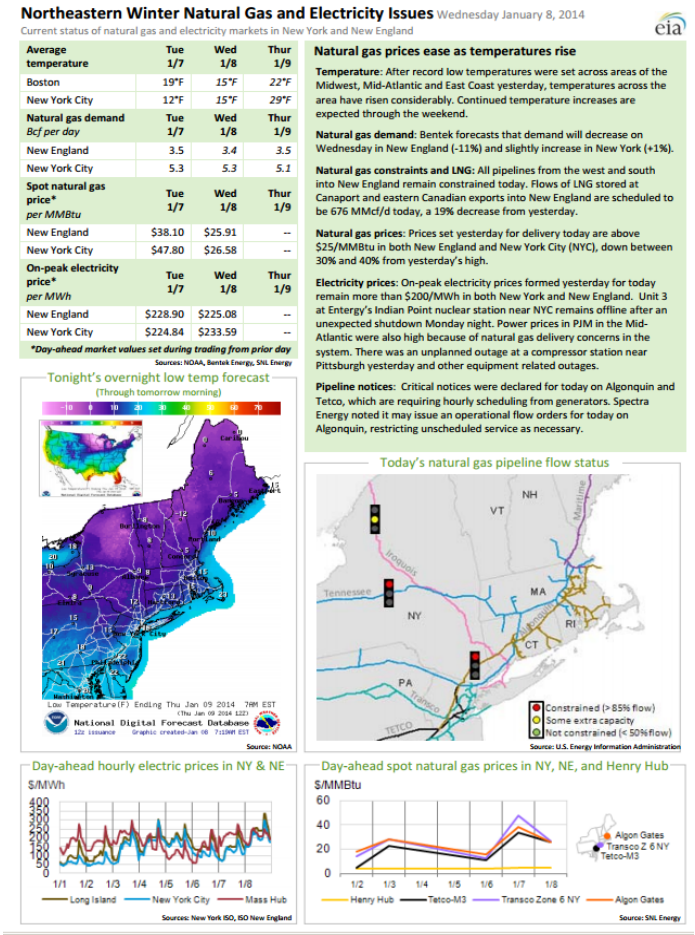
regional share of all U.S. households that use electricity as primary space heating fuel



	percent change from last winter (forecast)		
	consumption	average price	total expenditures
West	4	0	4
South	-3	-2	-5
Midwest	-5	2	-3
Northeast	-6	0	-6

Source: EIA Short-Term Energy Outlook, October 2015

Natural gas pipeline constraints into New England may produce periods of localized higher wholesale pricing



- Natural gas fueled less than 30% of the electricity generated in New England in 2001, but increased to 52% in 2012, 45% in 2013, and 43% in 2014
- Increased gas use for power generation has contributed to pipeline transportation constraints in the New England regional natural gas market
- These pipeline constraints are more pronounced in winter months and contributed to extreme price spikes in spot natural gas and electricity prices in New England during January and February 2015

EIA's Market Alerts are published on eia.gov during periods of stress caused by cold snaps in the winter or heat waves in the summer.

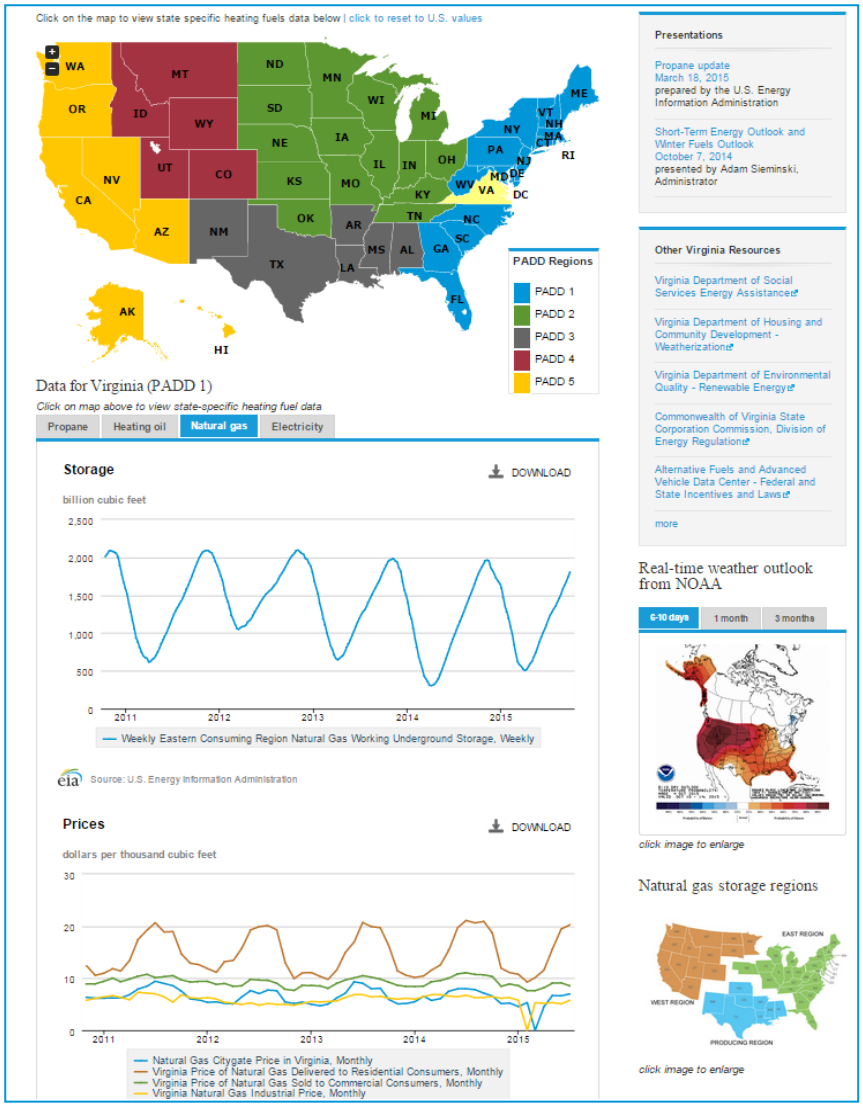
New capacity from Marcellus mostly serves New York and New Jersey; no capacity additions into New England this winter

- May 2015: Transcontinental Pipeline's 0.65 Bcf/d Rockaway Delivery Project came online. The project provides delivery service to Brooklyn and Queens, NY
- March 2015: Transco's Woodbridge Lateral began service, providing 0.26 Bcf/d of capacity to New Jersey
- Fall 2014: Texas Eastern, Dominion, Columbia, and Tennessee brought online several projects to serve Pennsylvania, Maryland, and other Mid-Atlantic states.

Future Developments

- Fall 2016: Algonquin Pipeline's Incremental Market (AIM) project is expected to come online, adding 0.34 Bcf/d of capacity to serve New England states and New Jersey and New York
- 2016 – 2018: Algonquin and Tennessee Gas Pipeline have announced several projects to provide additional capacity to New England

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