

EIA Short-Term Energy and Winter Fuels Outlook



October 7, 2014 | Washington, DC

Overview

- Winter Fuels Outlook focuses on households.
- EIA expects higher prices this winter for homes that heat with natural gas and electricity. Propane and home heating oil prices are expected to be lower than last winter.
- Forecast temperatures are much warmer than last winter east of the Rocky Mountains with the Northeast, Midwest, and South about 11%, 16%, and 12% warmer, respectively. Forecast temperatures are 5% warmer than last winter in the West.
- Projected changes in average U.S. household expenditures from last winter are:
 - 5% lower for homes that heat primarily with natural gas
 - 15% lower for heating oil; 27% lower for propane
 - 2% lower for electricity

Expenditures are expected to be lower this winter (October 1–March 31) unless there is a repeat of last winter's cold weather

Percent change in fuel bills from last winter (forecast)

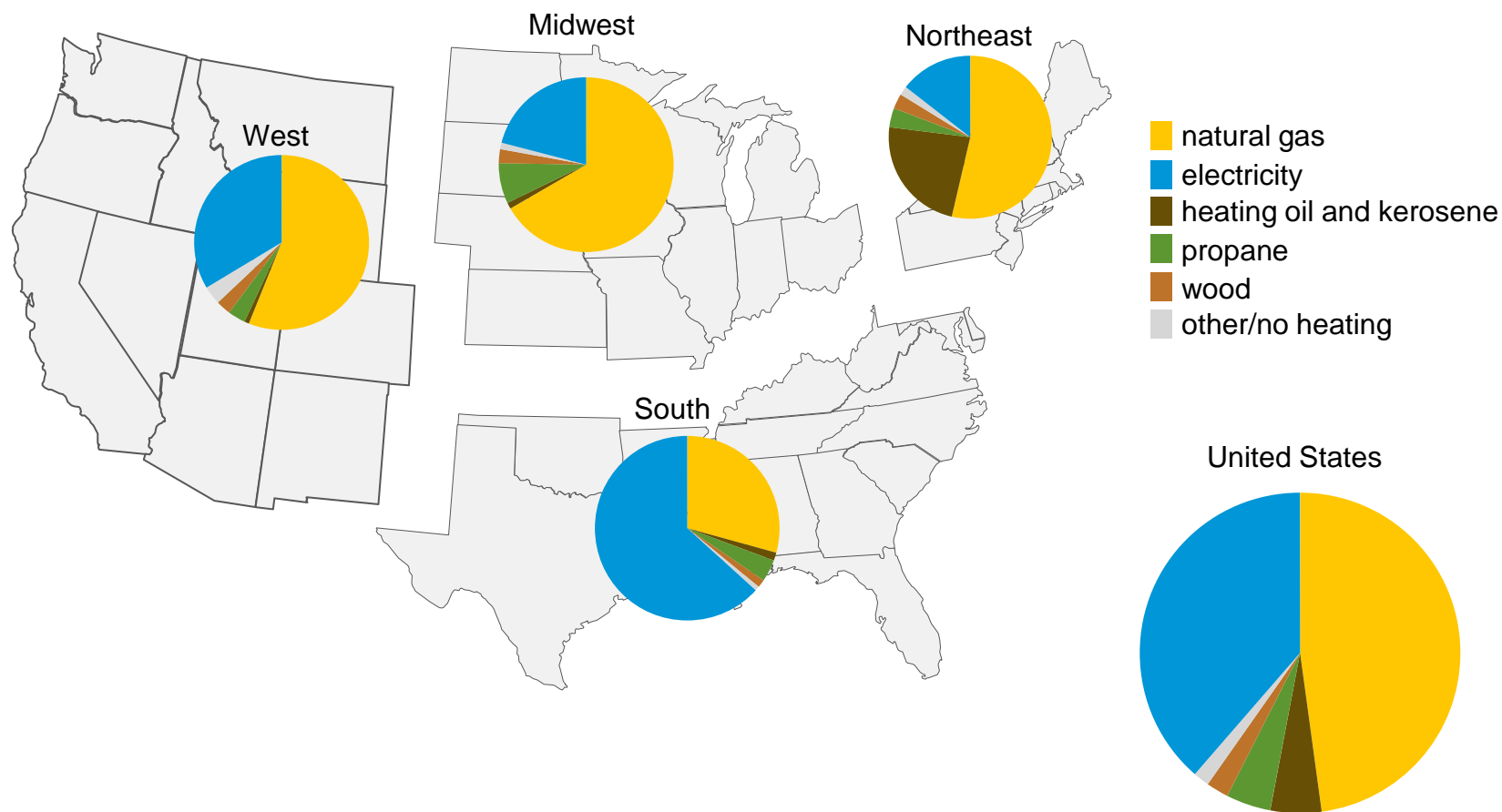
Fuel bill	Base case forecast	If 10% warmer than forecast	If 10% colder than forecast
Heating oil	-15%	-24%	-5%
Natural gas	-5%	-12%	6%
Propane *	-27%	-37%	-15%
Electricity	-2%	-5%	2%

* 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 2014.

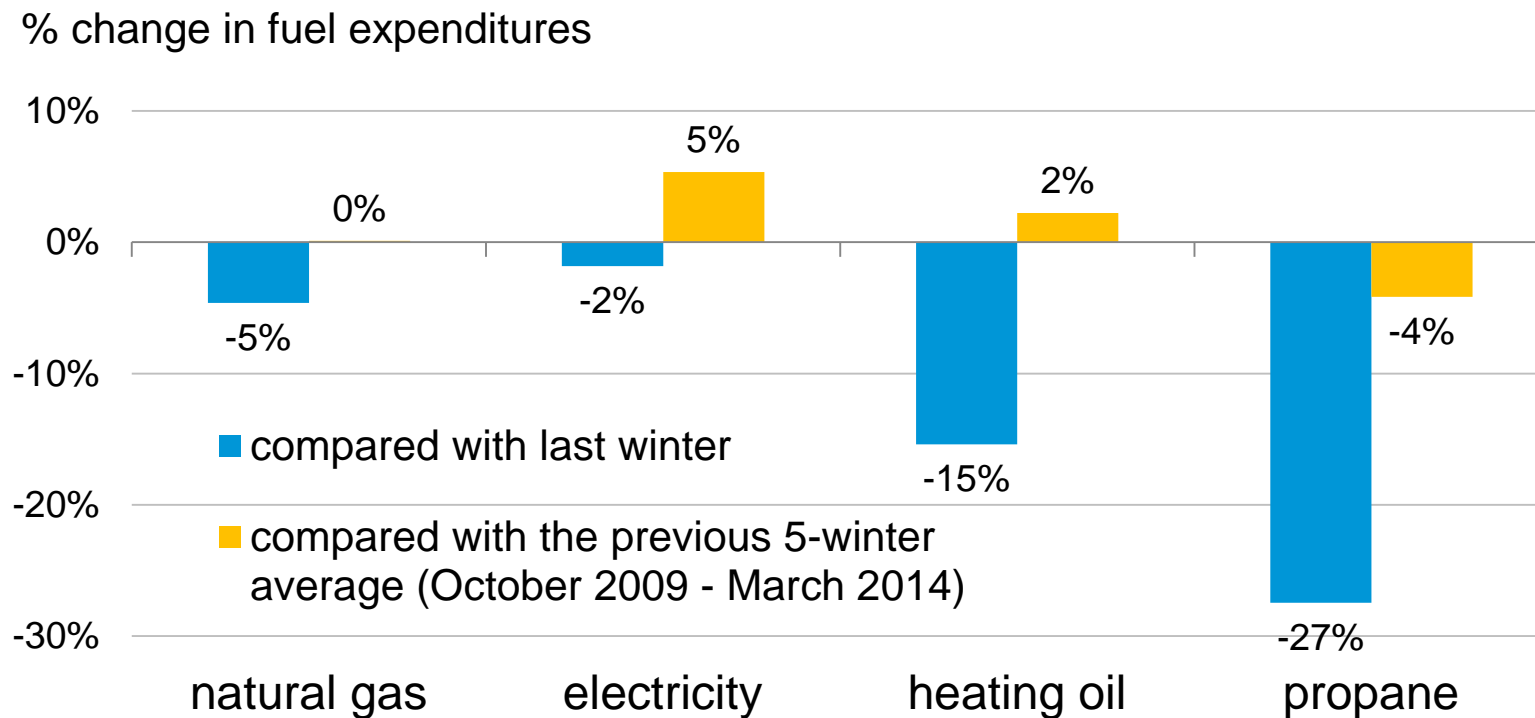
Heating fuel market shares vary regionally

Share of homes by primary space heating fuel and Census Region



Source: EIA calculations based on the U.S. Census Bureau, 2013 American Community Survey.

Although forecast expenditures for all fuels are lower than last winter, electricity and heating oil expenditures are still higher than the previous 5-winter average

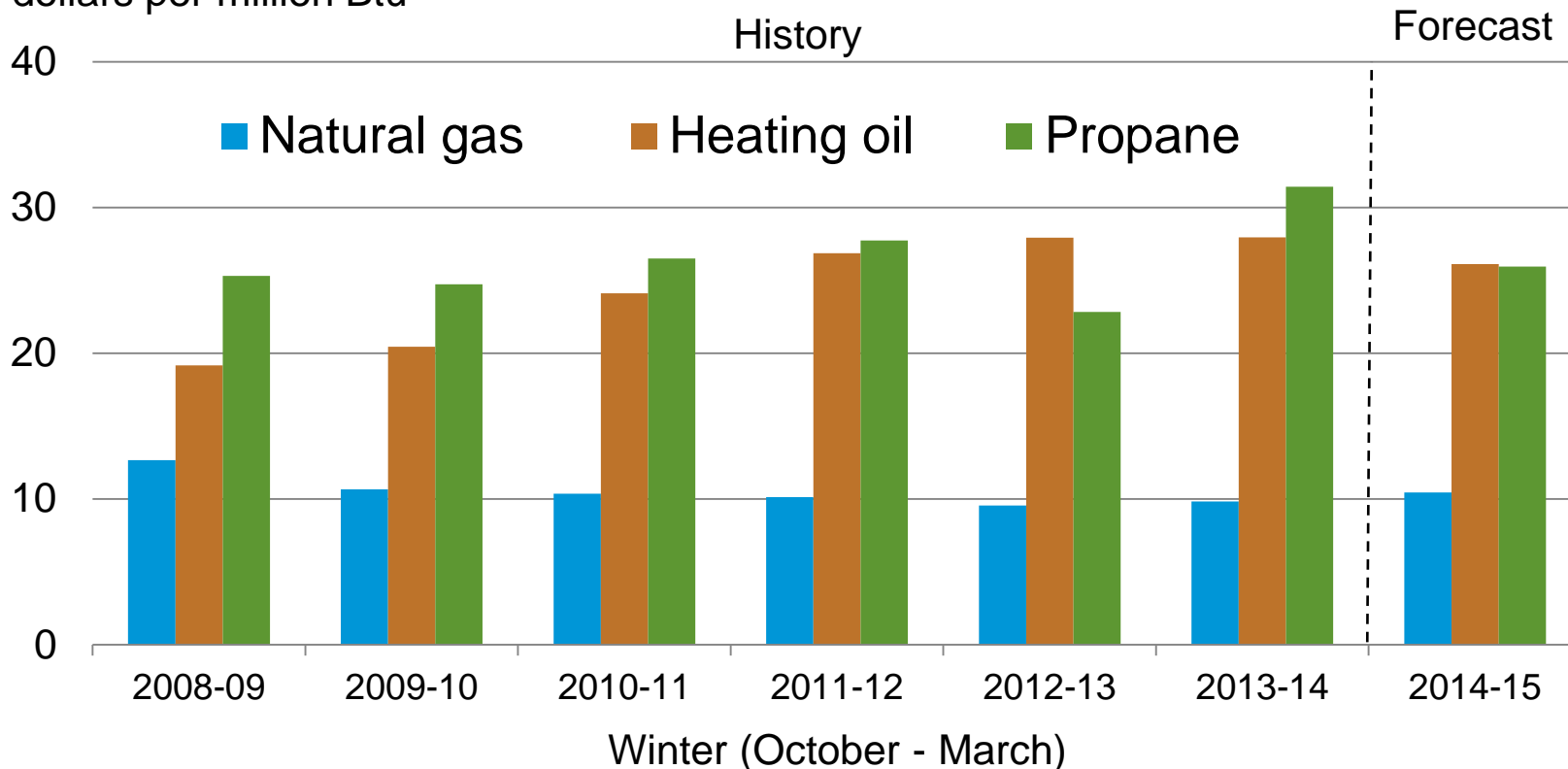


Note: All prices are U.S. averages except propane, which is an average of Northeast and Midwest prices.

Source: EIA Short-Term Energy Outlook, October 2014.

The differences between natural gas, heating oil, and propane prices narrow this winter, with natural gas price 6% higher, heating oil price down 6%, and propane 17% lower

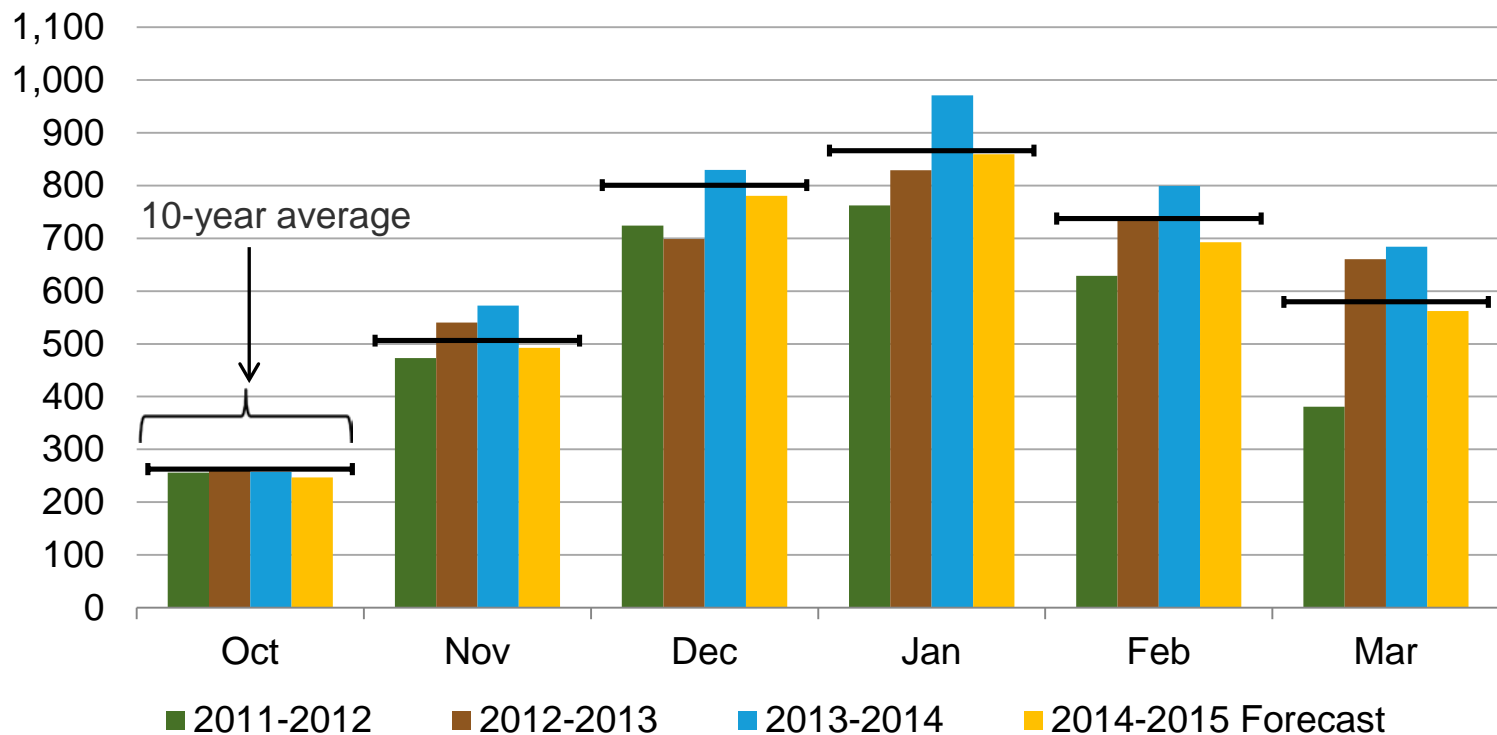
U.S. average residential winter heating fuel prices
dollars per million Btu



Source: EIA Short-Term Energy Outlook, October 2014.

U.S. heating degree days this winter season forecast by NOAA to be 12% lower than last winter

U.S. current population-weighted heating degree days



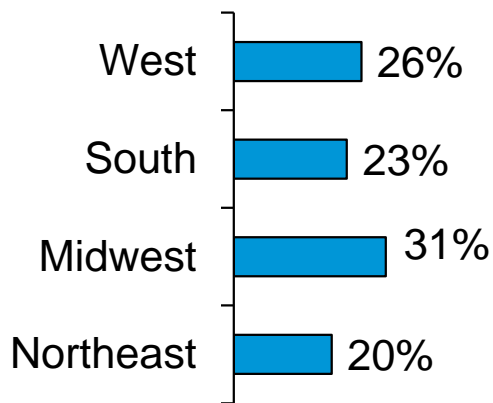
Note: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Horizontal lines indicate 10-year average over the period Oct. 2004 – Mar. 2014. Projections reflect NOAA's 14-16 month outlook.

Source: EIA Short-Term Energy Outlook, October 2014.

Natural Gas

Reduced natural gas consumption lowers average fuel bills in all regions this 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	-4%	2%	-2%
South	-9%	6%	-4%
Midwest	-13%	6%	-8%
Northeast	-9%	7%	-3%

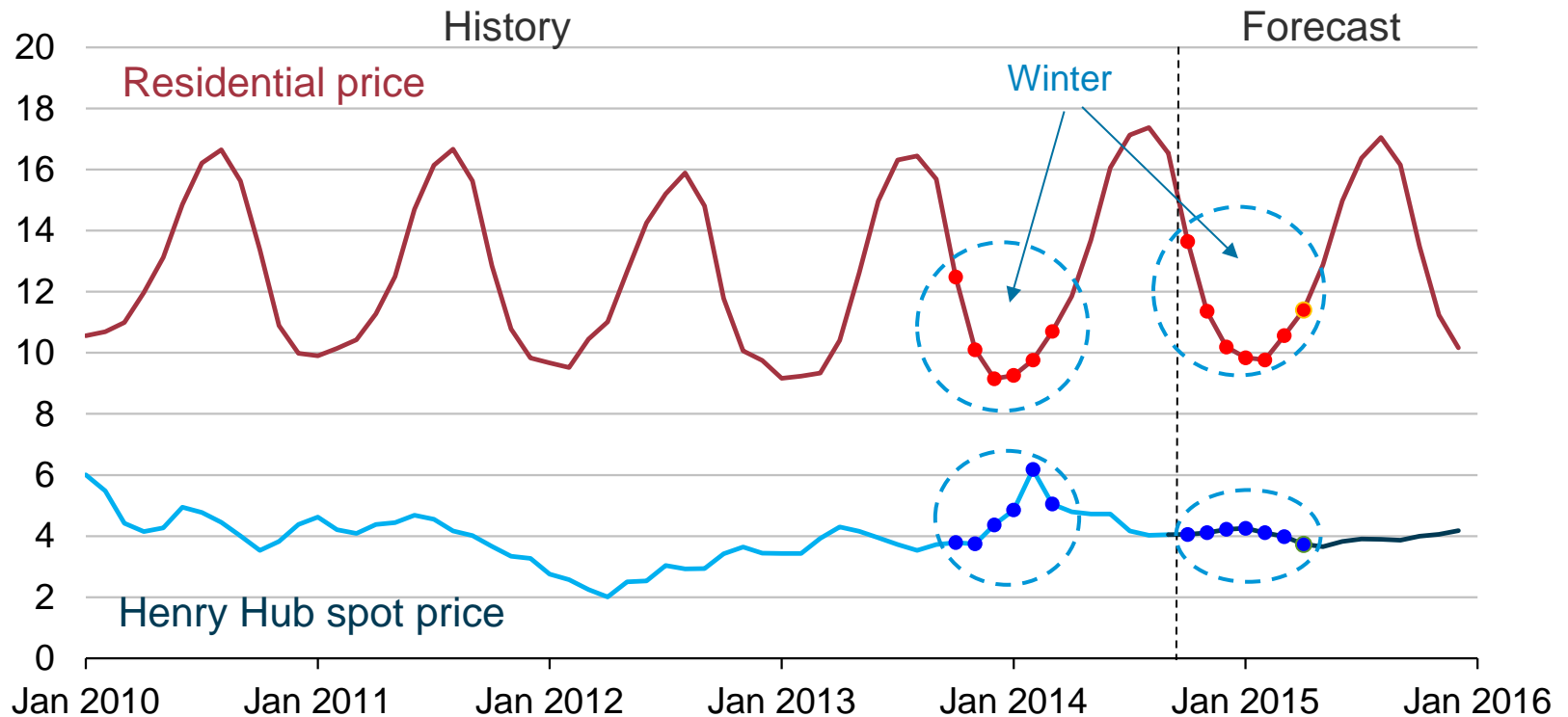
Source: EIA Short-Term Energy Outlook, October 2014.

Winter 2014-15 takeaways and potential issues–Natural Gas

- Natural gas production gains contributed to record storage injections this year. Dry natural gas production this winter is projected to average 71 Bcf/day, an increase of 3 Bcf/day (4.5%) over last winter.
- Growing production and record storage injections this year helped lower the 2014-15 winter futures prices (Nov. 2014 - Mar. 2015) for natural gas at Henry Hub from almost \$5/MMBtu in late April to near \$4/MMBtu in recent trading. The projected Henry Hub spot price this winter averages \$4.00/MMBtu compared with \$4.52/MMBtu last winter.
- Working gas stocks on Sep. 26 were 373 Bcf (11%) lower than this time last year, but are sufficient to meet winter demand.

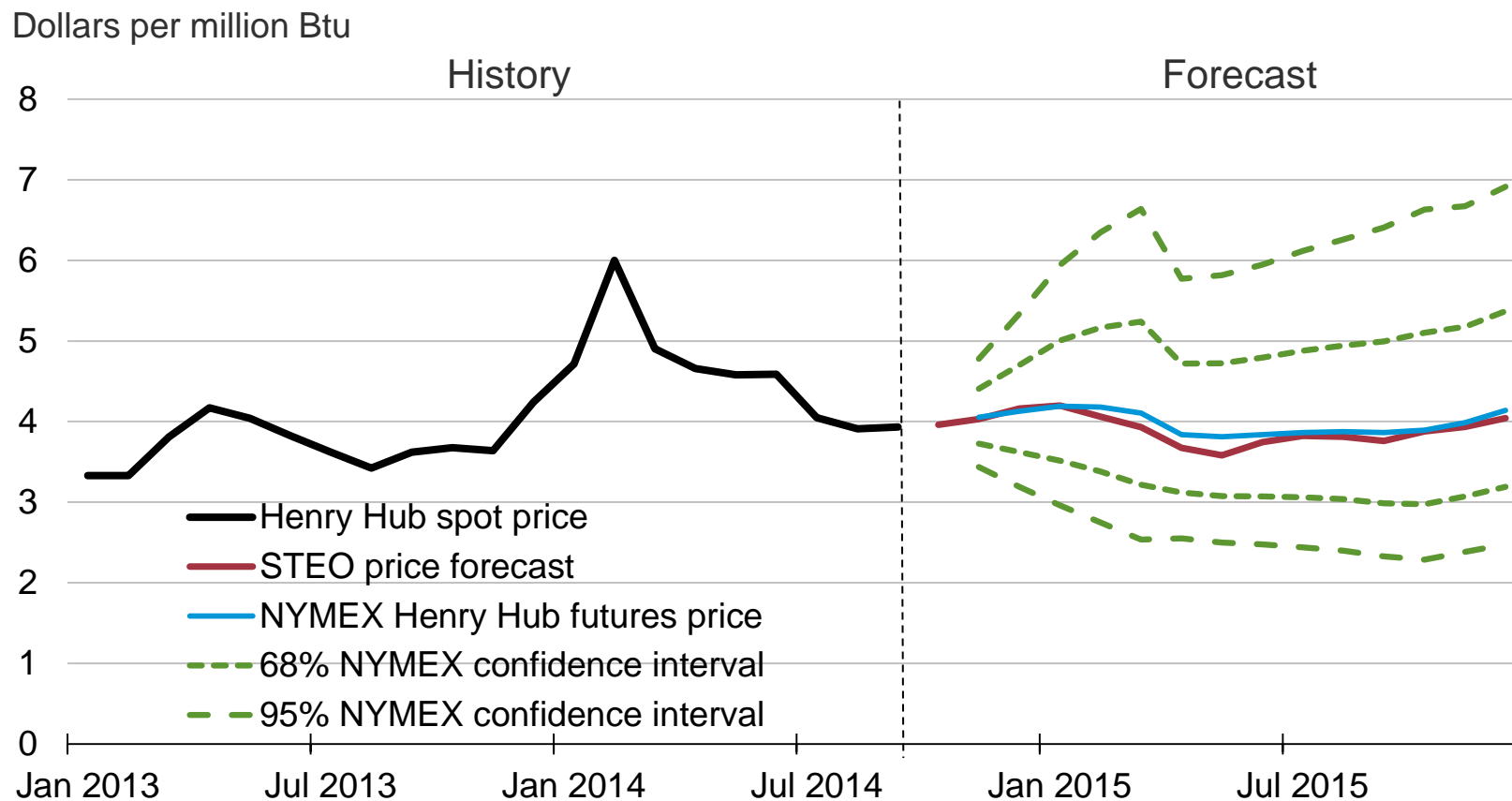
EIA expects residential natural gas prices to be 6% higher than last winter's prices

Dollars per thousand cubic feet (Mcf)



Source: EIA Short-Term Energy Outlook, October 2014.

Future natural gas prices remain highly uncertain

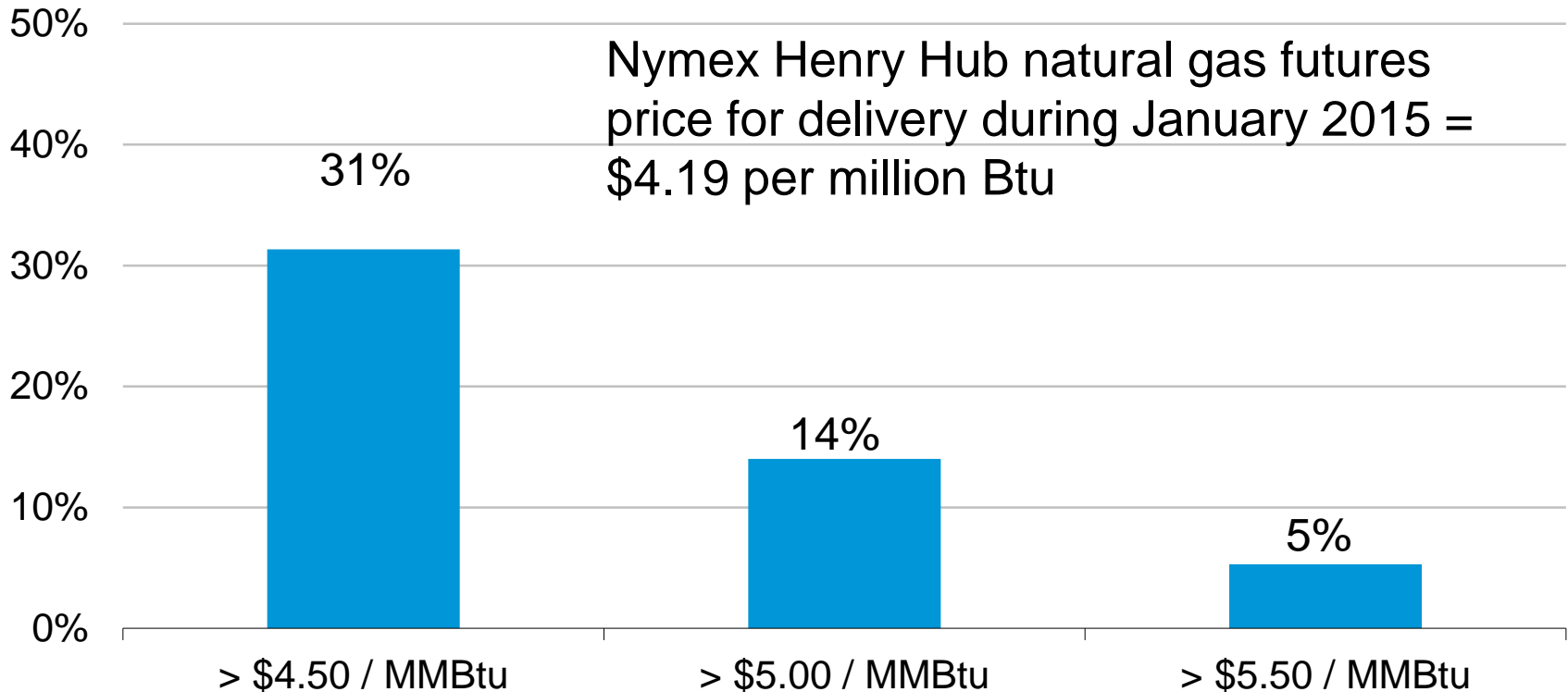


Note: Confidence interval derived from options market information for the 5 trading days ending Oct. 2, 2014. Intervals not calculated for months with sparse trading in near-the-money options contracts.

Source: EIA Short-Term Energy Outlook, October 2014, and CME Group.

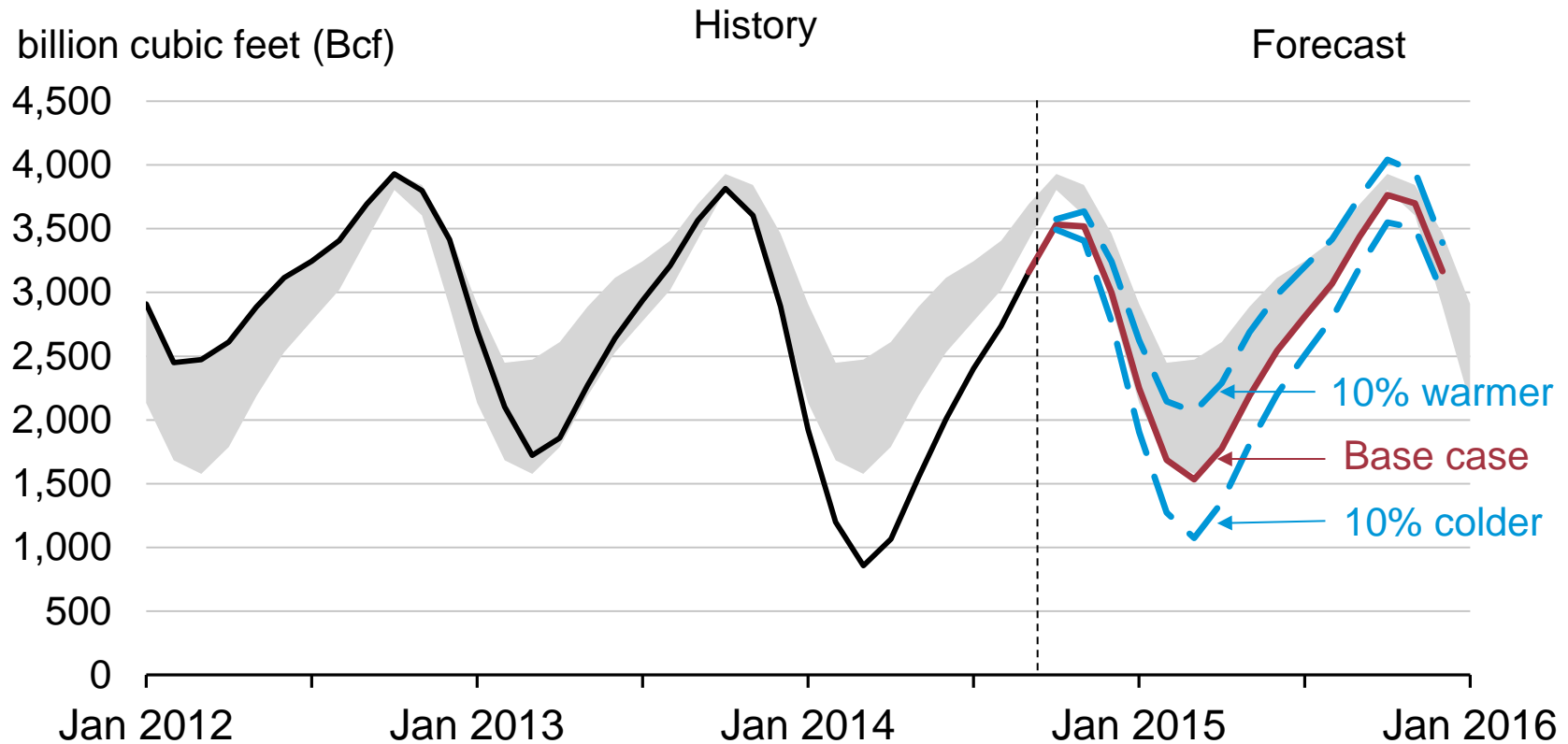
The probability of the January 2015 Henry Hub natural gas price being higher than \$5.00 per MMBtu is about 14%

probability of exceedance



Source: EIA Short-Term Energy Outlook, October 2014, and CME Group (Nymex closing prices for 5 trading days ending Oct. 2, 2014).

Forecast natural gas inventories on Sep. 26 are 373 Bcf lower than last winter and 399 Bcf below the previous 5-year average



Note: Normal range (gray band) represents the range between the minimum to maximum from Jan. 2009 to Dec. 2013.

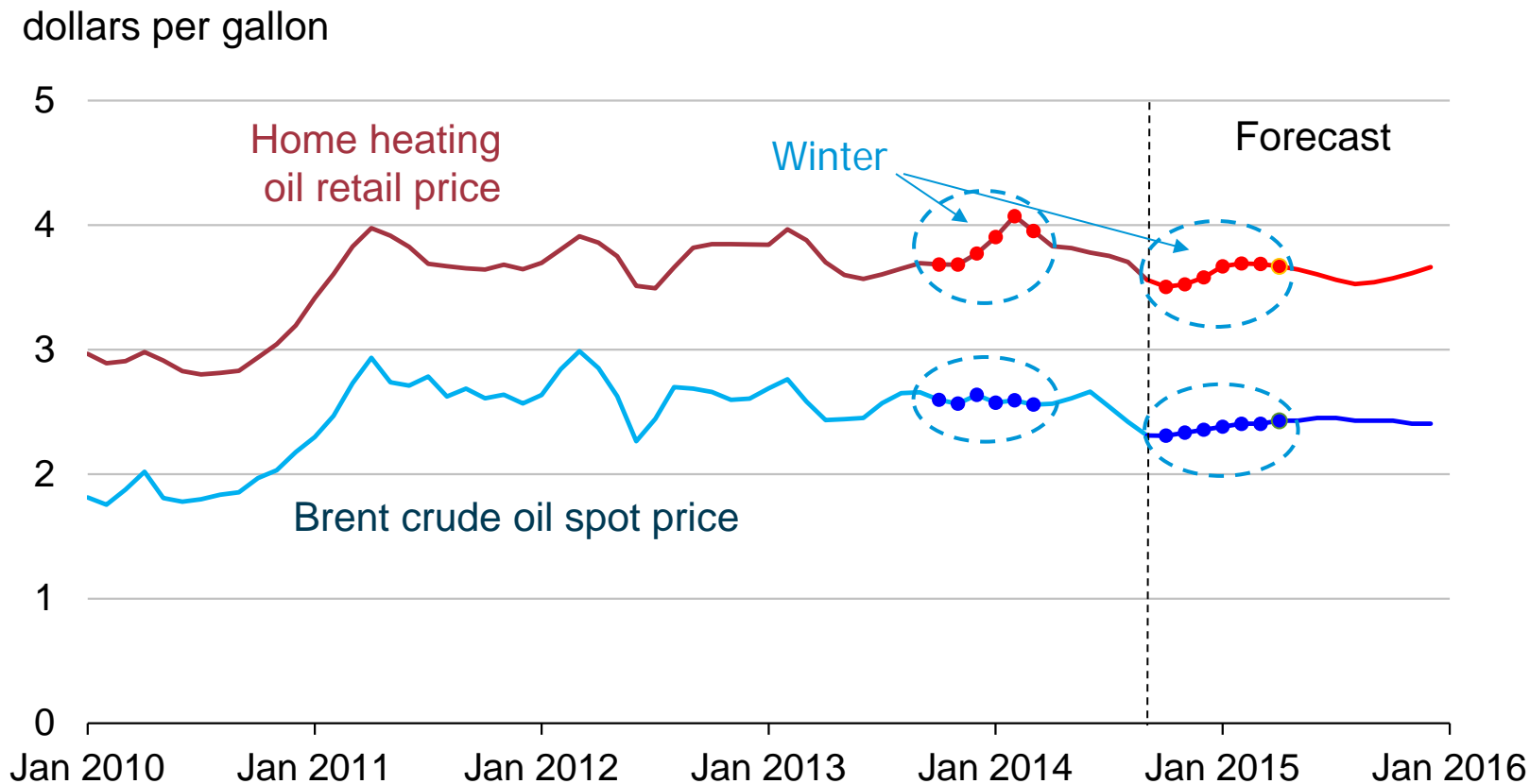
Source: EIA Short-Term Energy Outlook, October 2014.

Heating Oil

Winter 2014-15 takeaways and potential issues–Heating Oil

- Brent crude oil spot price forecast to average \$9/barrel (22 cents/gal) lower this winter.
- Distillate stocks in the Northeast totaled 29.3 million barrels on September 26, 0.2 million barrels below the same time last year and the lowest level for this time of year since 2000. However, unless severe weather in the Northeast coincides with severe weather in Europe, demand should be readily met via supplies from the Atlantic Basin market.
- Five states (CT, MA, NJ, RI, VT) lowered their heating oil maximum sulfur specification in July from 2,000+ ppm to 500 ppm.
- New regulations (MARPOL Annex VI) limit marine vessel fuel sulfur levels in certain coastal waters to 1,000 ppm in January 2015.

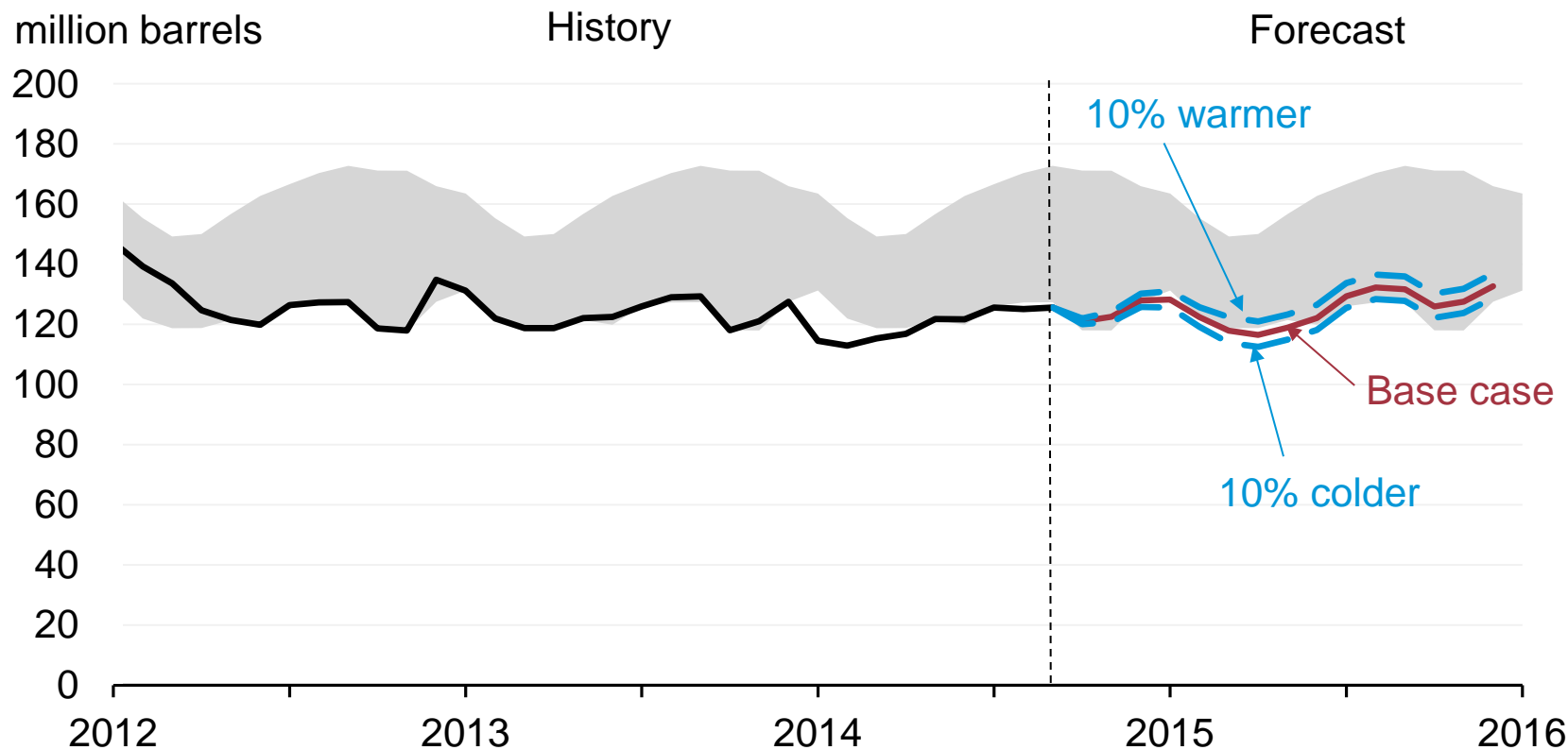
EIA expects residential heating oil prices to average 6% lower this winter than last



Note: Home heating oil retail price includes taxes.

Source: EIA Short-Term Energy Outlook, October 2014.

Going into winter, distillate inventories remain at the low end of the previous 5-year range

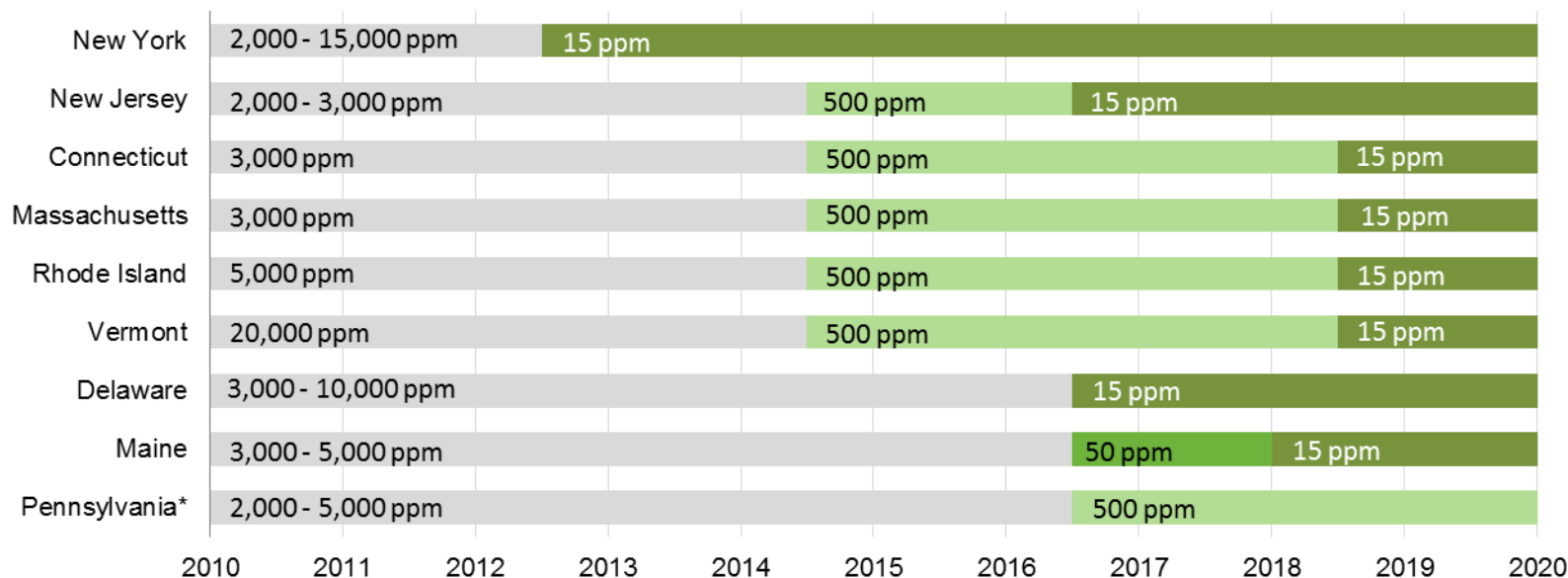


Note: Normal range (gray band) represents the range between the minimum to maximum from Jan. 2009 to Dec. 2013.

Source: EIA Short-Term Energy Outlook, October 2014.

Heating oil sulfur specifications lowered in five states as of July 1, 2014

Schedule for maximum sulfur content of heating oil in the Northeast by year
parts per million (ppm)



Note: Specifications change on July 1 of the years shown, with the exception of Maine's 15 ppm requirement, which changes on January 1, 2018.

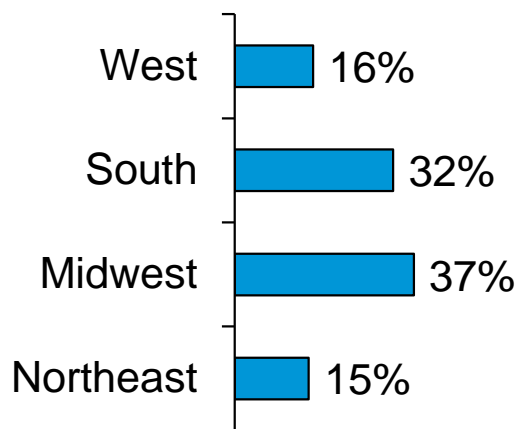
* Philadelphia, Pennsylvania changes from 2,000 ppm to 15 ppm on July 1, 2015.

Source: U.S. Energy Information Administration.

Propane

Forecast propane expenditures lower than last winter because of lower prices and consumption

Regional share of all U.S. households that use propane as primary space heating fuel



Percent change from last winter (forecast)

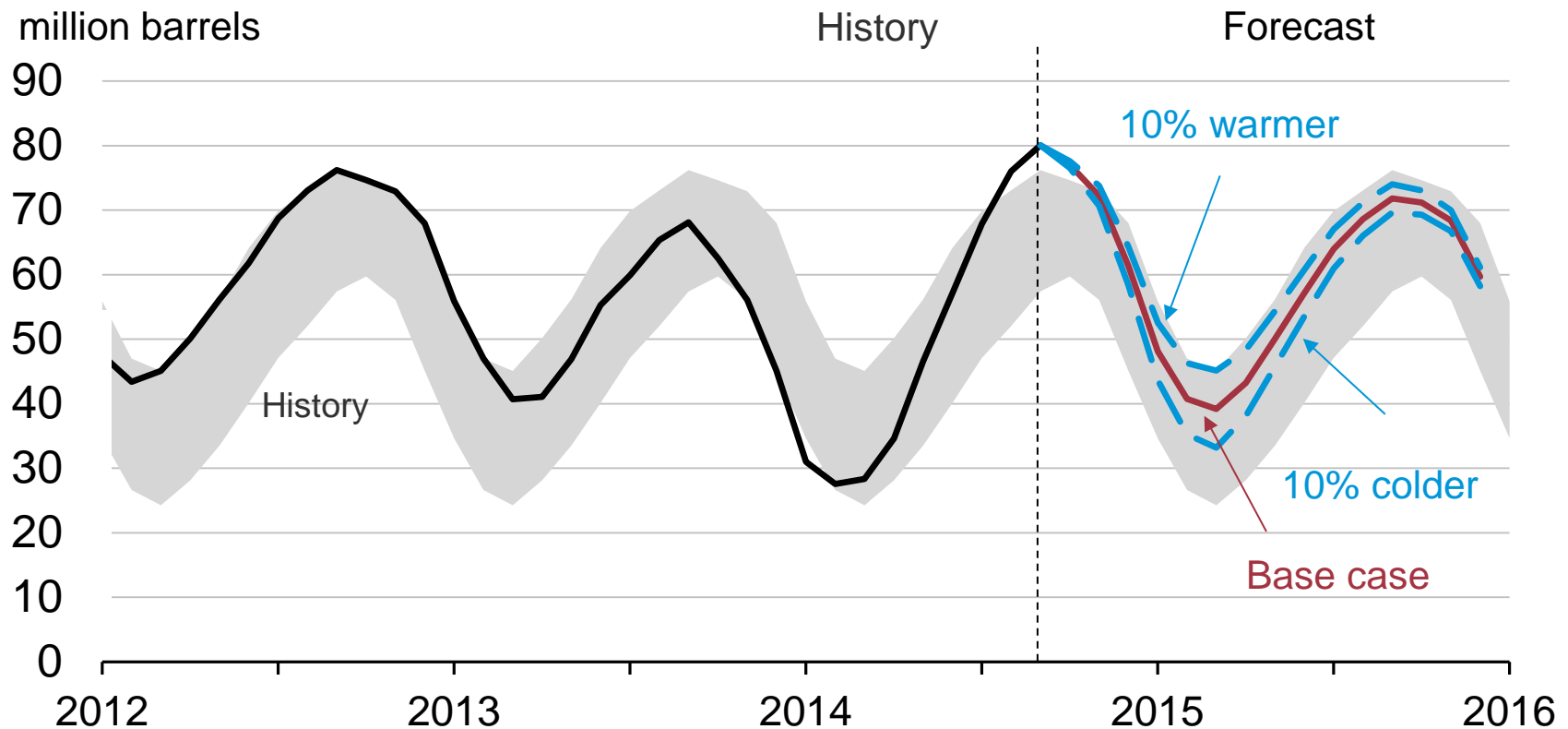
	Consumption	Average price	Total expenditures
West	-	-	-
South	-	-	-
Midwest	-13%	-24%	-34%
Northeast	-9%	-5%	-13%

Source: EIA Short-Term Energy Outlook, October 2014.

Winter 2014-15 takeaways and potential issues—Propane

- Primary propane stocks in the Gulf Coast and Midwest on Sep. 26 were 10 million barrels (17%) higher than this time last year and are at the highest level for any week since at least 1993.
- Propane production at natural gas liquids plants has been rising and is projected to average 970,000 bbl/d this winter, 110,000 bbl/d (12%) higher than last winter.
- Propane spot prices are currently within 3 cents/gal of prices last year at this time.
- The outlook for propane demand is uncertain.
 - Another record corn crop is expected.
 - U.S. winter heating degree days have recently ranged from a low of 3,225 in 2011-12 to 4,114 in 2013-14.
- Propane supply is adjusting to recent infrastructure changes
 - Cochin Pipeline Reversal.
 - New and expanded rail facilities in the Midwest.

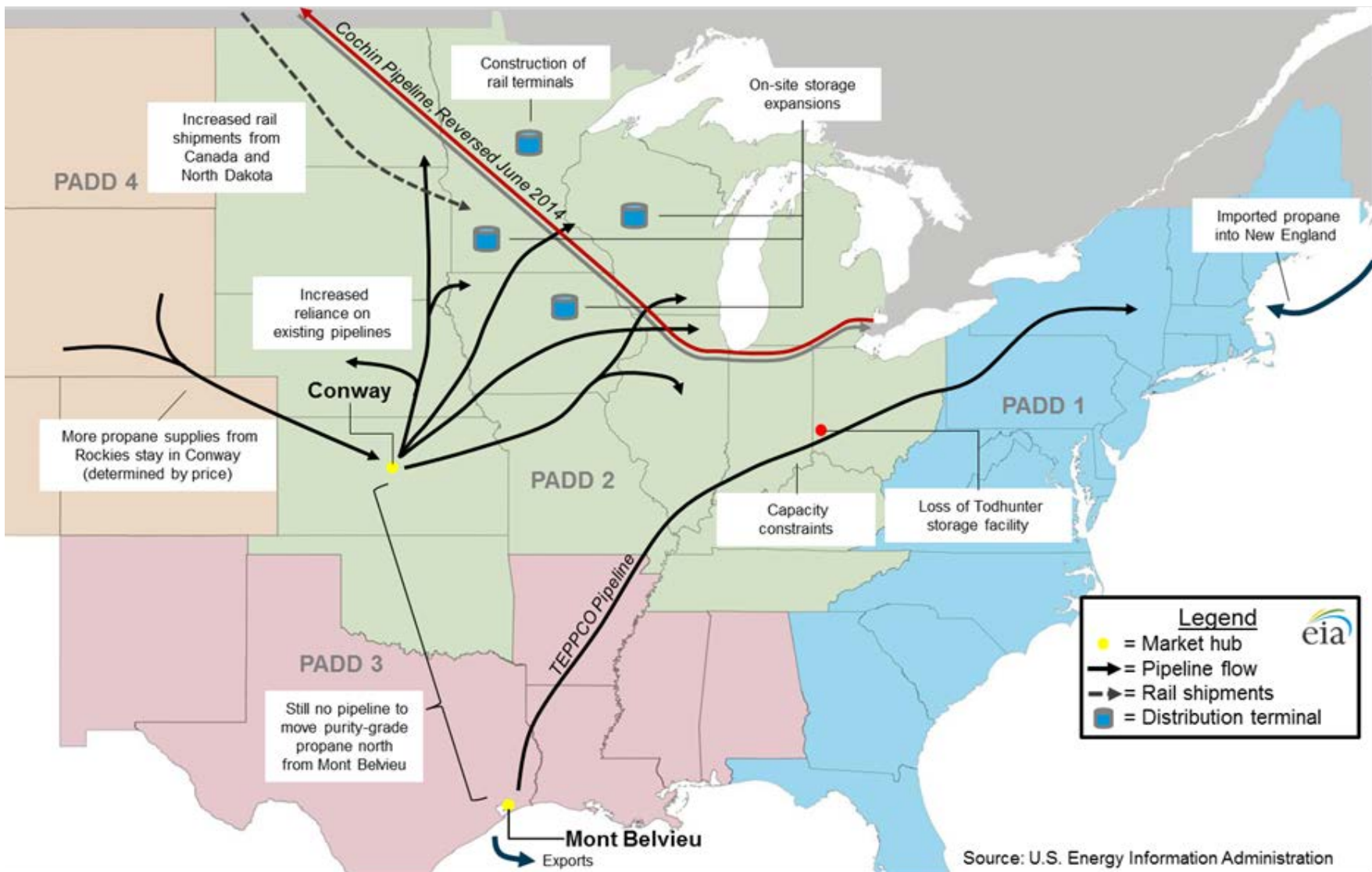
U.S. propane inventories begin this winter about 12 million barrels higher than last winter



Note: Normal range (gray band) represents the range between the minimum to maximum from Jan. 2009 to Dec. 2013.

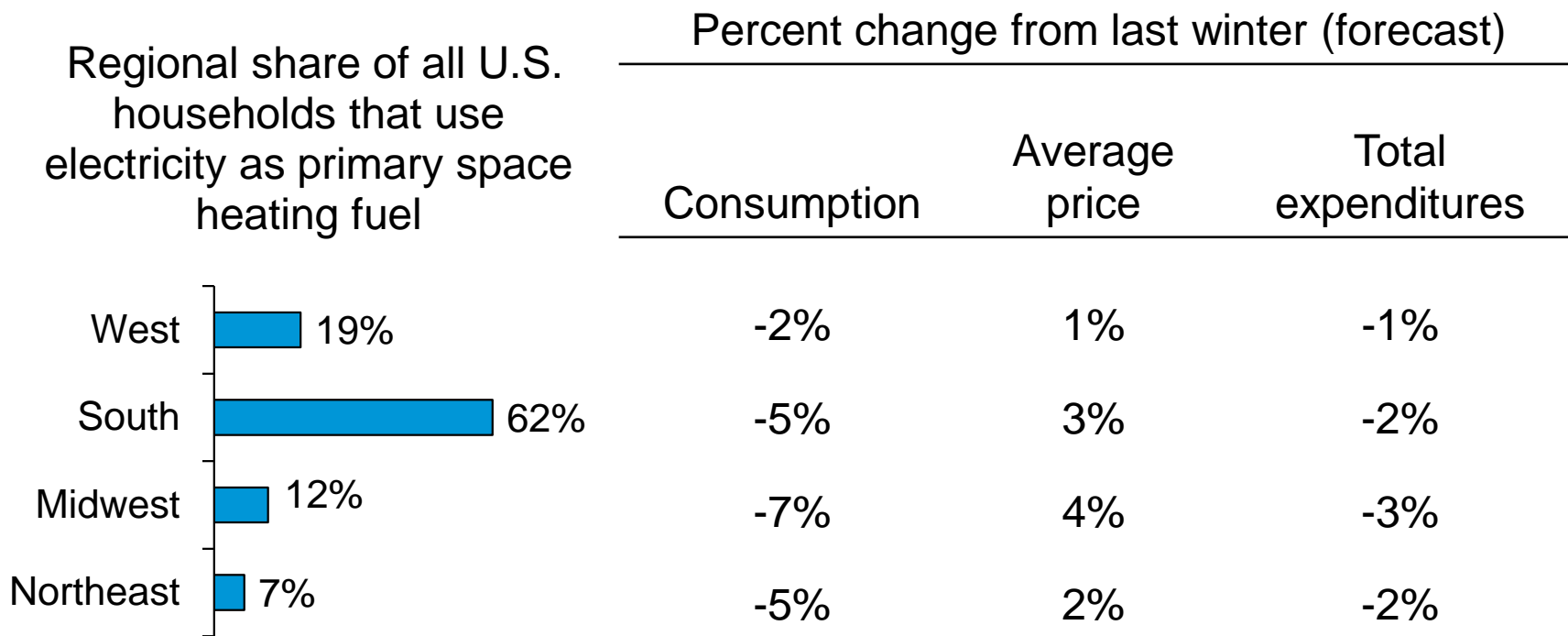
Source: EIA Short-Term Energy Outlook, October 2014.

Winter 2014-15 propane supply diagram



Electricity

Winter electricity bill forecasts are lower in all regions compared with last winter despite higher prices



Source: EIA Short-Term Energy Outlook, October 2014.

Winter 2014–15 takeaways and potential issues–Electricity

- New England natural gas basis futures are significantly higher than last year at this time; shows concern about possible regional constraints.
- Natural gas forward prices are reflected in forward electricity markets; January 2015 on-peak power in New England is now trading at over \$180 per megawatt-hour.
- Closure of Entergy's 604-megawatt Vermont Yankee nuclear plant, expected in the fourth quarter of 2014, may contribute to significantly higher electricity rates for many homes in New England.
- New England, which lacks significant underground gas storage capacity, relies on a mix of peak-shaving, satellite LNG, and storage capacity located outside the region to help meet winter natural gas demand.

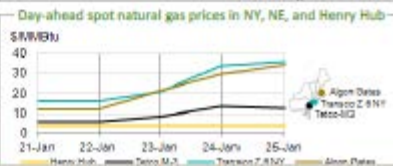
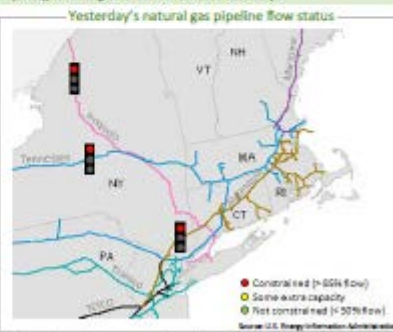
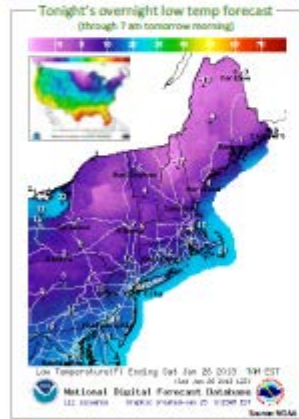
Natural gas pipeline constraints into New England may produce periods of localized higher wholesale pricing

Northeastern Winter Natural Gas and Electricity Alert Friday January 25, 2013

Current status of natural gas and electricity markets in New York and New England

Average temperature	Thurs 1/24	Fri 1/25	Mon 1/28
Boston	13°F	12°F	26°F
New York City	17°F	18°F	31°F
Natural gas demand Scf per day	Thurs 1/24	Fri 1/25	Mon 1/28
New England	3.08	3.42	3.58
New York City	4.99	4.83	4.58
Day-ahead spot natural gas price per MMBtu	Thurs 1/24	Fri 1/25	
New England	\$29.94	\$34.25	
New York City	\$33.96	\$36.00	
Day-ahead on-peak electricity price per MWh	Thurs 1/24	Fri 1/25	
New England	\$226.84	\$290.51	
New York City	\$224.96	\$253.36	

Northeastern cold snap likely to ease after today
 Temperature: Both NYC and Boston expect continuing cold temperatures during the day today. Beginning tonight, temperatures are forecast to be moderate, with lows of 18°F in NYC and 15°F in Boston. Next week is expected to be milder.
 Natural gas demand: Bentek forecasts that demand will remain at high levels through today.
 Natural gas constraints & LNG: Most pipelines from the west and south into New England remain constrained today (Procon is at 92% because some of the gas that feeds it is flowing to Eastern Canada). Flow on the marginal pipeline into NYC (Texas Eastern - TETCo) are constrained at key points. Flows of LNG stored at Casaport into New England are scheduled to be 571 MMcf/d today (down over 250 MMcf from yesterday).
 Natural gas prices: Prices are well over \$30/MMBtu in both New England and NYC, the highest level of the winter and, for New England, the highest since January 2008. Prices are also somewhat elevated (about \$13/MMBtu) just west and south of New York, but remain below \$4/MMBtu in the rest of the country.
 Electricity prices: Day-ahead electricity prices today are higher than yesterday, reflecting the continuing rise in natural gas prices. Gas prices are now high enough that it may be economically attractive to use oil for power generation in some cases. Real-time prices in NYC and Long Island were relatively orderly yesterday, unlike on Tuesday and Wednesday.
 Pipeline notices: Algonquin and TETCo are requiring hourly scheduling from generators. Algonquin and Inroque will issue operational flow orders (OFOs), restricting unscheduled service as necessary.



Natural gas fueled less than 30% of the electricity generated in New England in 2001, but increased to an average 52% in 2012 and 45% in 2013.

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 2014.

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.

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