

# EIA Winter Fuels Outlook



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*For*

*NASEO*

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*By*

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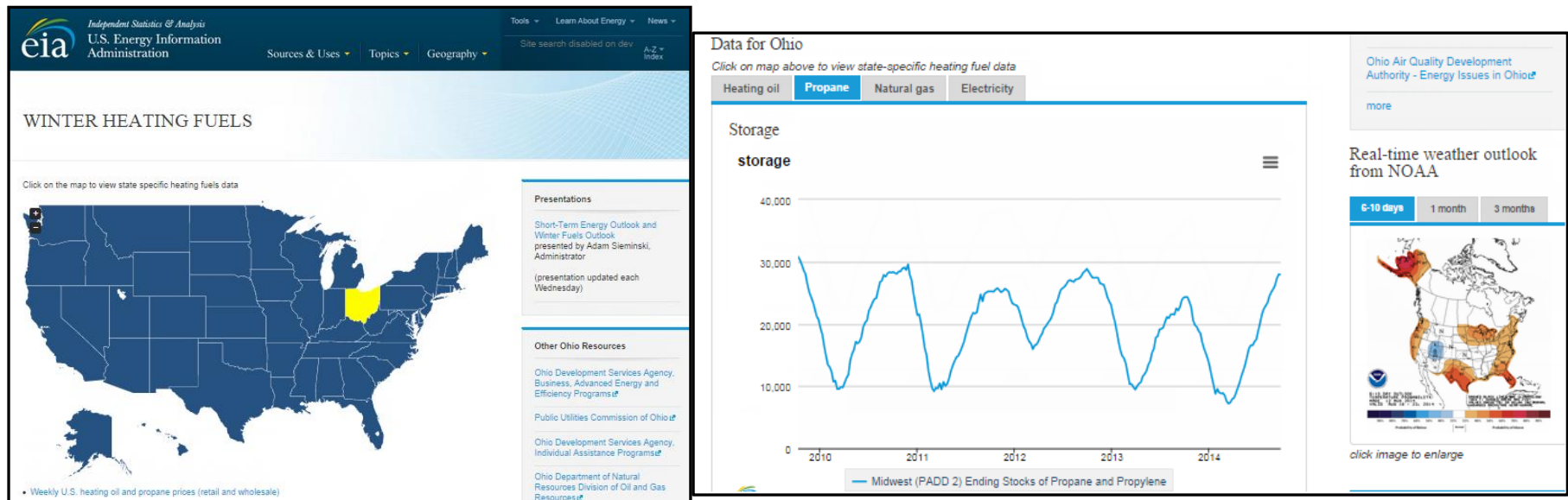
*U.S. Energy Information Administration*

## EIA actions to improve winter fuels information

- **More Detailed Weekly Propane Stock Data** – In addition to weekly PADD-level propane stocks, EIA will publish figures for Kansas (Conway hub), Michigan, Ohio, and a 4-state total for MN, WI, IA, and IL.
- **Notification to Governors of Low Stock Levels** – Pursuant to the Reliable Home Heating Act, EIA will notify state Governors when stocks of heating oil, natural gas, or propane in their PADD fall below the 5-year average for more than 3 weeks.
- **Expanded State Participation in EIA Weekly Price Reporting (Oct 8)** - The State Heating Oil and Propane Program (SHOPP) will add 14 more states for a total of 38. A workshop will be held on October 8 to share perspectives and best practices for data quality.
- **Increased Visibility on EIA Website and Targeted Communication with State Officials** - EIA is creating a special winter fuels webpage showcasing stock and price data. Beyond this, EIA will proactively reach out to both industry and public stakeholders in the states.

# New EIA *Winter Heating Fuels* page centralizes information on stocks and prices across fuels

- EIA created a new webpage that organizes the agency's weekly pricing and storage data on **heating oil, propane, and natural gas** for each state, including **electricity** prices and fuel used for generation
- Users can click on any state to view data and visuals, as well as links to state agency resources and weather outlooks
- EIA hopes this tool will facilitate data access and promote sound analysis and decision making for policymakers and our data customers



# Weather and Fuel-use Outlook (Short-Term Energy Outlook, October 2014)

## *Winter Fuels Outlook* focuses on household fuels: prices, use, and expenditures

- In the EIA 2014-15 Outlook, which focuses on households, EIA expects the average household heating bill in all regions of the country will be lower this winter.
- Homes that heat with propane and heating oil will see the biggest savings, with propane expenditures down 27% and heating oil bills down 15% from last winter.
- Average natural gas bills will be 5% lower, while households that rely on electricity for space heating will see their costs decline by 2%.
- The expenditure forecasts are based on EIA projections of residential prices and the NOAA forecast of winter heating degree days, which average 12% lower for the United States compared with last winter.

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)

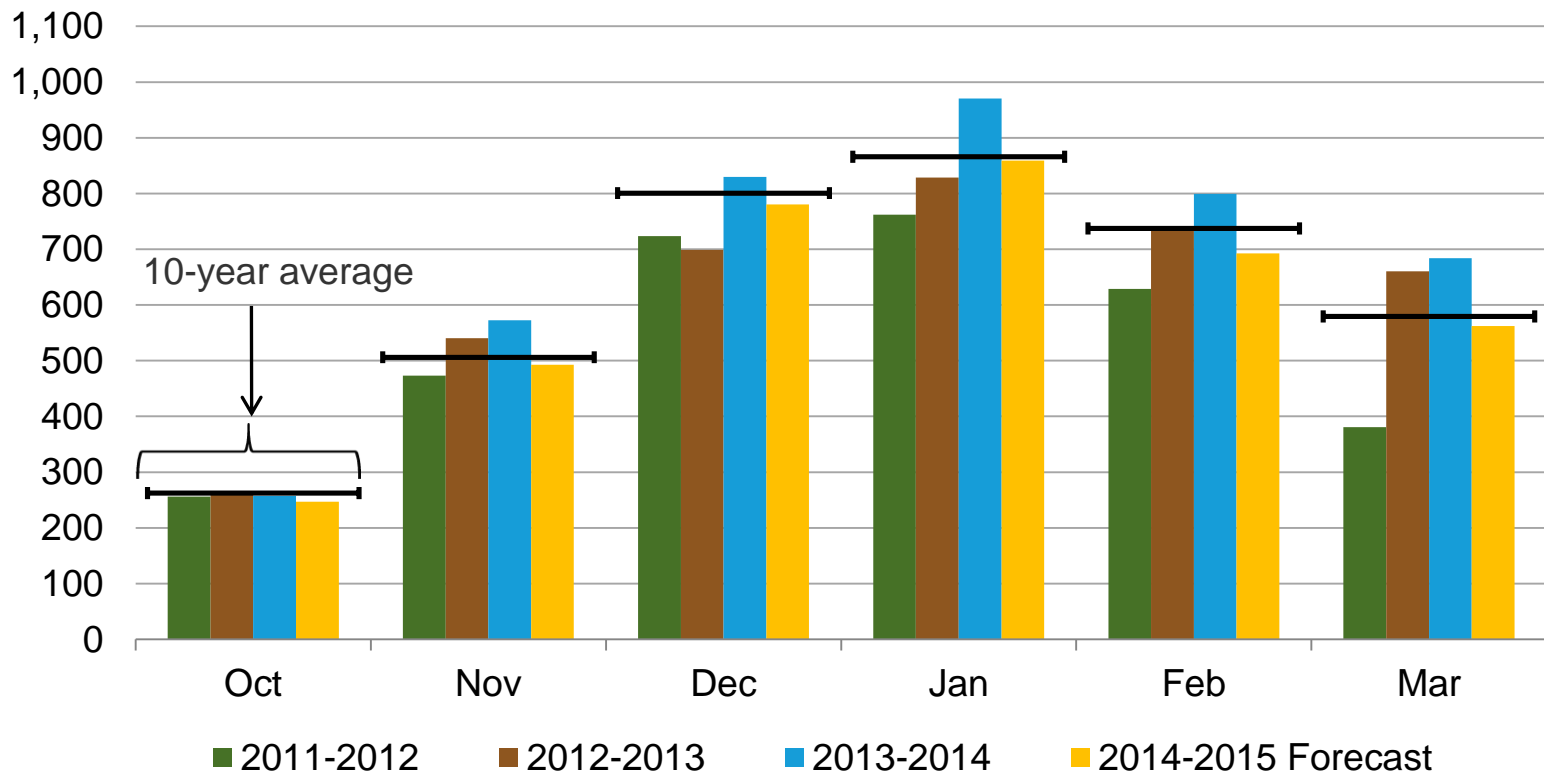
Fuel bill	Base case forecast	If 10% warmer than forecast	If 10% colder than forecast
Heating oil	<b>-15</b>	<b>-24</b>	<b>-5</b>
Natural gas	<b>-5</b>	<b>-12</b>	<b>6</b>
Propane *	<b>-27</b>	<b>-37</b>	<b>-15</b>
Electricity	<b>-2</b>	<b>-5</b>	<b>2</b>

*Note: Weather has been colder than our 10% colder than forecast case in 6 of the last 25 winters. 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*

# U.S. heating degree days this winter are forecast by NOAA to be 12% lower than last winter and 3% lower than the 10-year average

heating degree days, weighted by current U.S. population

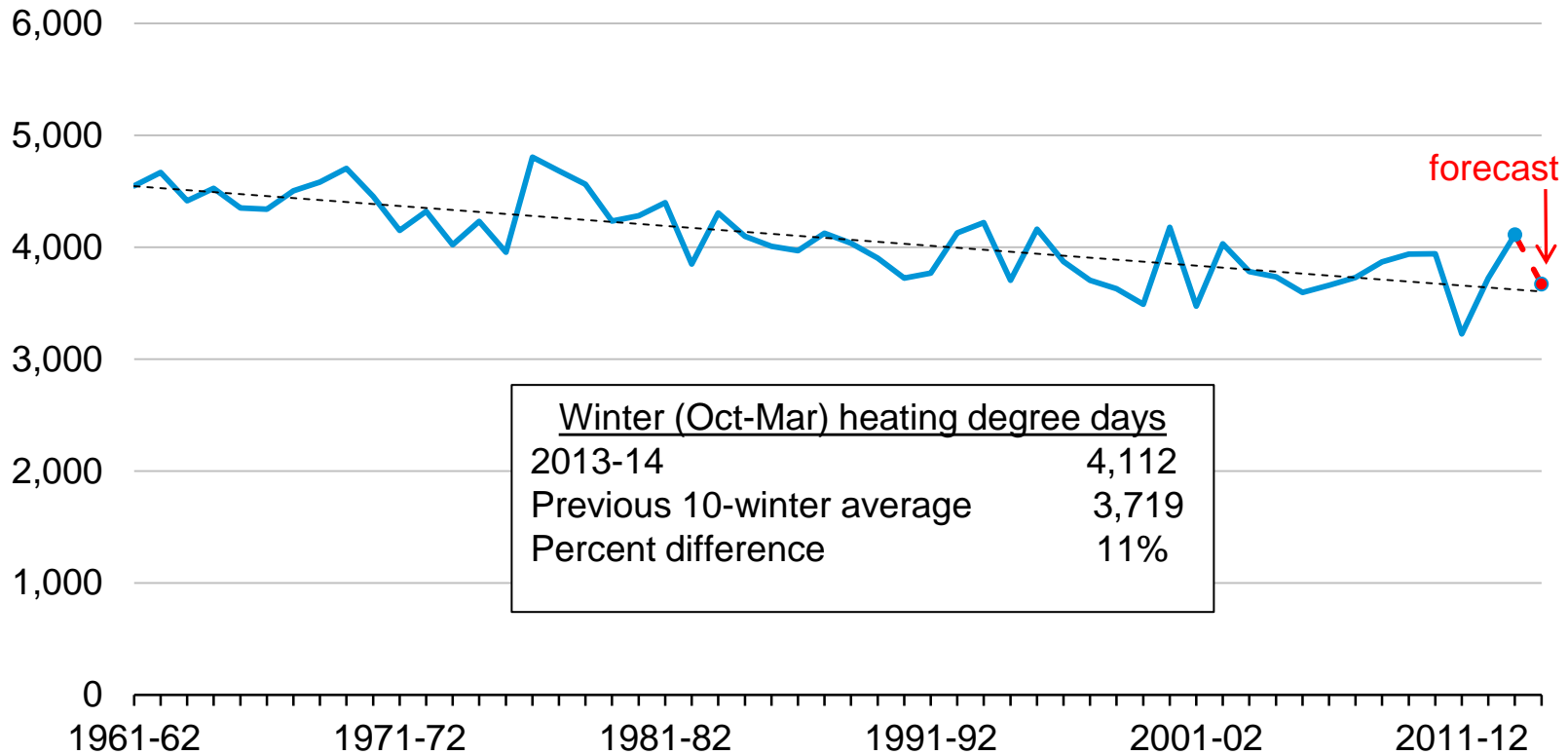


Note: Source: EIA calculations based on National Oceanic and Atmospheric Administration (NOAA) data. Horizontal lines indicate 10-year average over the period Oct 2004 – Mar 2014. Projections reflect NOAA's 14-16 month outlook.

Source: EIA Short-Term Energy Outlook, October 2014

# Heating degree days trending down over time

U.S. heating degree days



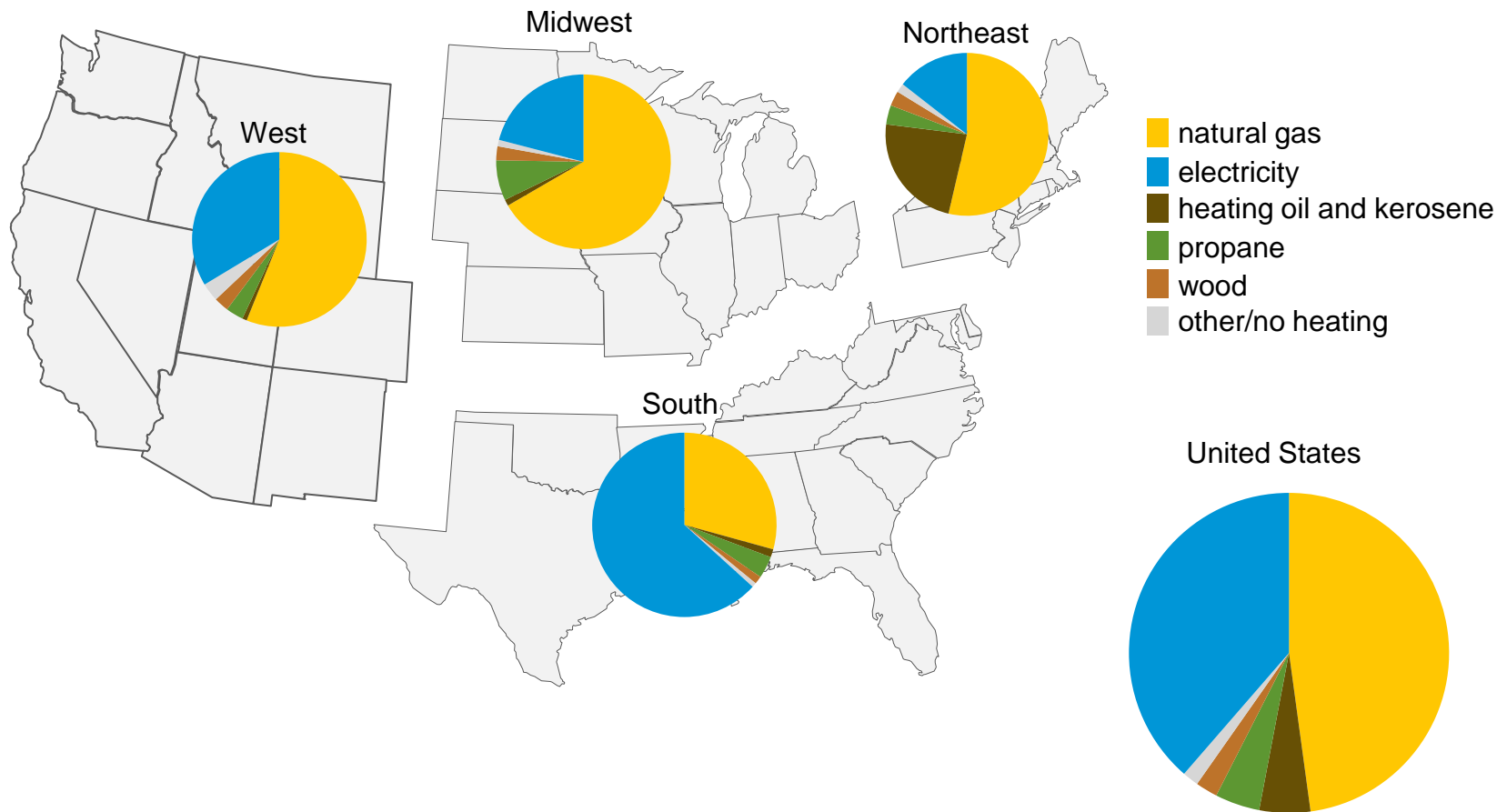
*Note: Heating degree days are weighted by population and include the effects of recent population migration*

*Source: National Climate Data Center and EIA calculations*



# Heating fuel market shares vary regionally

Share of homes by primary space heating fuel and Census Region



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

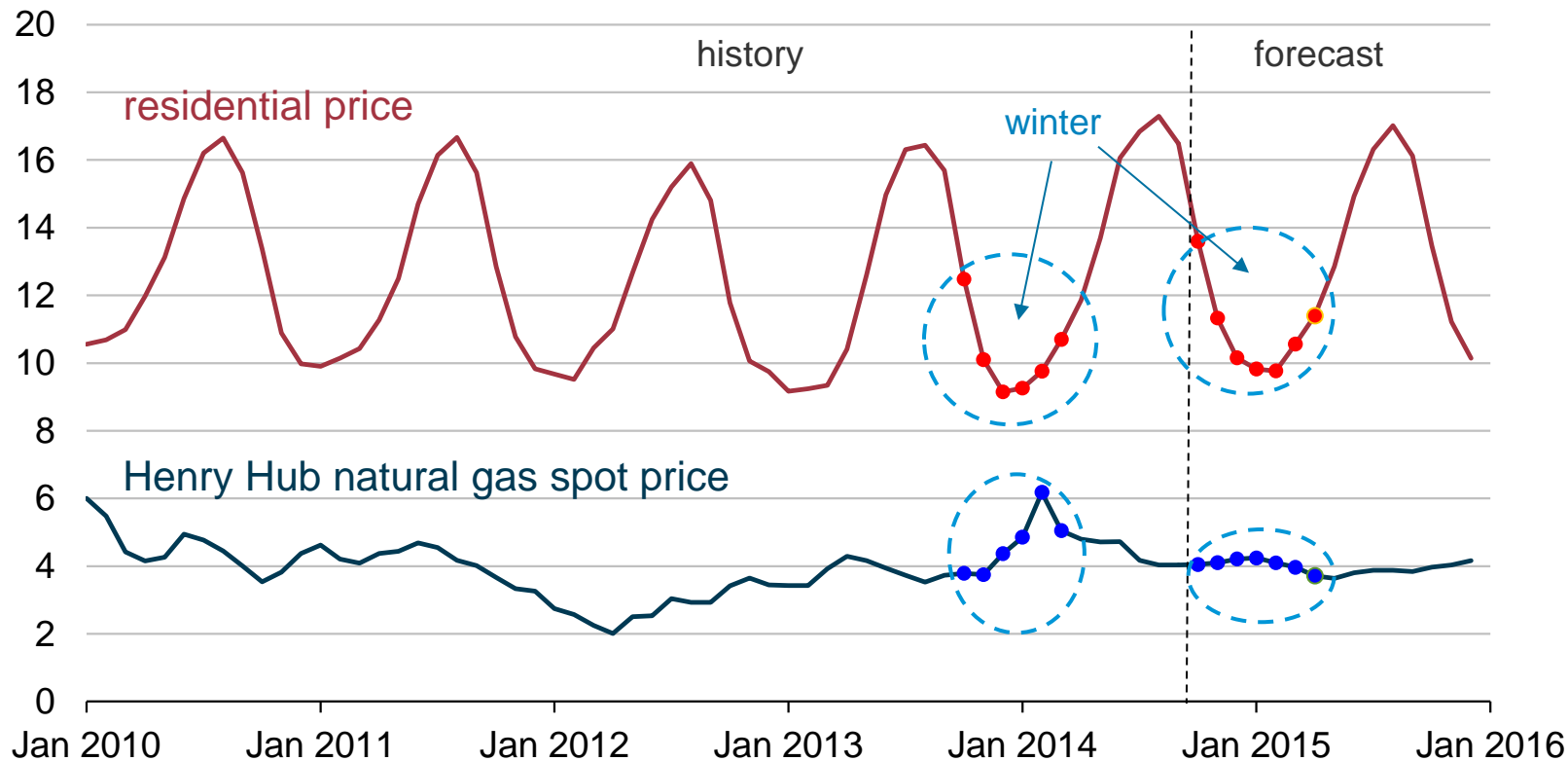
# Natural Gas: Focus on the Northeast

## Winter 2014-15 takeaways and potential issues– natural gas

- Natural gas production gains contributed to record storage injections this year. 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 price strip (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 \$4.66/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.

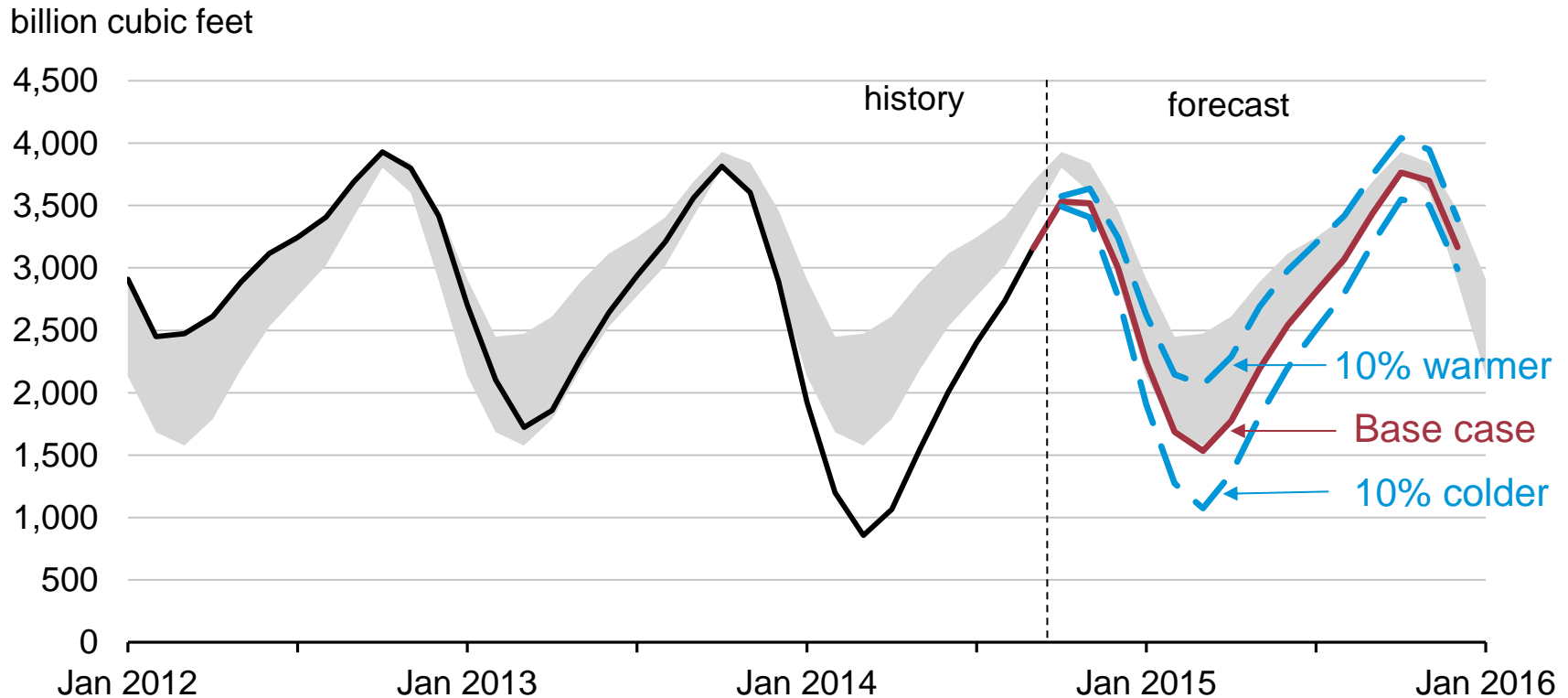
# EIA expects residential natural gas prices to be slightly higher than last winter's prices

dollars per thousand cubic feet (mcf)



Source: EIA Short-Term Energy Outlook, October 2014

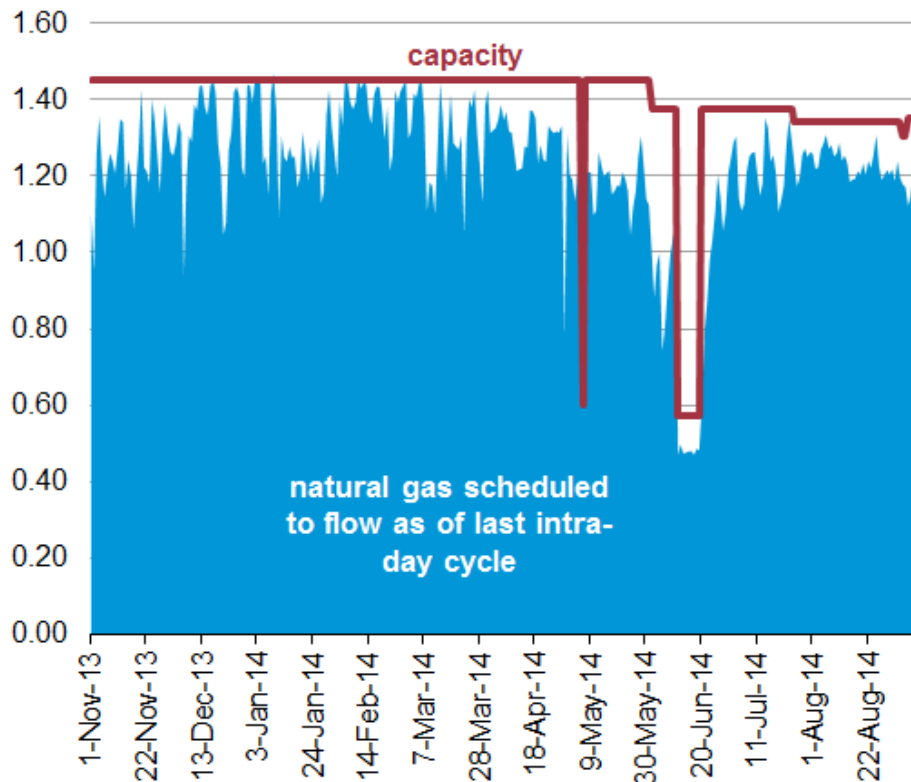
# Forecast natural gas inventories on Sep. 26 are 373 bcf lower than last winter, and 399 bcf below the previous 5-year average



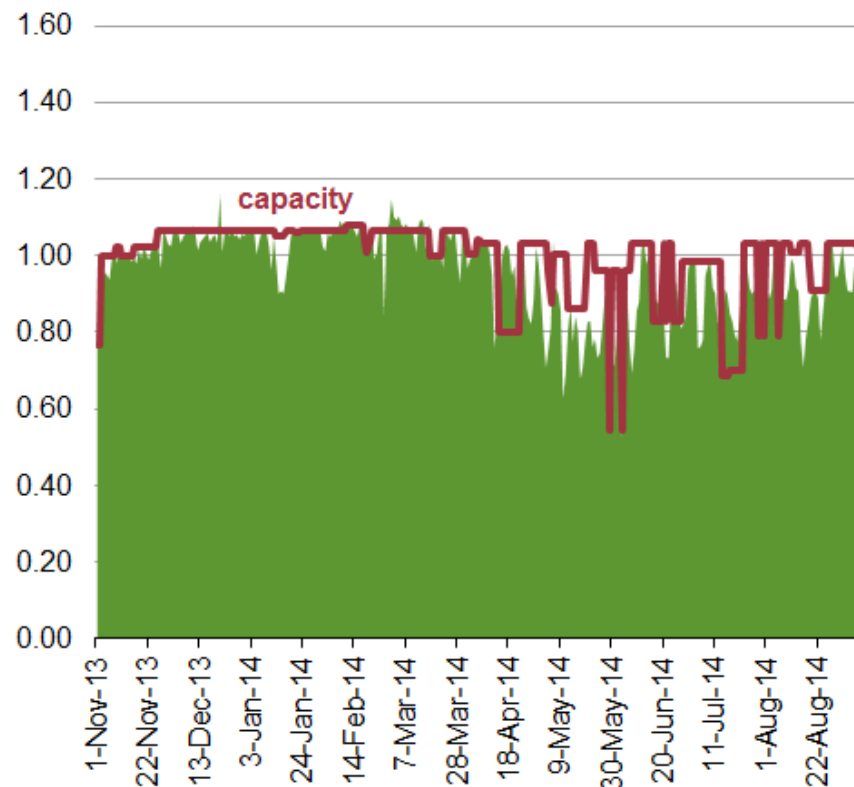
Note: Normal range (gray band) represents the range between the minimum to maximum from Jan. 2009 to Dec. 2013.  
Source: EIA Short-Term Energy Outlook, October 2014

# Key pipelines delivering natural gas into New England have been at or close to capacity on most days since the start of last winter

Daily scheduled natural gas and maximum capacity at the Stony Point Compressor Station on Algonquin Gas Transmission billion cubic feet per day



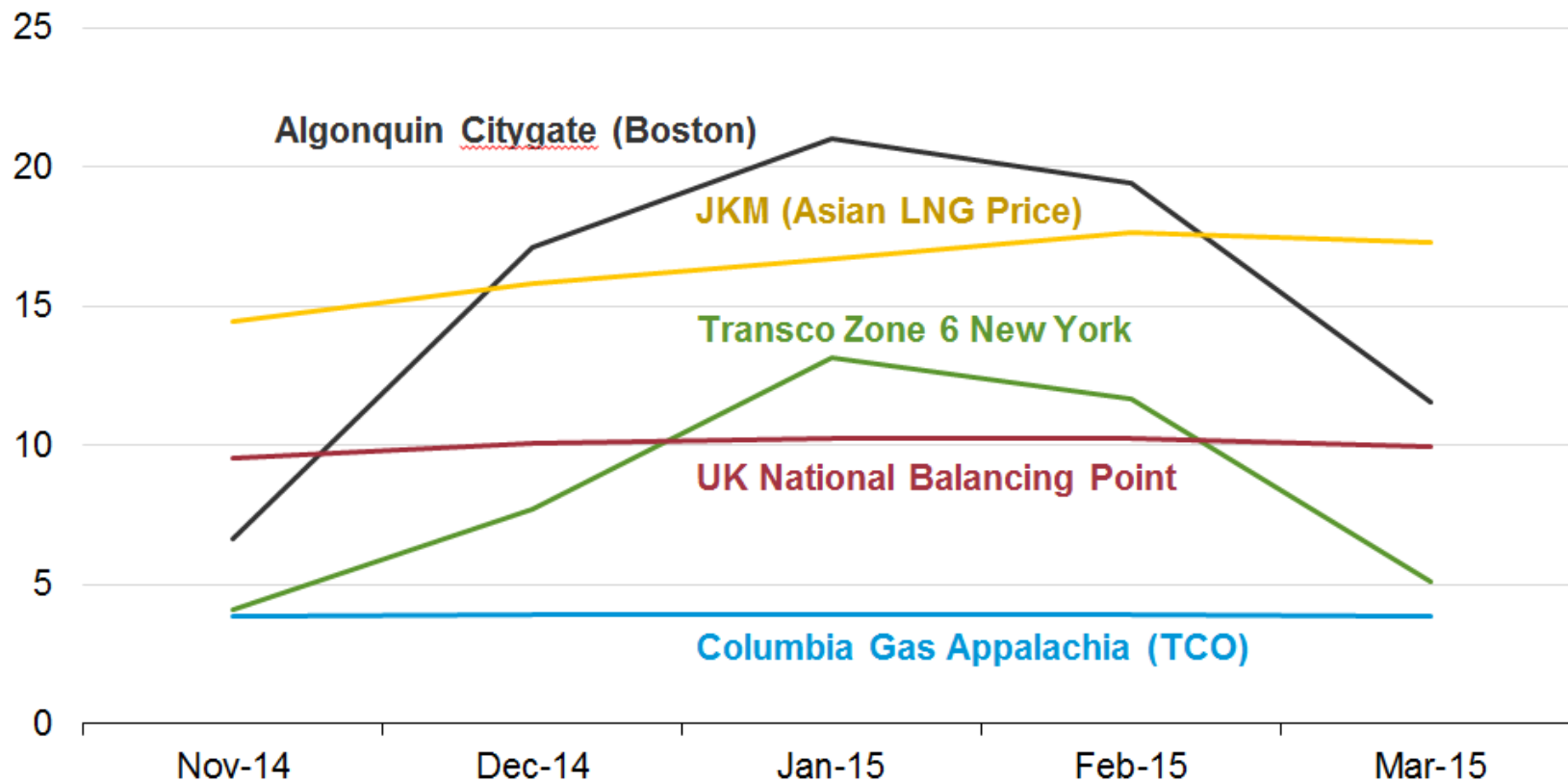
Daily scheduled natural gas and maximum capacity at Segment 245-249 on the Tennessee Gas Pipeline billion cubic feet per day



Source: Derived from the [Ventyx Energy Velocity Suite](#). Scheduled volumes based on Algonquin Gas Transmission's Stony Point compressor station and Tennessee Gas Pipeline's Station 245-249 Segment using intra-day 2 nominations from November 1, 2013 to September 9, 2014.

# Current forward natural gas prices in Boston, and to a lesser extent New York, indicate the likelihood of constraints again this winter

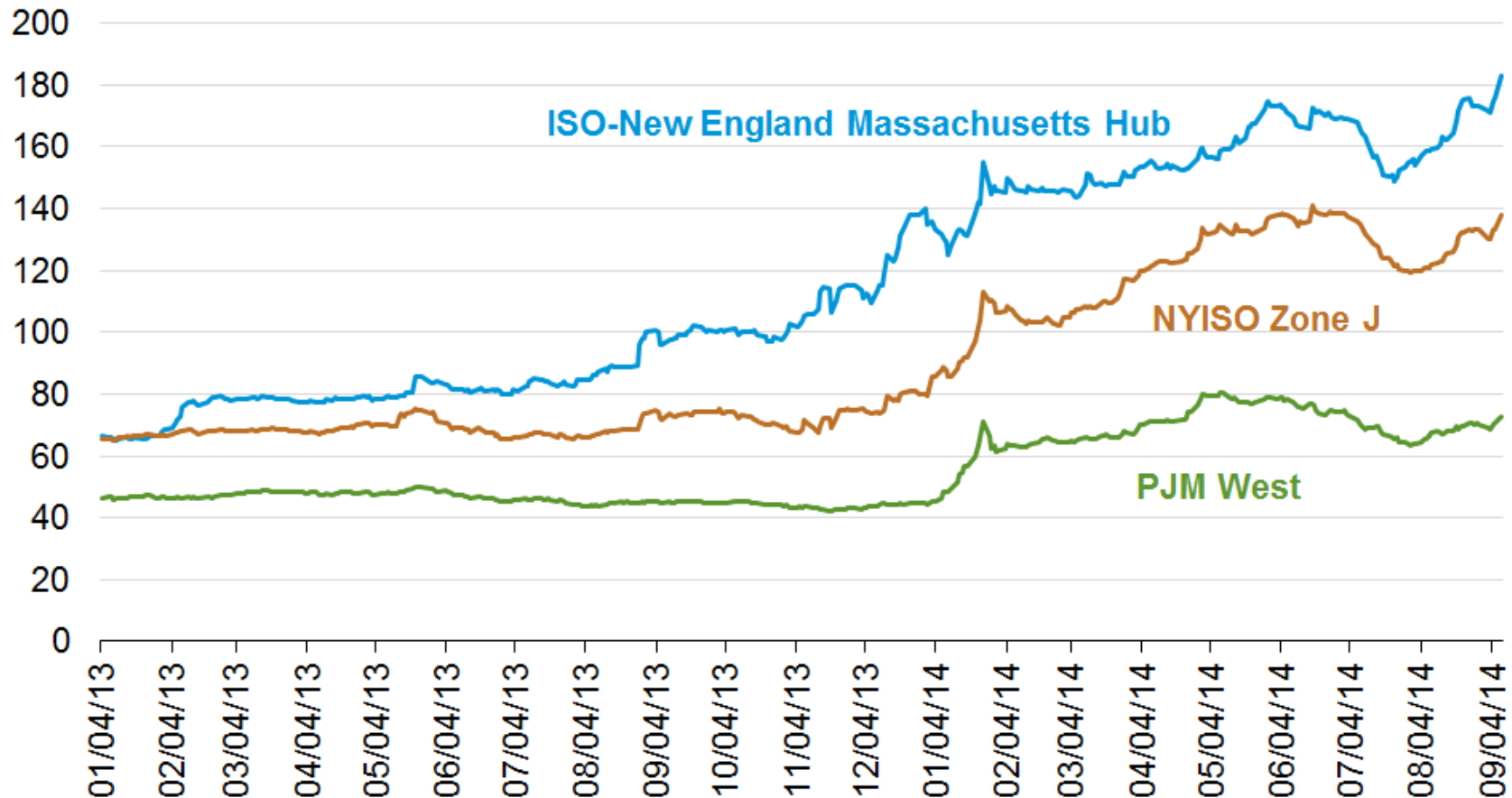
forward natural gas prices for winter months 2014-15 in selected markets as of early September  
U.S. dollars per million British thermal unit



Source: Ventvx Energy Velocity Suite and Bloomberg. JKM is a proxy for LNG priced into Japan, Korea, and Malaysia. The Algonquin Citygates, Transco Zone 6 New York, and Columbia Gas Appalachia prices include the Henry Hub natural gas futures market price. Prices reflect recent settlements September 5 – 8.

# Expectations for natural gas prices in the Northeast are reflected in forward market wholesale power prices

January 2015 forward contract wholesale power prices for selected Northeast Markets  
dollars per megawatthour



Source: SNL Energy. Prices reflect the values of the January 2015, on-peak electricity contract by trading location since January 2013. Prices as of September, 10, 2014.



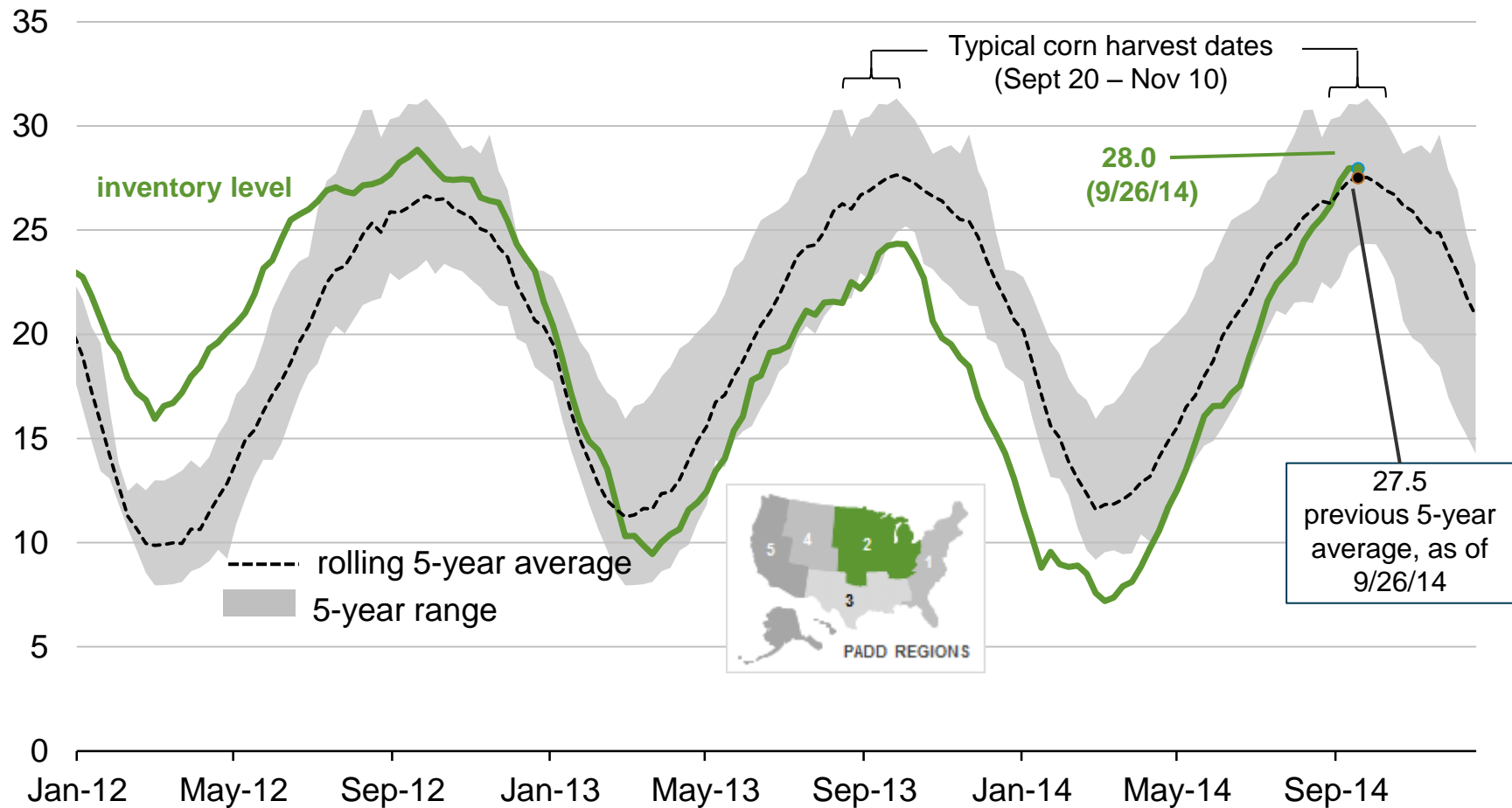
# Propane Supply and Infrastructure: Focus on the Midwest and Northeast

## Winter 2014-15 takeaways and potential issues– propane

- Primary propane stocks in the Gulf Coast and Midwest are currently 10 million barrels (17%) above this time last year
- Propane production from natural gas plants is up and is projected to average 970,000 bbl/d this winter, 110,000 bbl/d higher than last winter
- Propane spot prices are close to prices at this time last year
- 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

# PADD 2 (Midwest) propane inventories are currently above the five-year average

PADD 2 propane\* inventories  
million barrels

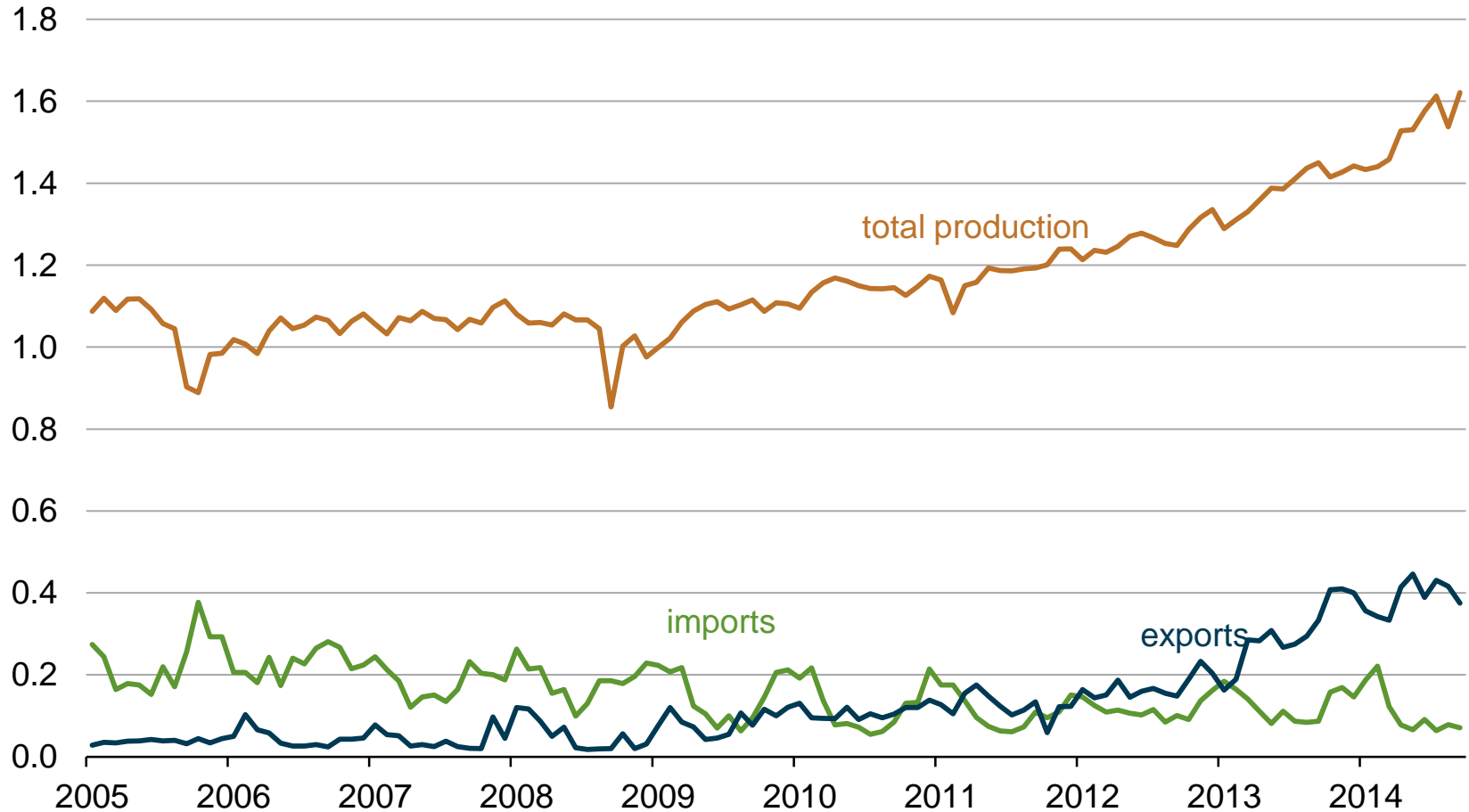


Source: EIA, Weekly Petroleum Status Report, data through September 26

\*propane/propylene for fuel use only

# U.S. propane production and trade trends

U.S. propane and propylene production, imports, and exports  
million barrels per day

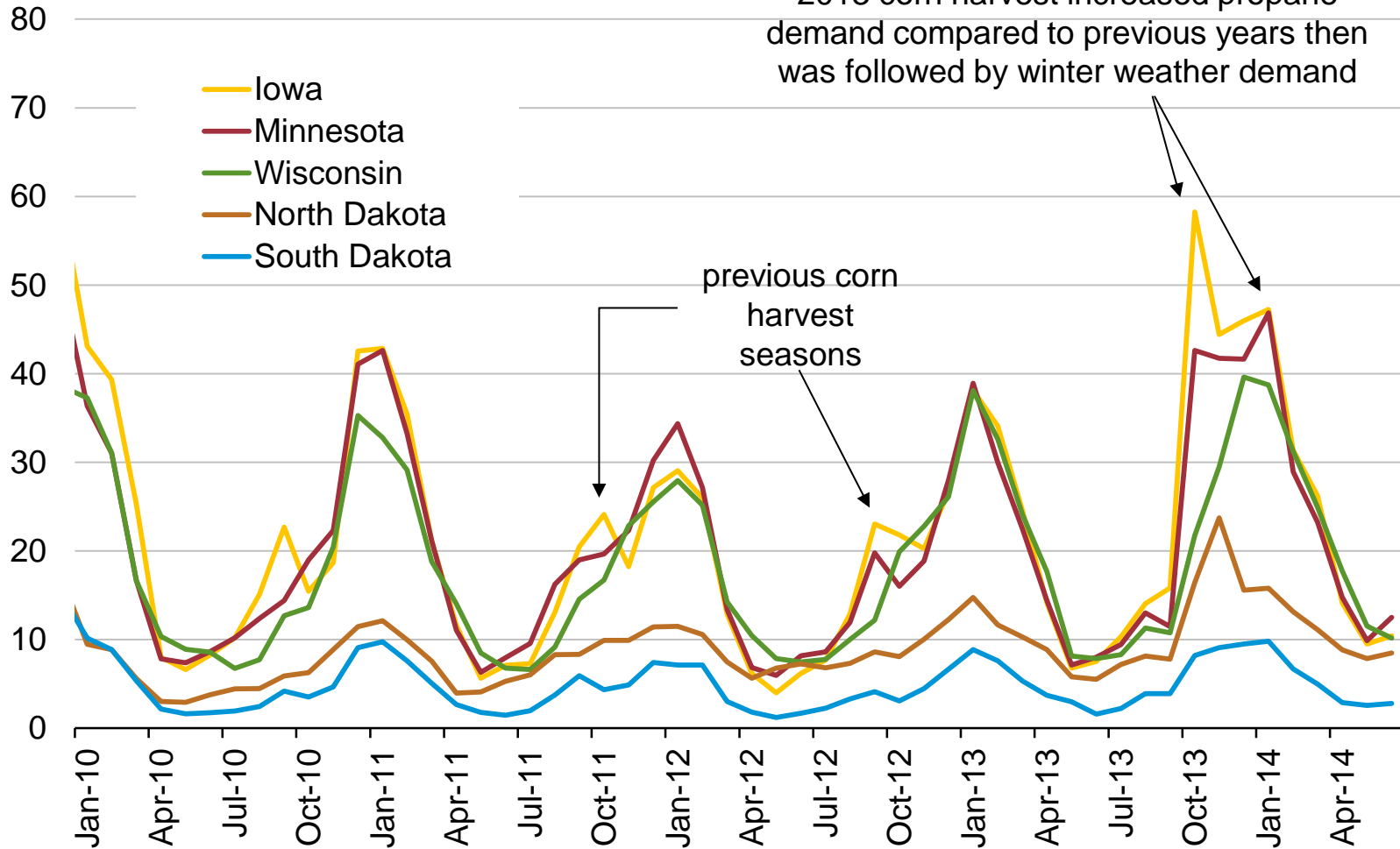


Source: EIA, Petroleum Supply Monthly through July 2014; August and September 2014 are estimates

# Last year, a large (and wet) corn crop increased PADD2 propane demand; another big crop is likely, but crop drying needs still unclear

propane prime supplier sales/deliveries  
thousand barrels per day

2013 corn harvest increased propane demand compared to previous years then was followed by winter weather demand

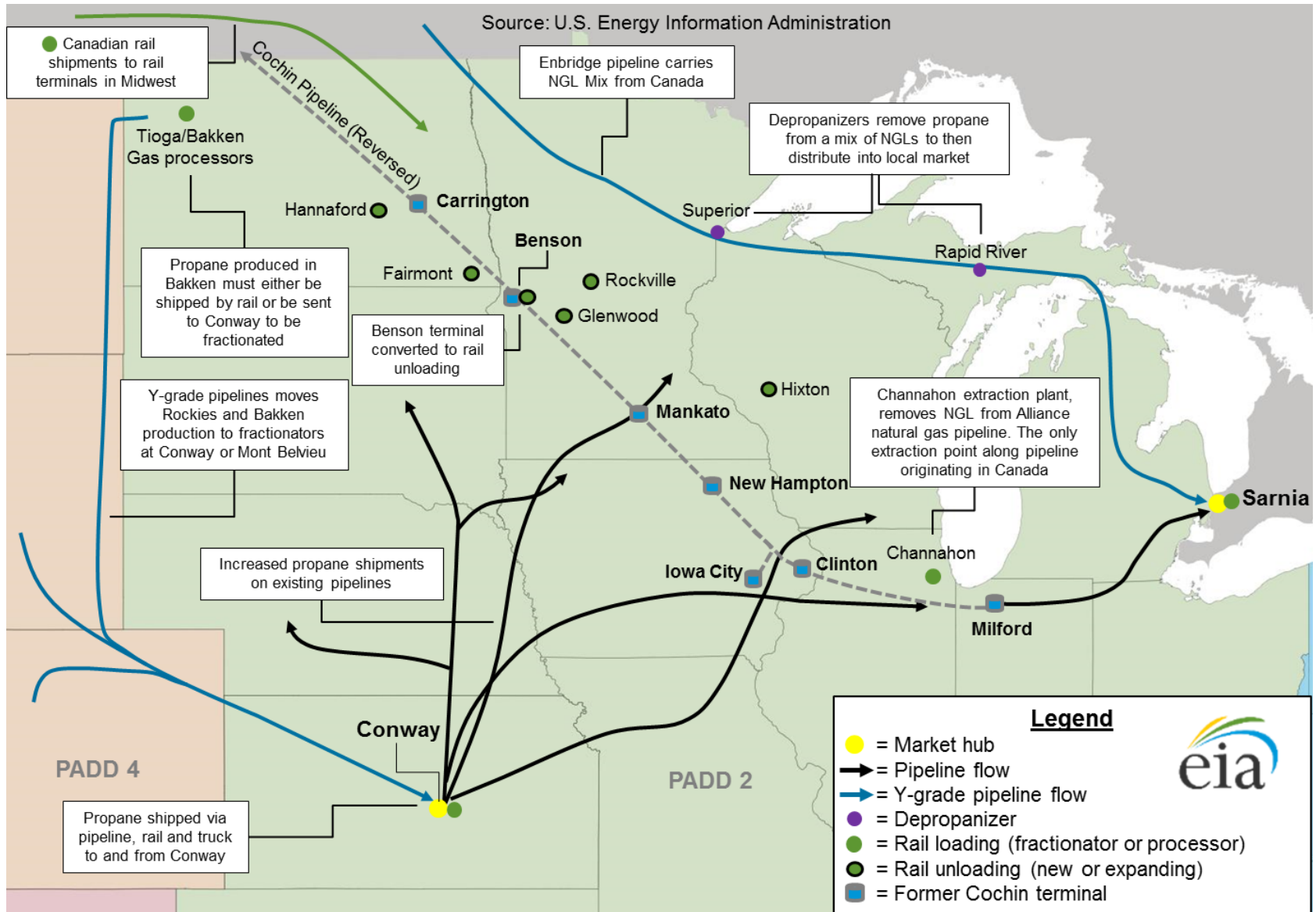


Source: U.S. Energy Information Administration, Petroleum Marketing Monthly.

## National Propane Gas Association (NPGA): state affiliates indicate strong secondary and tertiary storage fill

- **ILLINOIS** – retailers indicate the majority of end-users have filled tanks, record corn crop could mean large demand for drying.
- **IOWA** – retailers' storage full including significant storage additions, many customers opted for summer fill, corn harvest expected to start second week in October.
- **MICHIGAN** – retailers report a range of 66-90% of customers opting for pre-buy and price-lock programs.
- **MINNESOTA** – deliveries up by 25 mil. gal. over any previous year, expect summer fill at + 30 mil. gal. over same time last year.
- **MISSOURI** – strong interest in contracts and “pre-buy”; many residential customers opted for summer fill; Concerns over bottlenecks if stocks draw down; Jefferson City terminal recently ran out of propane as it was opting to ship butane.
- **NORTH DAKOTA** – 85% of commercial and residential customers filled early, already seeing grain-drying; ~4 million gallons of new commercial storage; Concerns over reliability of rail for delivery.
- **Large Companies** – campaigns for residential and crop dryers to fill over the summer reportedly successful. Less success with COD customers.

# Upper Midwest (Cochin Market Area) Infrastructure Adjustments



# Evolving Midwest propane supply situation

- **Markets**
  - **Prices:** Summer price premium at Conway encouraged storage builds and off-season buying
  - **Secondary and tertiary storage:** Distributors promoting early fills for customers
- **Supply situation**
  - **Bakken:** Now no pipeline to move purity propane from gas processors in North Dakota to the rest of Midwest
  - **Canada:** Rail facilities being built to move propane from Alberta to PADD2 due to Cochin
  - **Rockies:** Wet component of natural gas must first be fractionated at Conway or Mont Belvieu, prices determine destination
- **Cochin pipeline alternatives**
  - **Pipelines**
    - Limited remaining capacity on existing pipelines
    - Regulation currently prevents prioritization of propane shipments over other products
  - **Rail**
    - New and expanded propane by rail unloading terminals
    - Limited pressurized railcar availability
    - Fallible in cold weather and prone to delays
    - Limited rail loading capacity
  - **Truck**
    - Costly when done over long distances
    - Limited by hours of service and weight limitations

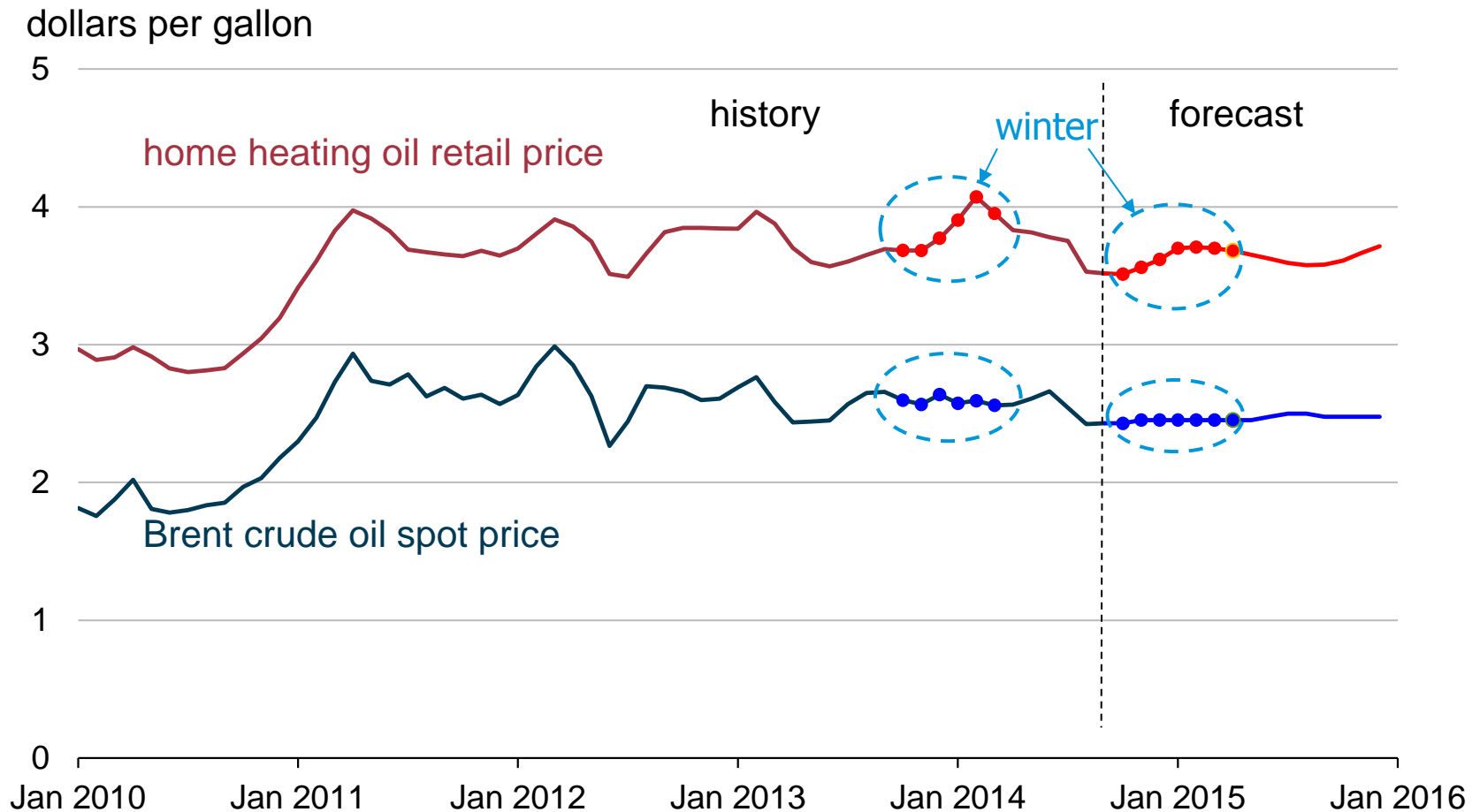


# Heating Oil

## 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, demand should be 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 costal waters to 1,000 ppm in January 2015.

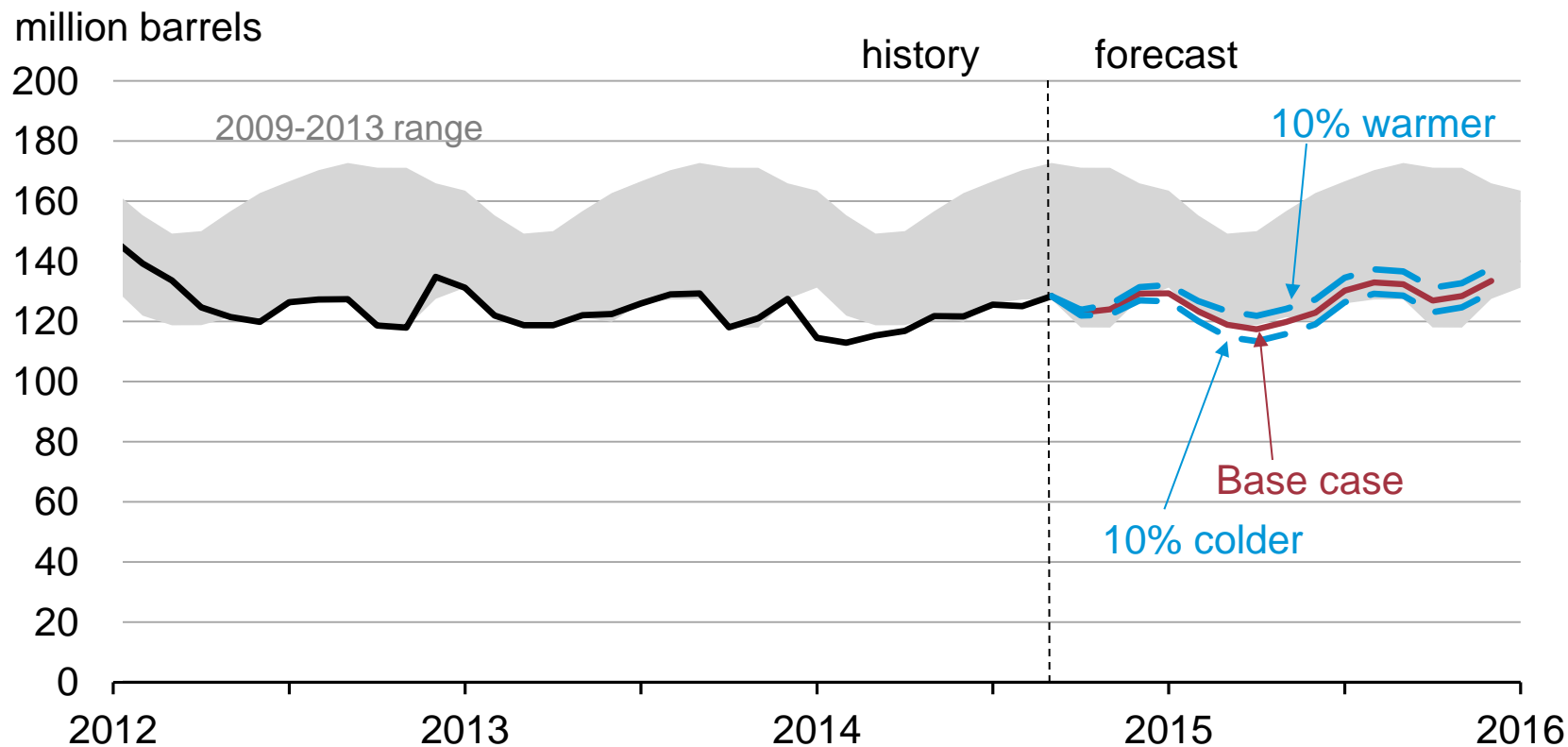
# EIA expects residential heating oil prices to average 6% lower this winter than last



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



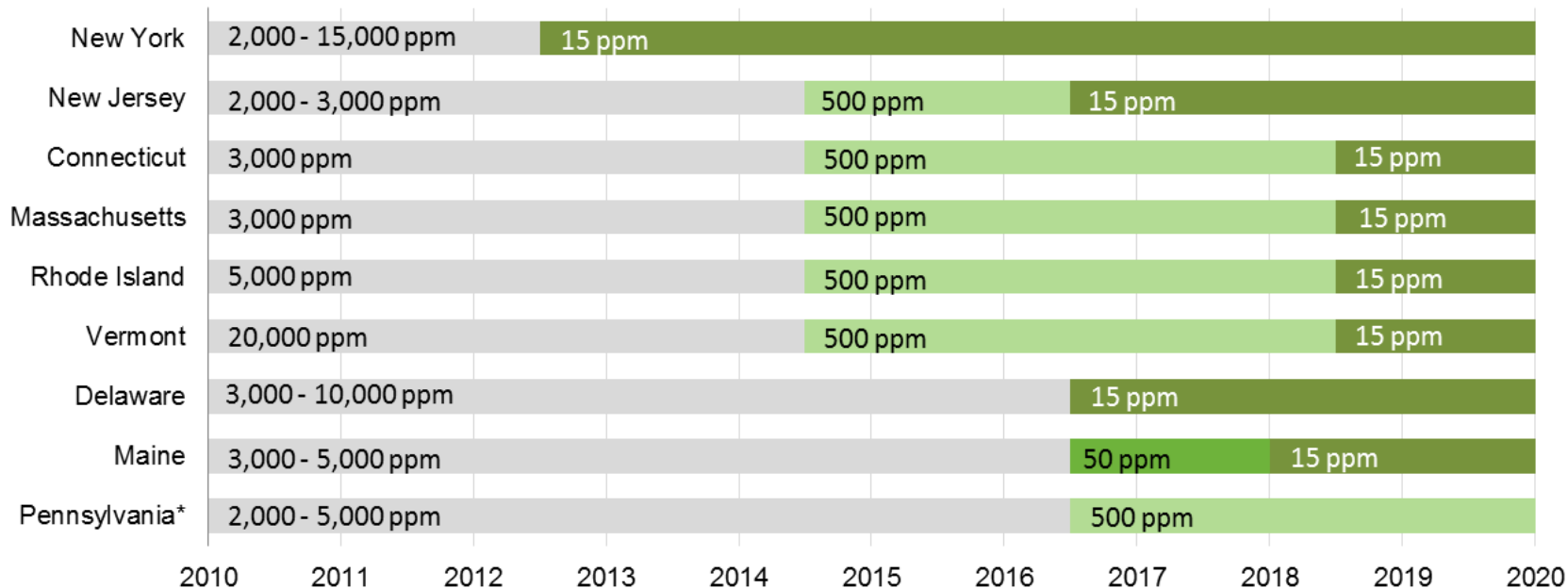
Normal range (gray band) represents the range between the minimum to maximum from Jan. 2009 to Dec. 2013.

Source: EIA Short-Term Energy Outlook, October 2014

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

## Schedule for maximum sulfur content of heating oil in the Northeast by year

parts per million (ppm)



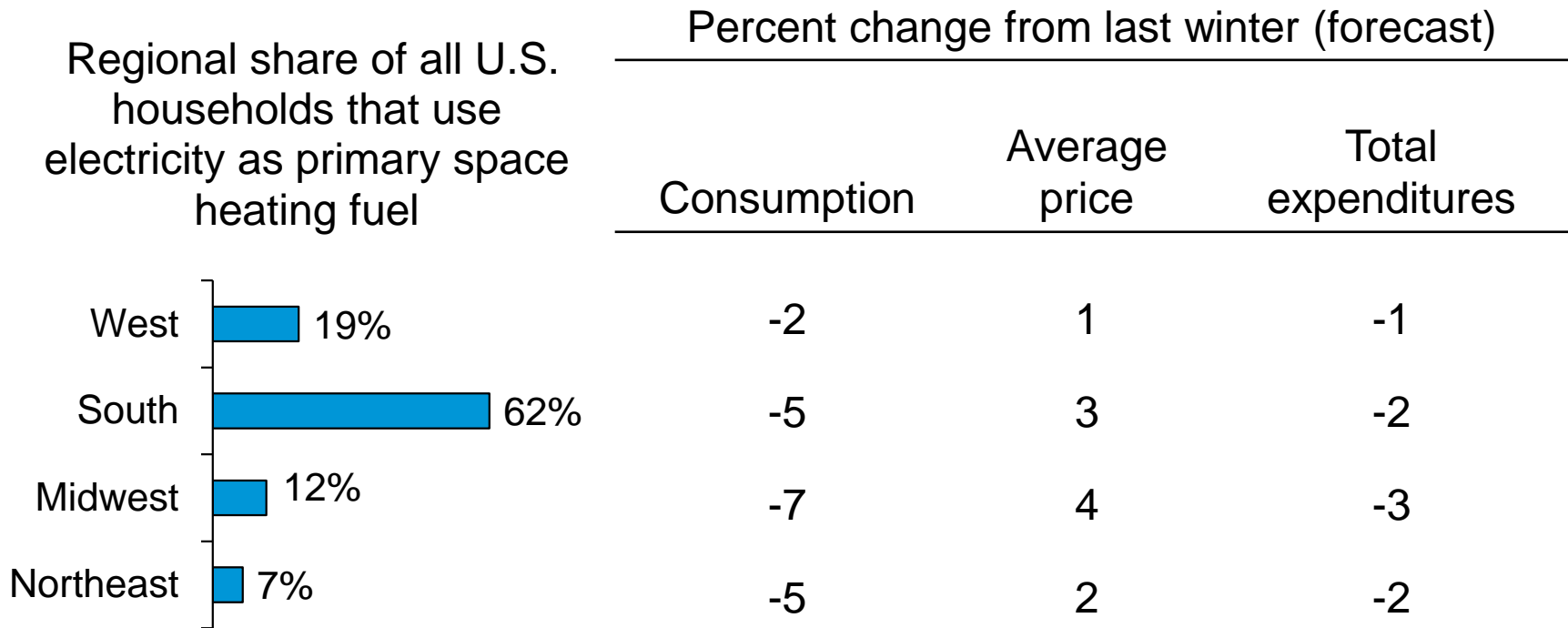
Note: Specifications change on July 1 of the years shown, with the exception of Maine's 15 ppm requirement, which changes on January 1, 2018.

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

Source: U.S. Energy Information Administration

# Electricity

# Winter electricity bill forecasts are slightly lower in most regions



Source: EIA Short-Term Energy Outlook, October 2014

## For more information

U.S. Energy Information Administration home page | [www.eia.gov](http://www.eia.gov)

Annual Energy Outlook | [www.eia.gov/aeo](http://www.eia.gov/aeo)

Short-Term Energy Outlook | [www.eia.gov/steo](http://www.eia.gov/steo)

International Energy Outlook | [www.eia.gov/ieo](http://www.eia.gov/ieo)

Monthly Energy Review | [www.eia.gov/mer](http://www.eia.gov/mer)

Today in Energy | [www.eia.gov/todayinenergy](http://www.eia.gov/todayinenergy)

State Energy Portal | [www.eia.gov/state](http://www.eia.gov/state)

Drilling Productivity Report | [www.eia.gov/petroleum/drilling/](http://www.eia.gov/petroleum/drilling/)