

EIA Short-Term Energy and Winter Fuels Outlook



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*by
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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

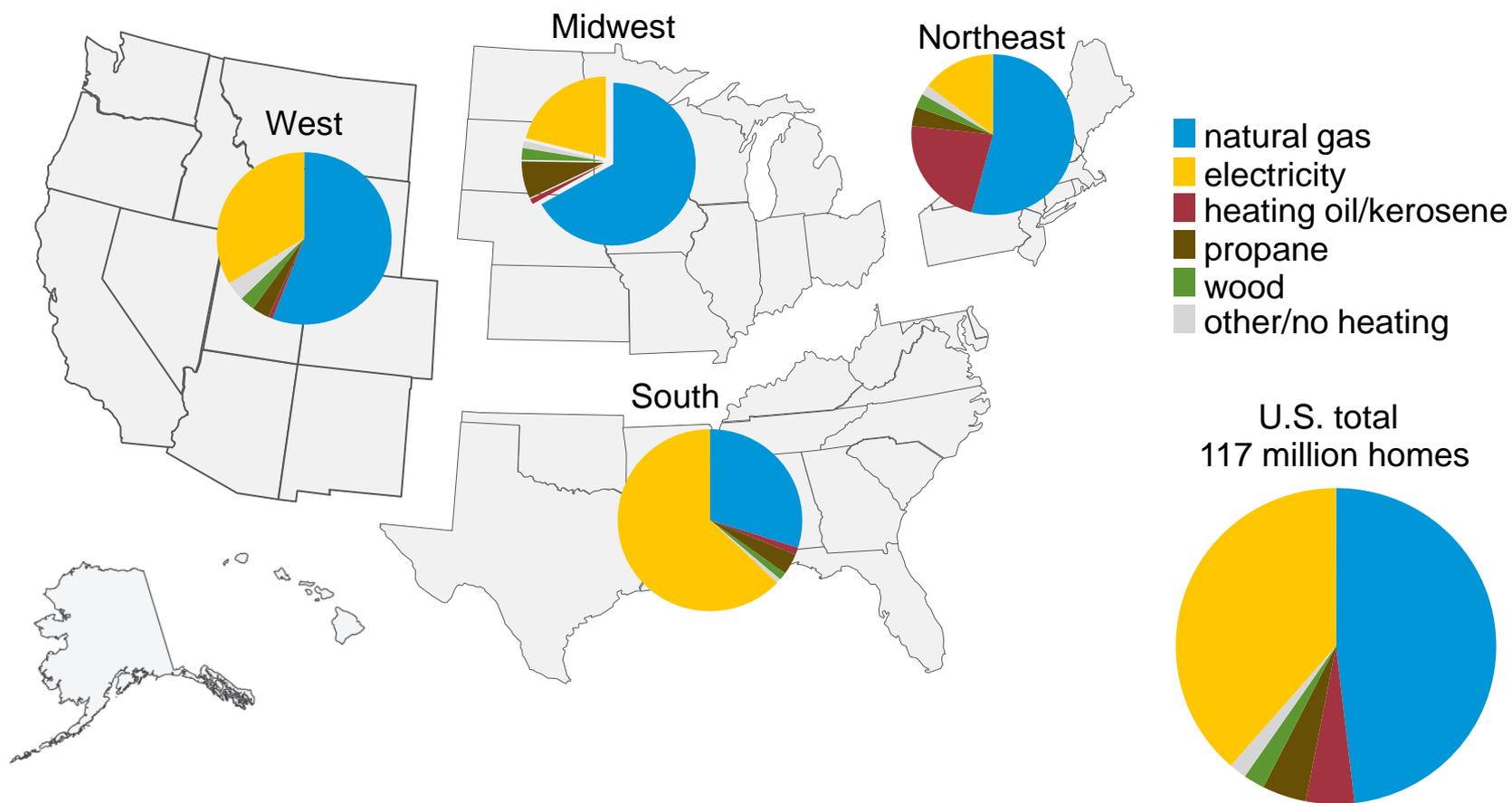
Percent change in fuel bills from last winter (forecast)

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

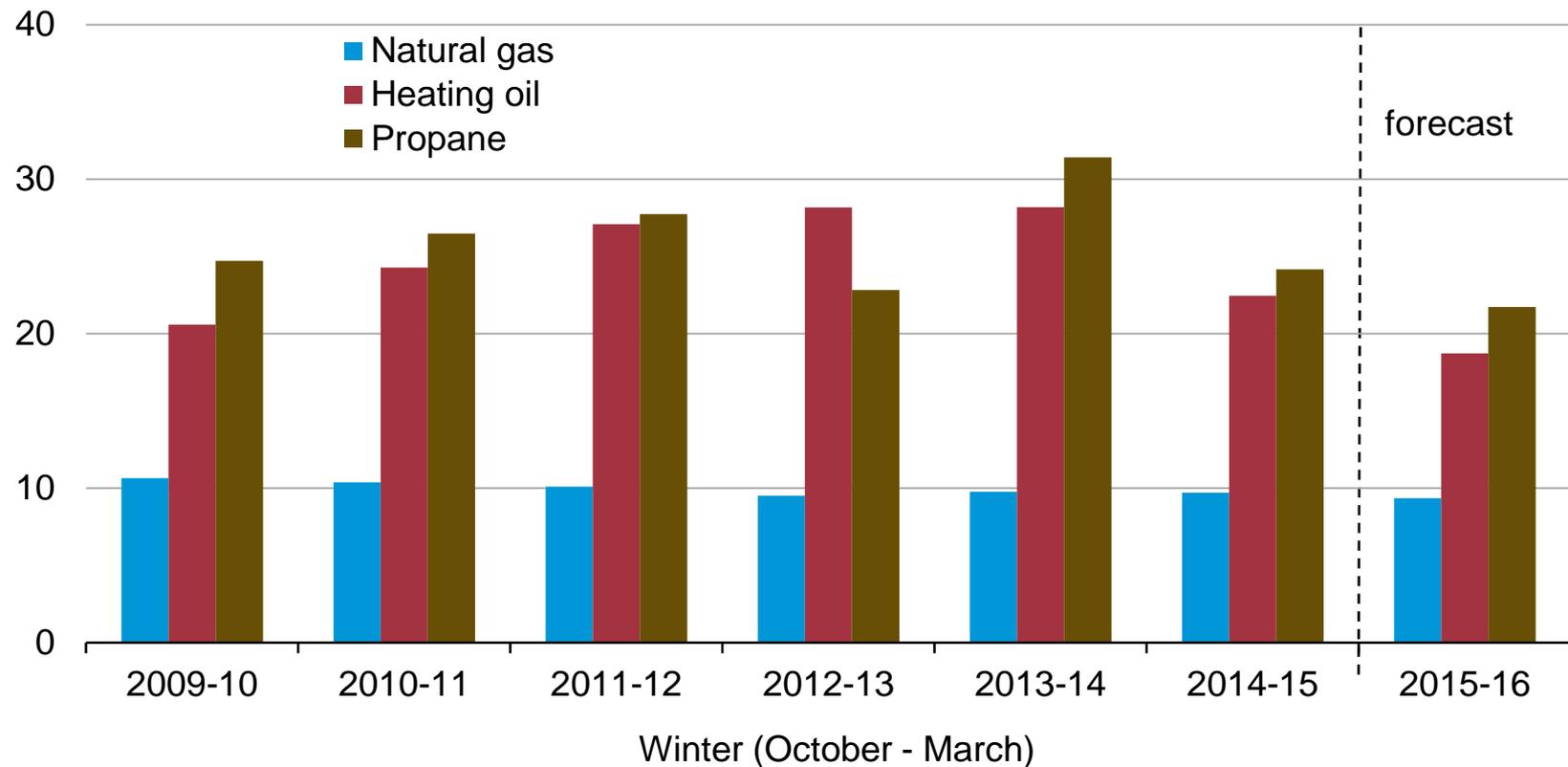
Share of homes by primary space-heating fuel and Census Region



Source: U.S. Energy Information Administration based 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

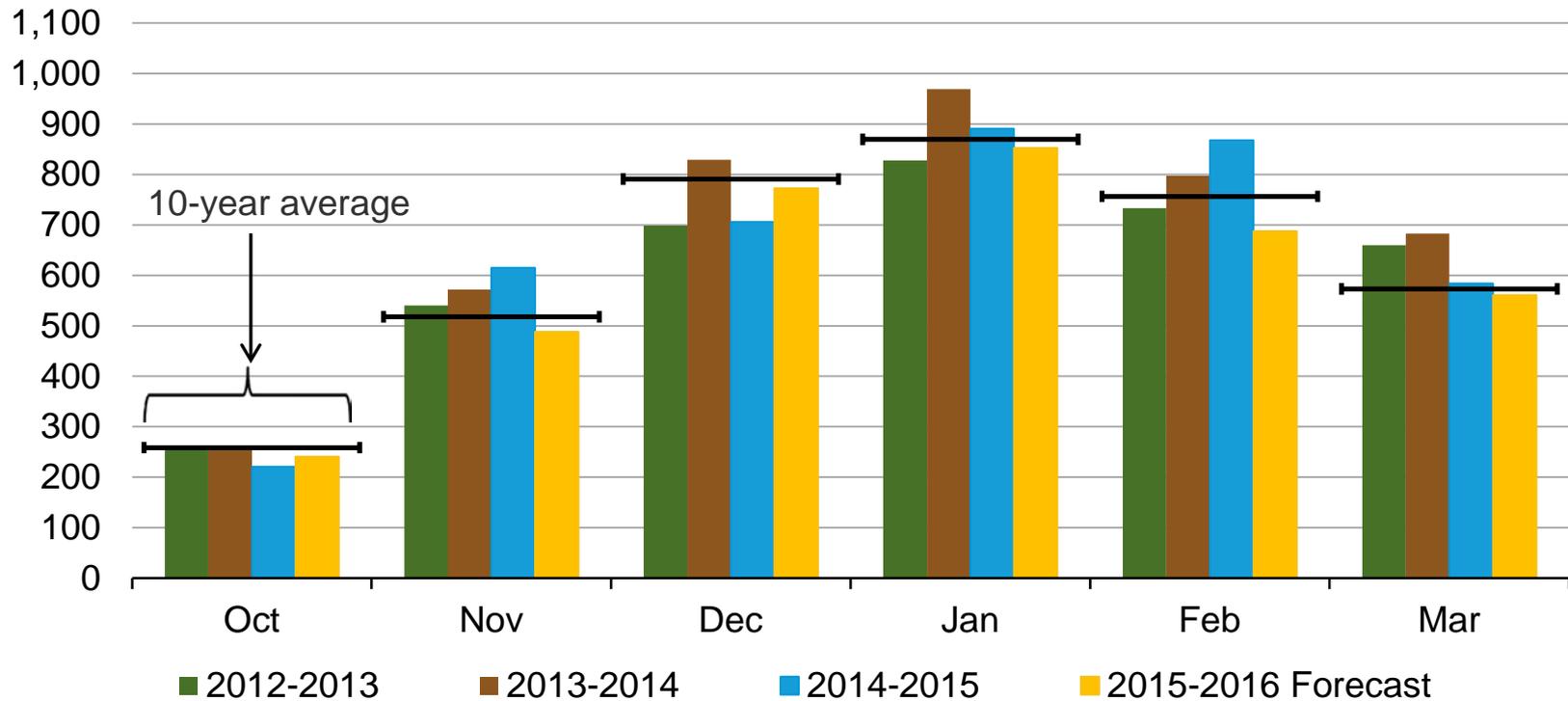
U.S. average residential winter heating fuel prices
dollars per million Btu



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

NOAA forecasts U.S. heating degree days this winter to be 7% lower than last winter and 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. 2005 – Mar. 2015. Projections reflect NOAA's 14-16 month outlook. Source: EIA Short-Term Energy Outlook, October 2015.

EIA is committed to continued enhancement of winter fuels information for policy makers, markets, and the public, both now and in the future

Continuing

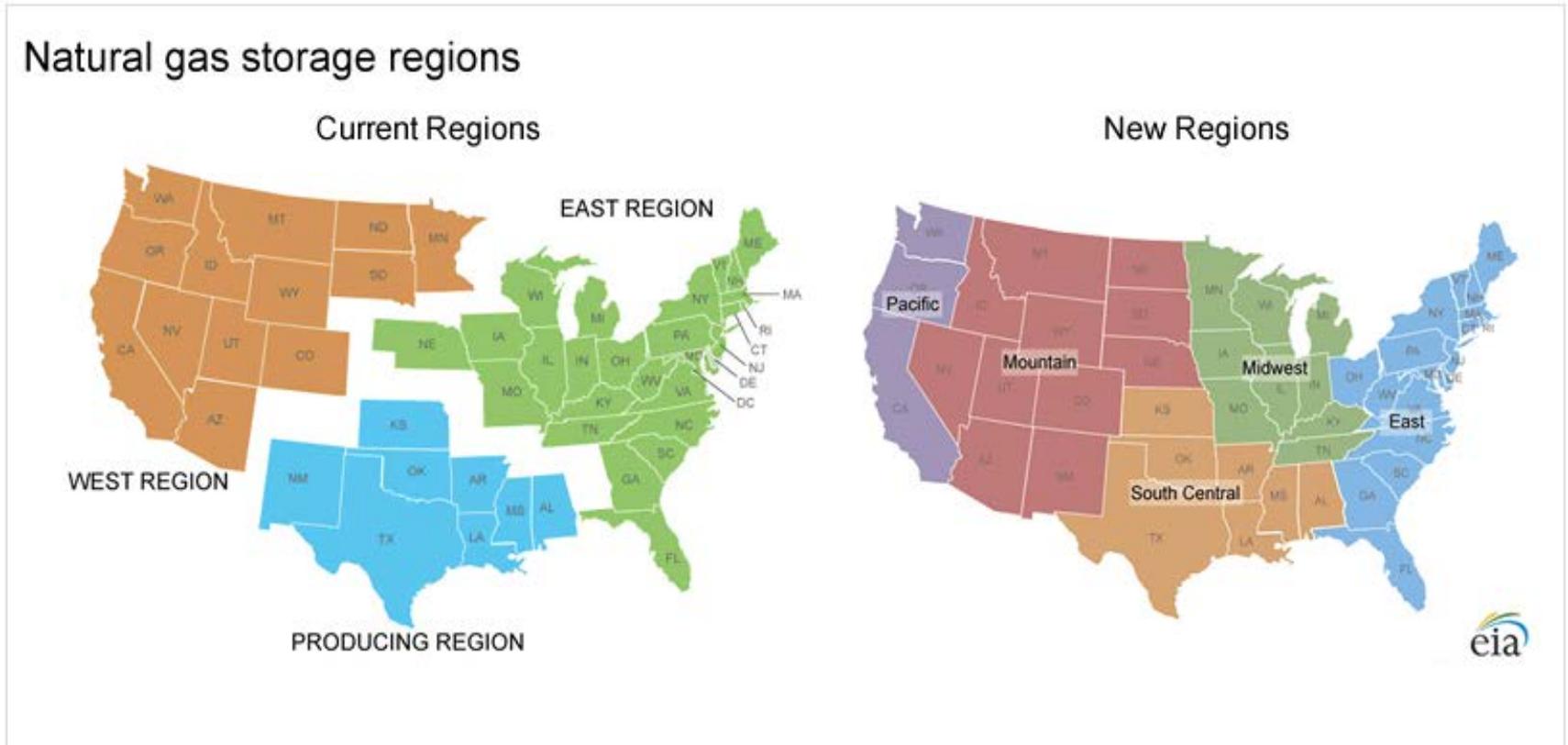
- *Heating Oil and Propane Update* resumes October 7
- State Heating Oil and Propane Price (SHOPP) survey – expanded last year to include propane data for 38 states
- EIA Winter Fuels page – one stop shop for key EIA winter fuels data, featuring the latest SHOPP data
- Electricity data browser
- Energy Disruptions Maps – energy infrastructure with real-time storm information
- State profiles with infrastructure maps and links to key State agencies, including weatherization and energy assistance programs.

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Coming attractions

- Hourly electricity load, projected load, and interchange data for 60+ balancing authorities in the United States – goal is to provide load and interchange data within 2 to 3 hours of receipt
- Updated regionalization for EIA's *Weekly Natural Gas Storage Report* to better reflect recent changes in U.S. producing areas
- Propane by rail PADD-level data
- Densified biomass (wood pellet) survey
- 2015 Residential Energy Consumption (RECS) to capture better wood consumption and pricing data
- Ability to embed interactive charts, including those on Winter Fuels page, with automatic updating as new data becomes available

New regions for EIA's *Weekly Natural Gas Storage Report*, (coming soon) will reflect changes in producing areas and improve alignment of storage facilities with the markets they serve



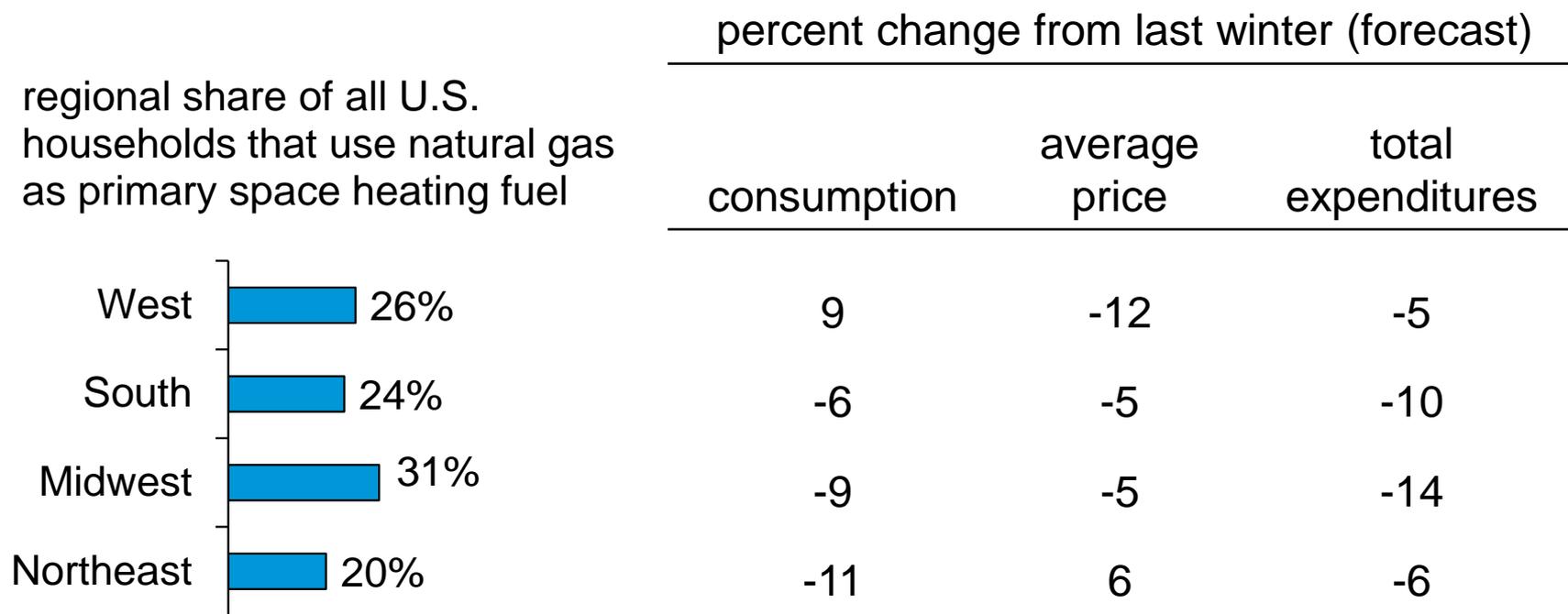
Source: Energy Information Administration

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

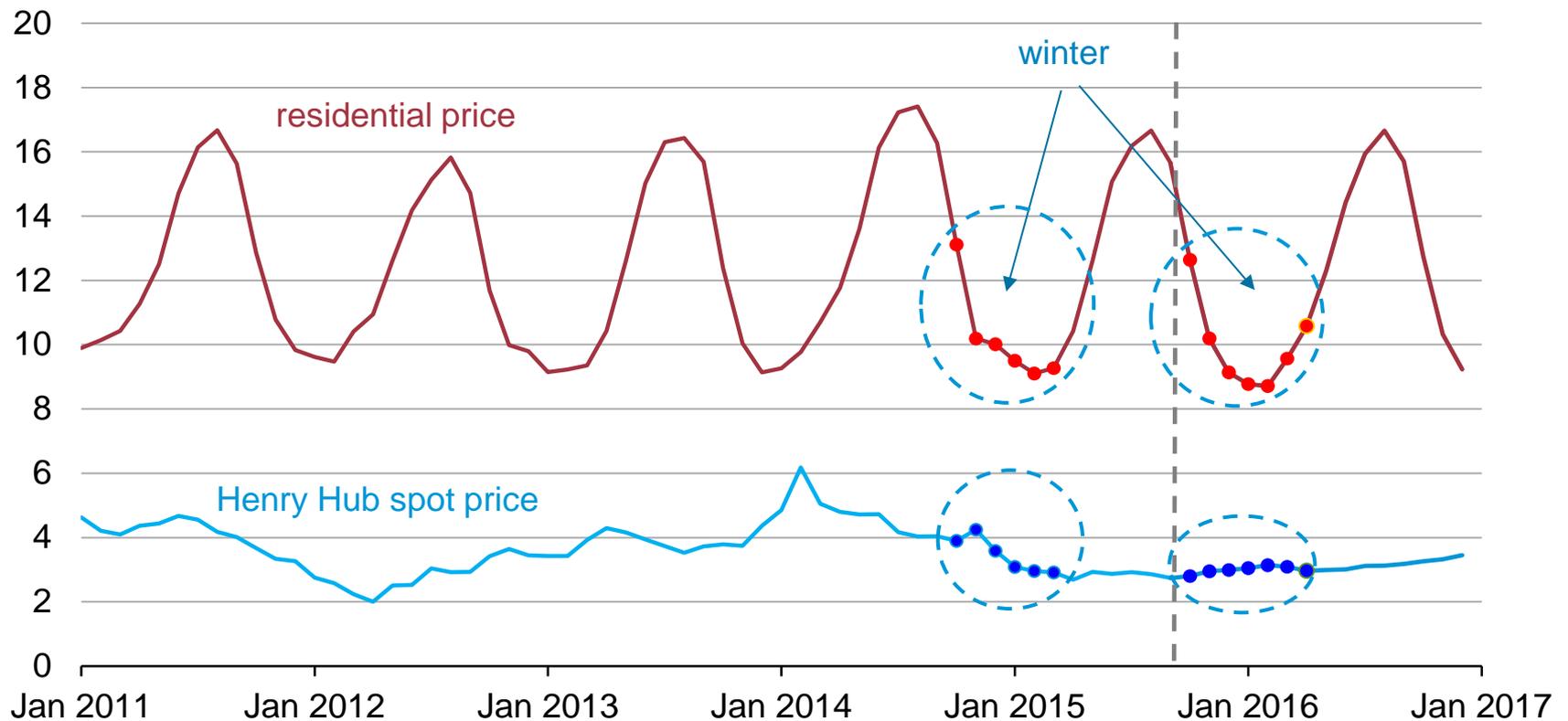
Natural gas heating expenditures are expected to decline most in the Midwest and South where, both consumption and prices are forecast to be lower than last winter



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

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

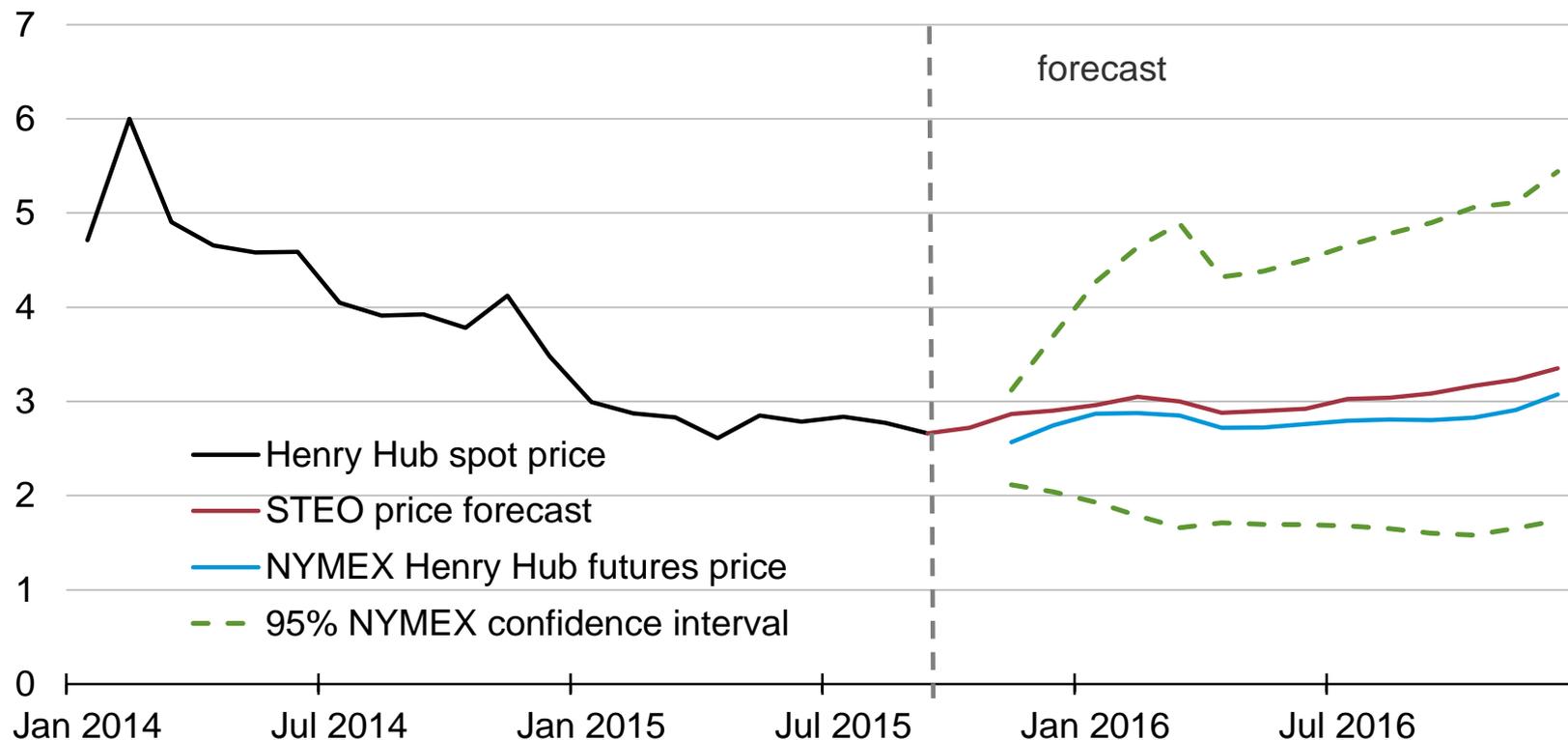
monthly average natural gas prices
dollars per thousand cubic feet (Mcf)



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)

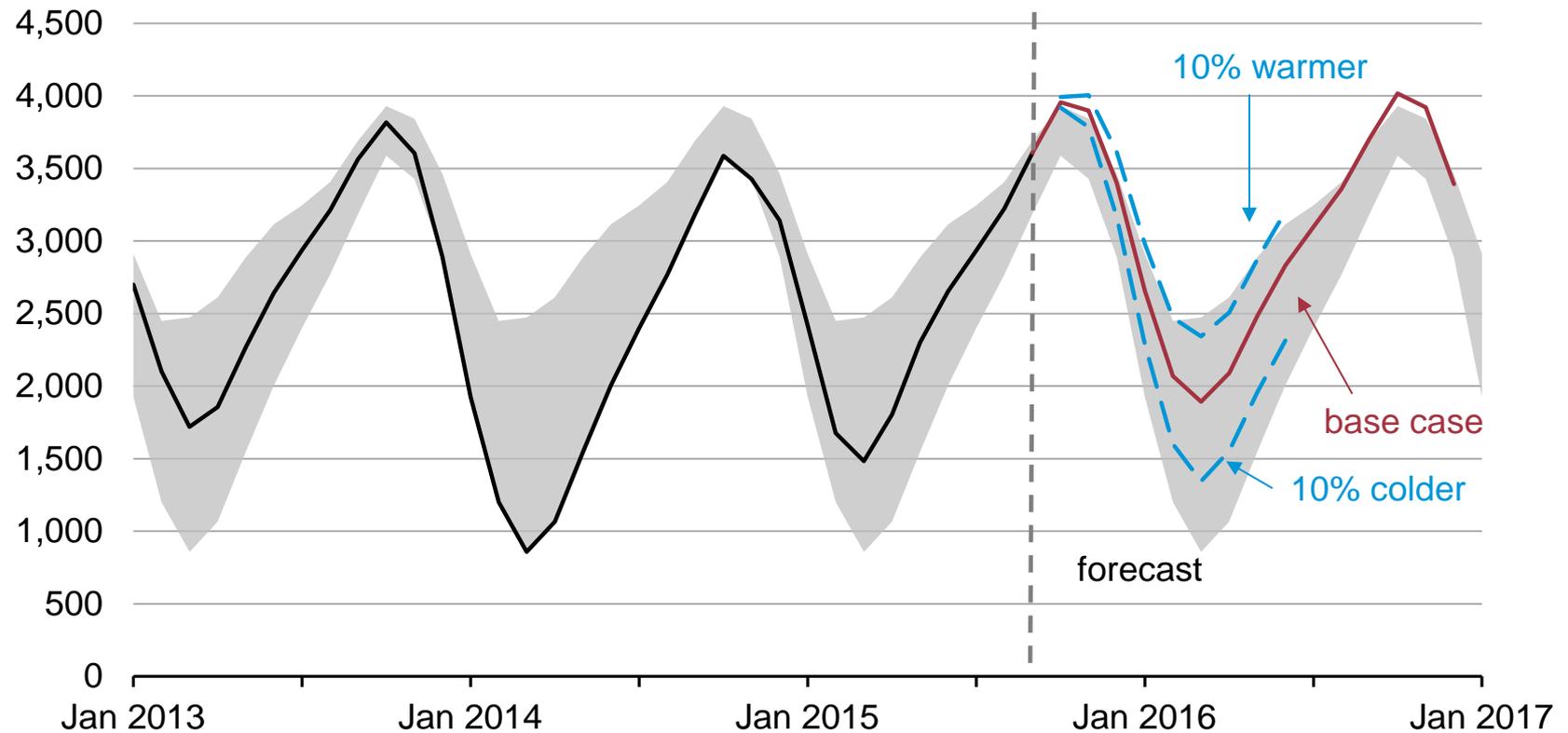
Henry Hub natural gas price
dollars per million Btu



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.

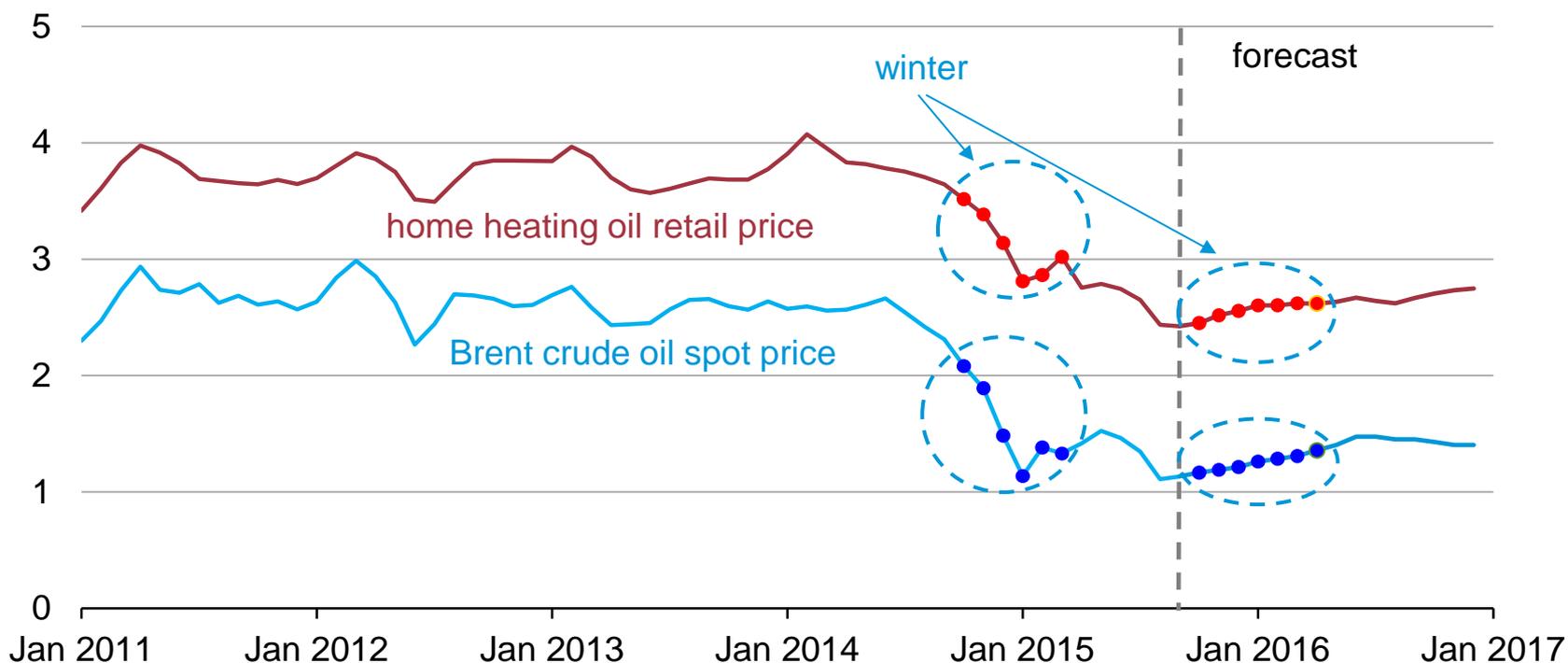
Heating Oil

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

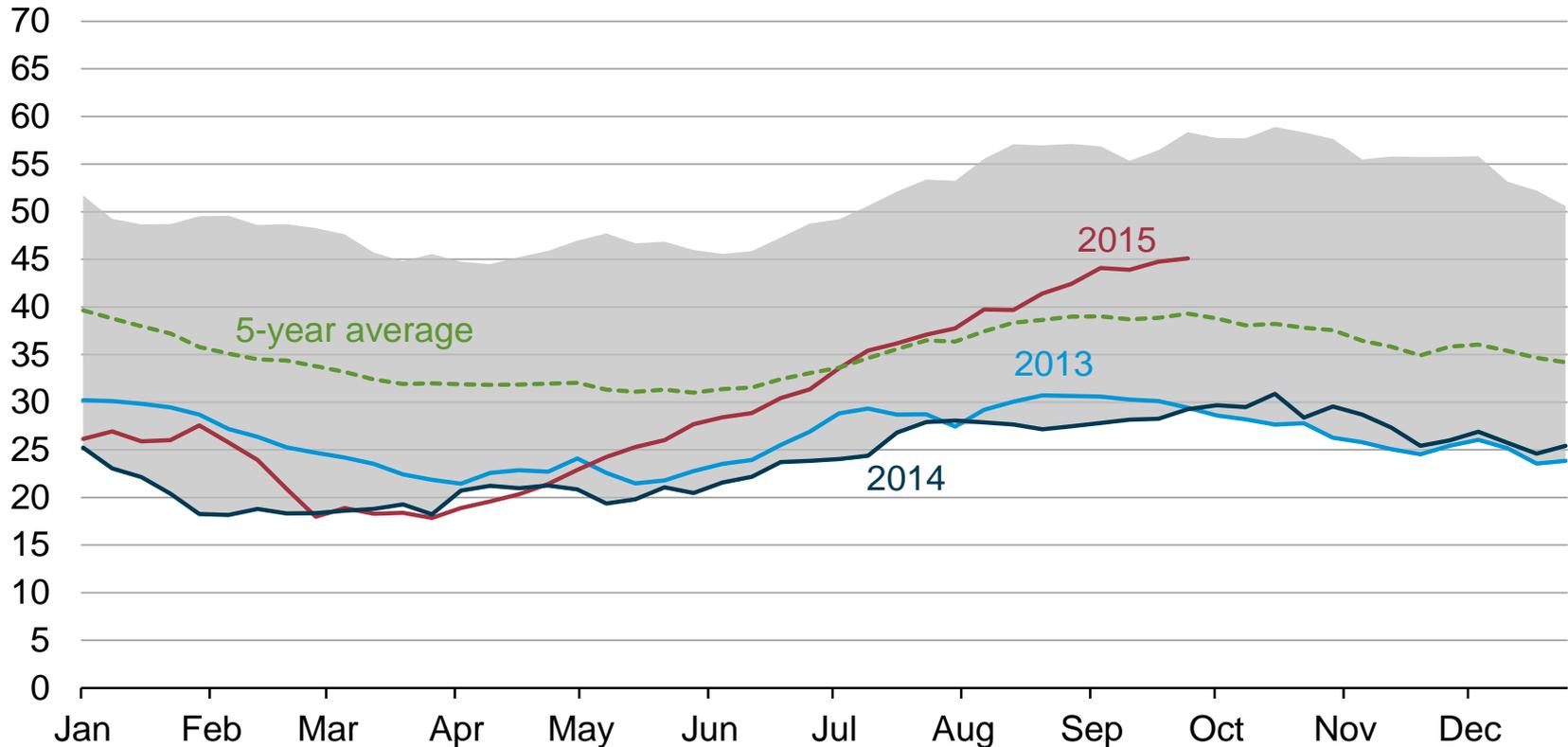
monthly average heating oil and Brent crude oil prices
dollars per gallon



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

Going into winter, distillate inventories in the Northeast are at the highest level since 2011

U.S. Northeast weekly distillate fuel inventories
Million barrels



Note: Gray band represents the range between the minimum and maximum from 2010 to 2014

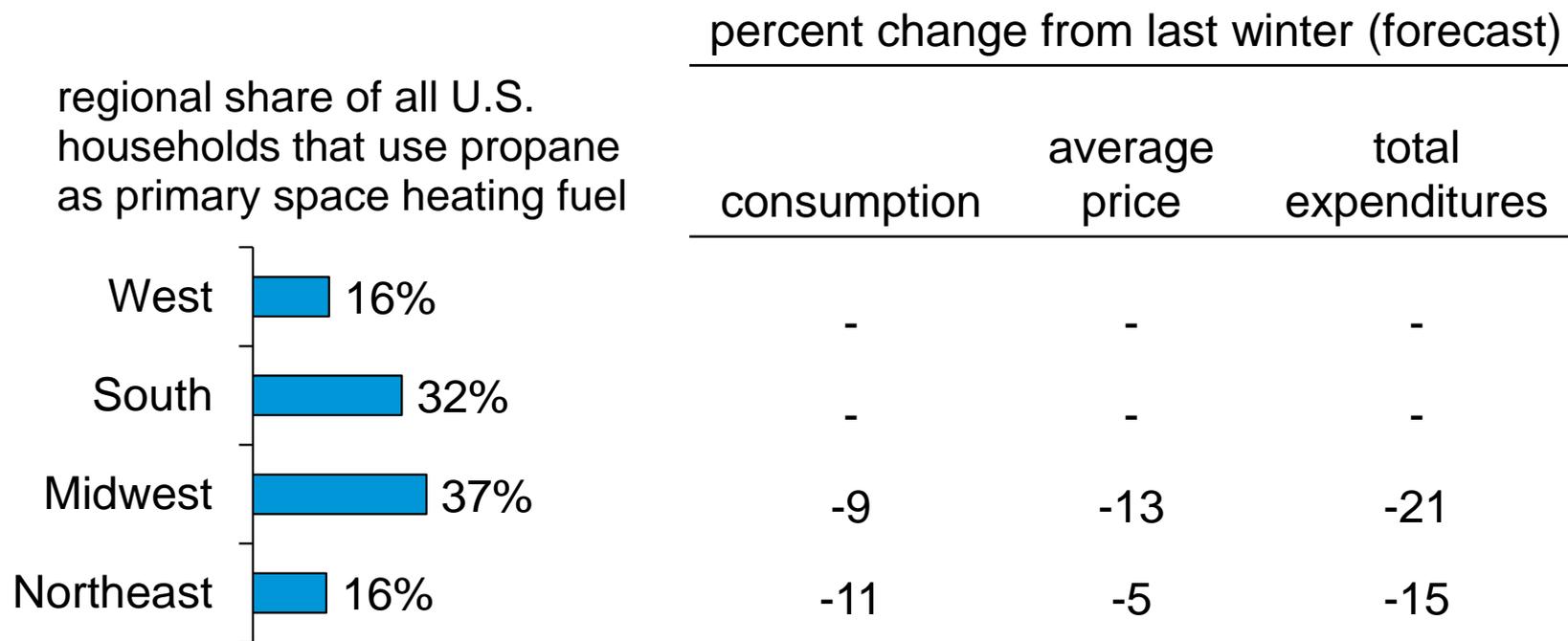
Source: EIA Weekly Petroleum Status Report.

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

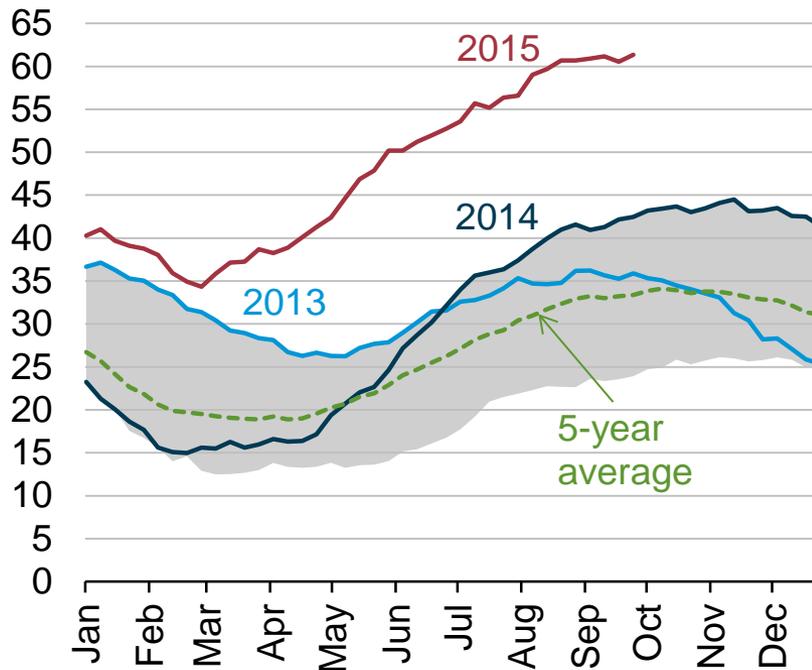
EIA's propane expenditures are expected to be below last winter's level, reflecting both lower prices and lower consumption



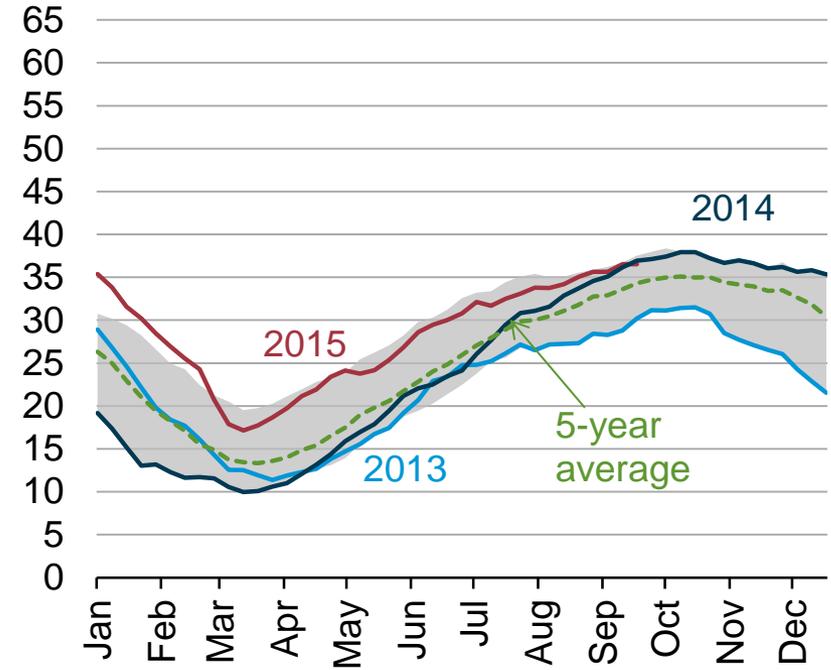
Source: EIA Short-Term Energy Outlook, October 2015

Most of the incremental propane inventories above the five-year average are on the Gulf Coast

Weekly propane and propylene inventories
U.S. Gulf Coast
million barrels



Weekly propane and propylene inventories
U.S. total excluding the Gulf Coast
million barrels



Note: Gray band represents the range between the minimum and maximum from 2010 to 2014

Source: EIA Weekly Petroleum Status Report

Electricity

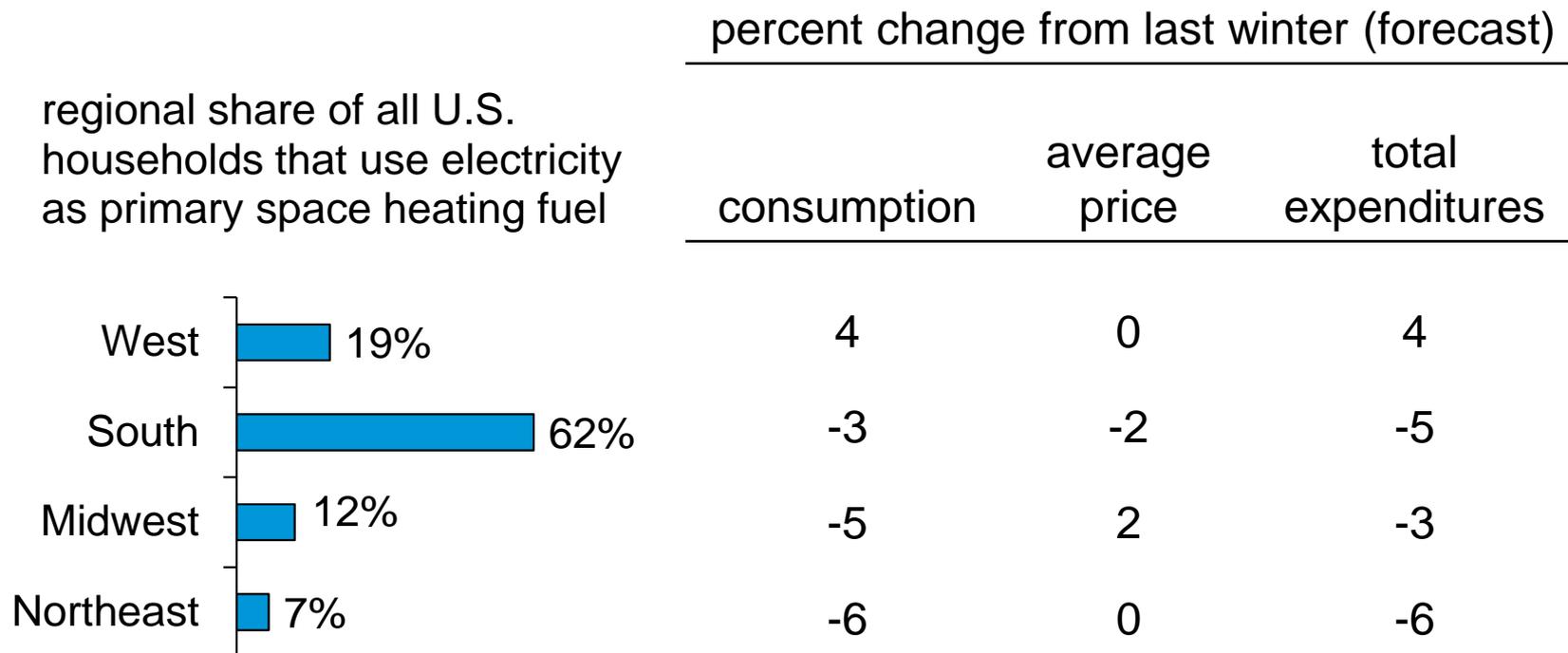
Winter 2015–16 takeaways and potential issues–Electricity

- 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

Future Developments

- 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



Source: EIA Short-Term Energy Outlook, October 2015

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

Northeastern Winter Natural Gas and Electricity Issues Wednesday January 8, 2014
Current status of natural gas and electricity markets in New York and New England



Average temperature	Tue 1/7	Wed 1/8	Thur 1/9
Boston	19°F	15°F	22°F
New York City	12°F	15°F	29°F

Natural gas demand Bcf per day	Tue 1/7	Wed 1/8	Thur 1/9
New England	3.5	3.4	3.5
New York City	5.3	5.3	5.1

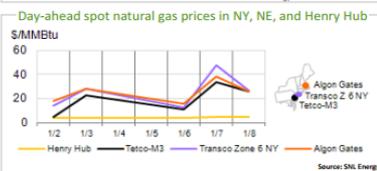
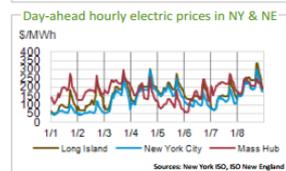
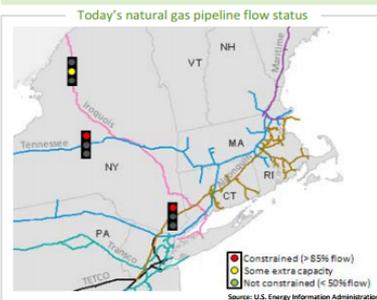
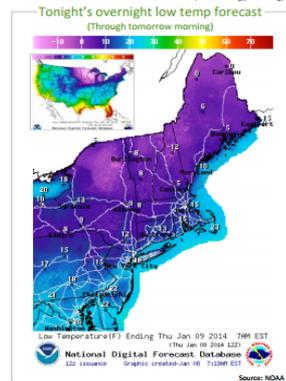
Spot natural gas price* per MMBtu	Tue 1/7	Wed 1/8	Thur 1/9
New England	\$38.10	\$25.91	--
New York City	\$47.80	\$26.58	--

On-peak electricity price* per MWh	Tue 1/7	Wed 1/8	Thur 1/9
New England	\$228.90	\$225.08	--
New York City	\$224.84	\$233.59	--

*Day-ahead market values set during trading from prior day
Sources: NGA, Enbridge Energy, S&P Energy

Natural gas prices ease as temperatures rise
Temperature: After record low temperatures were set across areas of the Midwest, Mid-Atlantic and East Coast yesterday, temperatures across the area have risen considerably. Continued temperature increases are expected through the weekend.
Natural gas demand: Bentek forecasts that demand will decrease on Wednesday in New England (-11%) and slightly increase in New York (+1%).
Natural gas constraints and LNG: All pipelines from the west and south into New England remain constrained today. Flows of LNG stored at Canaport and eastern Canadian exports into New England are scheduled to be 676 MMcf/d today, a 19% decrease from yesterday.
Natural gas prices: Prices set yesterday for delivery today are above \$25/MMBtu in both New England and New York City (NYC), down between 30% and 40% from yesterday's high.
Electricity prices: On-peak electricity prices formed yesterday for today remain more than \$200/MWh in both New York and New England. Unit 3 at Entergy's Indian Point nuclear station near NYC remains offline after an unexpected shutdown Monday night. Power prices in PJM in the Mid-Atlantic were also high because of natural gas delivery concerns in the system. There was an unplanned outage at a compressor station near Pittsburgh yesterday and other equipment related outages.

Pipeline notices: Critical notices were declared for today on Algonquin and Teco, which are requiring hourly scheduling from generators. Spectra Energy noted it may issue an operational flow orders for today on Algonquin, restricting unscheduled service as necessary.



- 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.

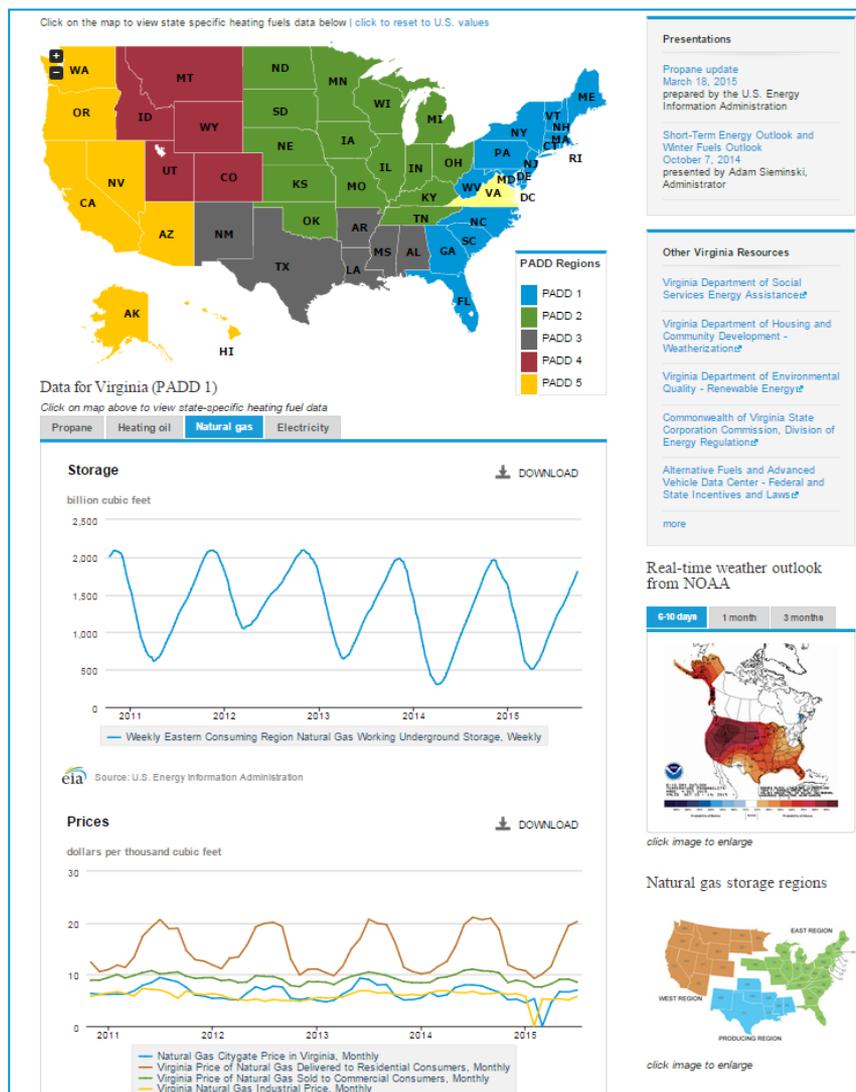
New capacity from Marcellus mostly serves New York and New Jersey; no capacity additions into New England this winter

- 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

For more information

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

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

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

Annual Energy Outlook | www.eia.gov/aeo

Monthly Energy Review | www.eia.gov/mer

Today in Energy | www.eia.gov/todayinenergy

State Energy Portal | www.eia.gov/state