

# **OE ENERGY MARKET SNAPSHOT**

## **National – Data Through September 2015**

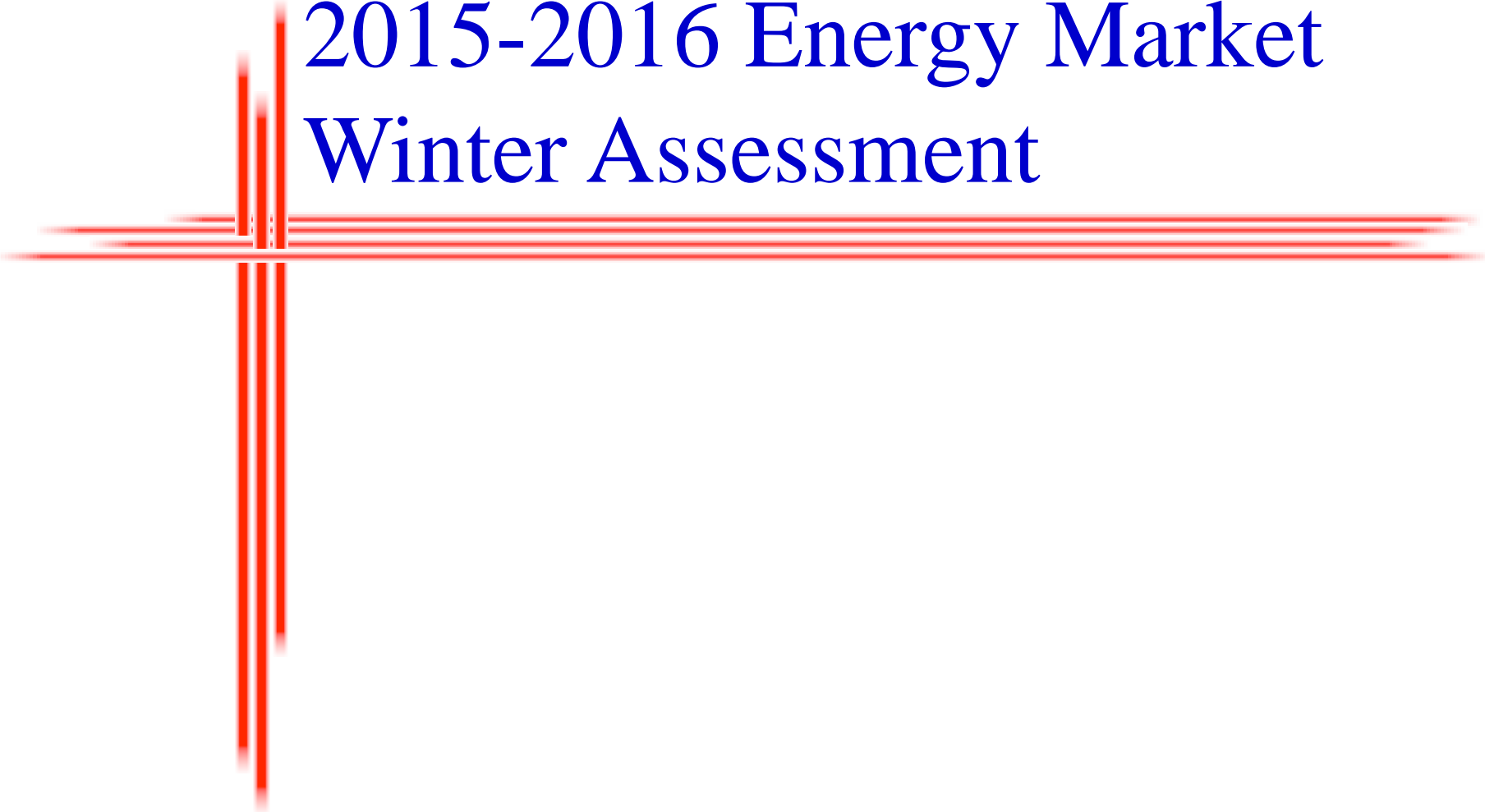
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Office of Enforcement  
Federal Energy Regulatory Commission  
October 2015

# Agenda

- 2015-16 Energy Market Winter Assessment
- National Slides
- Infrastructure Report

# 2015-2016 Energy Market Winter Assessment



# Market Overview

## ■ Stable signals

- Low NG & electric prices
- Abundant NG production & storage
- Moderate weather in Midwest, Northwest & Northeast
- Robust fuel stockpiles—  
heating & generation

## ■ Challenges

- Low NG and oil rig counts
- Cold weather in South
- Potential demand increases from NG industrial & LNG exports
- New England price volatility

# Futures Prices Decline

	Location	2015 <sup>^</sup>	2016*	Δ
G a s	Algonquin (New England)	\$21.45	\$9.69	-55%
	Transco Zone 6 non-NY (Mid-Atlantic)	\$9.09	\$6.21	-32%
	Transco Zone 6 NY (New York City)	12.82	\$9.29	-28%
	Dominion South (Marcellus)	\$2.51	\$1.97	-21%
	Southern California Border	\$4.30	\$2.85	-34%
	Henry Hub	\$4.08	\$2.77	-32%
P o w e r	Massachussets Hub	\$183.88	\$89.28	-51%
	PJM Western Hub	\$72.60	\$50.56	-30%
	Northwest (Mid-C)	\$37.73	\$24.88	-34%
	Southern California (SP-15)	\$46.13	\$33.76	-27%

Source: Derived from ICE and Nymex data.

\*January and February 2016

<sup>^</sup>January and February 2015

\*SP-15 2016

\*Power Note: Prices in \$/MWh. Peak financial swap prices.

\*Gas Note: Prices in \$/MMBtu. Regional futures natural gas prices are the sum of the Henry Hub futures contract price plus the regional basis futures.

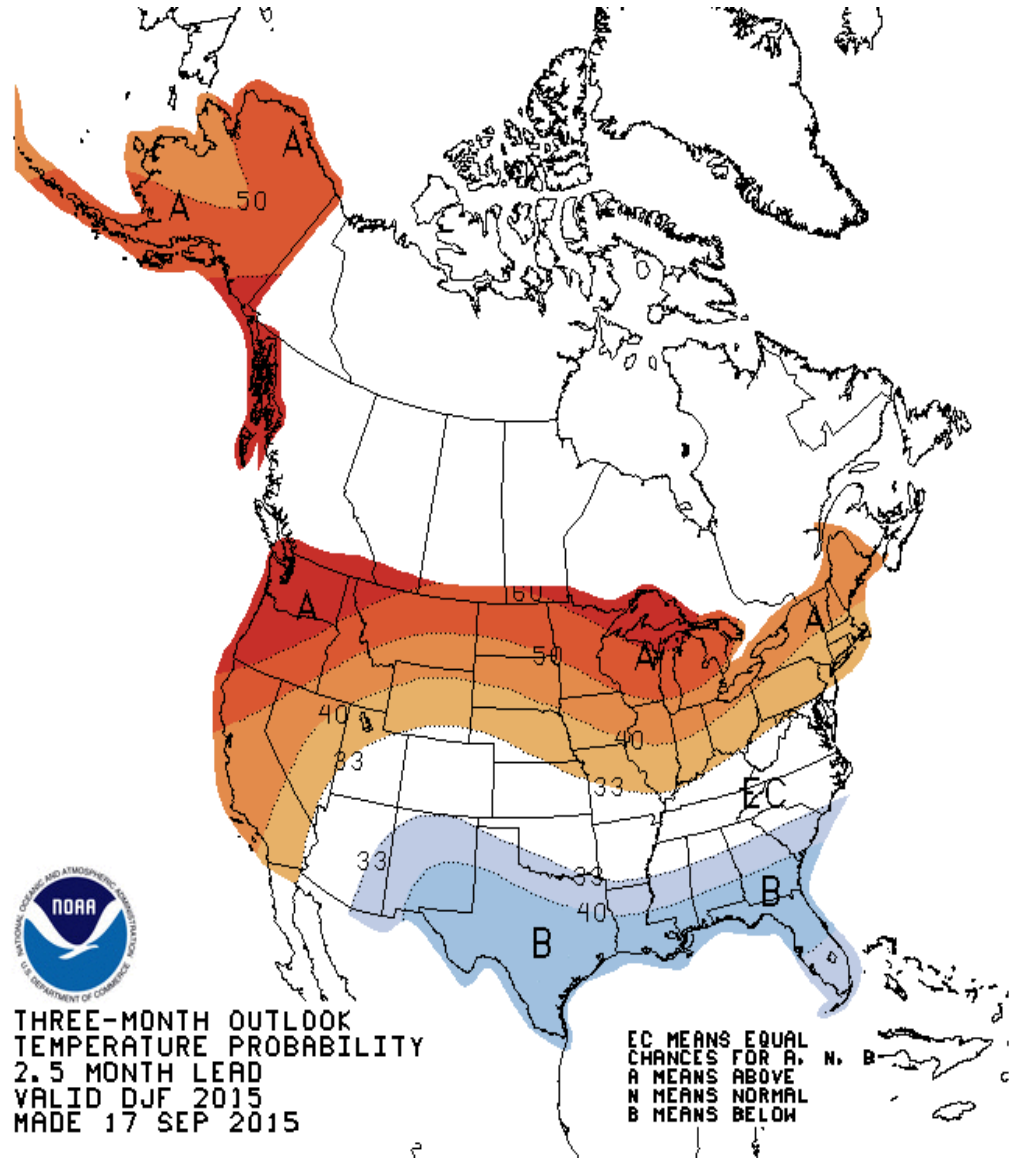
# Winter Temps Warmer in North & Cooler in South

Source: NOAA National Weather Service

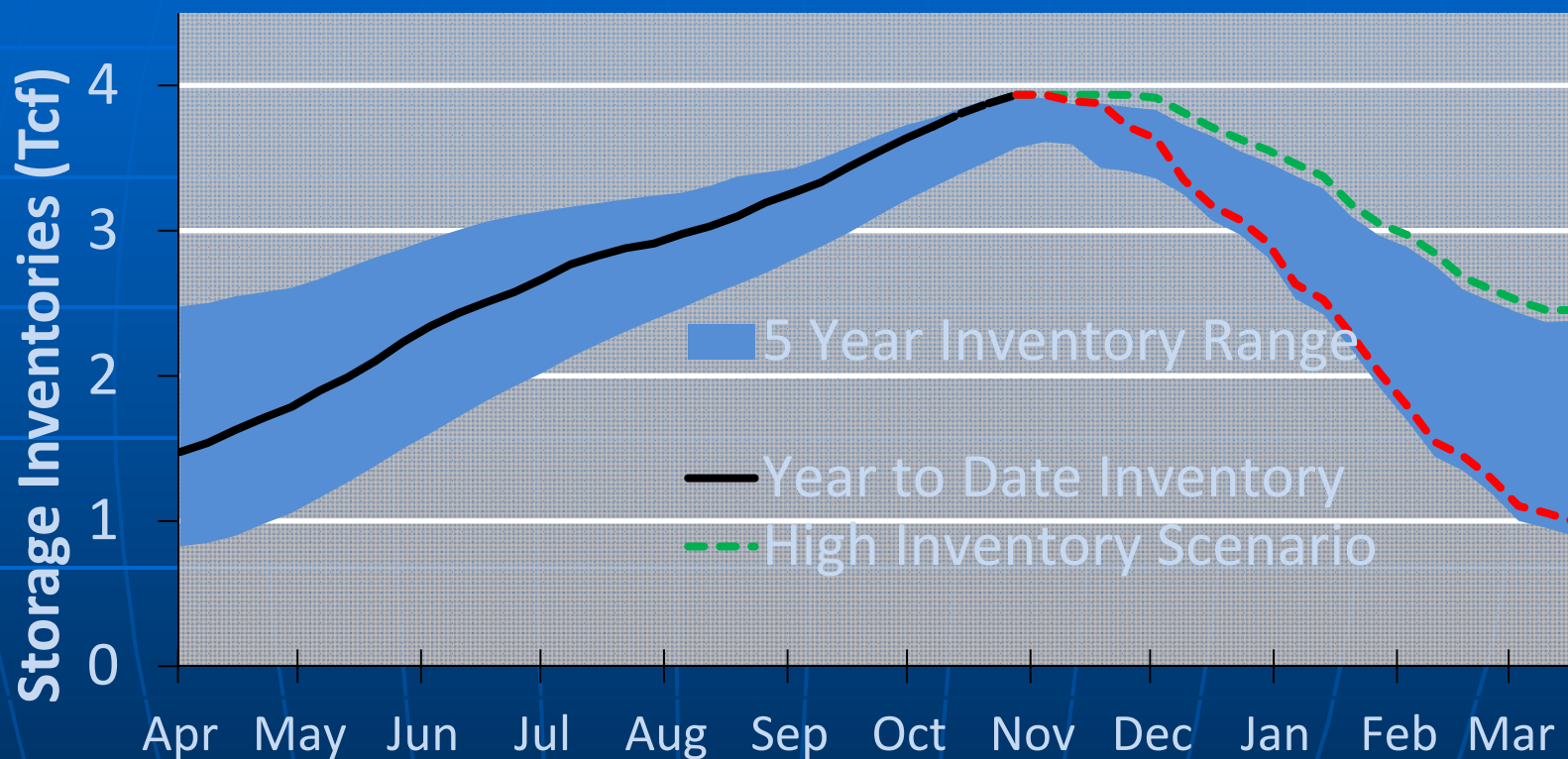


THREE-MONTH OUTLOOK  
TEMPERATURE PROBABILITY  
2.5 MONTH LEAD  
VALID DJF 2015  
MADE 17 SEP 2015

EC MEANS EQUAL  
CHANCES FOR A. N. B  
A MEANS ABOVE  
N MEANS NORMAL  
B MEANS BELOW

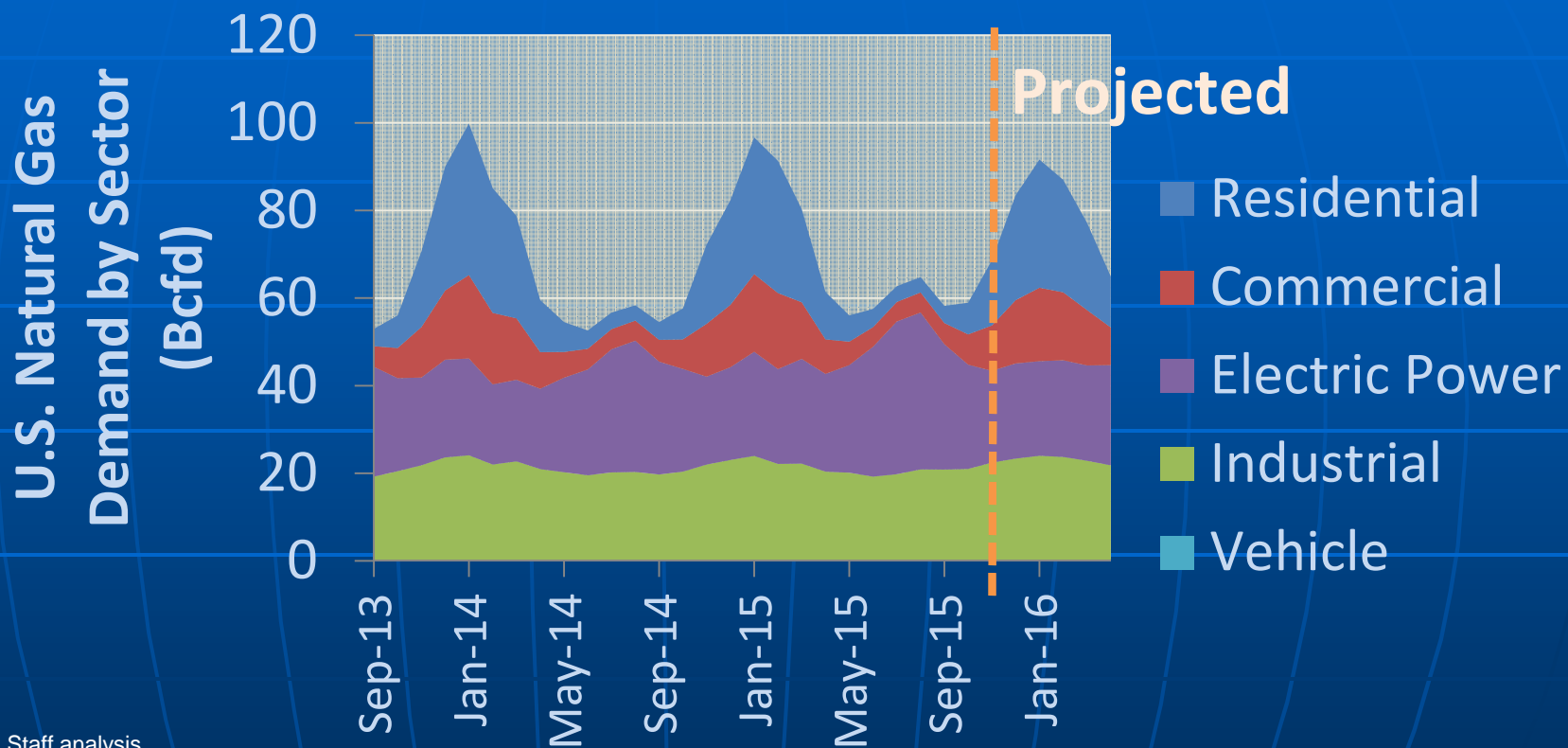


# Natural Gas Storage Poised To Set a Record Entering Winter



Source: EIA data & Staff analysis.

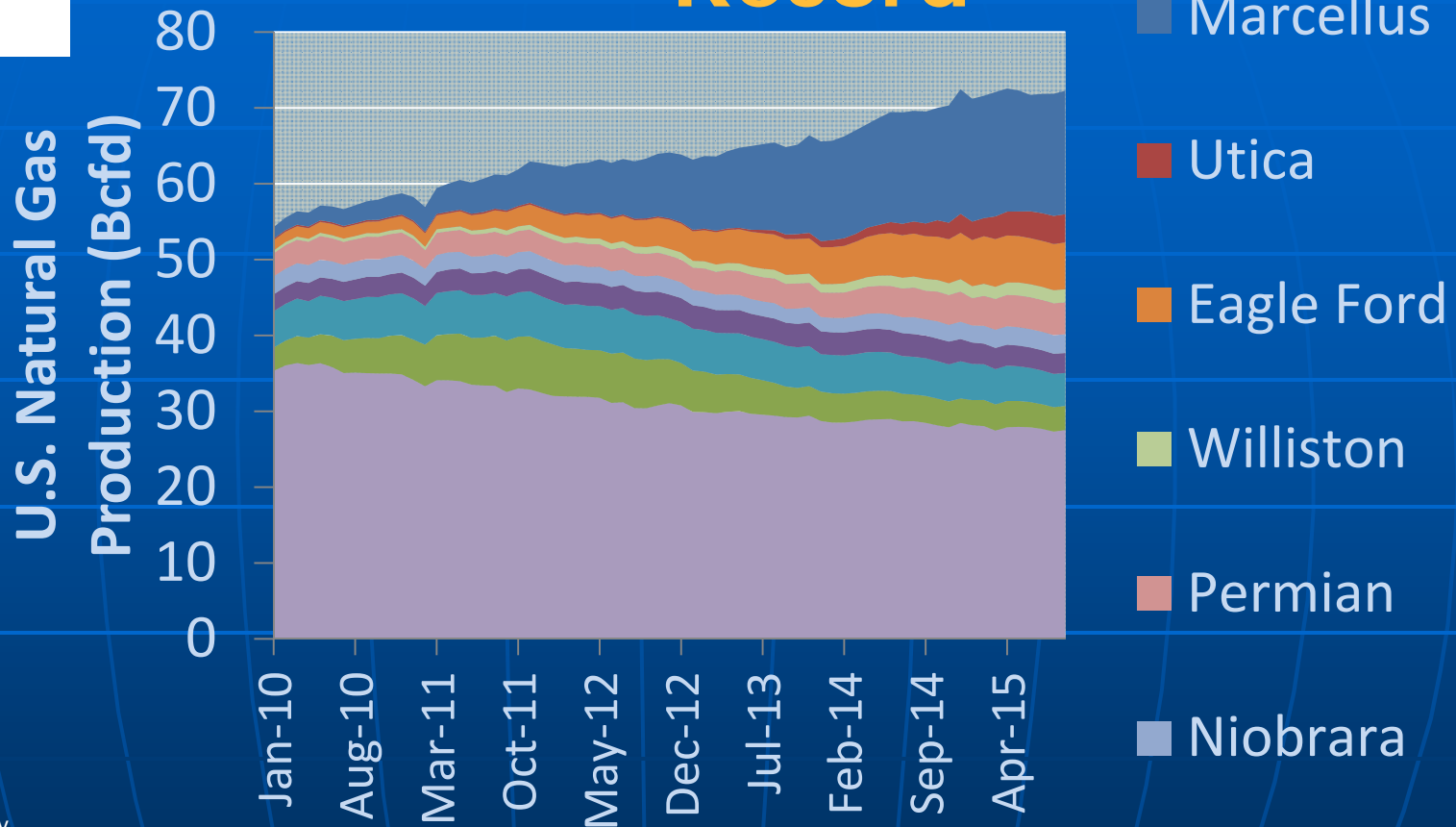
# Winter NG Demand Projections Lower than Previous Winters



Source: EIA data & Staff analysis.



# Natural Gas Production Sets Record

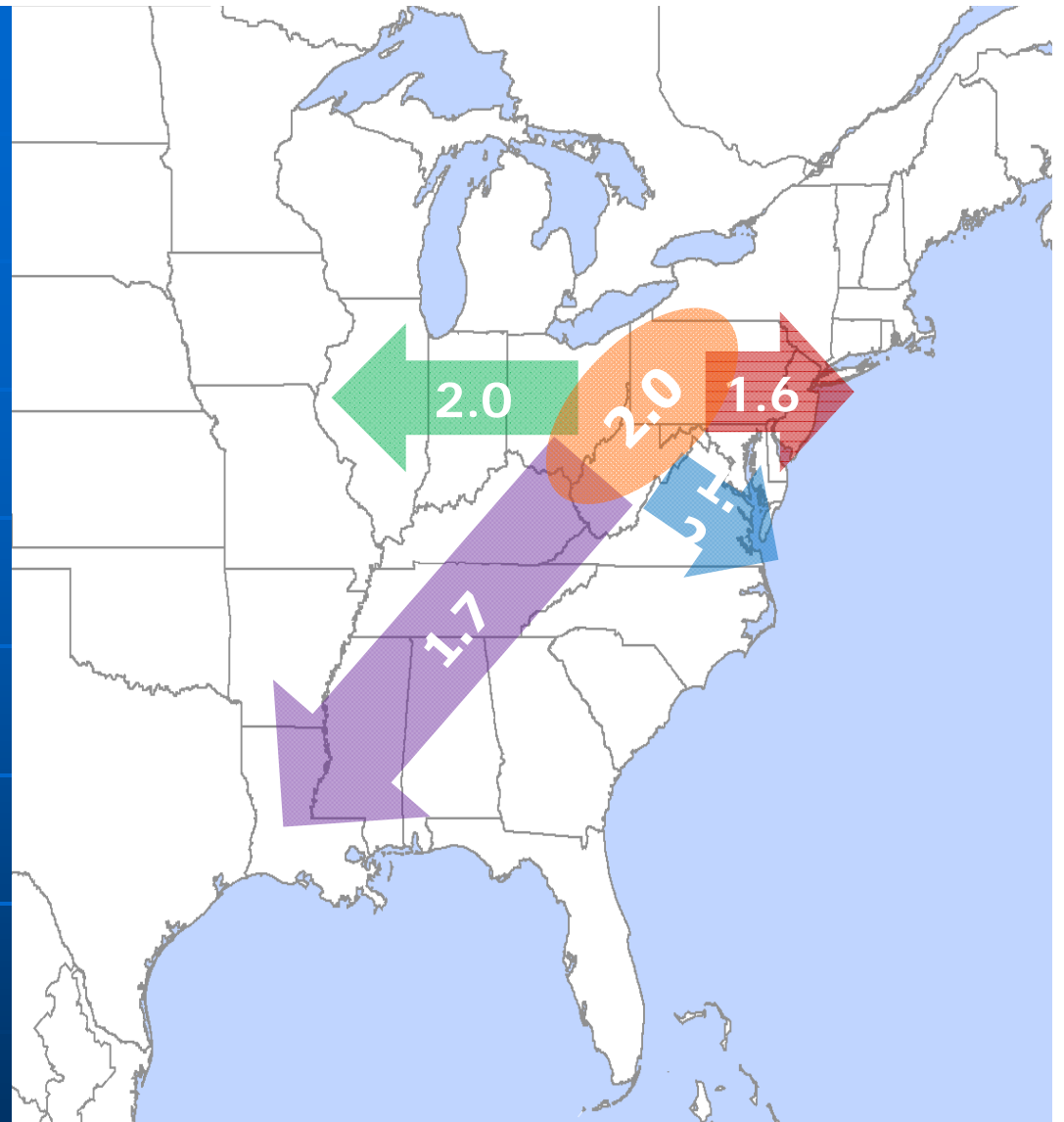


Source: Bentek Energy.

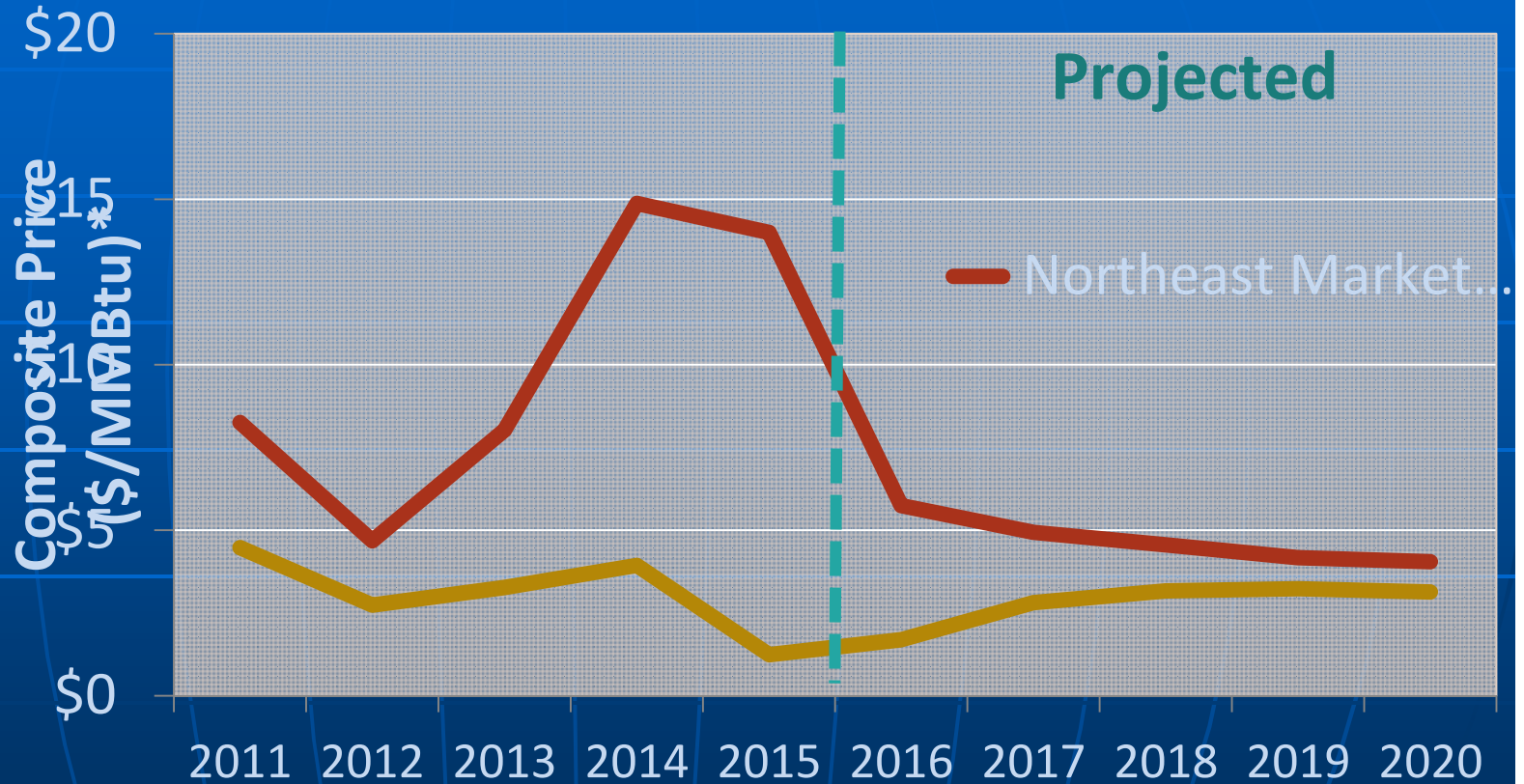
# Pipeline Projects Connect New Production to Markets

Natural Gas pipeline  
capacity additions in  
2014 & 2015 (Bcfd)

Source: Staff analysis.



# Winter Natural Gas Prices Converge in Northeast



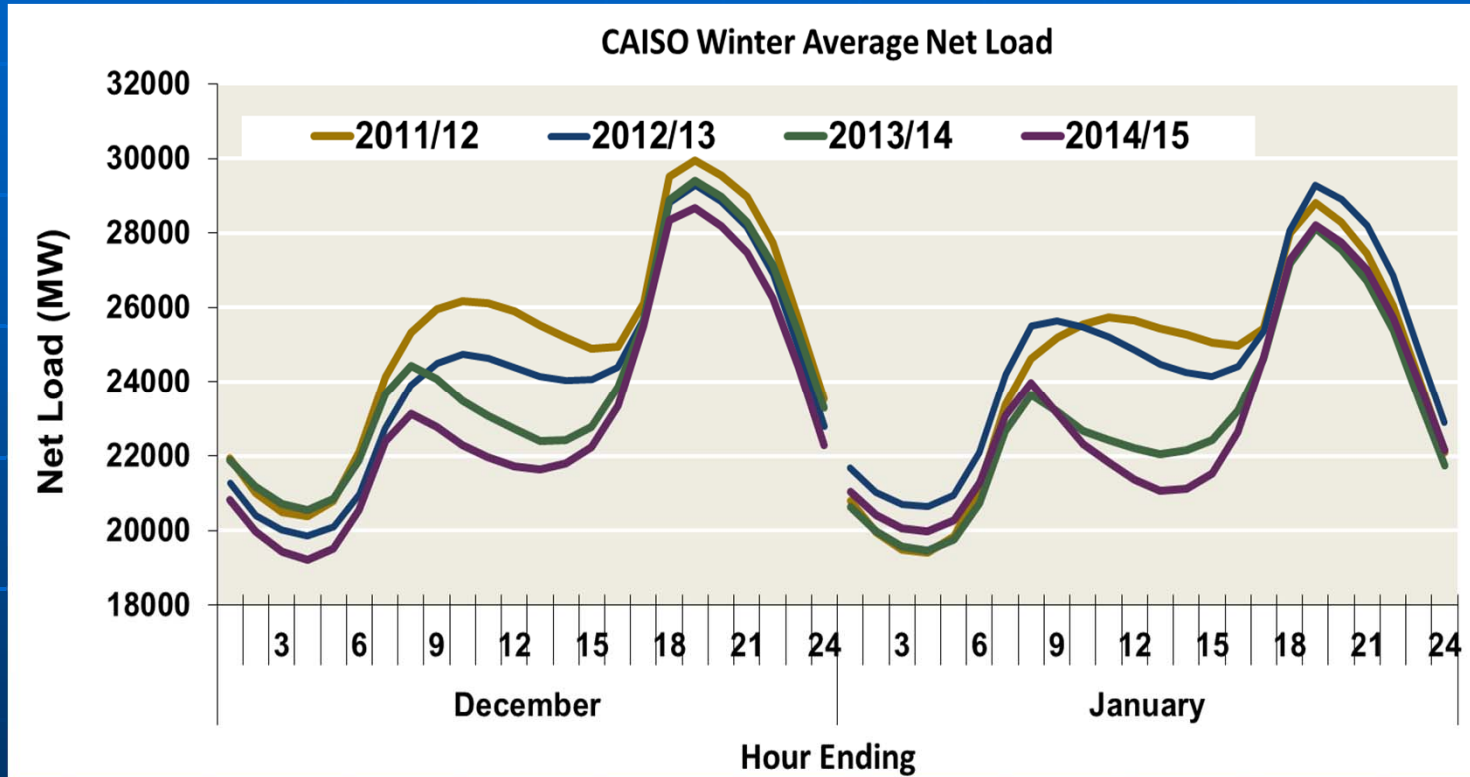
\*Regional composites are averages of January and February prices.

Source: Staff analysis.

# RTO/ISO Winter Preparations

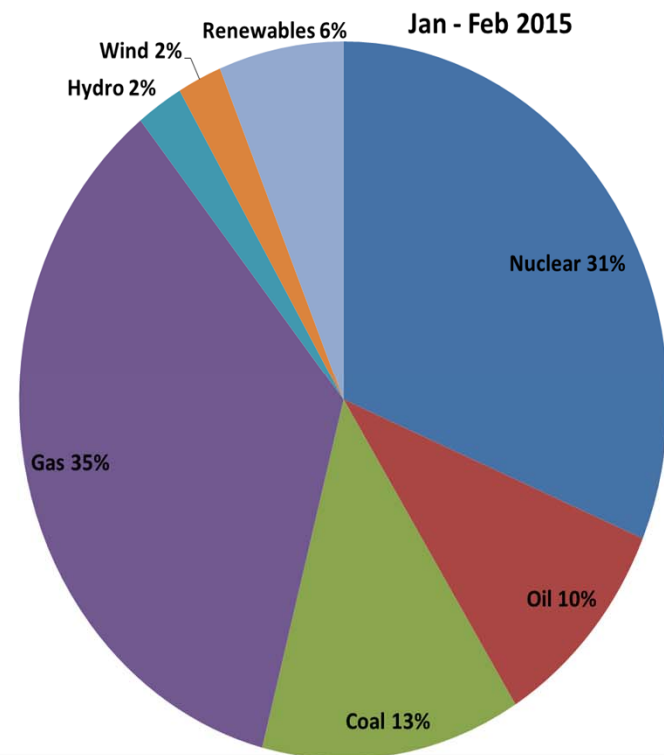
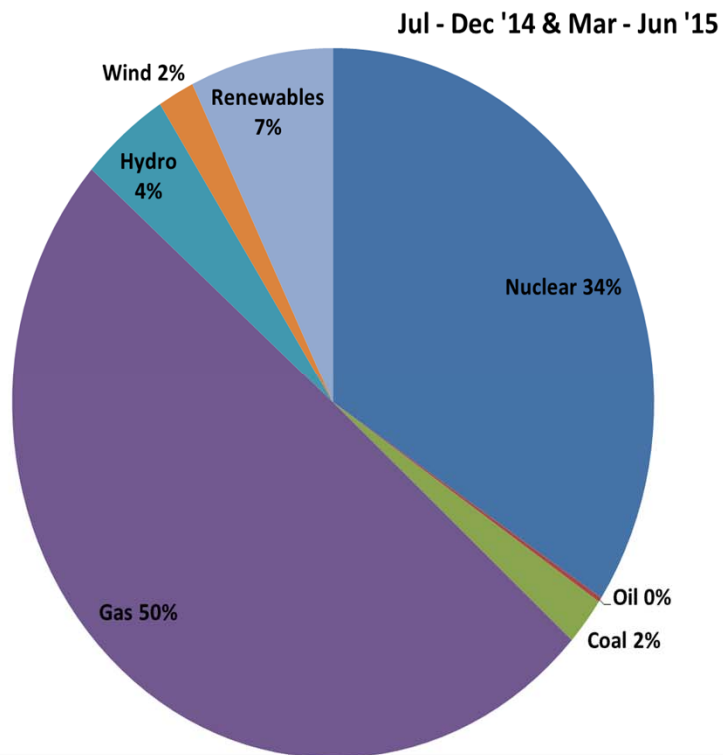
- Gas electric coordination
- Seasonal modeling assessments
- Adequate reserve margins with load pockets
- Winterization testing
- Situational awareness

# CAISO Winter Ramp



Source: Derived from CAISO data via Ventyx

# ISO-NE Relies on Winter Fuel Diversity



Source: Derived from Ventyx data

# Power Market Developments

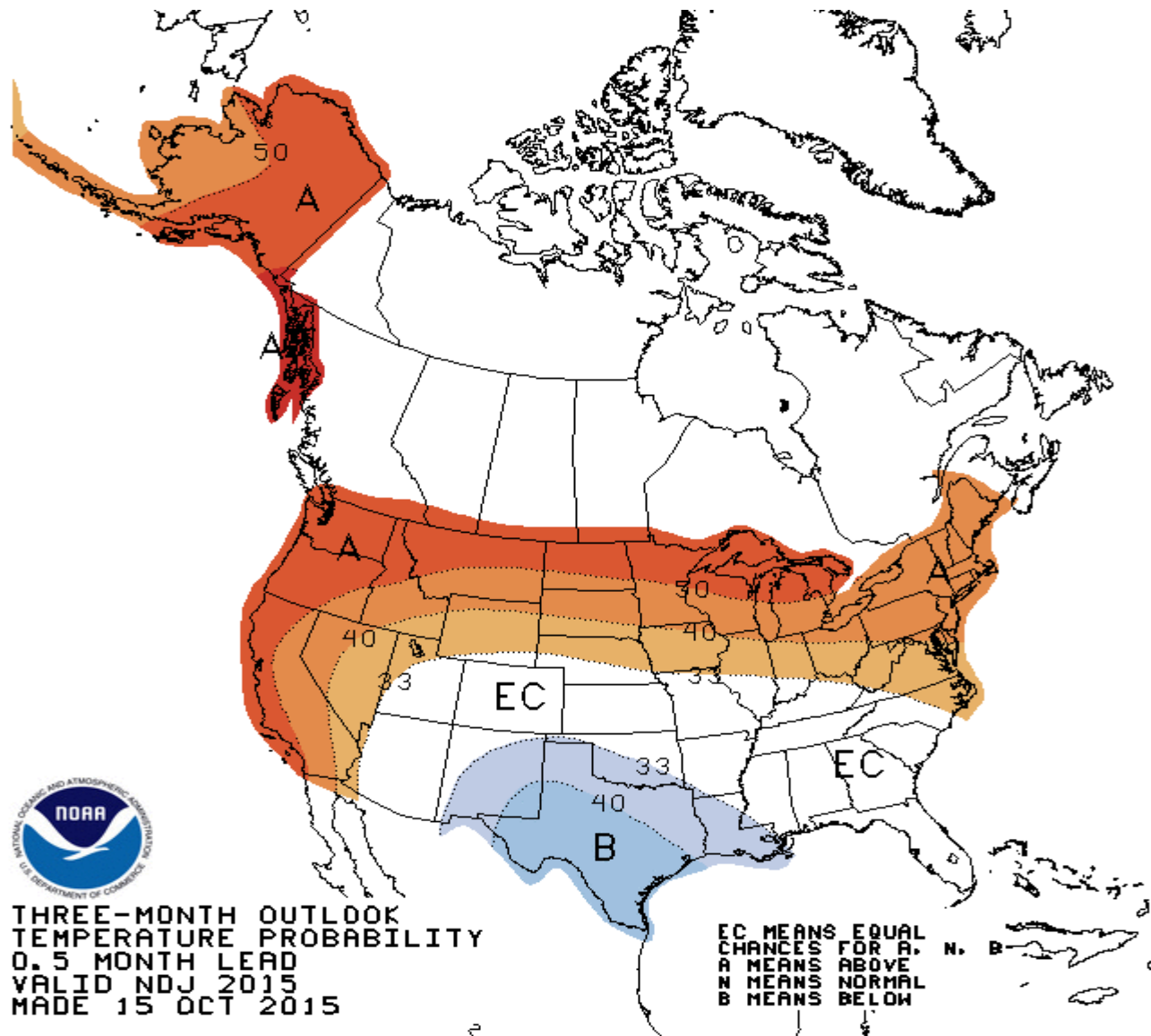
- SPP Expanded Membership with Integrated Systems
- NV Energy may join EIM
- NYISO increased reserve requirements and scarcity prices
- SPP-MISO improve interregional coordinaton



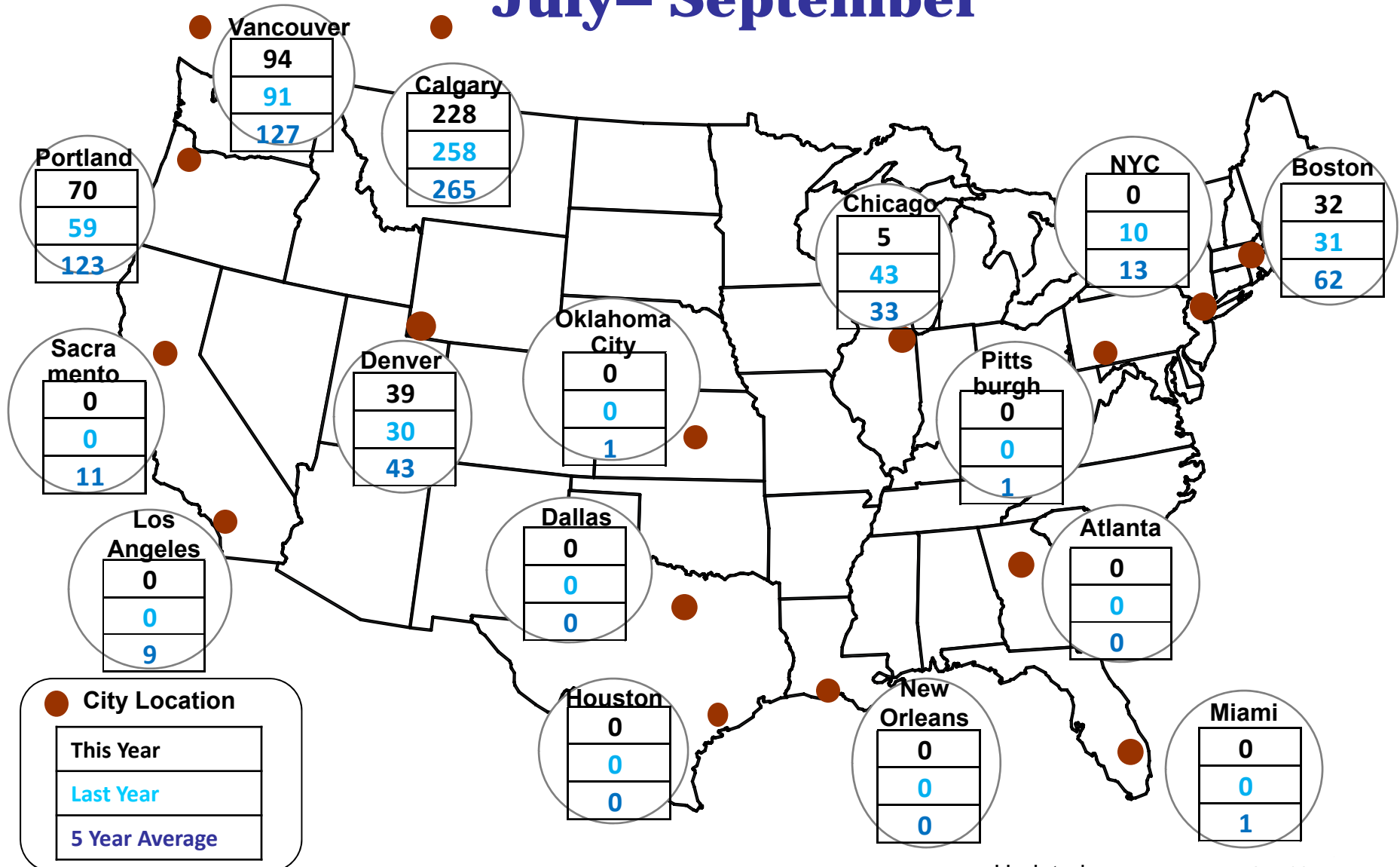
# National Slides



## NOAA Nov 2015 Through Jan 2016 Outlook



# Cumulative HDDs by City July– September

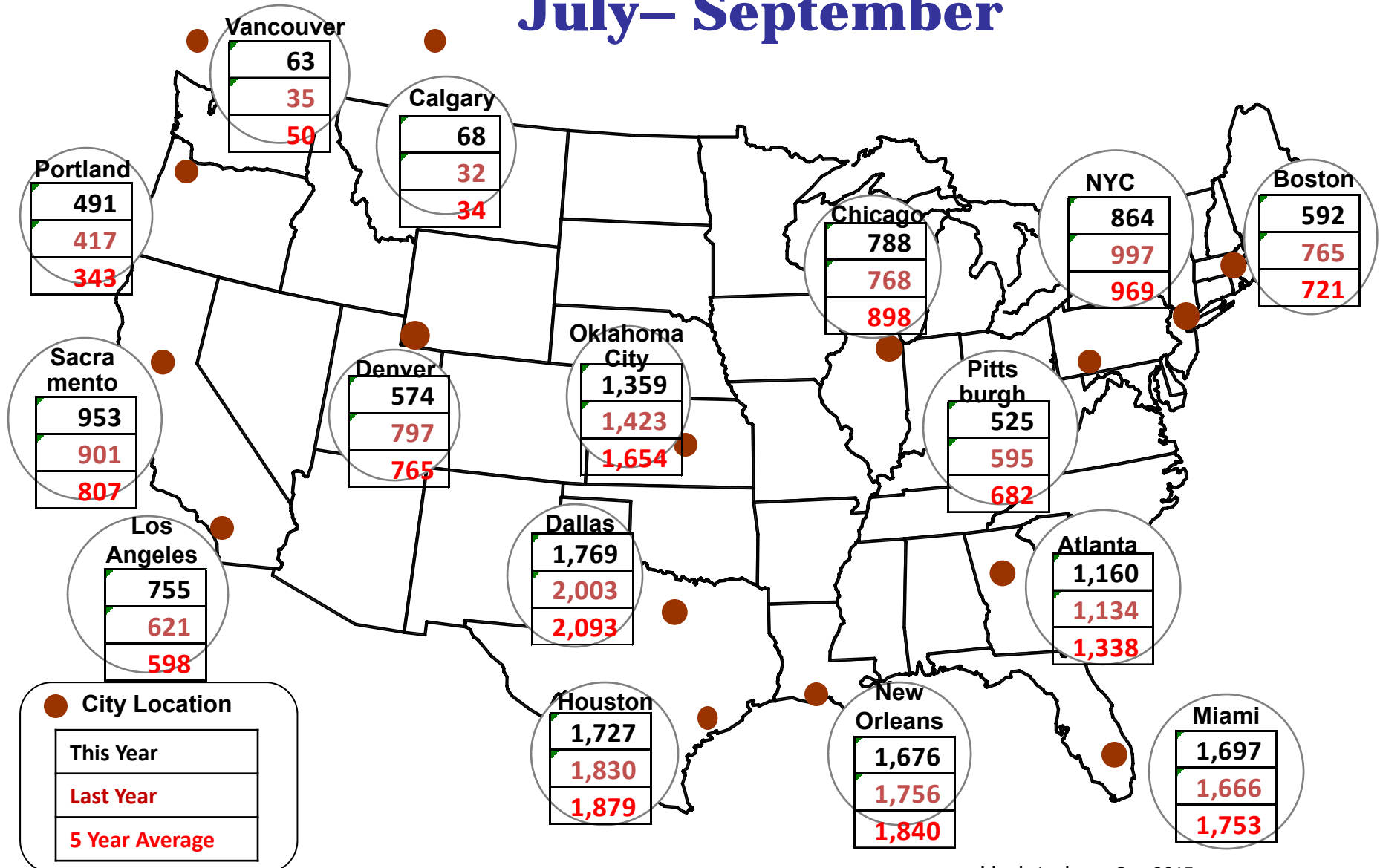


Source: Bloomberg Weather (daily data summed quarterly)

Updated

Oct-2015

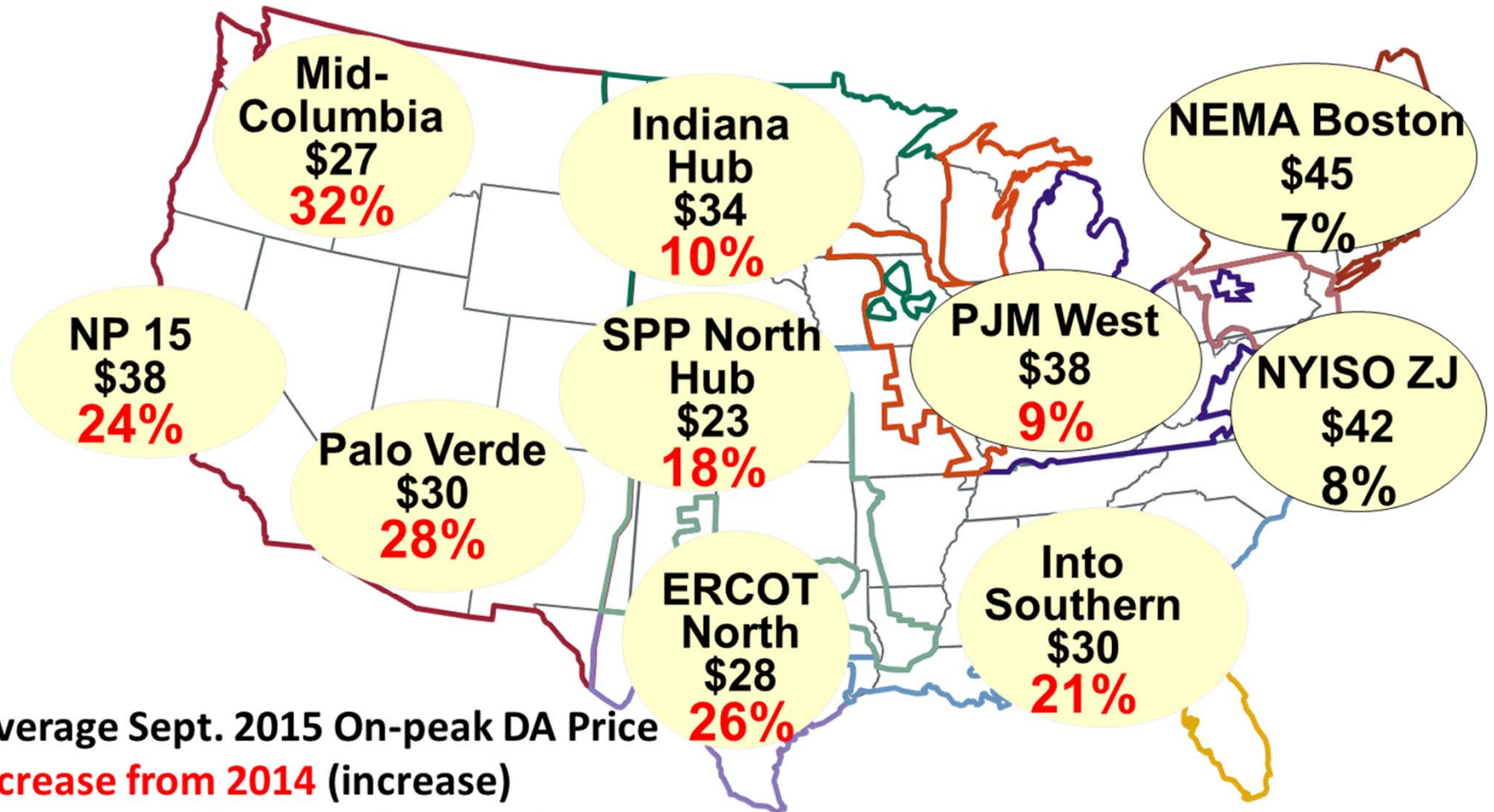
# Cumulative CDDs by City July– September



Source: Bloomberg Weather (daily data summed quarterly)

Updated Oct-2015

## Spot Power Prices Average Monthly (\$/MWh)



\$ = Average Sept. 2015 On-peak DA Price

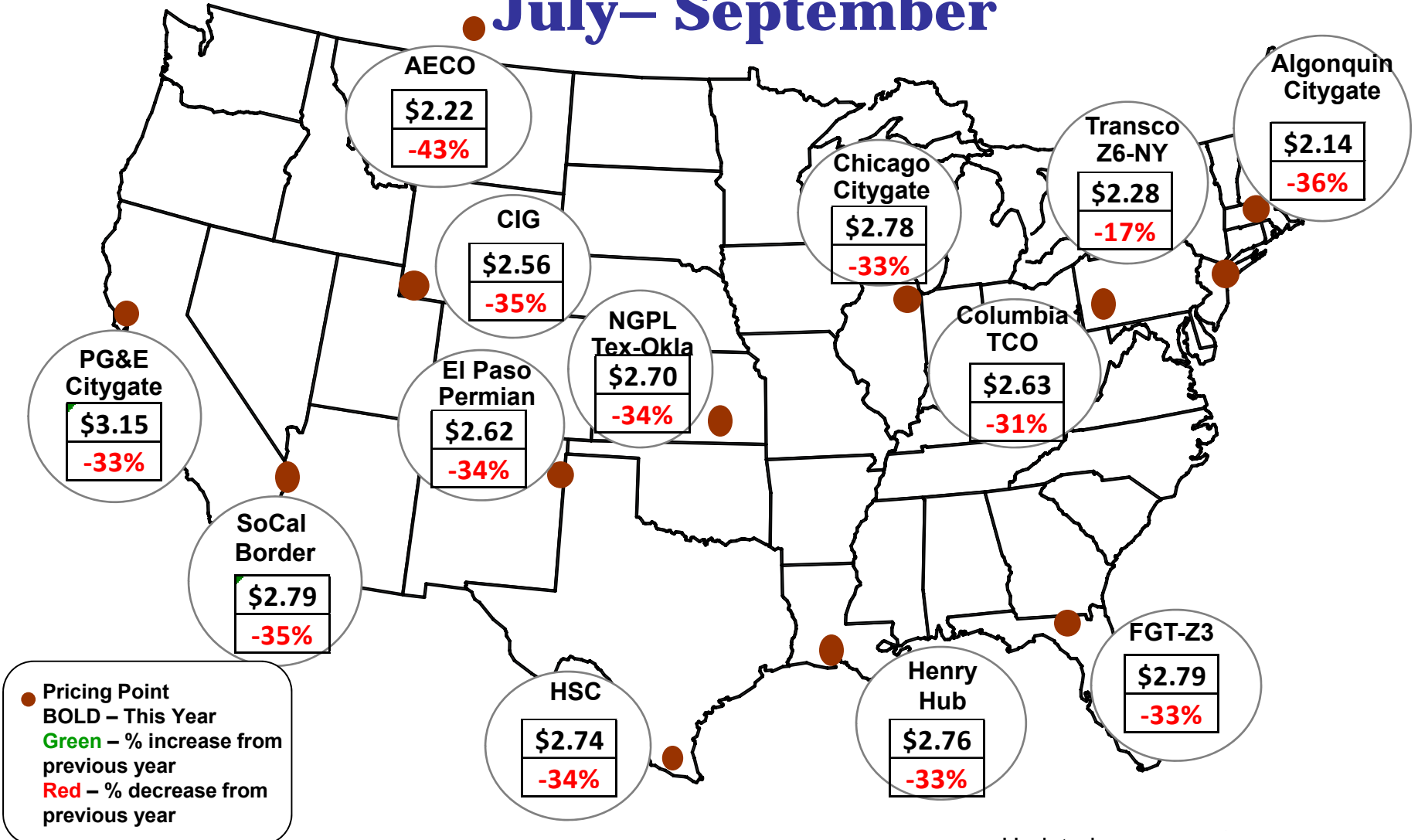
% Decrease from 2014 (increase)

Source: Derived from ISO/RTO and SNL Data

# Spot Natural Gas Prices

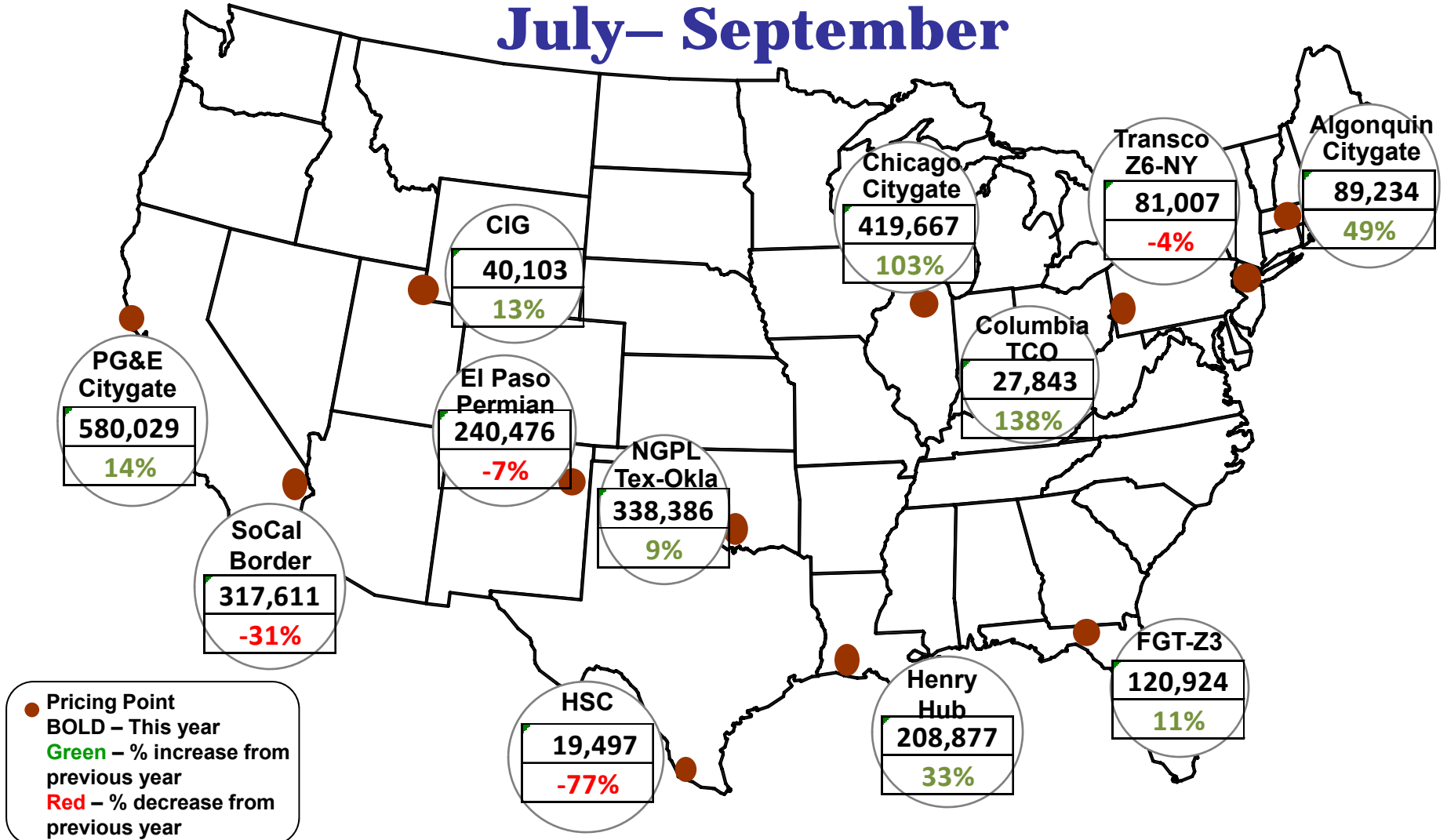
## Average (\$/MMBtu)

### July– September



Source: ICE

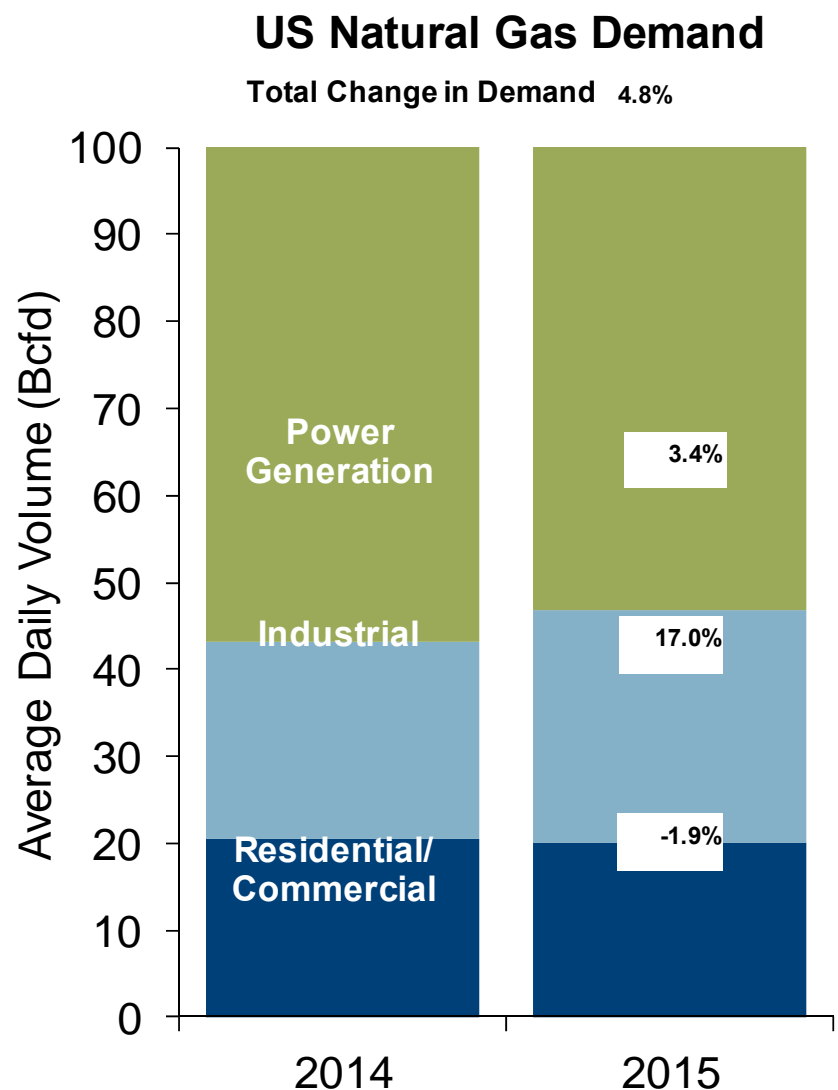
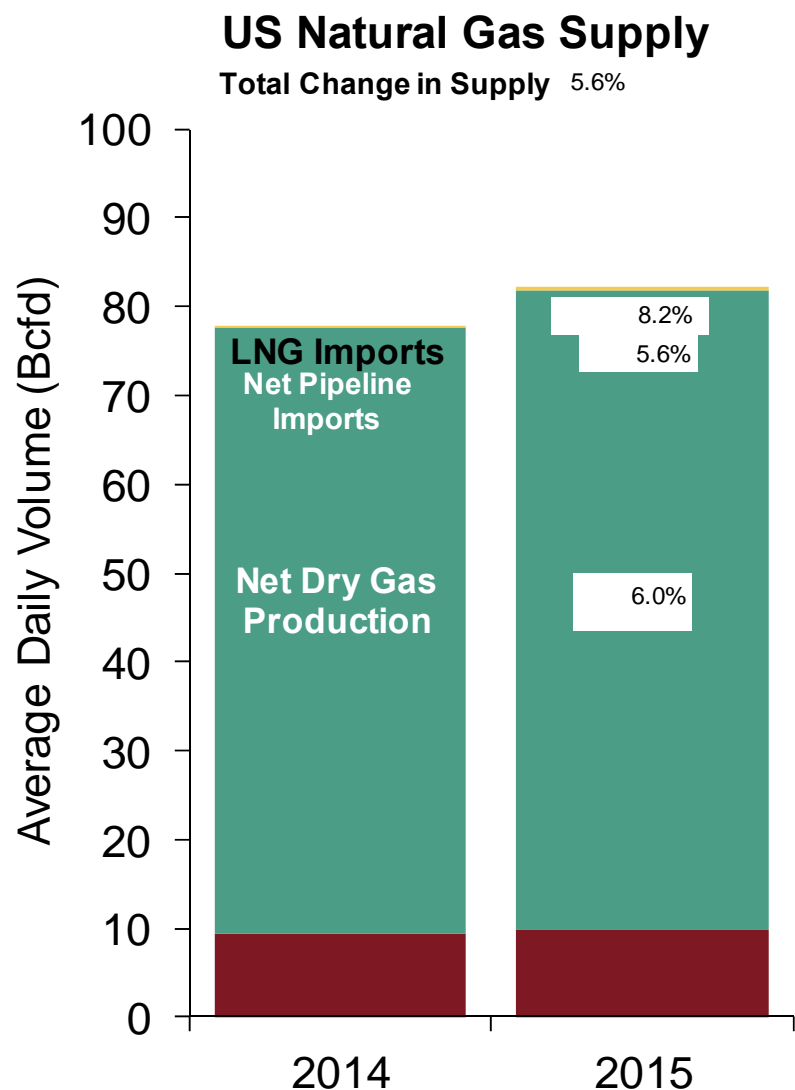
# Spot Average Natural Gas Trading Volumes (MMBtus) July– September



Source: ICE

Updated Oct-2015

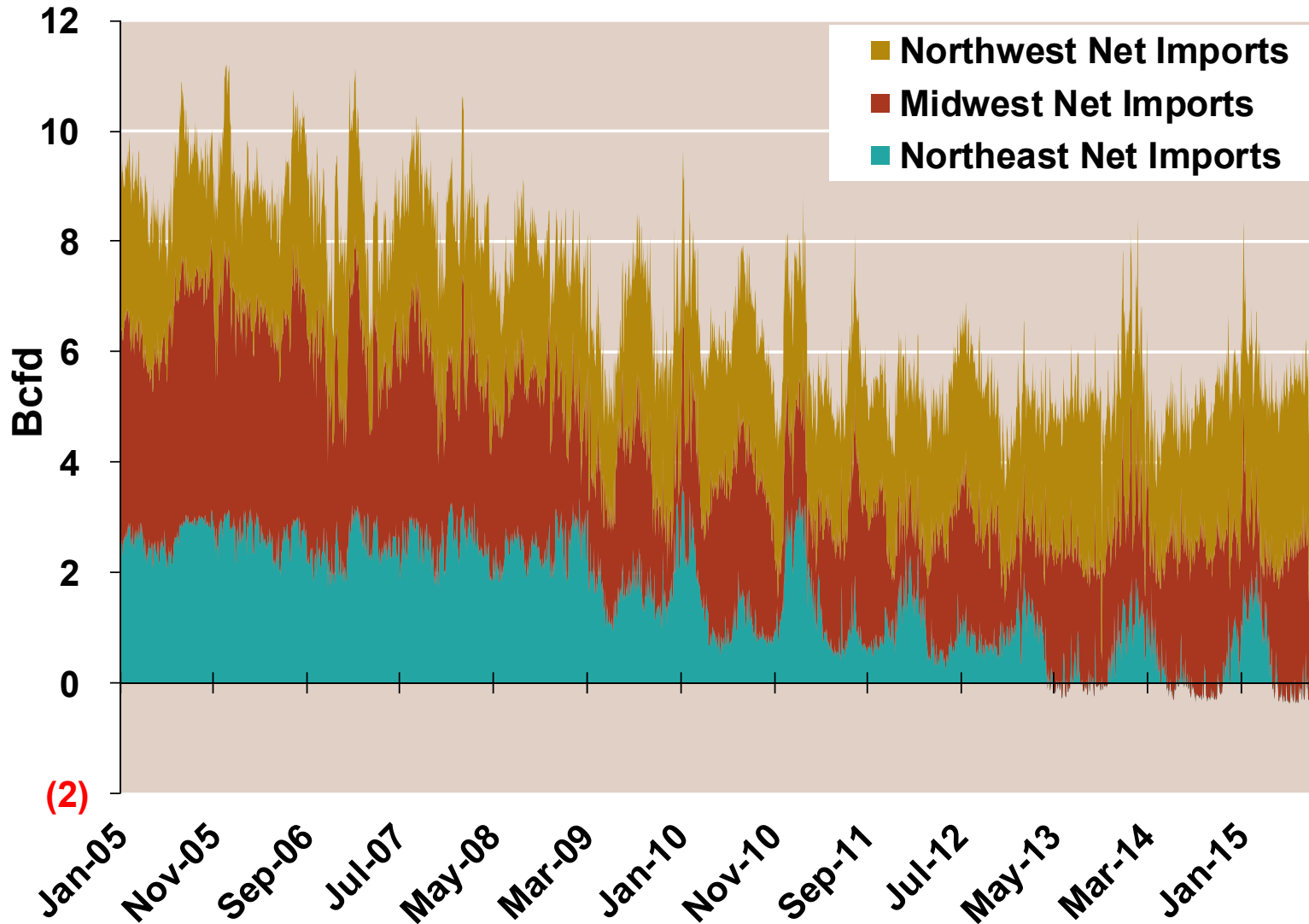
## U.S. NG Supply and Demand Year to Date – Sep 2015 vs. Sep 2015



Note: Balance includes all amounts not attributable to other categories.

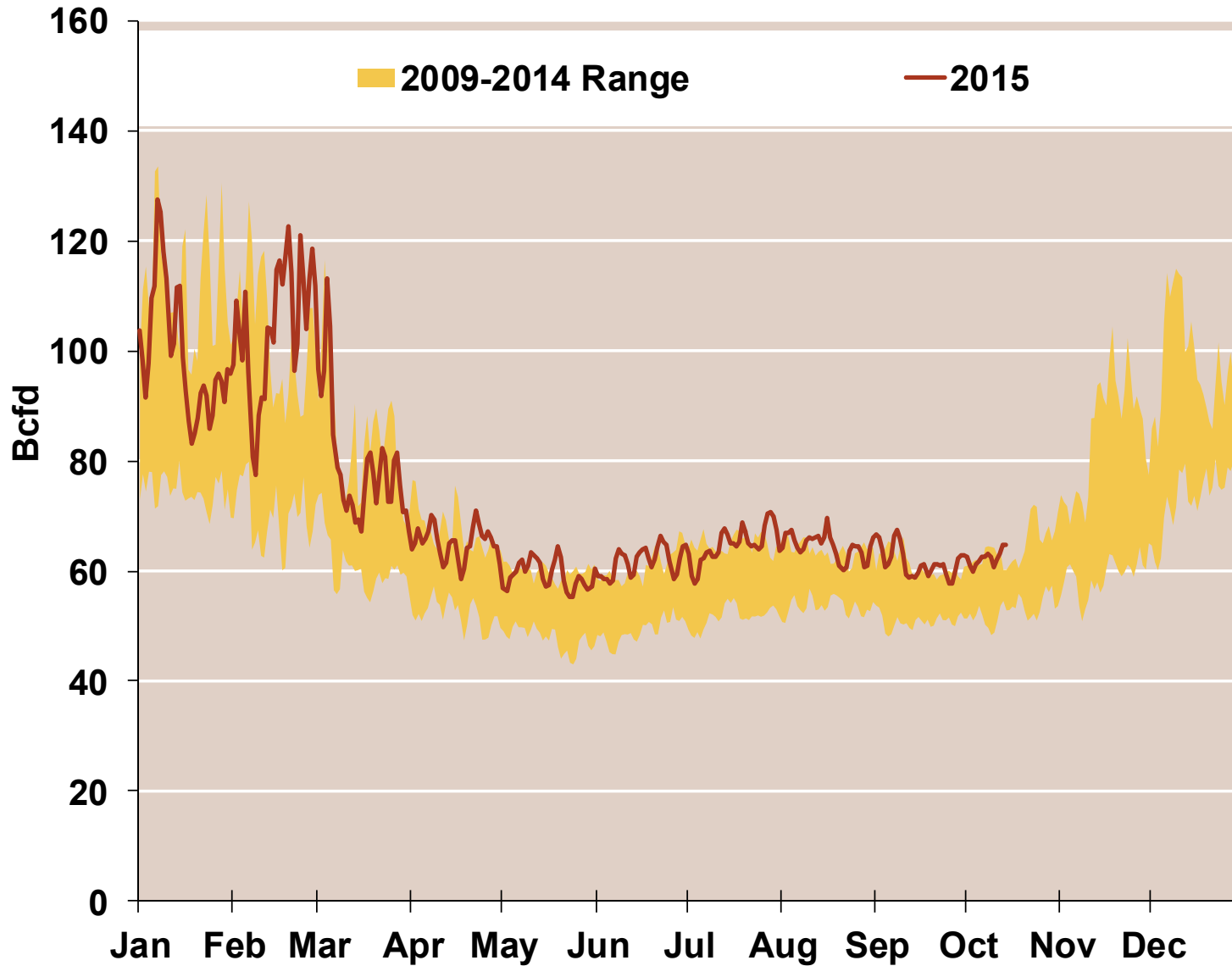
Source: Derived from *Bentek Energy* data

### Regional Imports from Canada





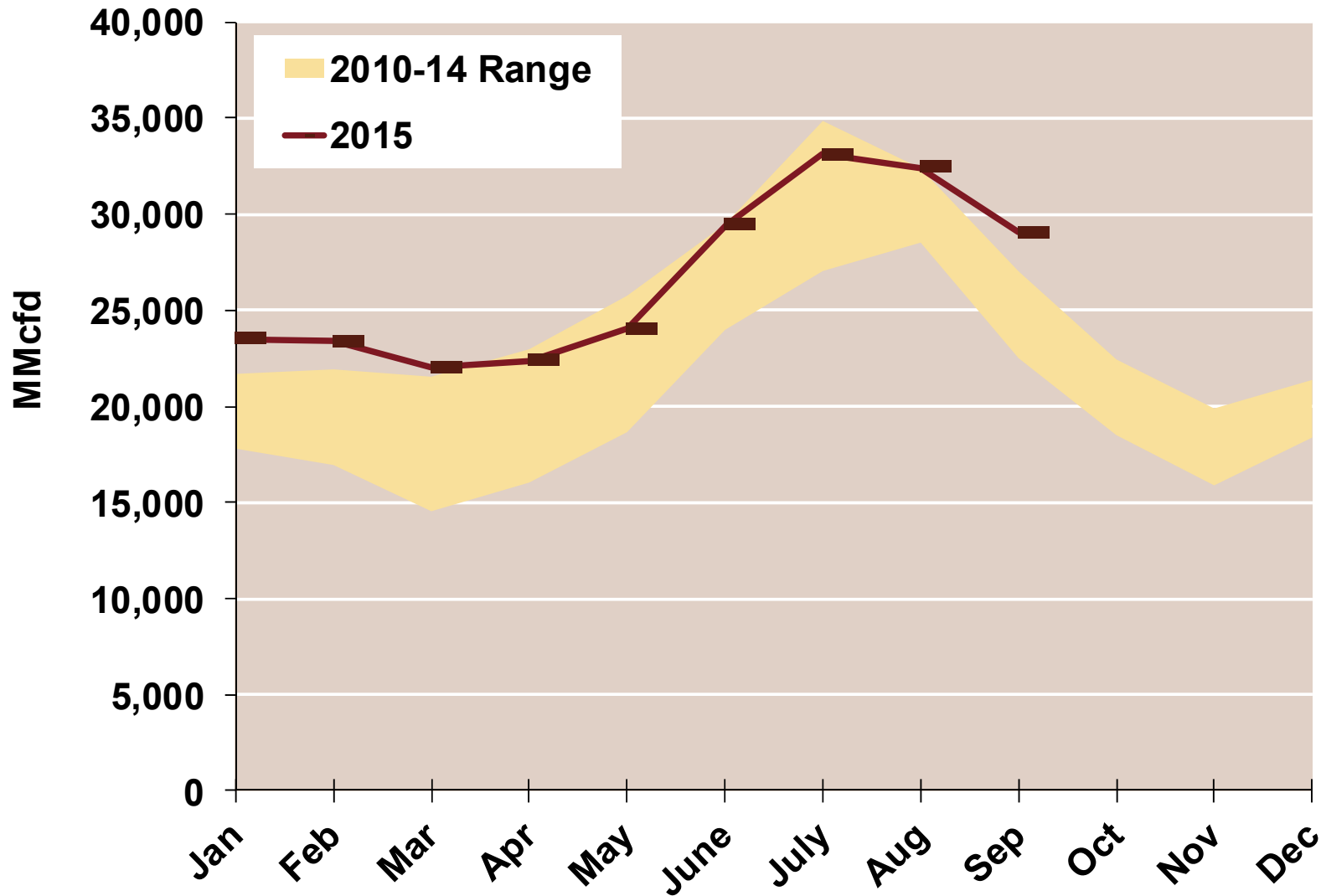
### Total U.S. Natural Gas Demand All Sectors



Source: Derived from *Bentek Energy* data, derived from interstate pipeline flow and modeled data.

Updated: Oct 2015

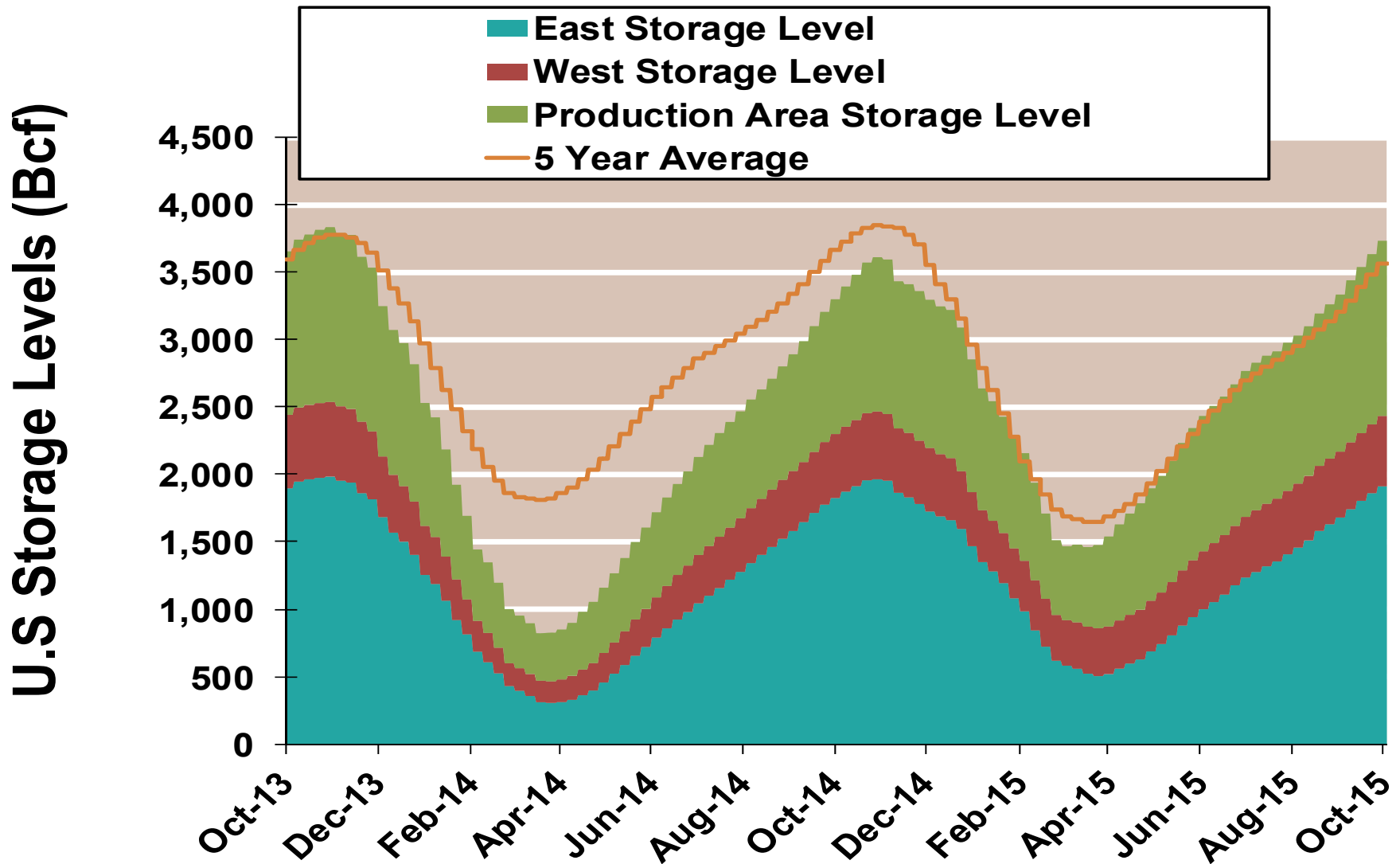
## U.S. Natural Gas Consumption for Power Generation



Source: Derived from *Bentek Energy* data

Updated: Oct 2015

### EIA National Storage Inventories by Region

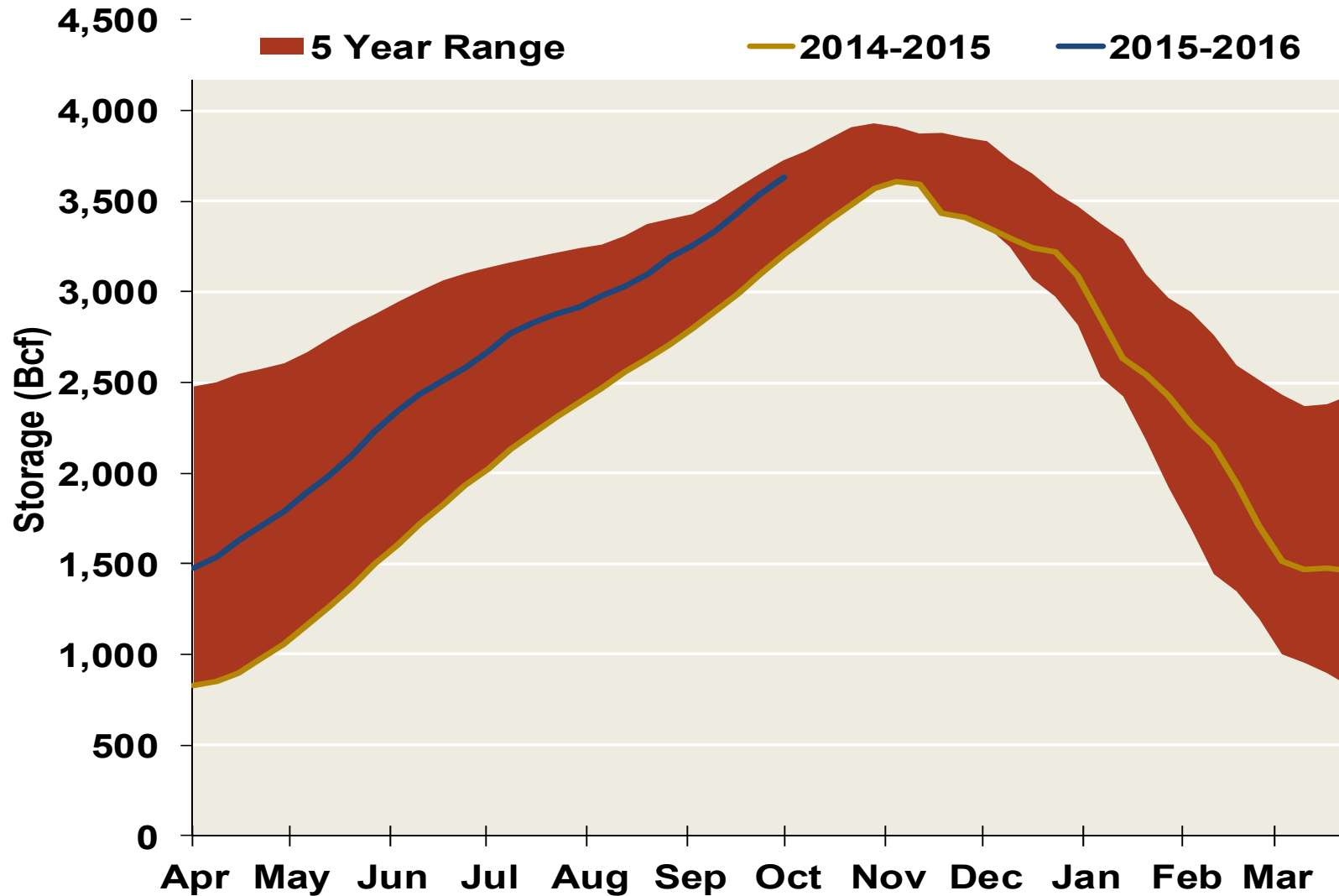


Notes:

Source: Derived from Bloomberg Data

Updated Oct-2015

### EIA National Storage Inventories

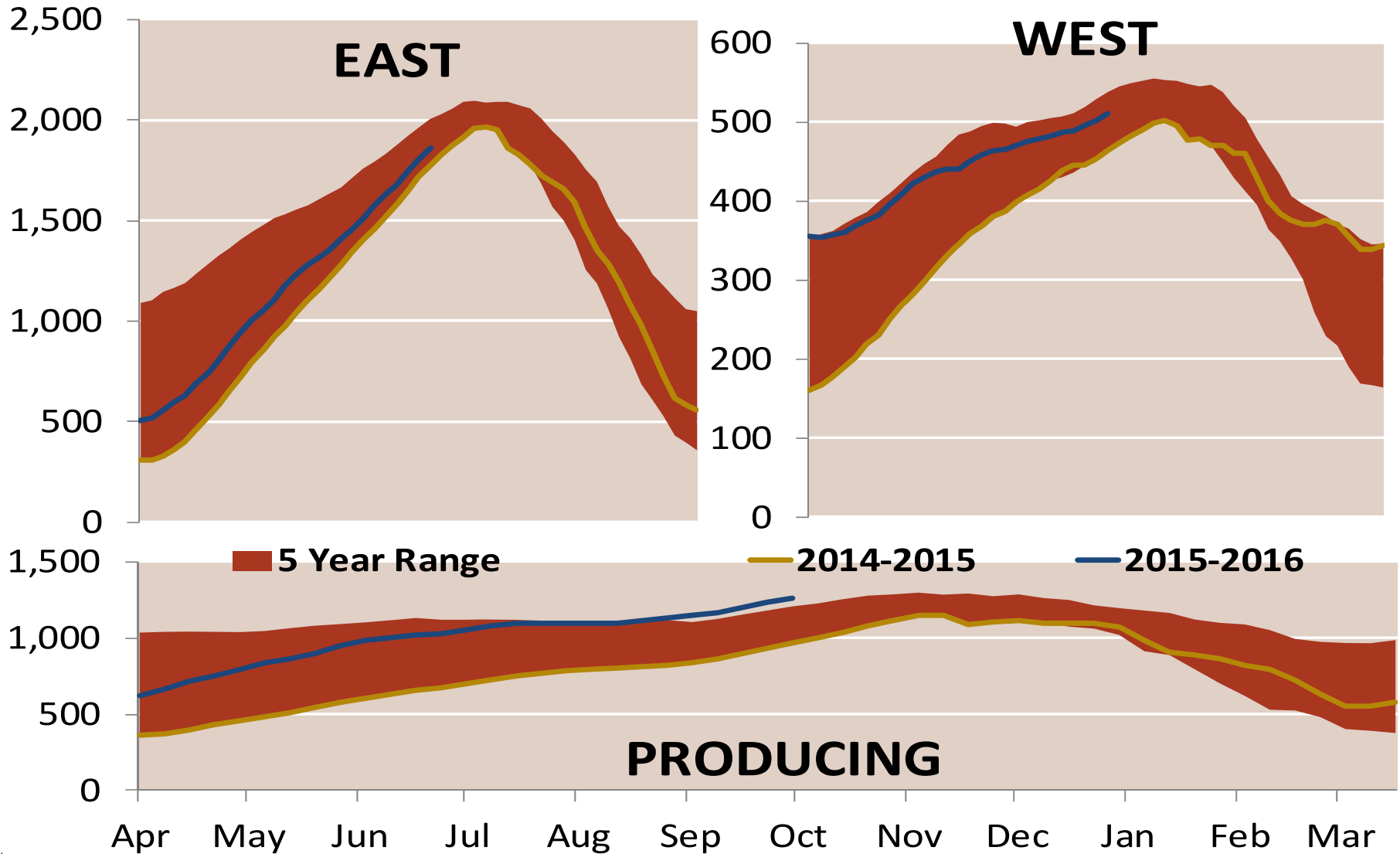


Notes:

Source: Derived from Bloomberg Data

Updated Oct-2015

### EIA Regional Storage Inventories

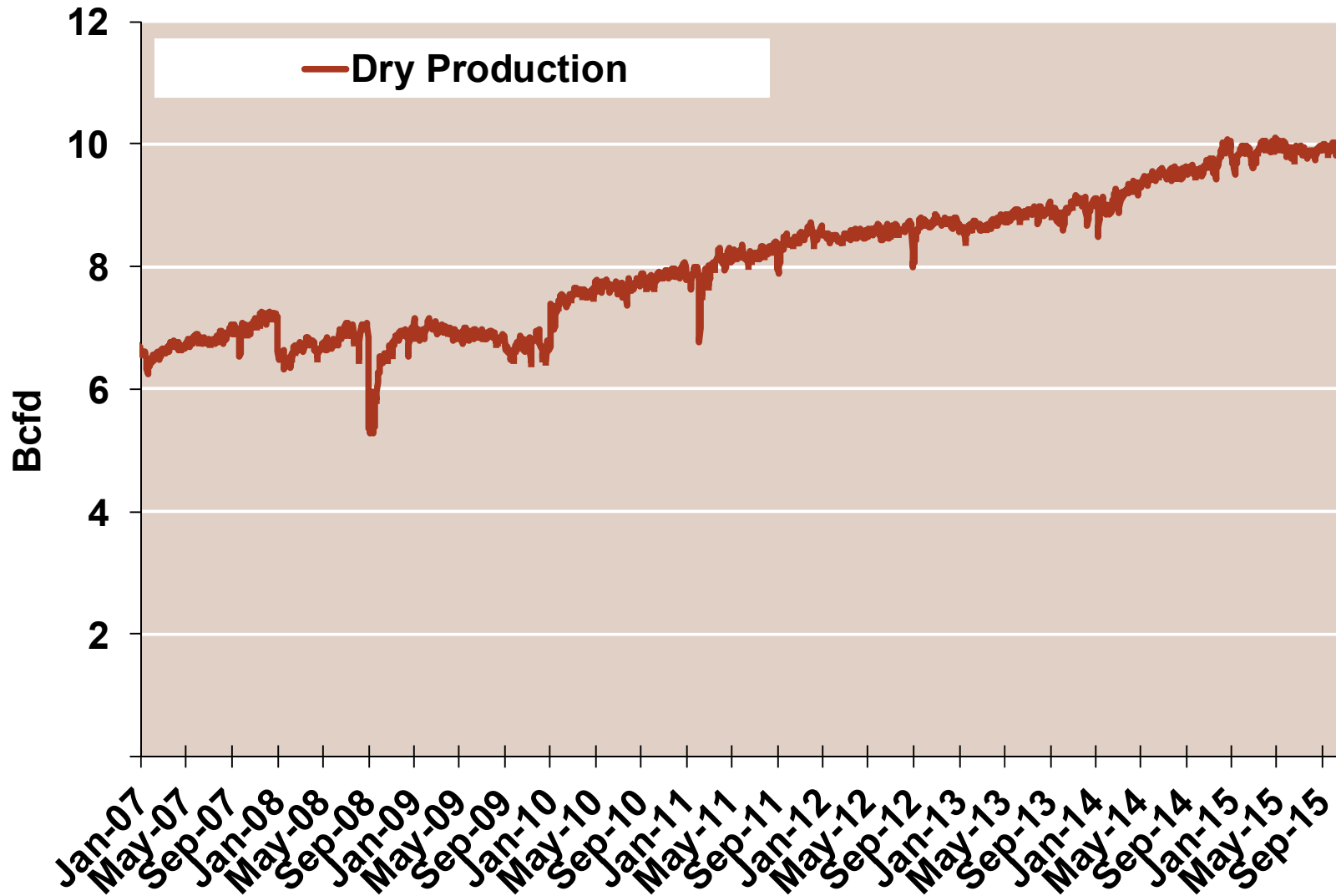


Not

Source: Derived from Bloomberg Data

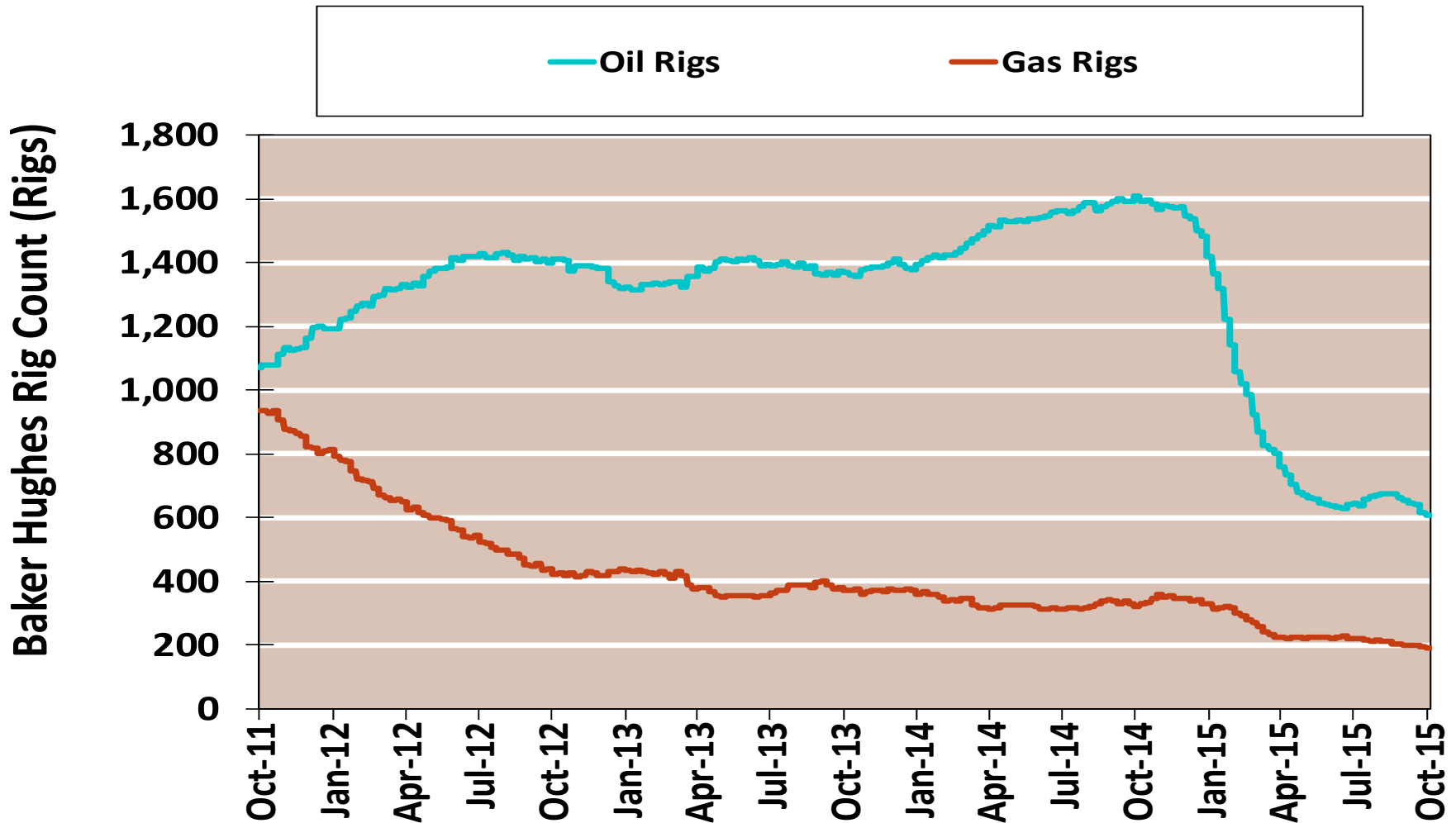
Update Oct-2015

## Monthly U.S. Dry Gas Production – Lower 48 States



Note: Prior to July 2010, chart was derived from a combination of EIA and Bentek Energy data  
Source: Derived from Bentek Energy data

## Rigs by Type

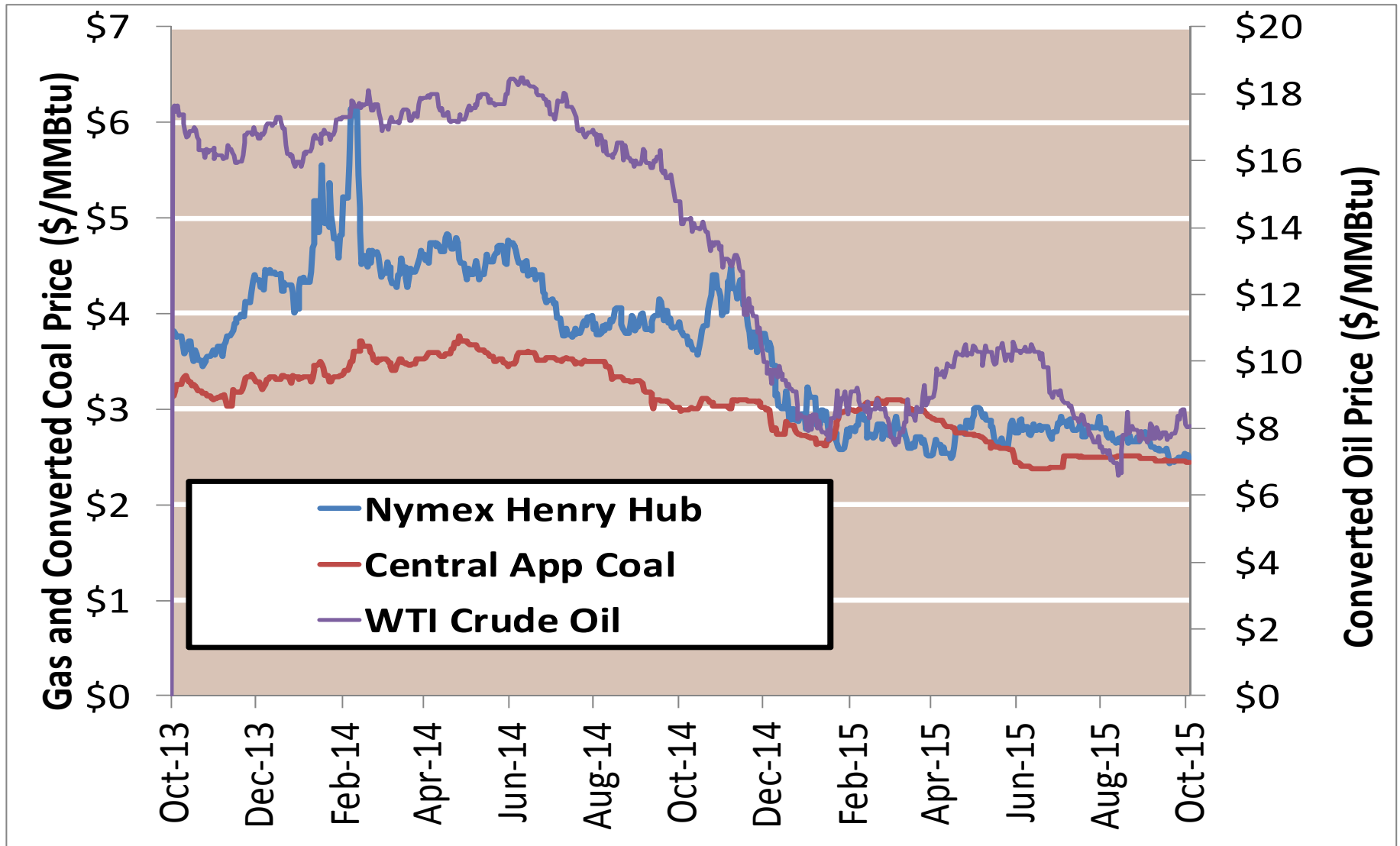


Notes:

Source: Derived from Bloomberg data

Updated Oct-2015

### Gas vs Coal



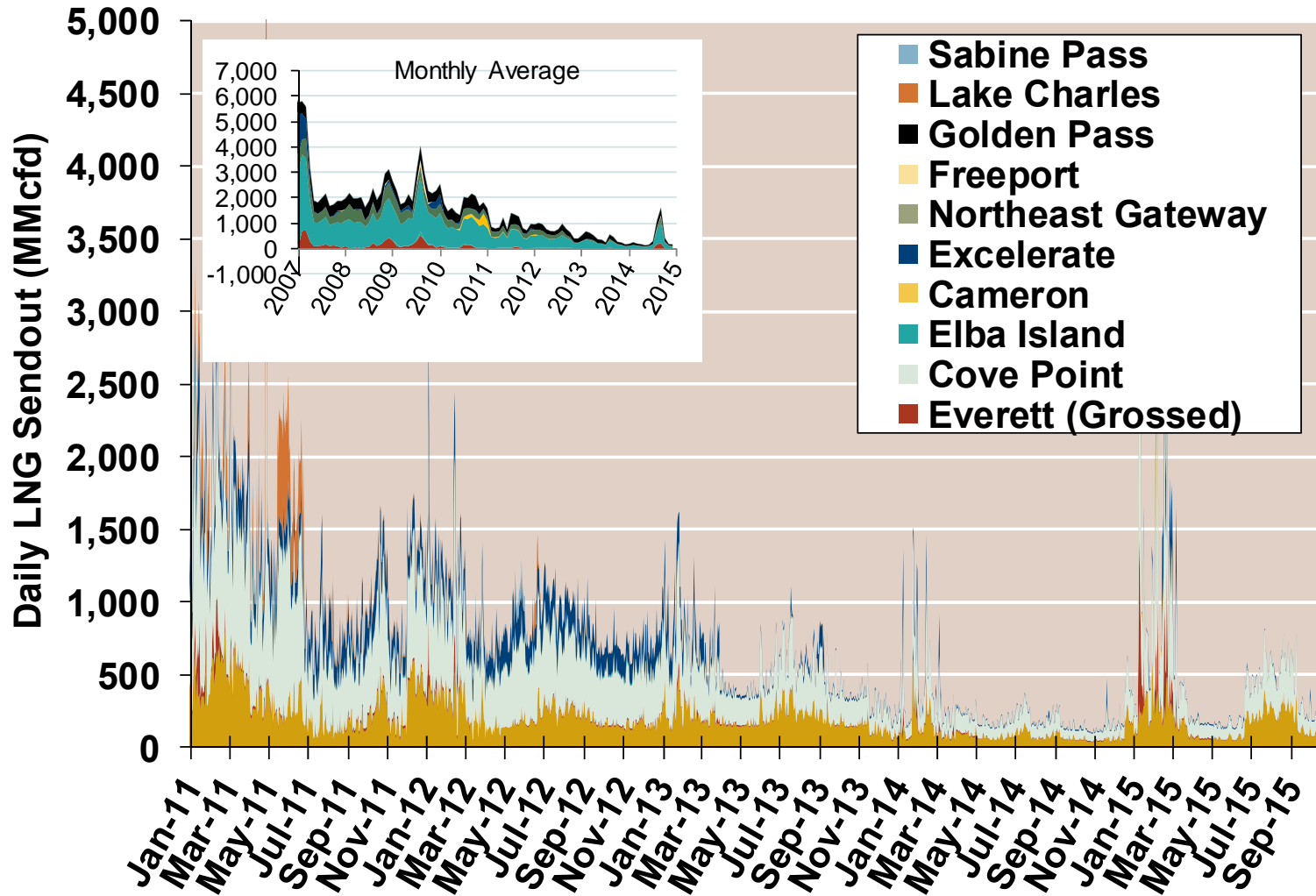
Notes:

Source: Derived from Bloomberg data

Updated Oct-2015



## Daily Gas Sendout from Existing U.S. LNG Facilities



Notes: Everett data includes flows onto the AGT and TGP interstate lines, plus estimates of flows to the Mystic 7 power plant, Keyspan Boston Gas, and LNG trucked out of the terminal. Excludes flows to the Freeport LNG which flows via intrastate pipelines and flows to the Mystic 8 and 9 power plants.

Source: Derived from *Bentek Energy* data

Updated: Oct 2015

## World LNG Estimated October 2015 Landed Prices



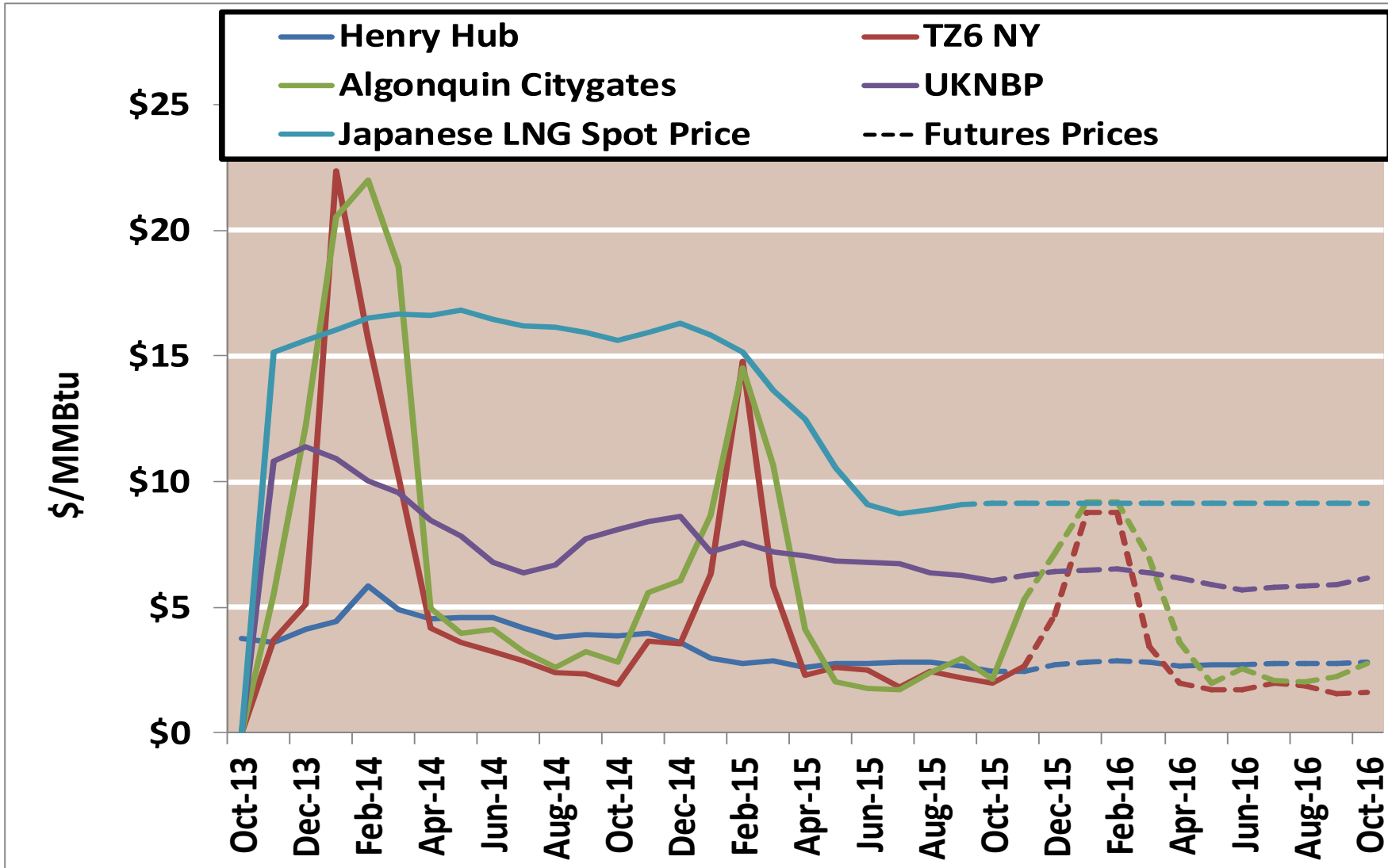
Source: Waterborne Energy, Inc. Data in \$US/MMBtu

Note: Includes information and Data supplied by IHS Global Inc. and its affiliates ("IHS"); Copyright (publication year) all rights reserved.

Landed prices are the monthly average of weekly trades from the prior month.

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## Historical and Future World Gas Prices

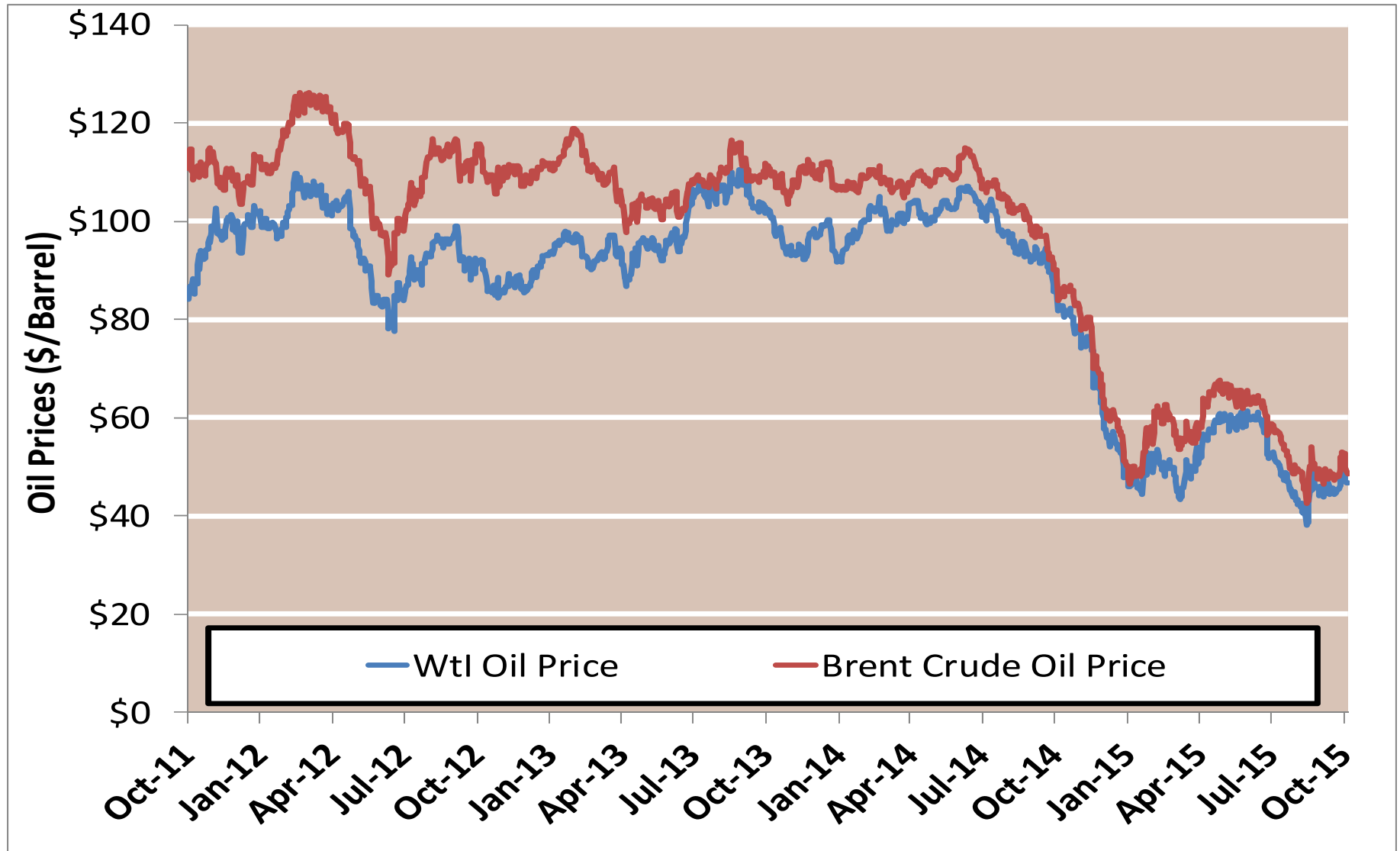


Notes:

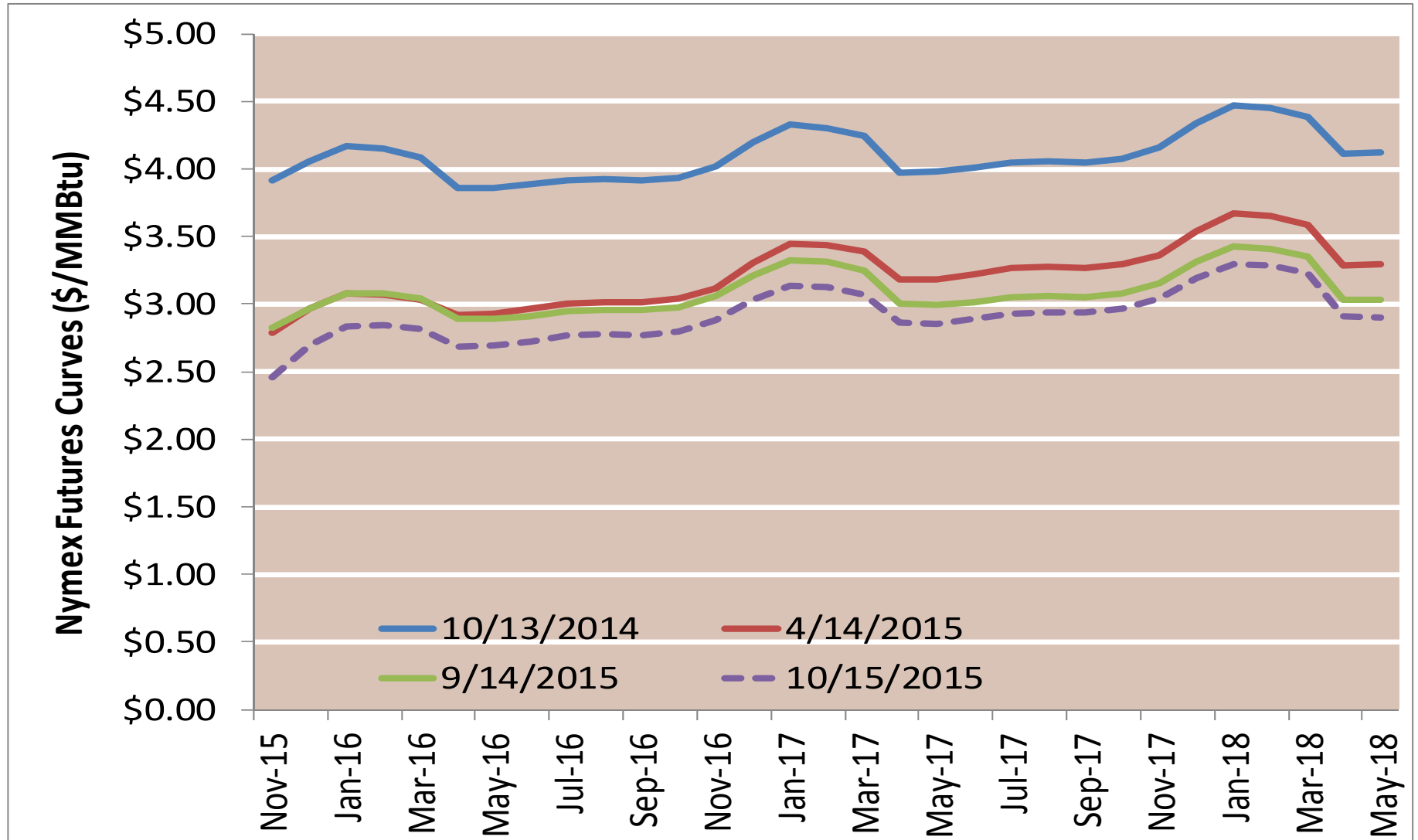
Source: Derived from Bloomberg data

Updated Oct-2015

### WTI vs Brent Crude Oil Price



### Nymex Futures Curves





# Infrastructure Report

# Natural Gas Highlights

## Natural Gas Activities in September 2015

Status	No. of Projects	Storage Capacity (Bcf)	Deliverability (MMcf/d)	Capacity (MMcf/d)	Miles of Pipeline	Compression (HP)
<b>Pipeline</b>						
Placed in Service	0			0.0	0.0	0
Certificated	2			830.0	34.1	12,260
Proposed	10			10,230.3	1,244.3	304,651
<b>Storage</b>						
Placed in Service	2	8.0	0.0			4,800
Certificated	0	0.0	0.0			0
Proposed	1	0.0	15.0			0
<b>LNG (Import &amp; Export)</b>						
Placed in Service	0	0	0			0
Certificated (Import/Export)	0	0	0			0
Proposed (Export)	2	11.6	2,825			0

# Electric Generation Highlights

## New Generation In-Service (New Build and Expansion)

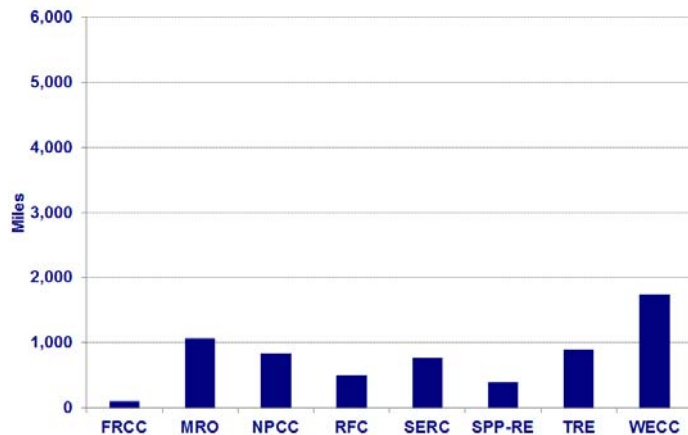
Primary Fuel Type	September 2015		January – September 2015 Cumulative		January – September 2014 Cumulative	
	No. of Units	Installed Capacity (MW)	No. of Units	Installed Capacity (MW)	No. of Units	Installed Capacity (MW)
Coal	0	0	1	3	1	30
Natural Gas	2	346	34	2,884	51	5,808
Nuclear	0	0	0	0	10	266
Oil	0	0	6	9	18	94
Water	0	0	18	27	13	210
Wind	3	448	26	2,966	37	2,030
Biomass	2	4	16	205	58	104
Geothermal Steam	0	0	1	45	7	36
Solar	6	20	142	1,137	258	1,928
Waste Heat	0	0	0	0	2	68
Other	0	0	6	0	8	23
<b>Total</b>	<b>13</b>	<b>817</b>	<b>250</b>	<b>7,276</b>	<b>463</b>	<b>10,597</b>



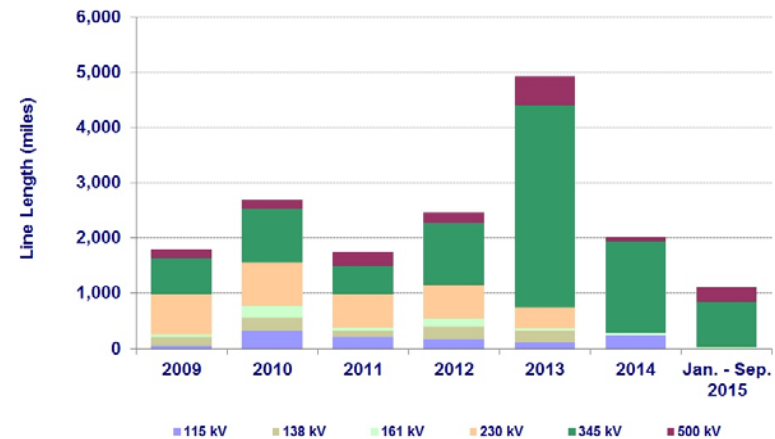
# Electric Transmission Highlights

Voltage (kV)	Transmission Projects Completed				Proposed Transmission Projects In-Service by September 2017	
	September 2015	September 2014	January – September 2015 Cumulative	January – December 2014 Cumulative	High Probability of Completion	All
	Line Length (miles)					
≤230	0.0	0.0	153.4	1,218.5	2,947.3	5,636.0
345	82.0	202.0	808.7	1,659.8	2,416.8	4,806.6
500	0.0	0.0	256.0	70.0	950.9	3,292.9
<b>Total U.S.</b>	<b>82.0</b>	<b>202.0</b>	<b>1,218.1</b>	<b>2,948.3</b>	<b>6,315.0</b>	<b>13,735.5</b>

Transmission Projects with a High Probability of being completed by September 2017



New Transmission Projects by Voltage



# Infrastructure Report

Office of Energy Projects Energy Infrastructure Update

<http://www.ferc.gov/legal/staff-reports.asp>

(see “Energy Infrastructure” tab)