

# **OE ENERGY MARKET SNAPSHOT**

## **East Version – September 2014 Data**

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Office of Enforcement  
Federal Energy Regulatory Commission  
November 2014

# 2014/2015 Winter Assessment

<http://www.ferc.gov/market-oversight/reports-analyses/mkt-views/2014/10-16-14-A-3.pdf>



# Winter 2014-15 Energy Market Assessment

**Item No. A-3**  
**October 16, 2014**

# Markets Cautious as Winter Approaches

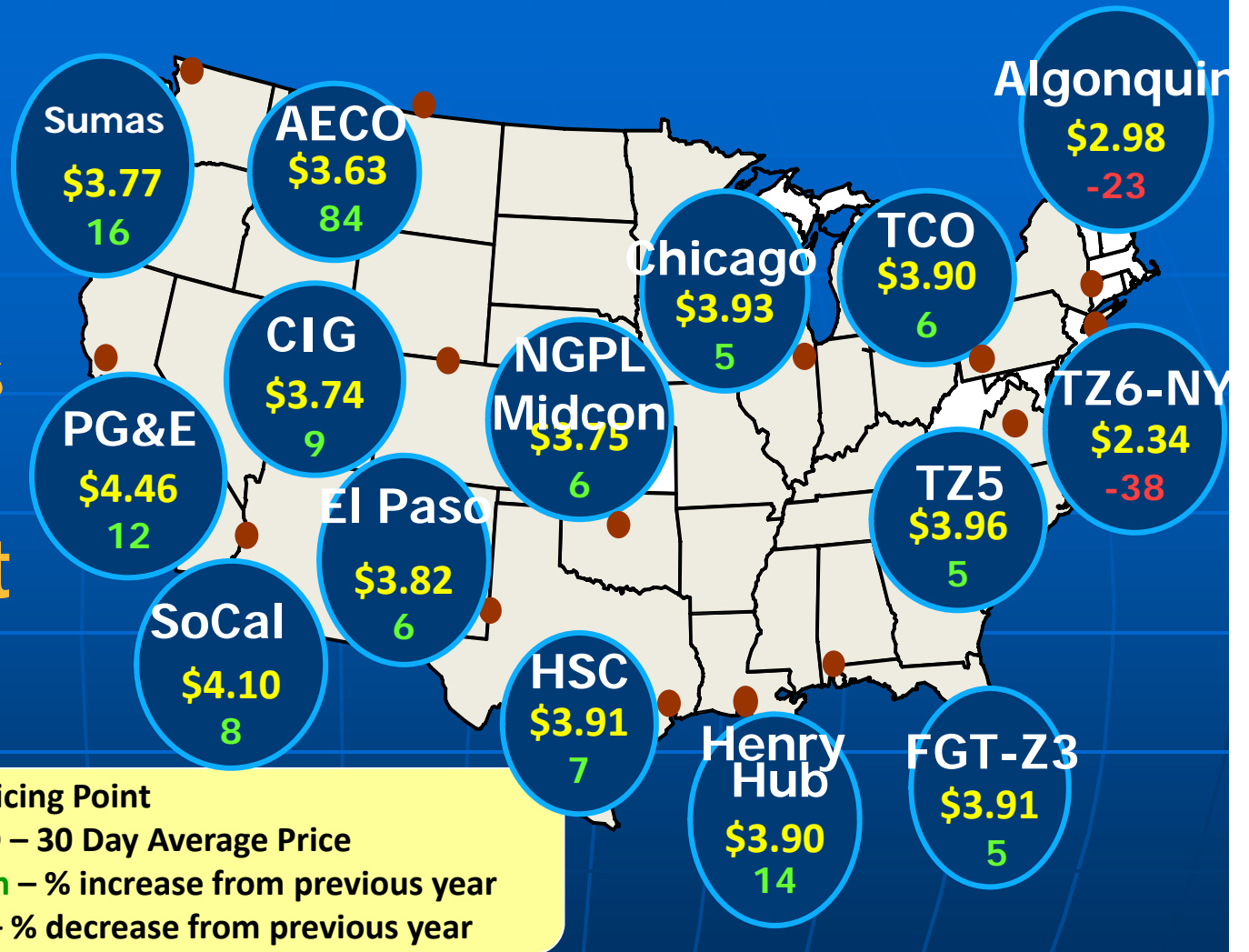
## Developments

- Record natural gas production
- Increased natural gas-electric coordination
- Enhanced reliability measures

## Challenges

- Winter futures prices up substantially in some regions
- Below average natural gas storage
- Lower coal stockpiles
- Regional pipeline restrictions
- Increased reliance on natural gas for electricity

# Higher Natural Gas Prices Across Most of the Country



Source: Derived from ICE data.  
Note: Prices through September 30, 2014.

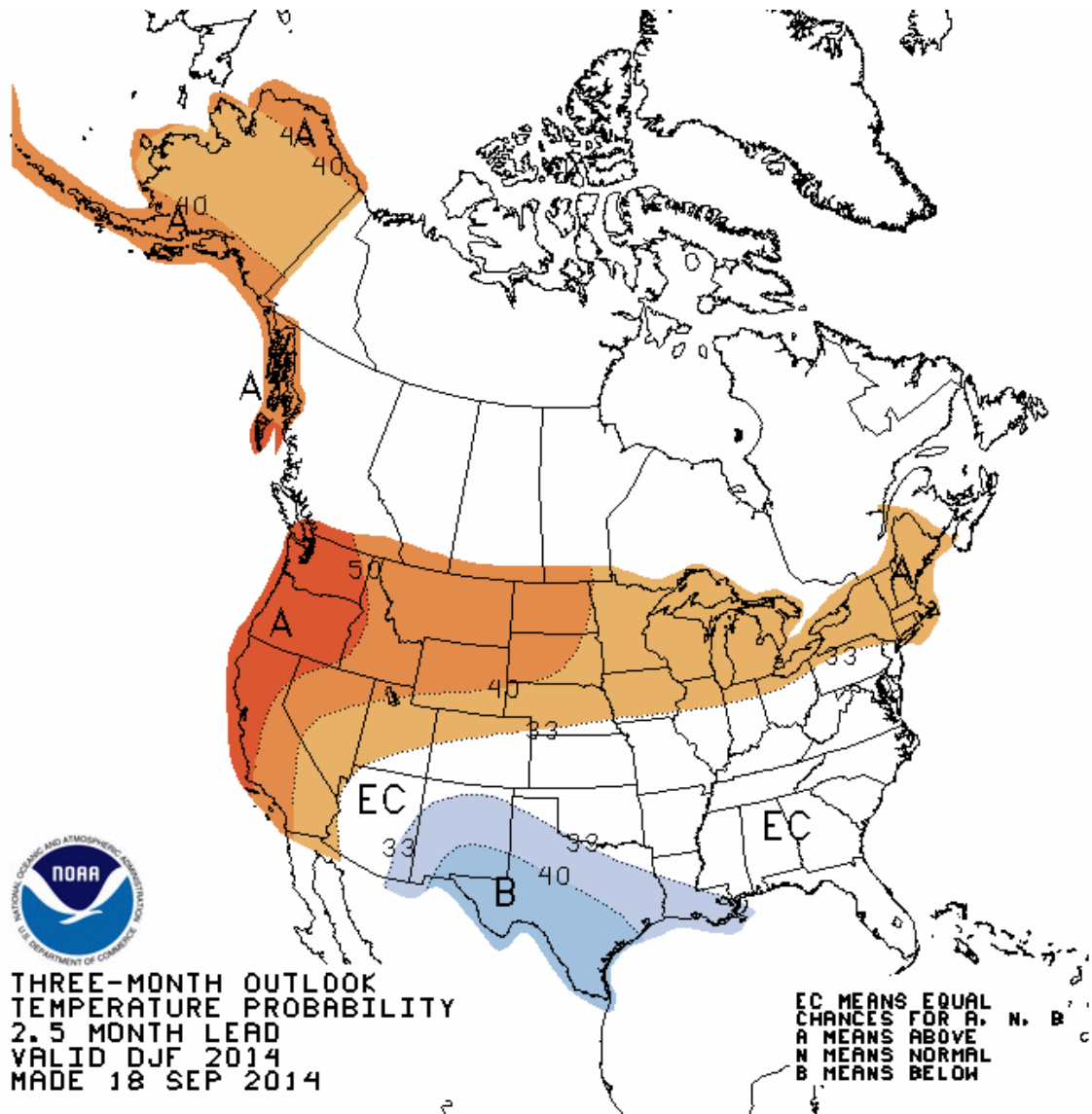
# Uncertain Winter Forecast

Source: NOAA National Weather Service

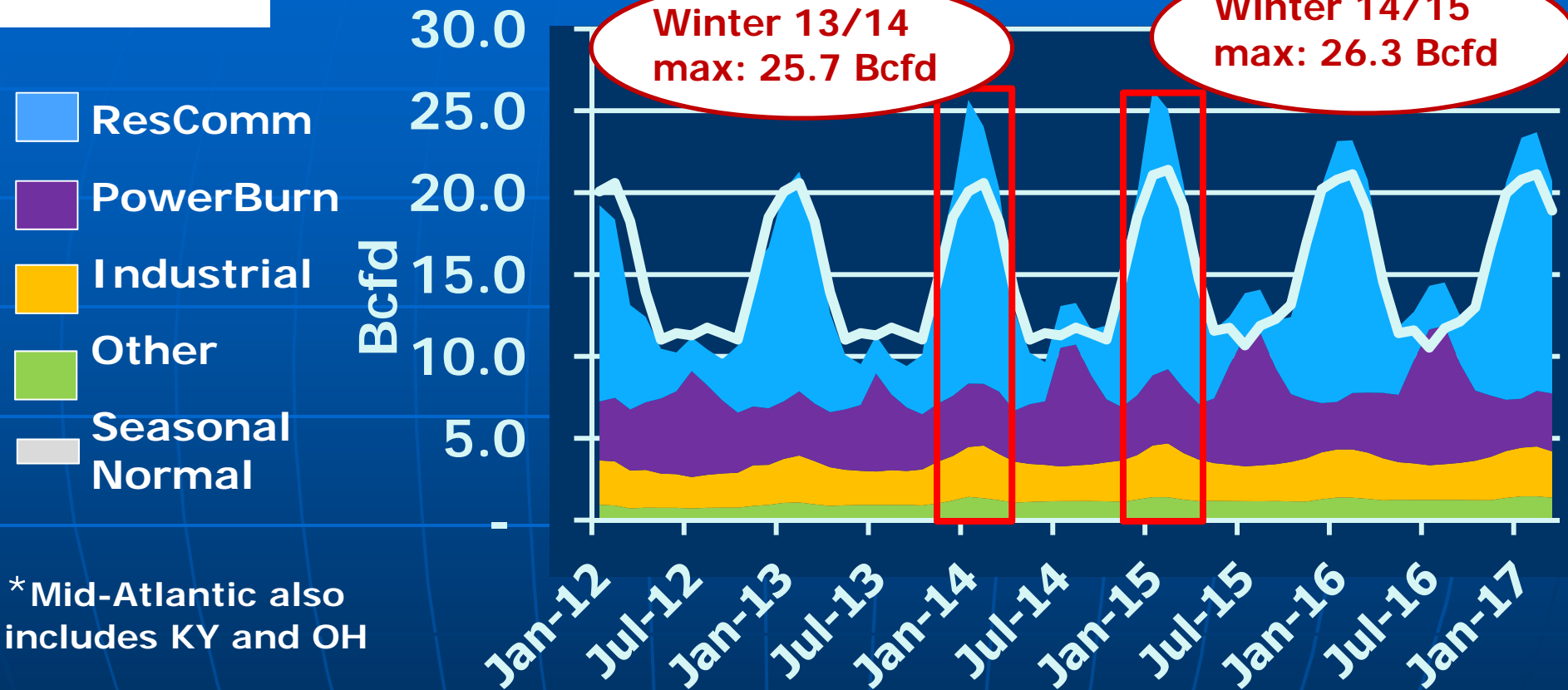


THREE-MONTH OUTLOOK  
TEMPERATURE PROBABILITY  
2.5 MONTH LEAD  
VALID DJF 2014  
MADE 18 SEP 2014

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



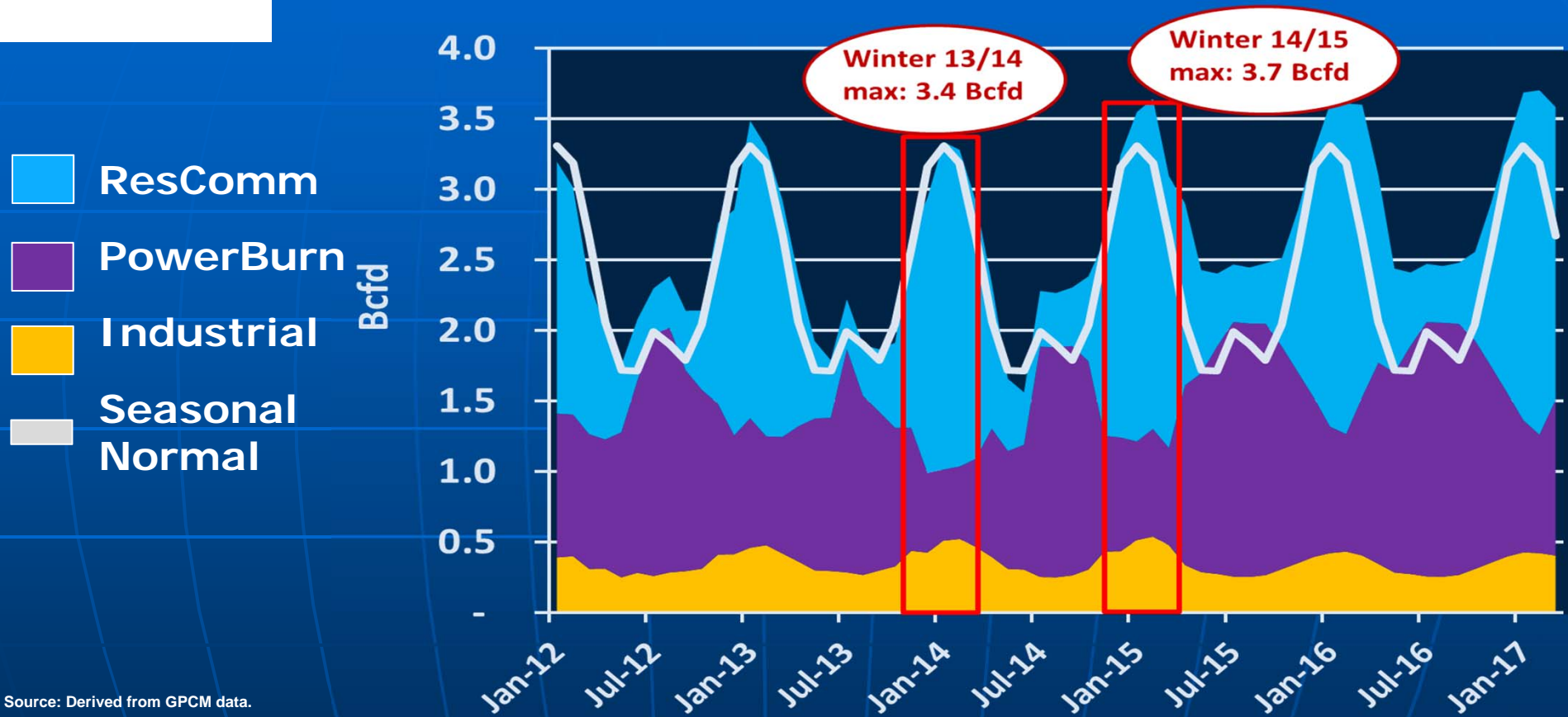
# Mid-Atlantic\* Gas Demand at Historical High Levels



\* Mid-Atlantic also includes KY and OH

Source: Derived from GPCM data.

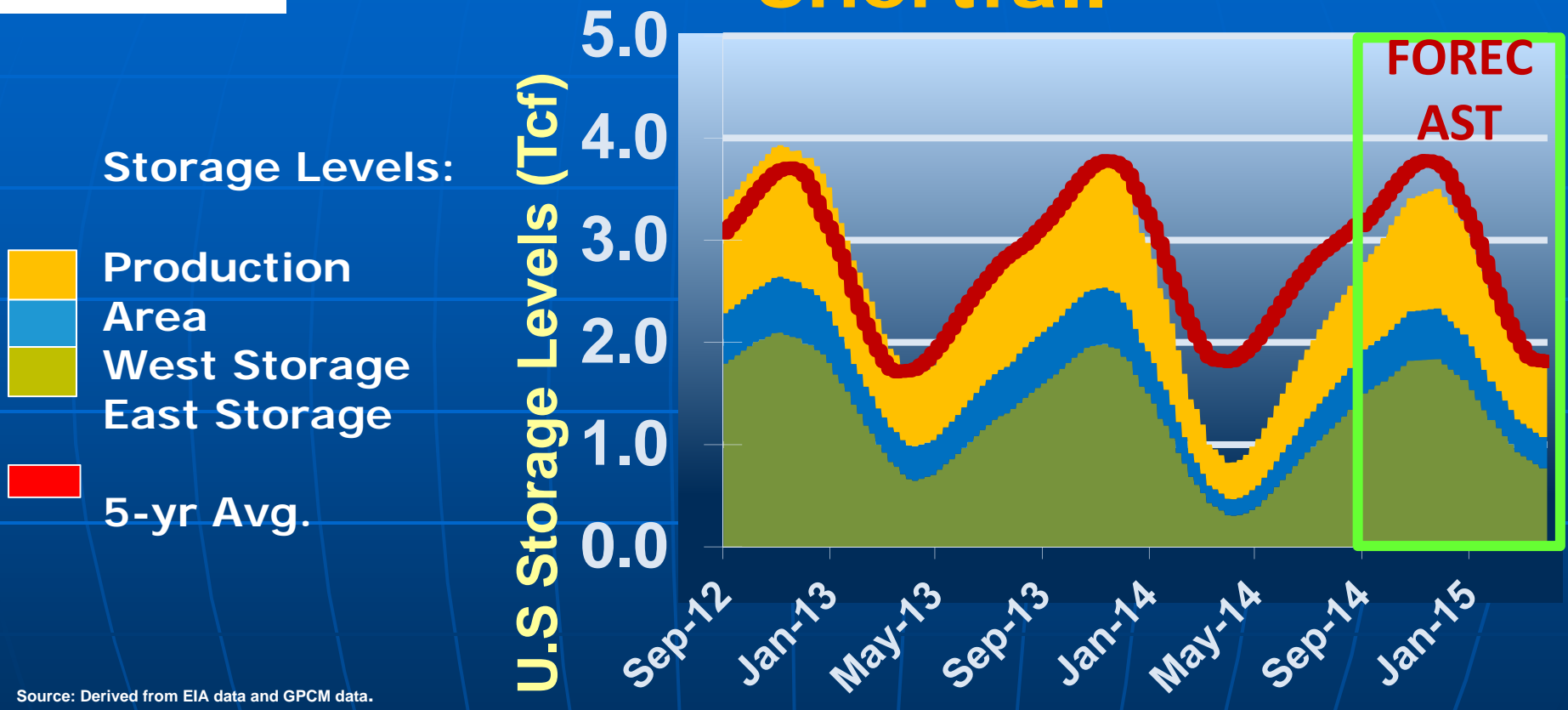
# Fuel Diversity Helps New England Gas Demand



Source: Derived from GPCM data.

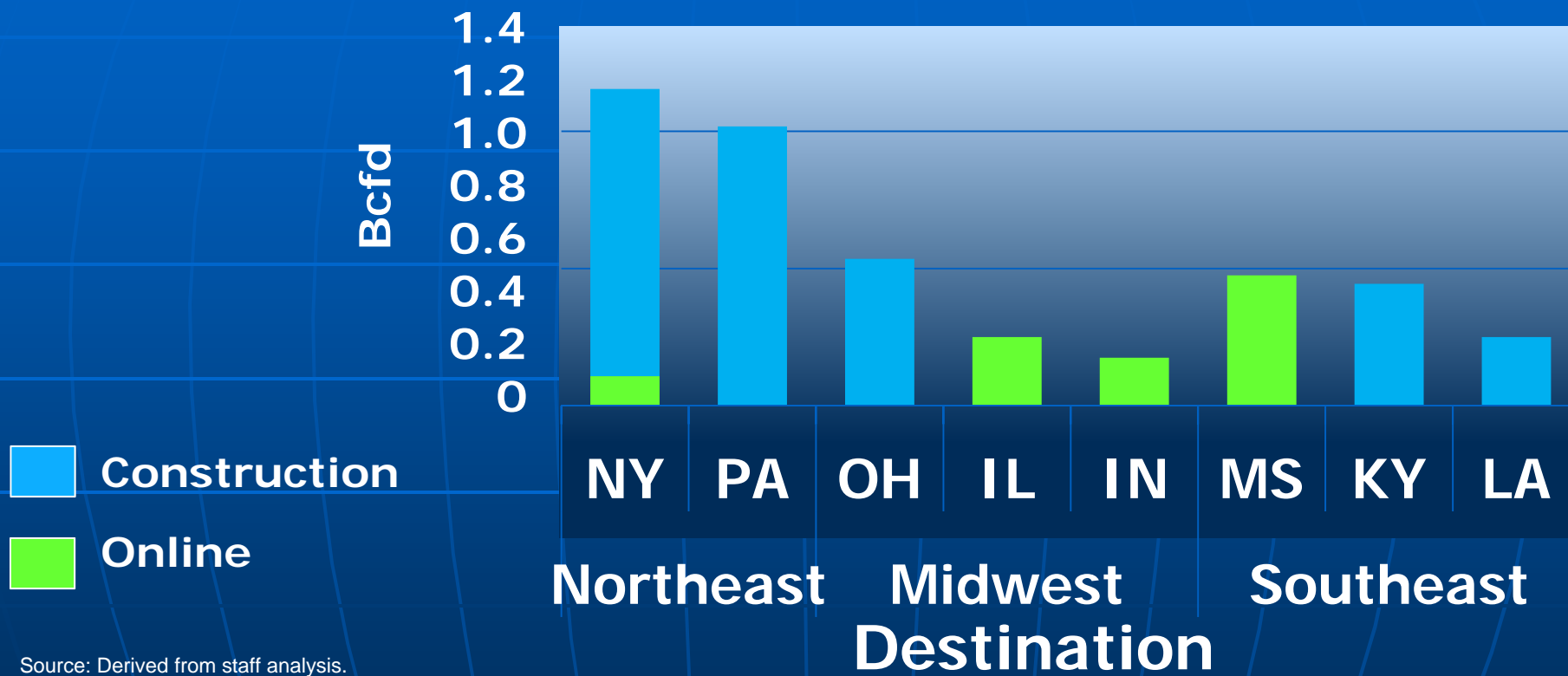


# Record Storage Injections Help Close the Storage Shortfall



Source: Derived from EIA data and GPCM data.

# 2014 Pipeline Expansions Target Northeast Production



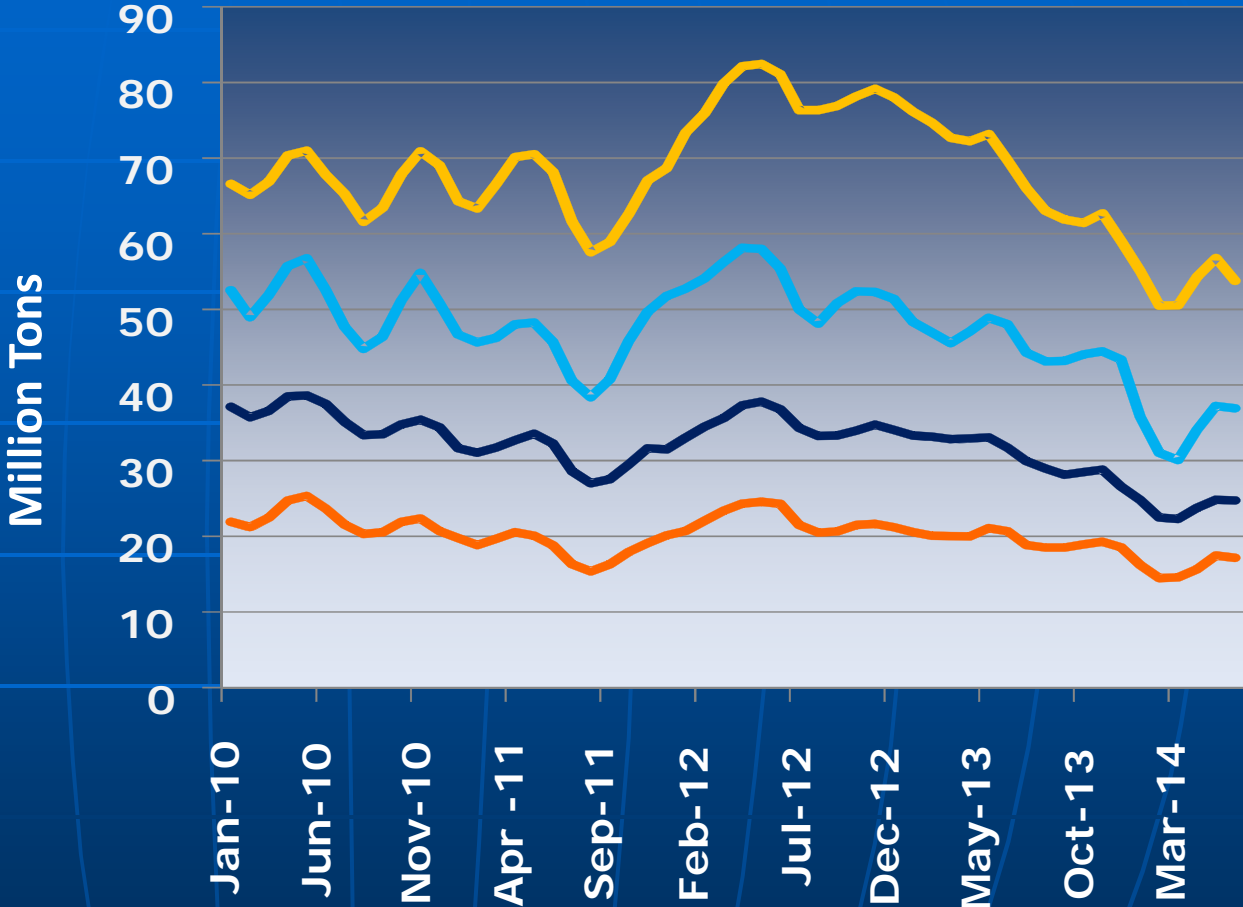
Source: Derived from staff analysis.

# Winter Electric Market Challenges

- Volatility in electricity prices in the Northeast from increased dependence on natural gas
- California may face electricity supply issues, such as increased ramp requirements

# Coal Stockpiles Decline

- PRB
- Central App
- Other
- Illinois Basin



Source: Derived from Velocity Suite, based on EIA data.

# Futures Prices Elevated

	Location	2015 <sup>^</sup>	2014*
G a s	Algonquin (New England)	\$21.45	\$11.76
	Transco Zone 6 non-NY (Mid-Atlantic)	\$9.09	\$4.78
	Dominion South (Marcellus)	\$2.85	\$3.66
	Southern California Border	\$4.30	\$3.95
P o w e r	Henry Hub	\$4.08	\$3.87
	Massachussets Hub	\$183.88	\$99.88
	PJM Western Hub	\$72.60	\$44.90
	Northwest (Mid-C)	\$37.73	\$35.75
	Southern California (SP-15)	\$46.13	\$42.25

Source: Derived from ICE and Nymex data.

<sup>^</sup>January and February 2015 as of October 1 2014

\*January and February 2014 as of October 1 2013

\*SP-15 2014 prices from October 31 2013

\*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.

# Actions in Response to Last Winter

- **Market Rule Changes**
- **Improve communication between natural gas pipelines and electric transmission operators**
- **Increased winterization and testing for generators**

# Infrastructure Report

Office of Energy Projects Energy Infrastructure Update

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

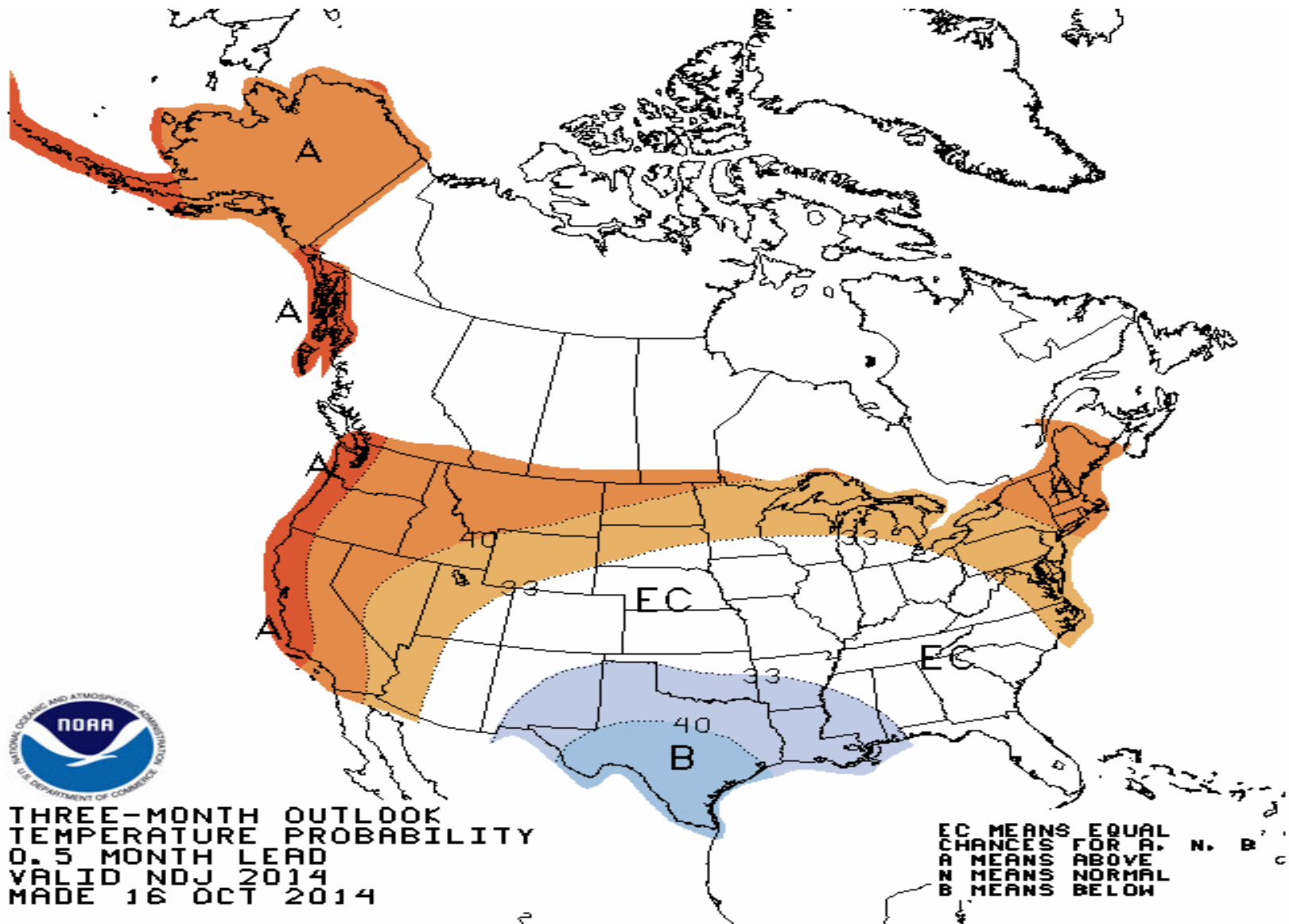
(see “Energy Infrastructure” tab)



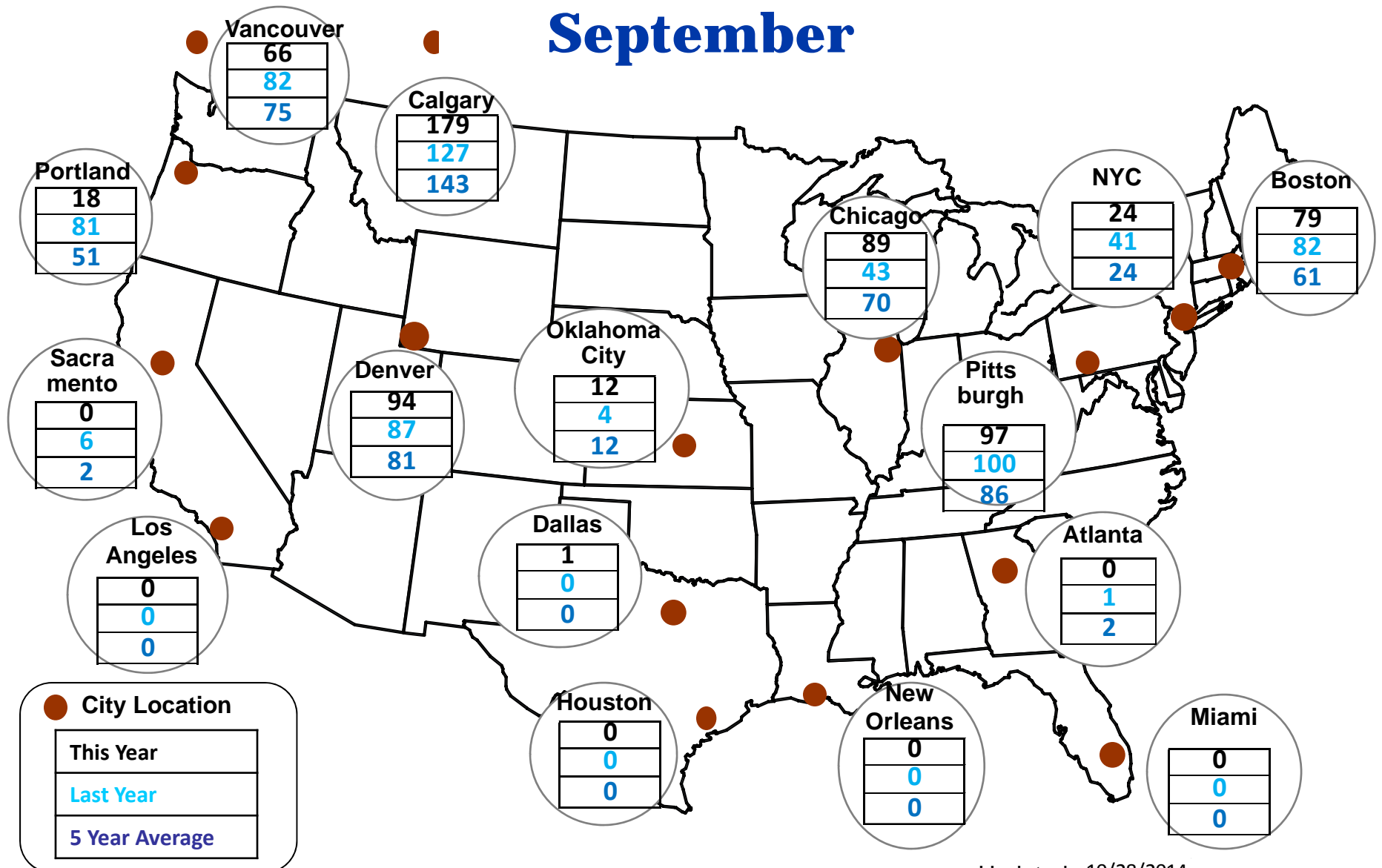
# National Slides



## NOAA Nov 2014 Through Jan 2015 Outlook



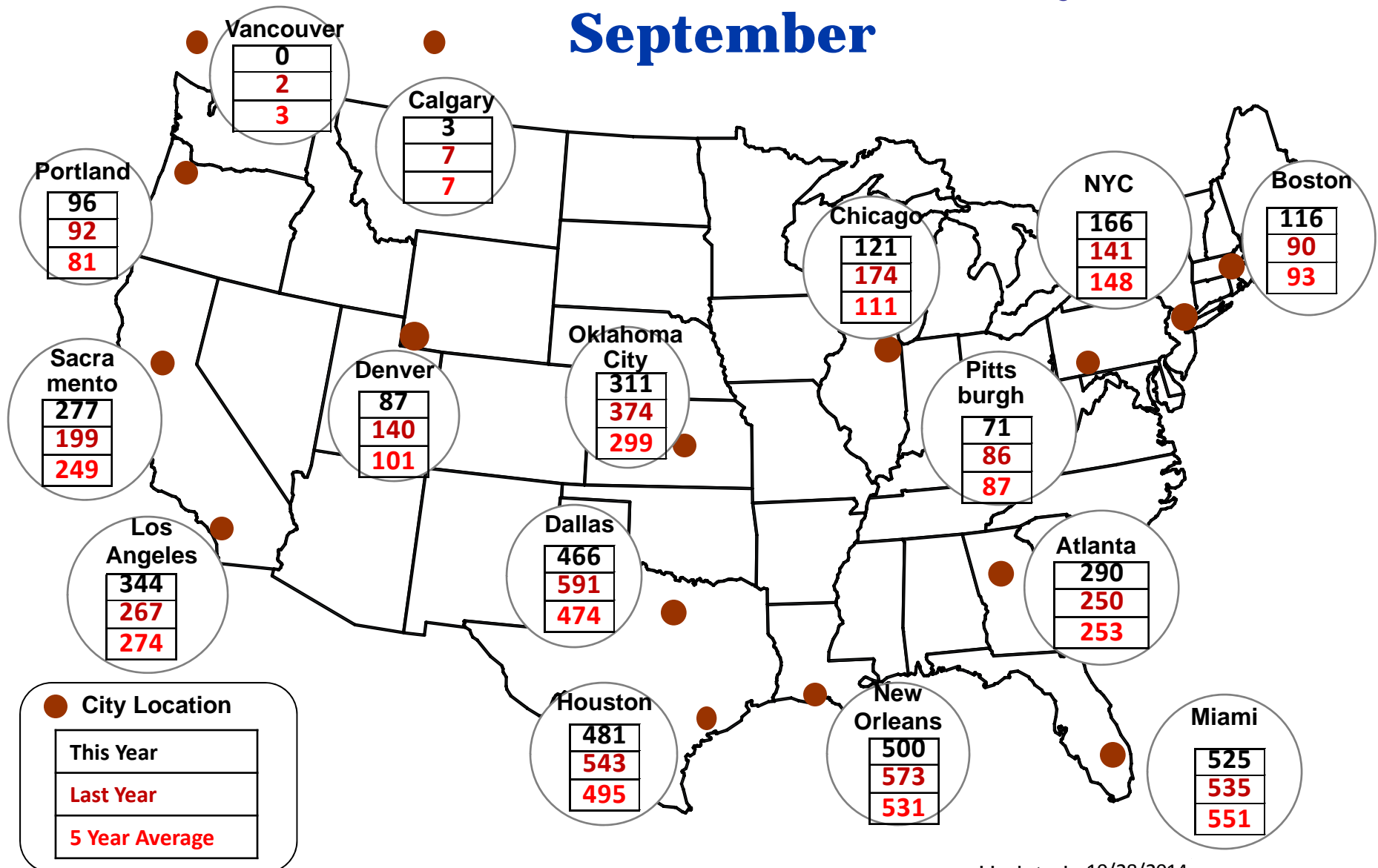
# Cumulative HDDs by City September



Source: Bloomberg Weather

Updated 10/28/2014

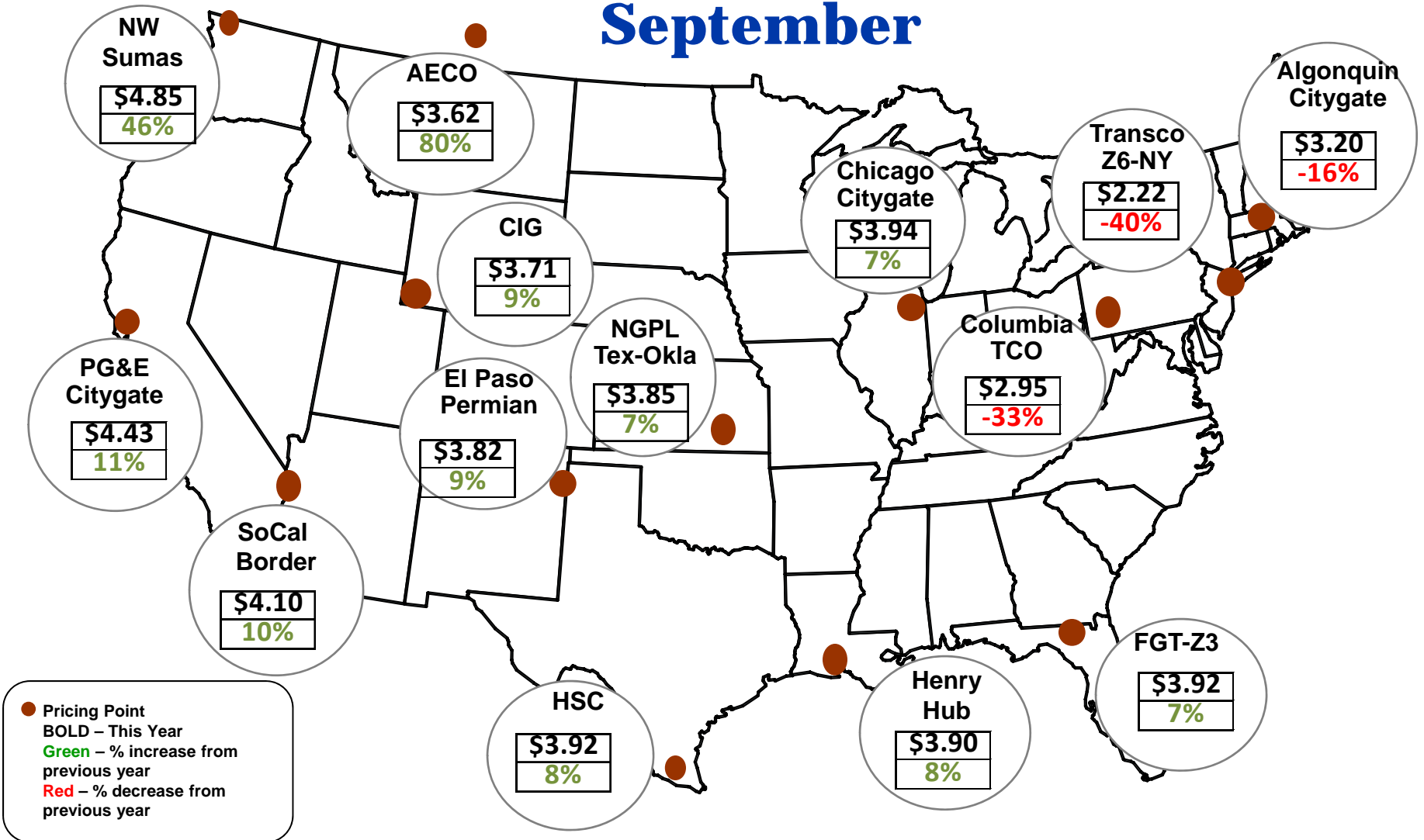
# Cumulative CDDs by City September



Source: Bloomberg Weather

Updated 10/28/2014

# Spot Natural Gas Prices Average (\$/MMBtu) September



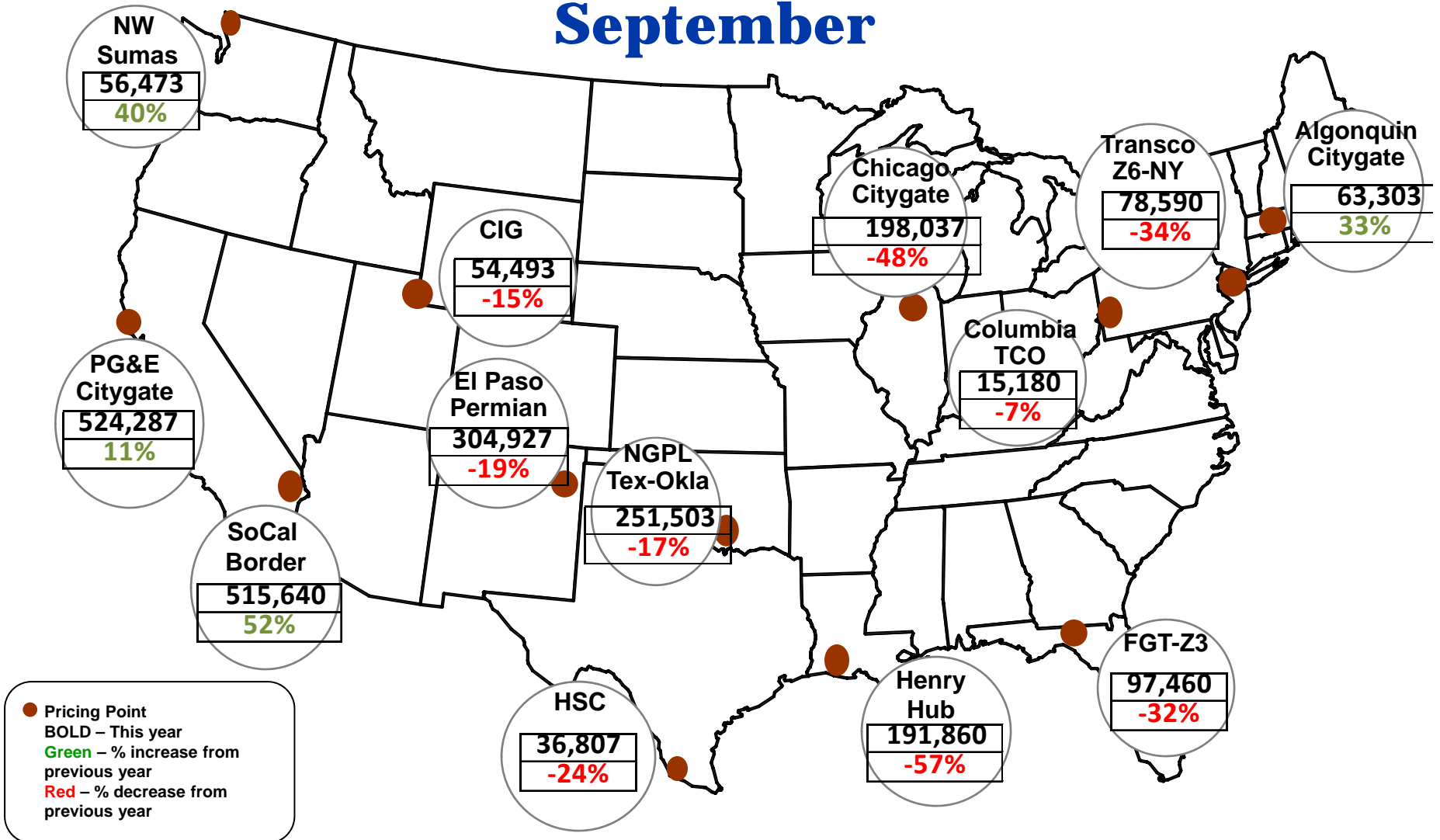
Source: ICE

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# Spot Natural Gas Trading Volumes Average (MMBtus) September



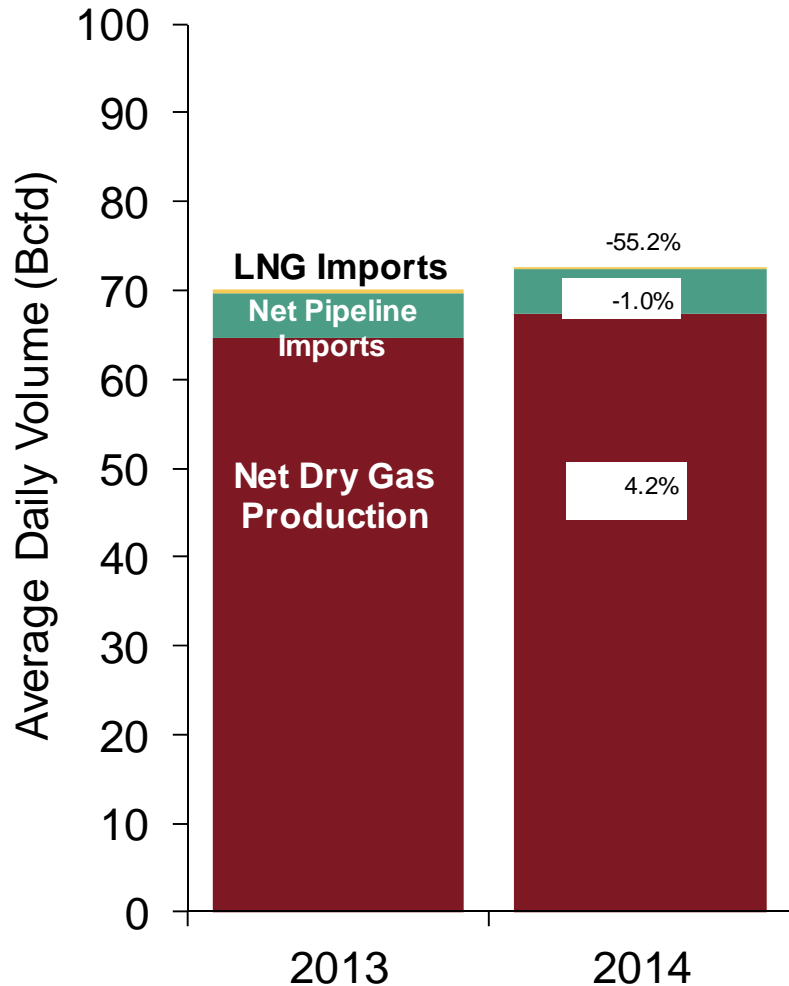
Source: ICE

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## U.S. NG Supply and Demand Year to Date - Sep 2013 vs. Sep 2014

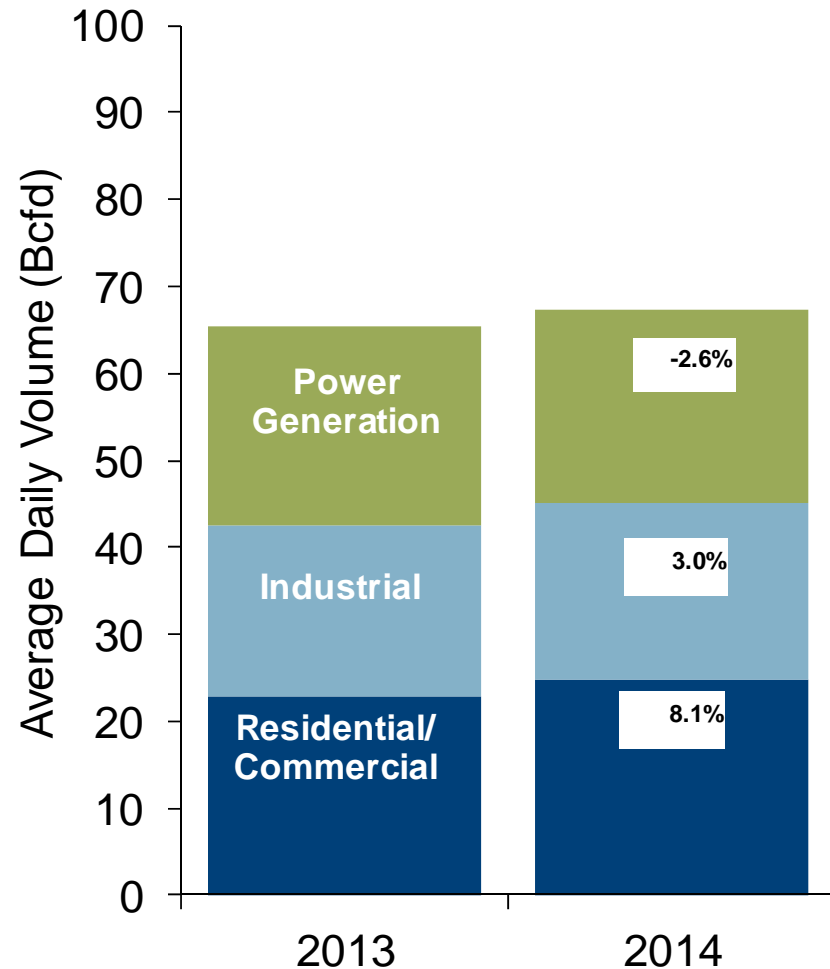
### US Natural Gas Supply

Total Change in Supply 3.6%



### US Natural Gas Demand

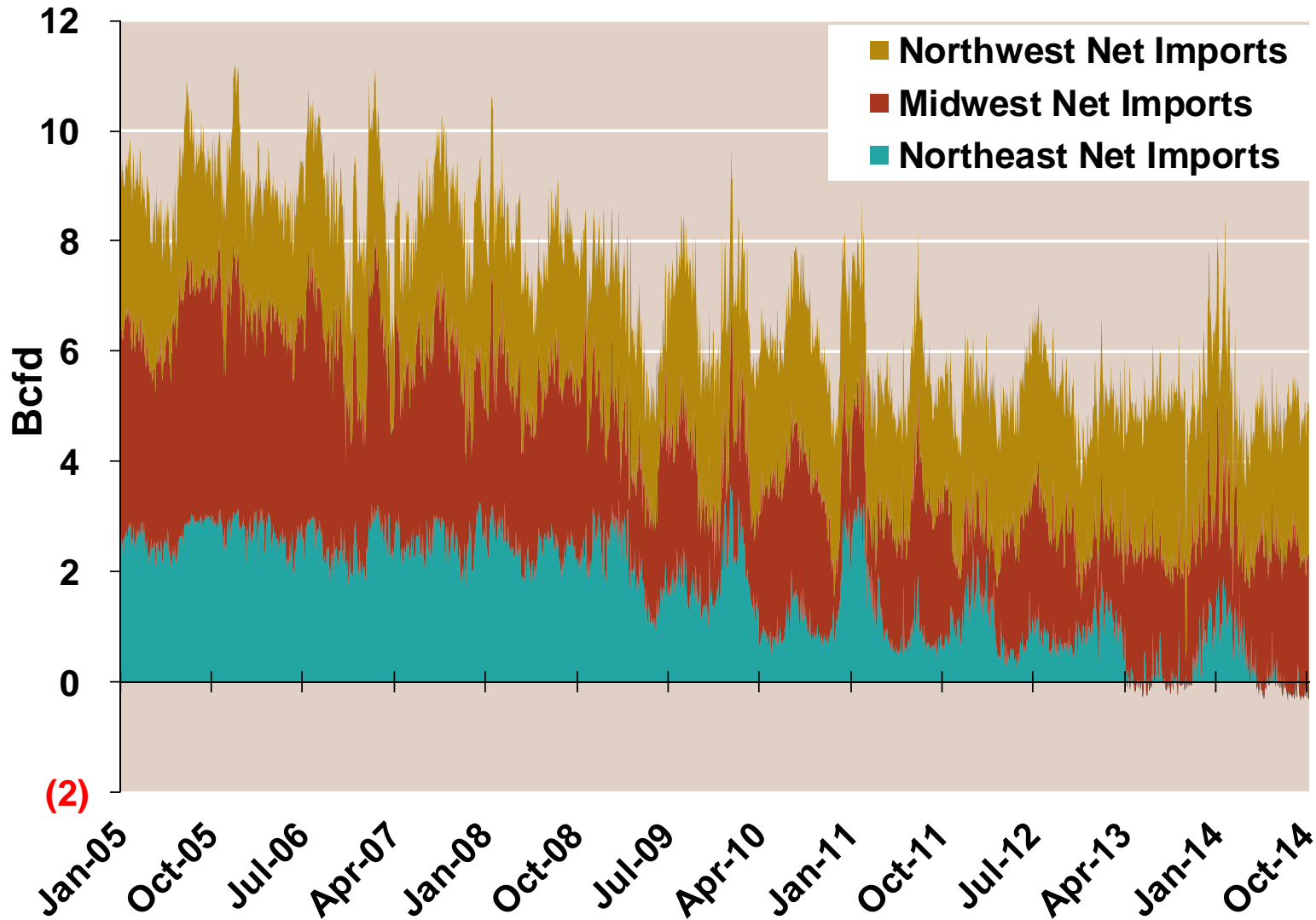
Total Change in Demand 3.1%



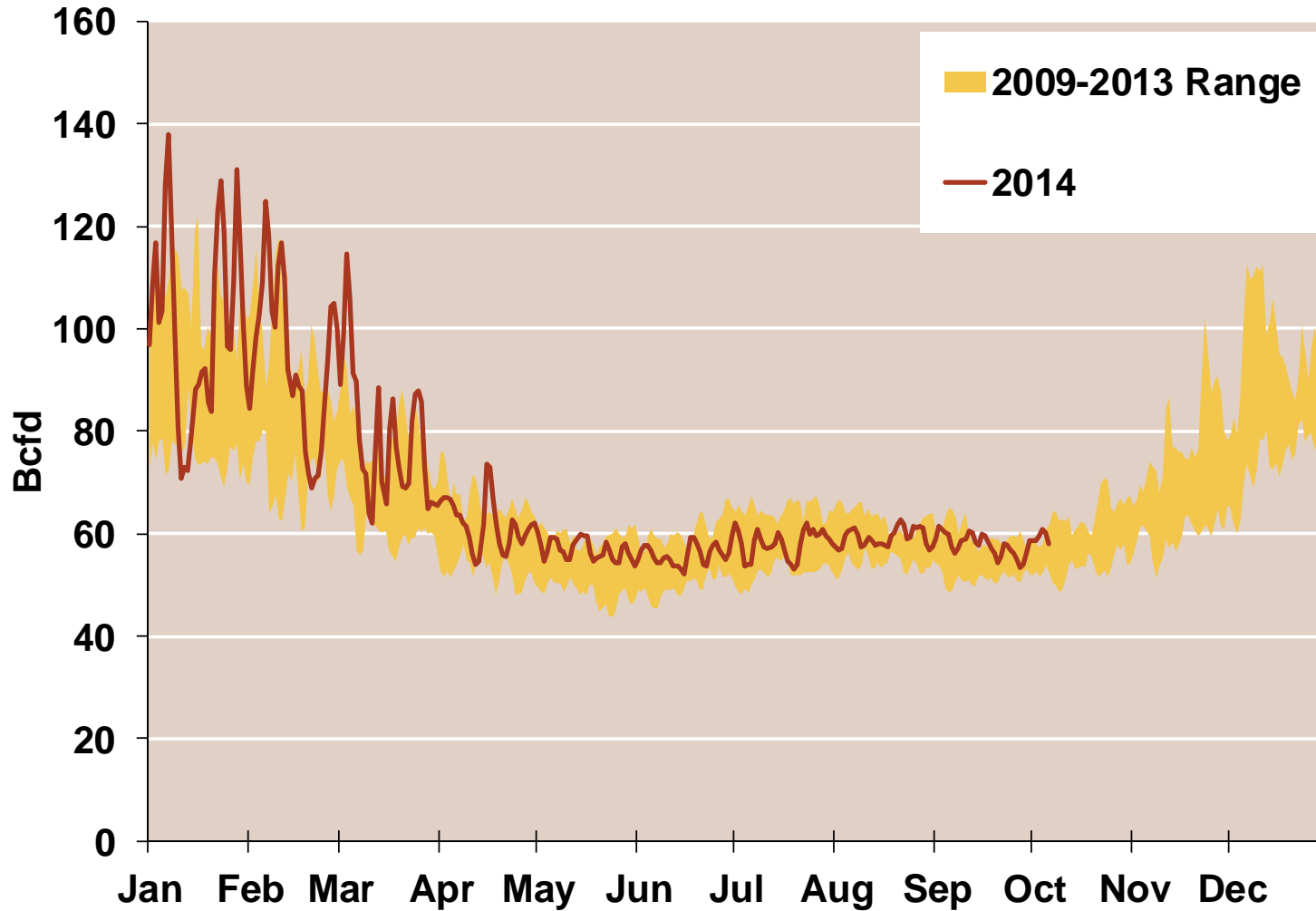
Note: Balance includes all amounts not attributable to other categories.

Source: Derived from *Bentek Energy* data

### Regional Imports from Canada



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

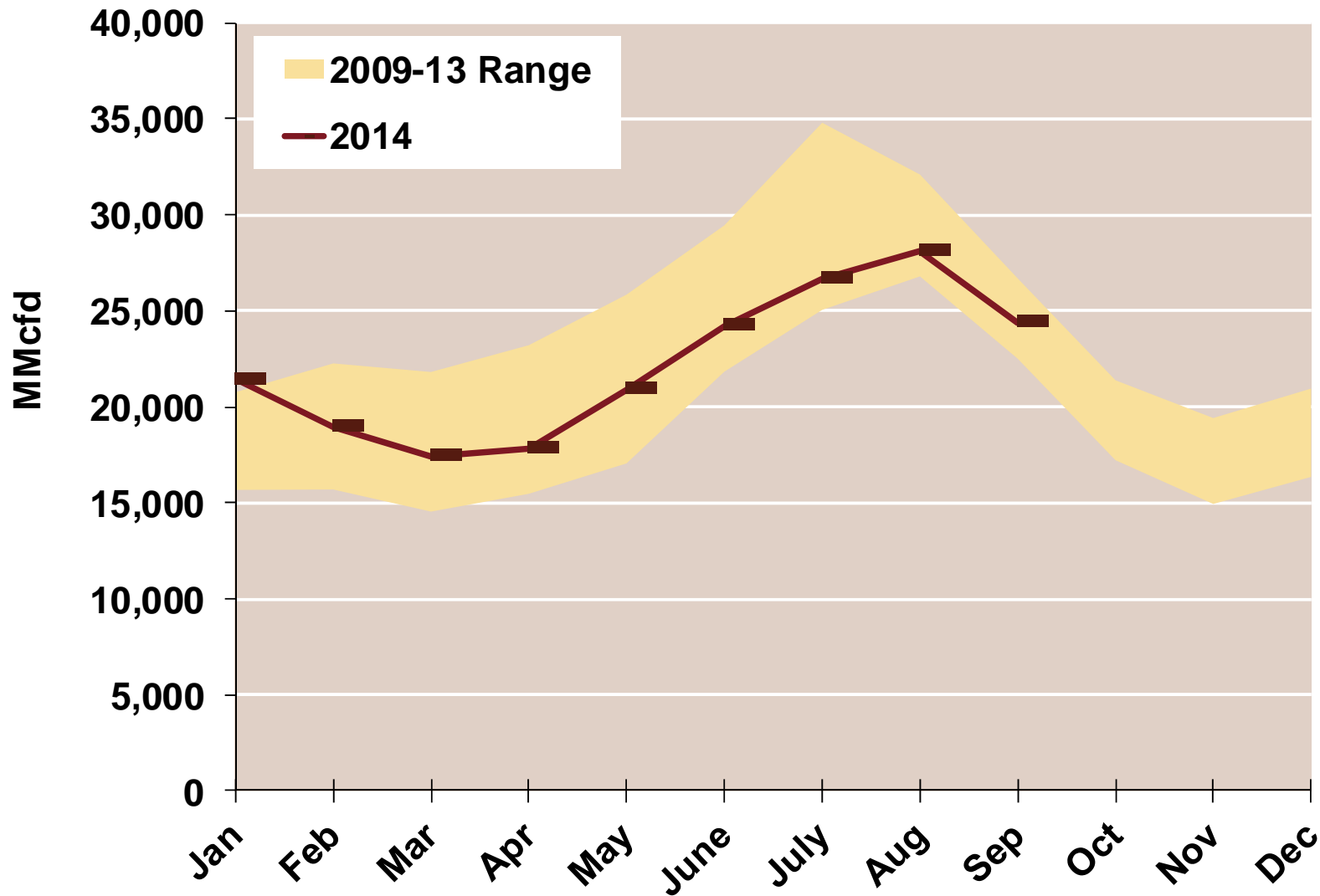


Source: Derived from *Bentek Energy* data, derived from interstate pipeline flow and modeled data.

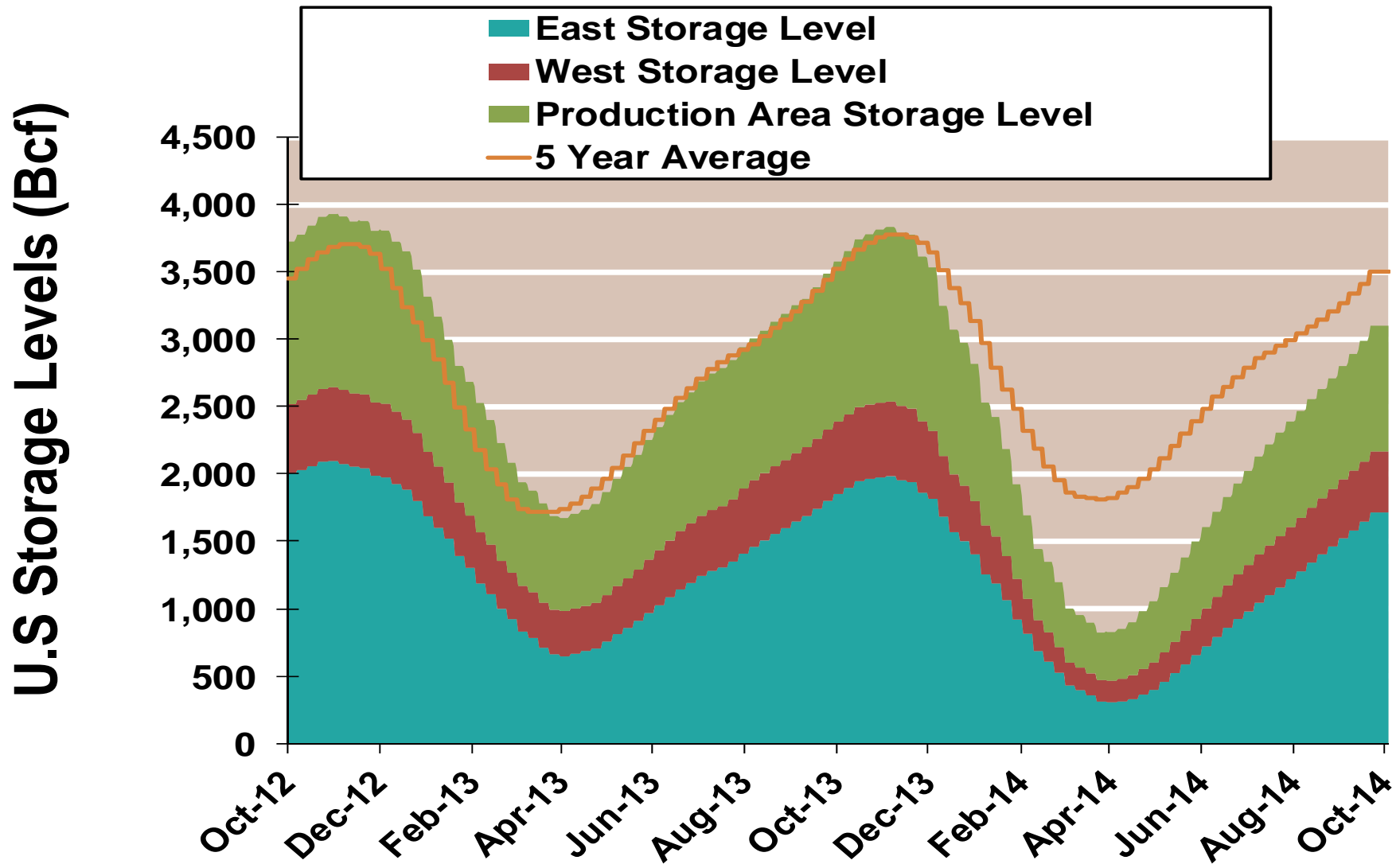
Updated: October 2014



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



### EIA National Storage Inventories by Region

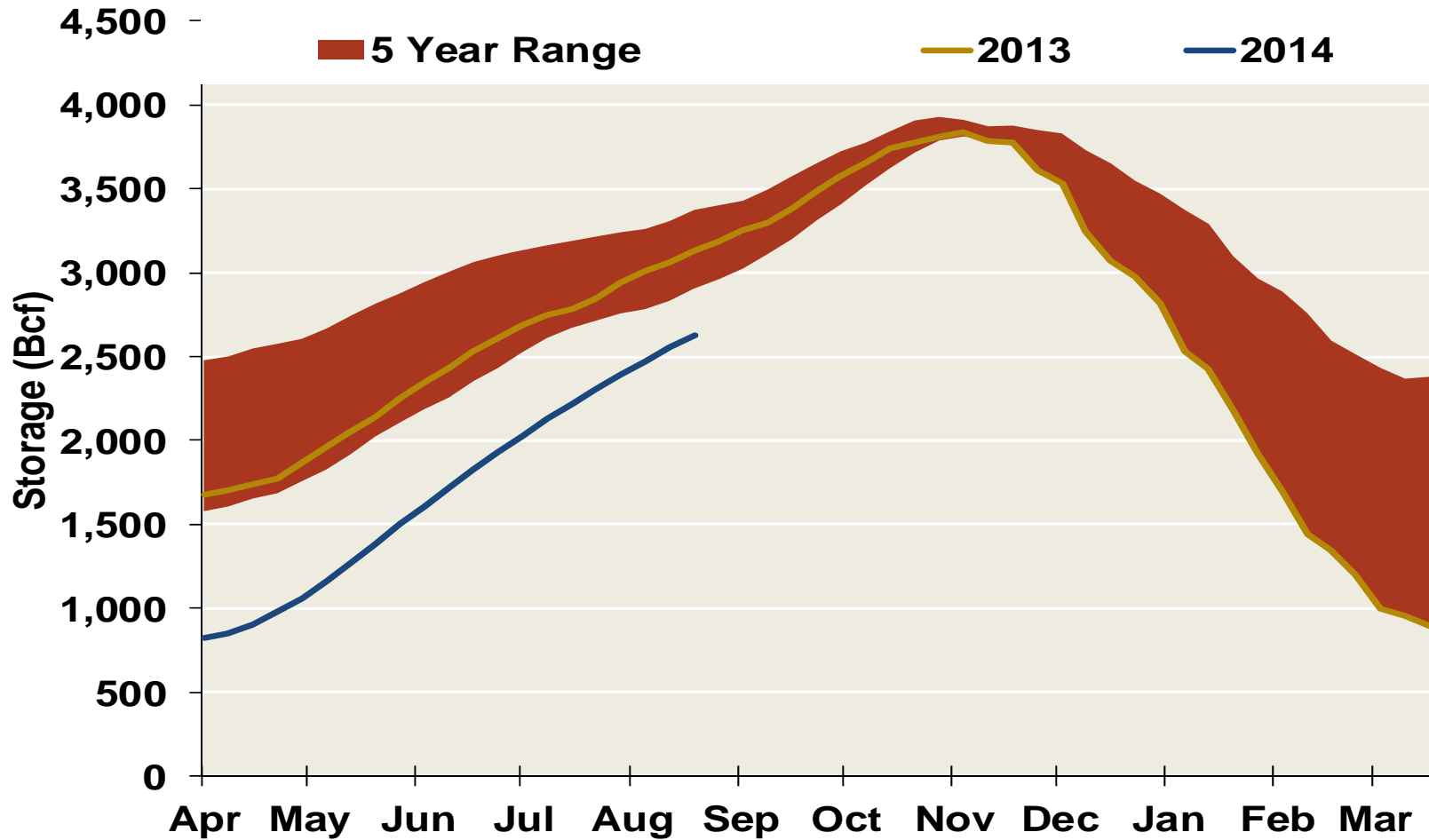


Notes:

Source: Derived from Bloomberg Data

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### EIA National Storage Inventories

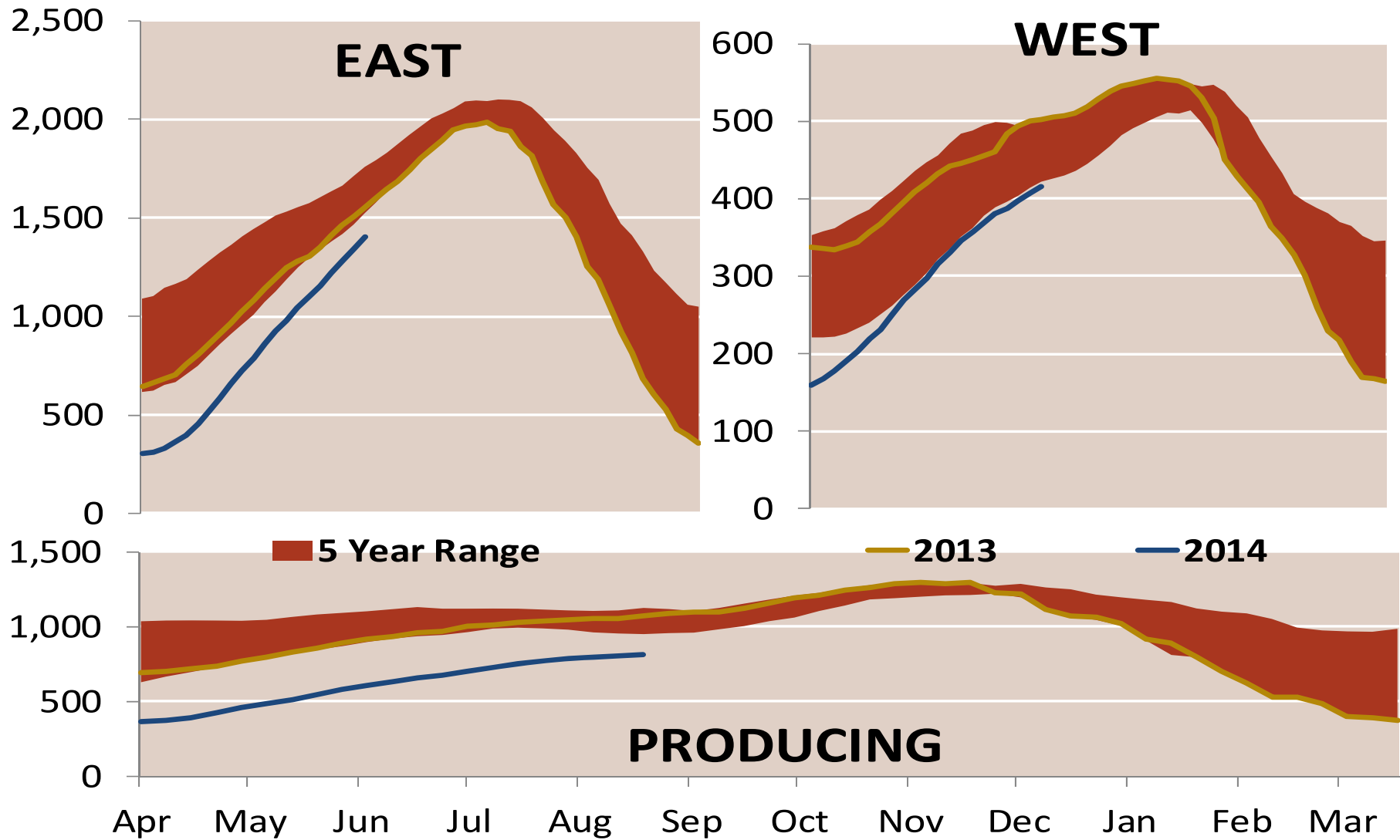


Notes:

Source: Derived from Bloomberg Data

Update 10/28/2014

### EIA Regional Storage Inventories

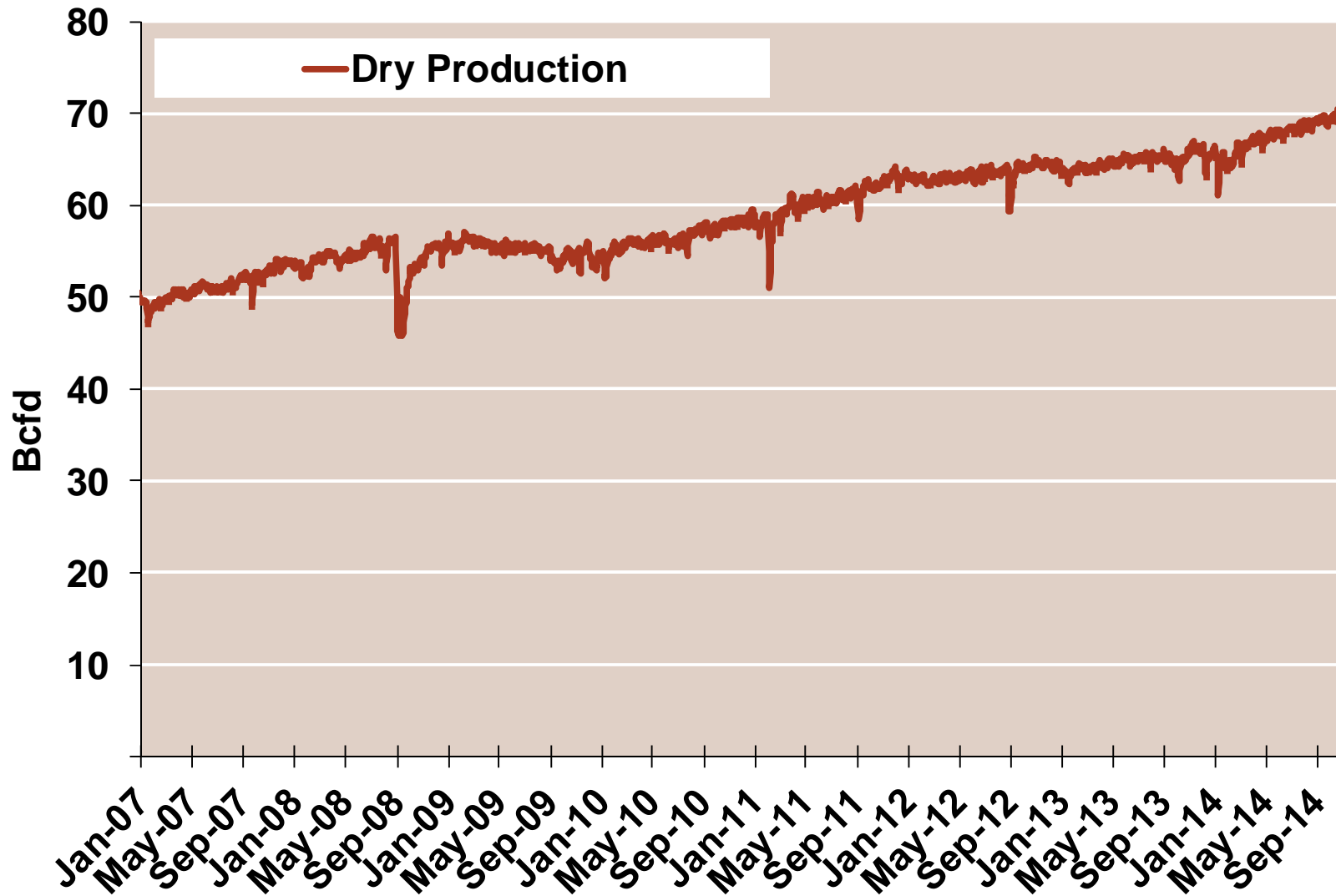


Notes:

Source: Derived from Bloomberg Data

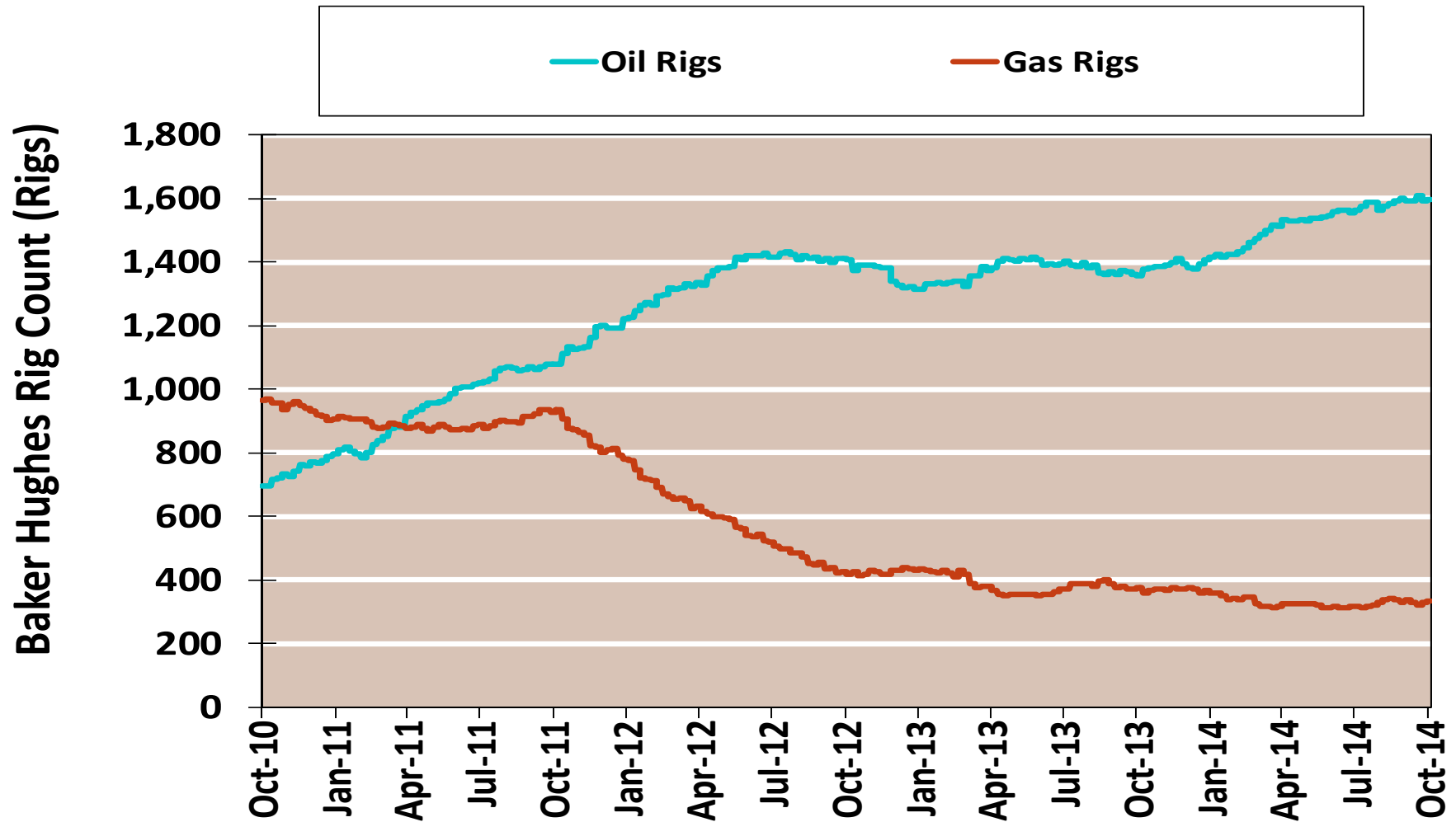
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## Monthly U.S. Dry Gas Production – Lower 48 States



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



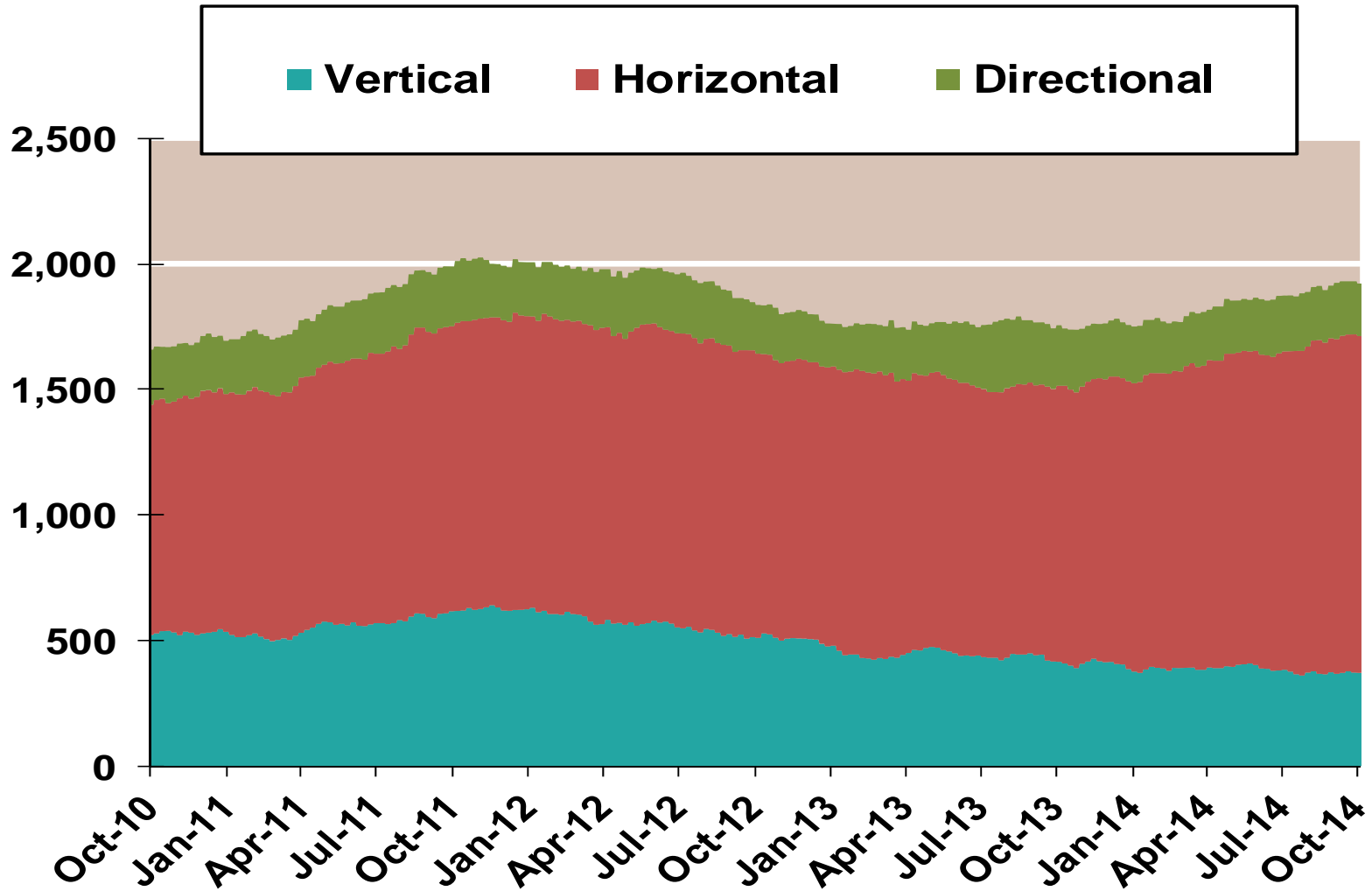
Notes:

Source: Derived from Bloomberg data

Updated 10/28/2014

### Total US Rig Count

Baker Hughes Rigs By Drill Type

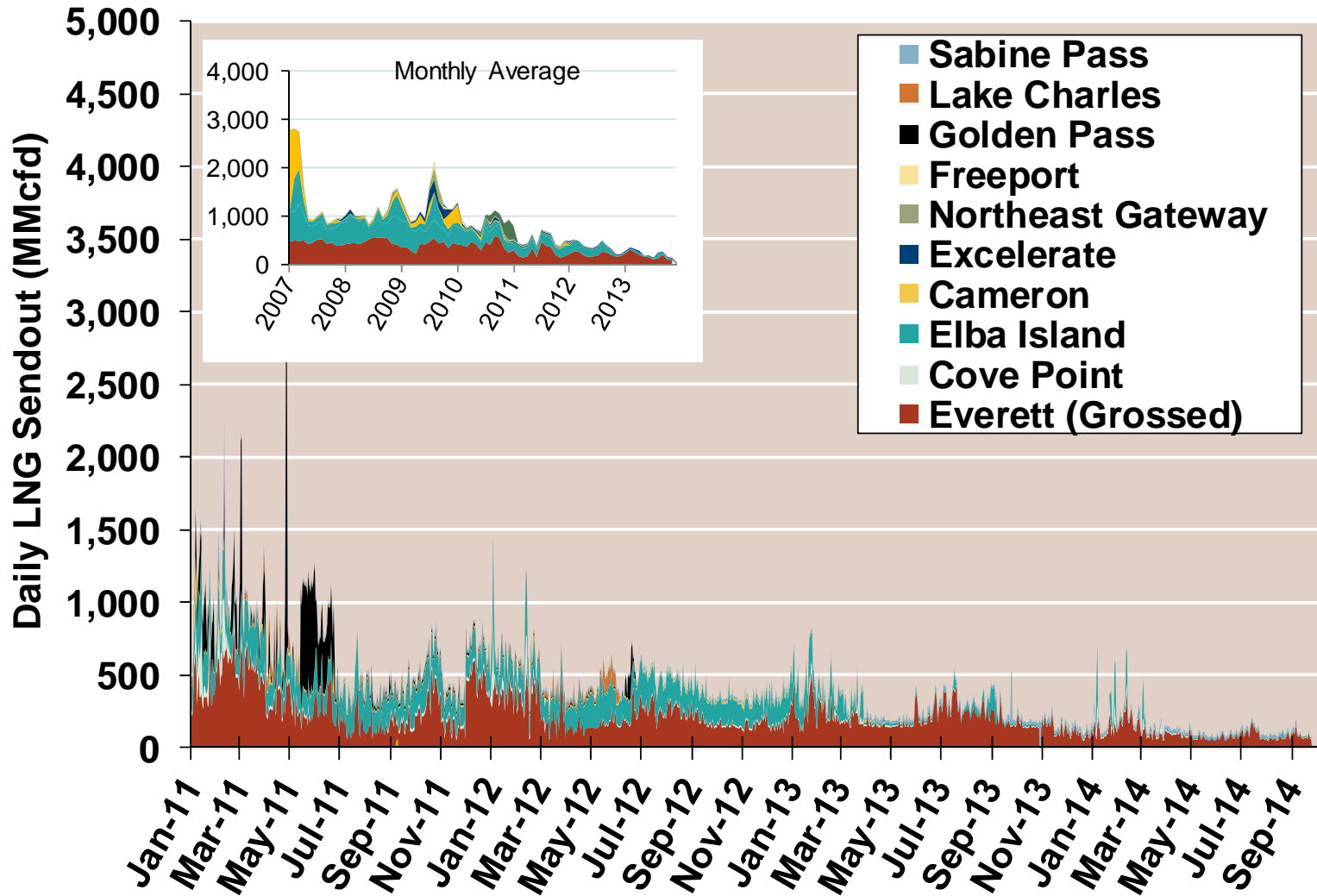


Notes:

Source: Derived from Bloomberg data

Updated 10/28/2014

## 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: September 2014



## World LNG Estimated October 2014 Landed Prices

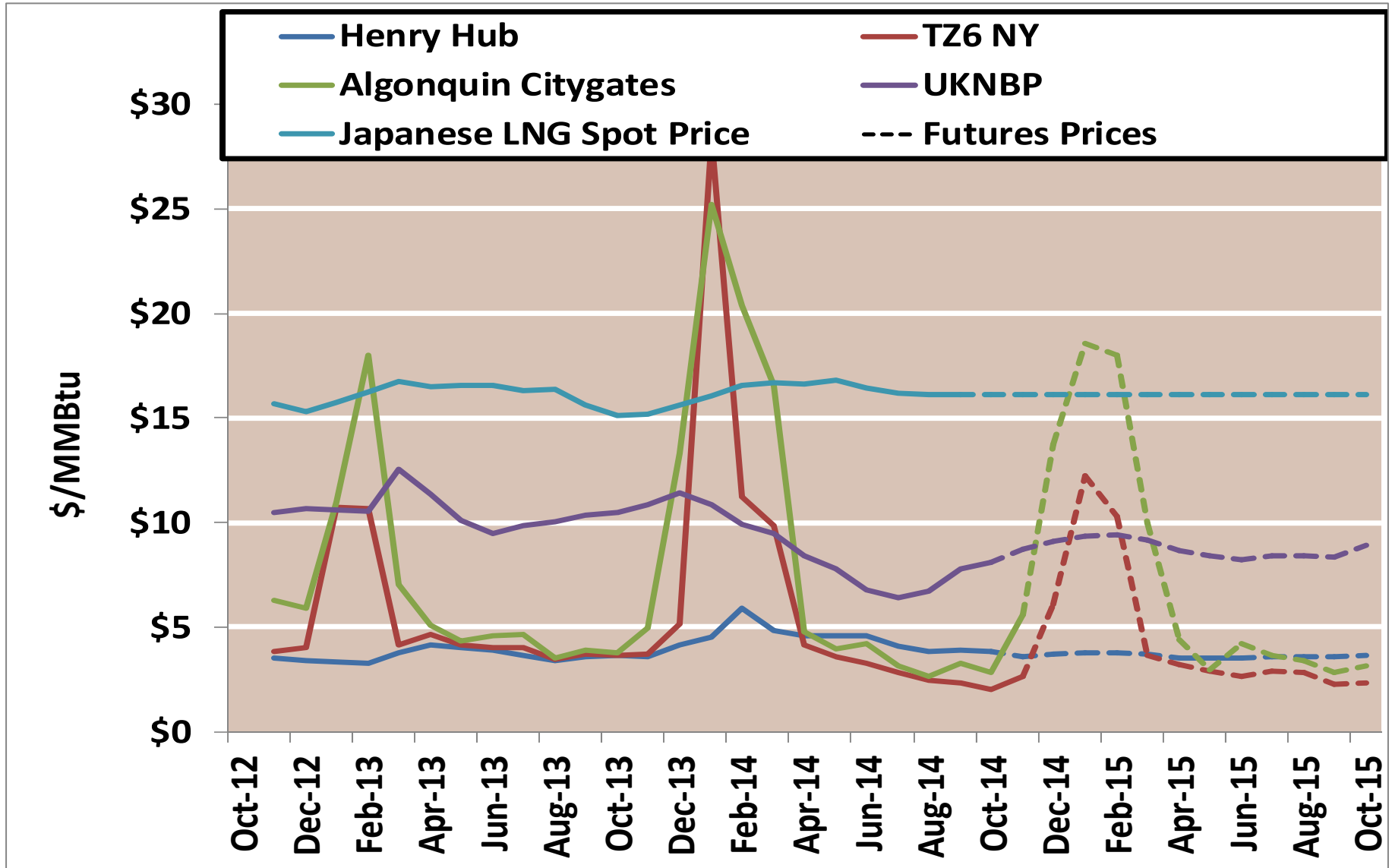


Source: Waterborne Energy, Inc. Data in \$US/MMBtu

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

Updated September 2014

## Historical and Future World Gas Prices



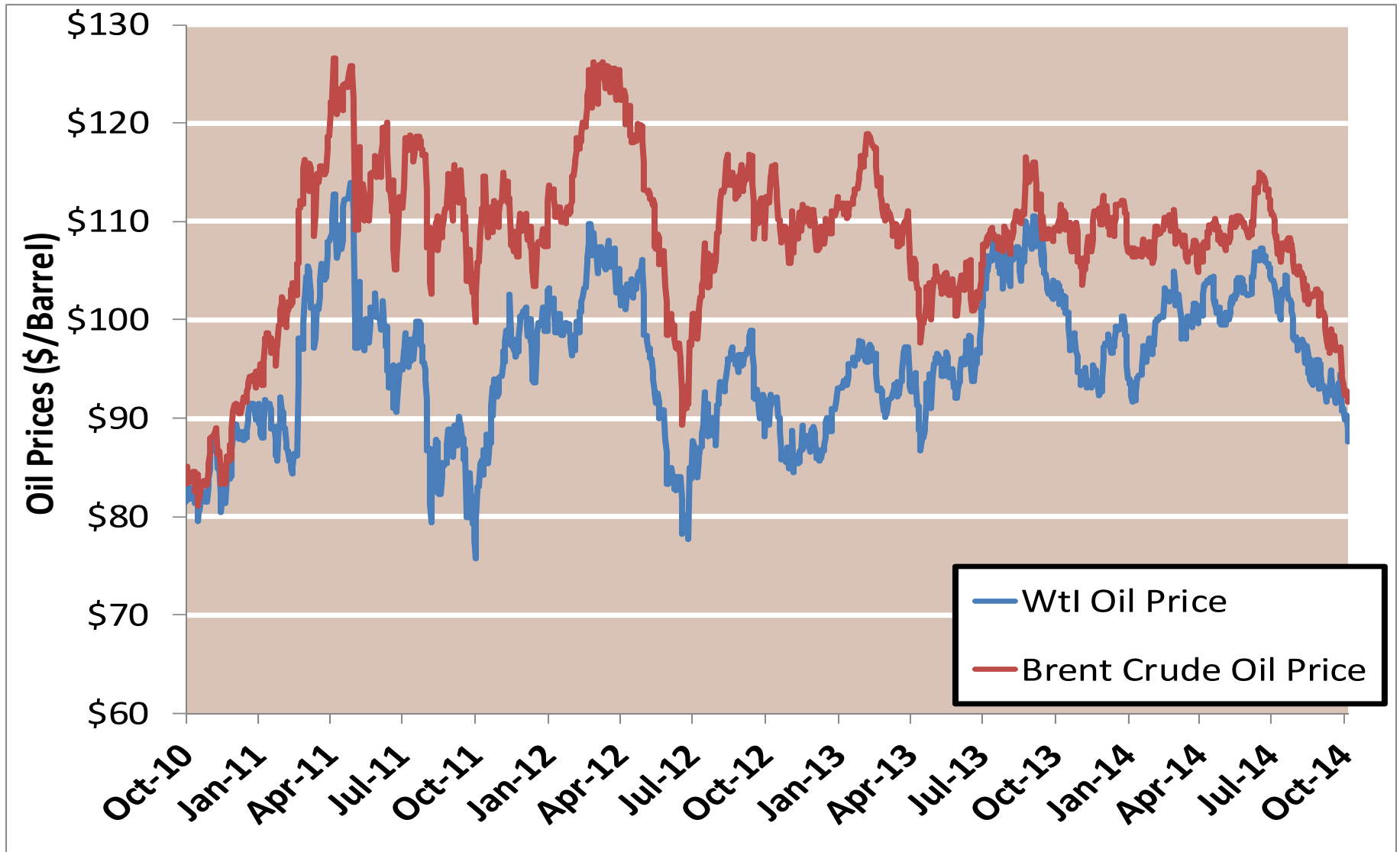
Notes:

Source: Derived from Bloomberg data

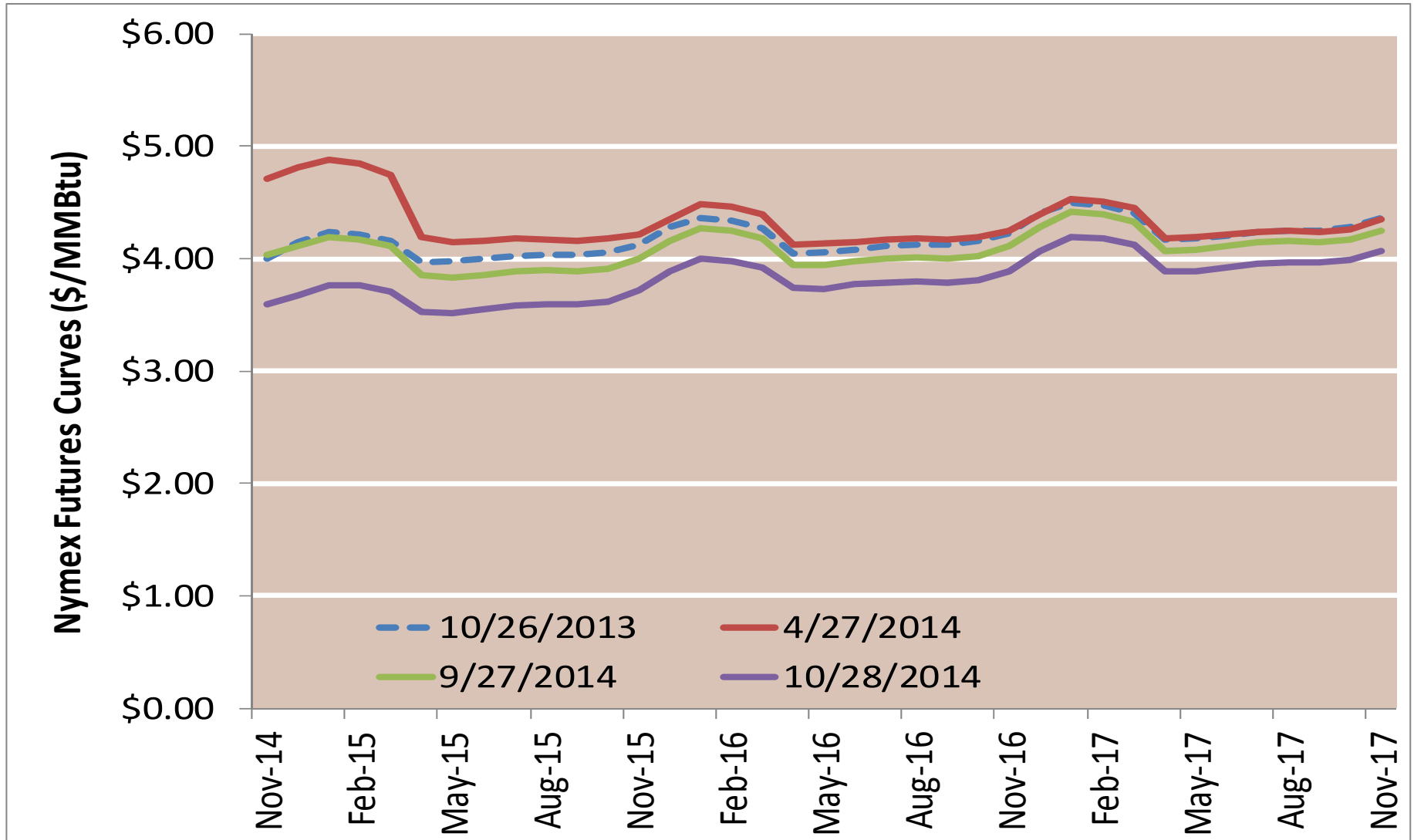
Updated

10/28/2014

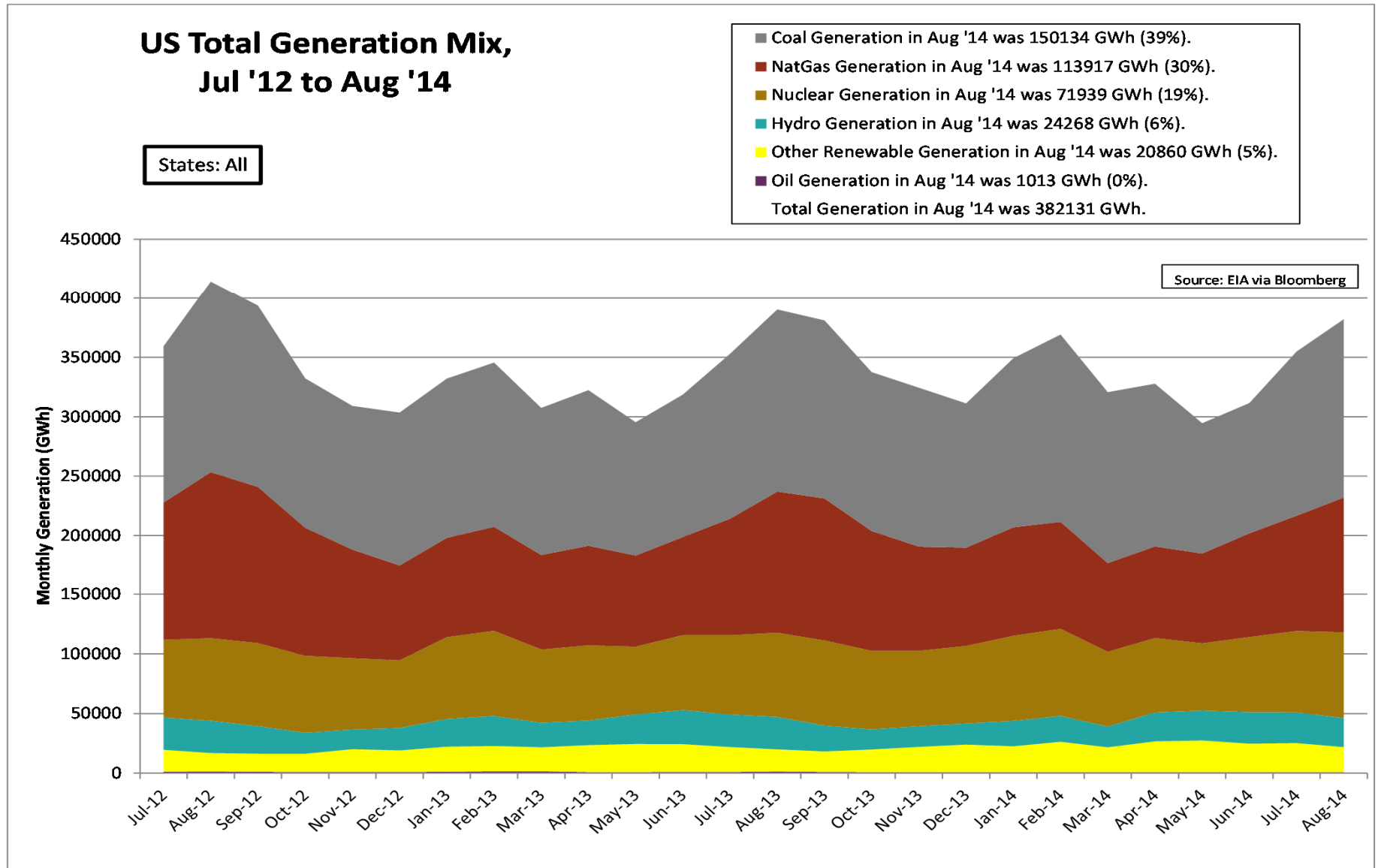
### WTI vs Brent Crude Oil Price



### Nymex Futures Curves



## US Total Generation Mix



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# Natural Gas and Fuels Markets

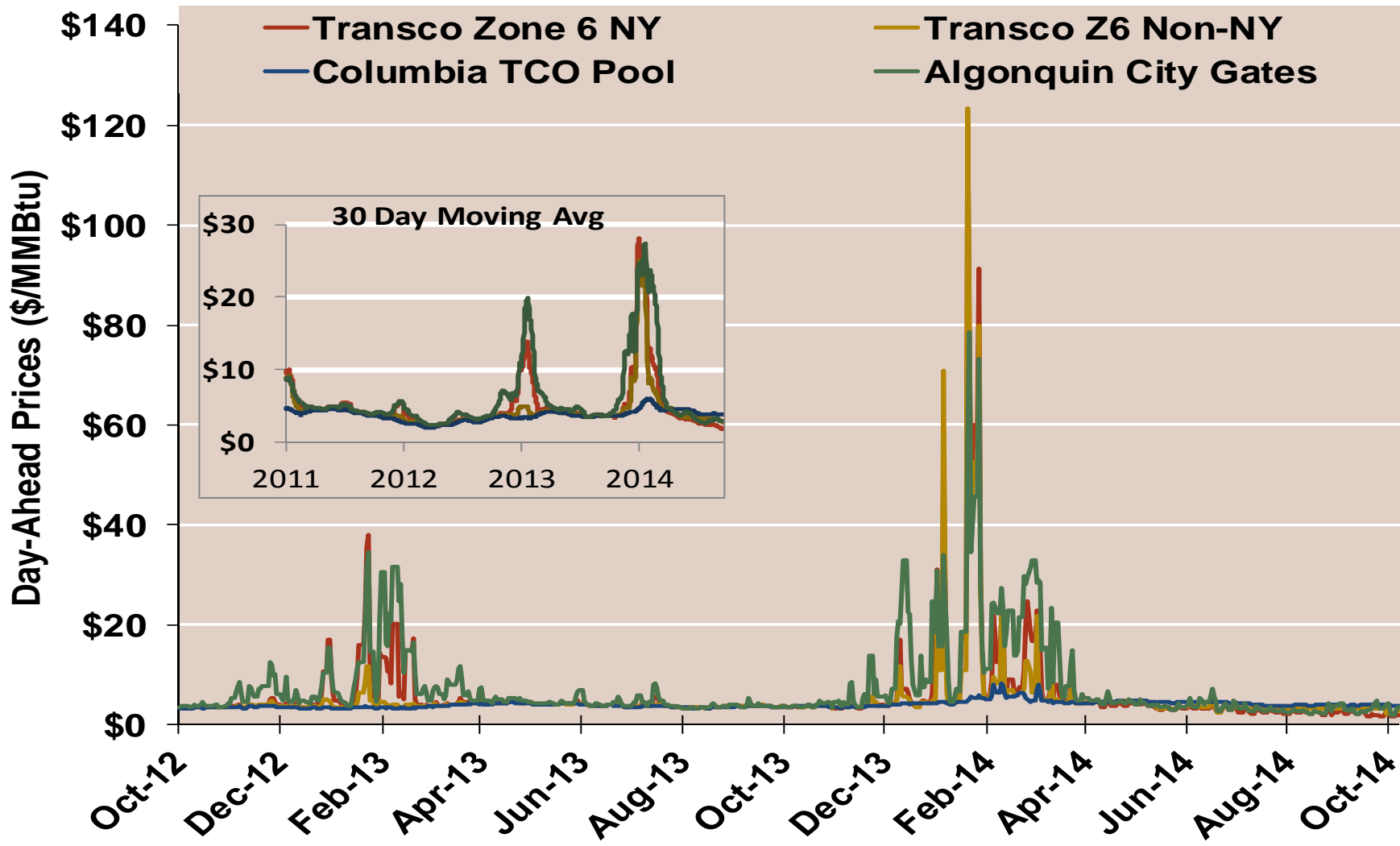
East

### Northeast Day-Ahead Prices Averaged Annually/ Seasonally

	Average Day Ahead Prices (\$/MMBtu)	Algonquin Citygates	Transco Zone 6 NY	Transco Zone 6 Non-NY	Columbia Appalachia	Henry Hub
2011	Annual	5.02	5.02	4.69	4.07	3.98
	Summer	4.56	4.55	4.41	4.22	4.14
	Winter 2011/2012	4.00	3.59	3.09	2.77	2.74
2012	Annual	3.95	3.27	2.98	2.78	2.75
	Summer	3.25	2.86	2.83	2.71	2.69
	Winter 2012/2013	9.49	6.69	4.10	3.51	3.47
2013	Annual	6.95	5.11	4.03	3.72	3.72
	Summer	4.24	3.92	3.84	3.77	3.76
	Winter 2013/2014	15.76	11.40	9.66	4.60	4.61
2014 YTD	Annual	8.36	6.79	6.44	4.44	4.45
	Summer	3.47	2.89	3.53	4.15	4.19
	Winter 2014/2015					

Notes:

### Northeast Day-Ahead Prices



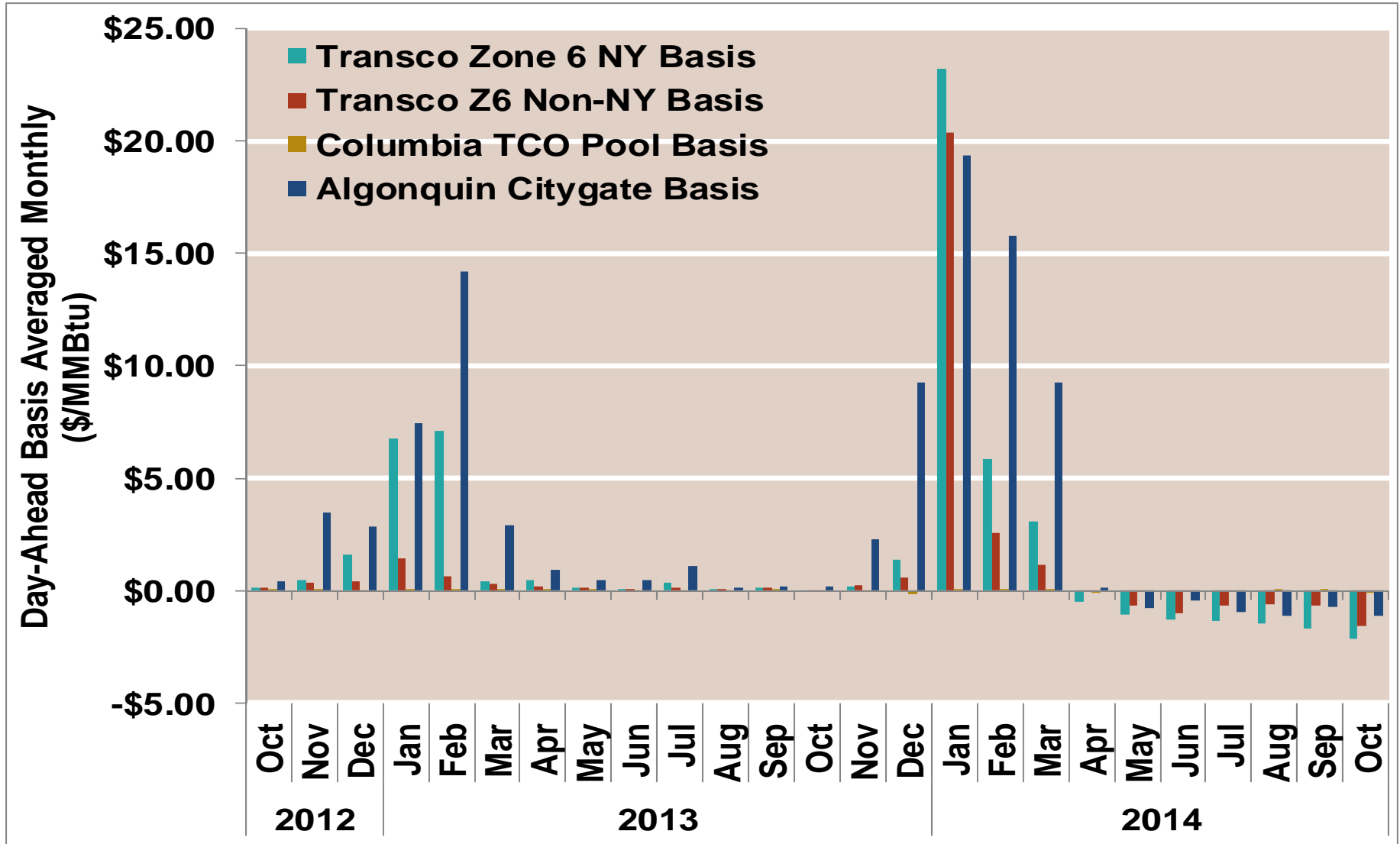
Notes:

Source: Derived from ICE data

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## Northeast Monthly Average Basis Value To Henry Hub

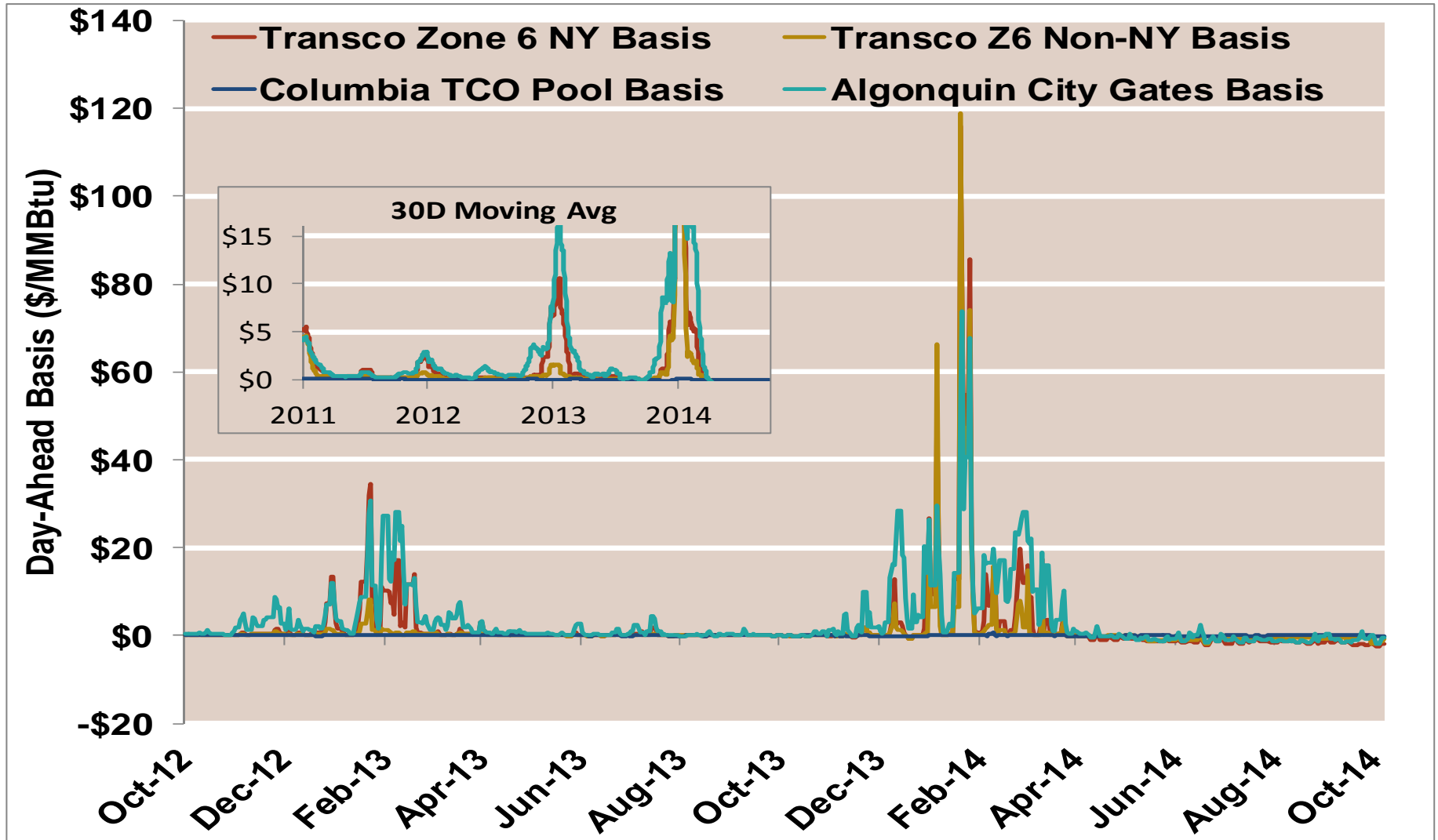


Notes:

Source: Derived from ICE data

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### Northeast Day-Ahead Basis

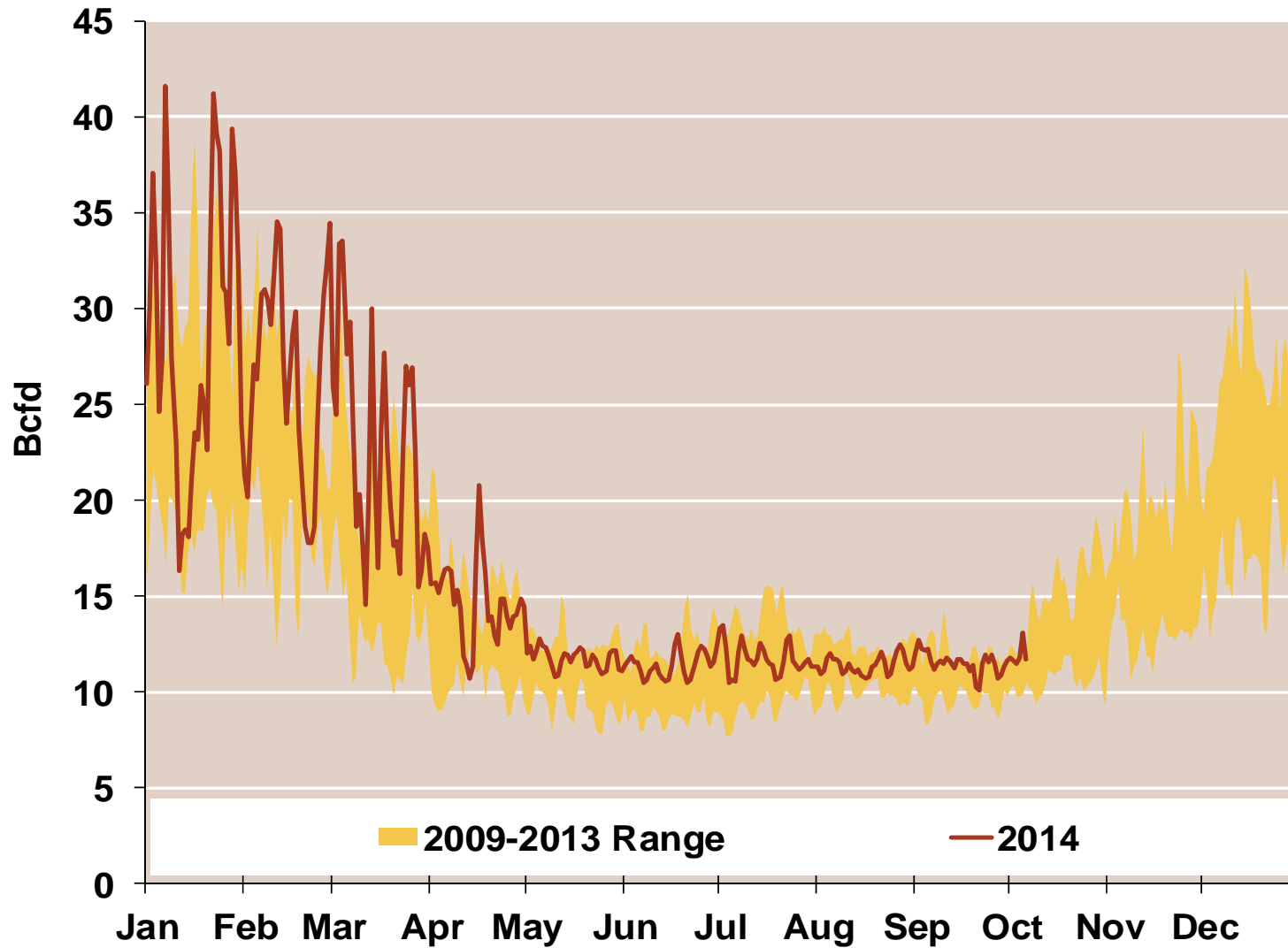


Notes:

Source: Derived from ICE data

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### Daily Northeast Natural Gas Demand All Sectors

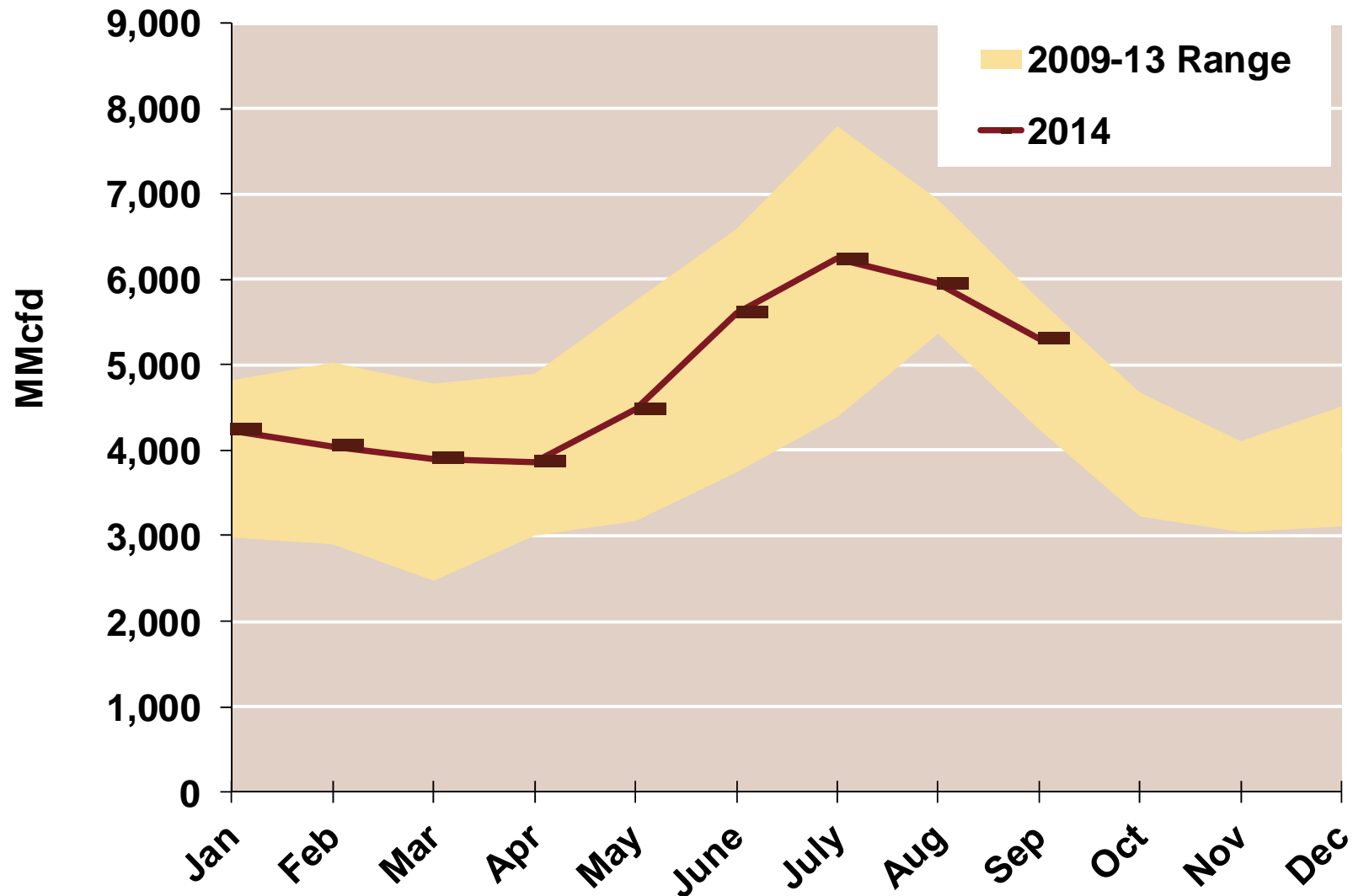


Source: Derived from *Bentek Energy* data

Note: Northeast is defined as Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, Ohio and Kentucky

Updated: October 2014

## Northeast Natural Gas Consumption for Power Generation



Source: Derived from *Bentek Energy* data

Note: Northeast is defined as Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, Ohio and Kentucky

Updated: October 2014

## Southeast Day-Ahead Prices Averaged Annually/Seasonally

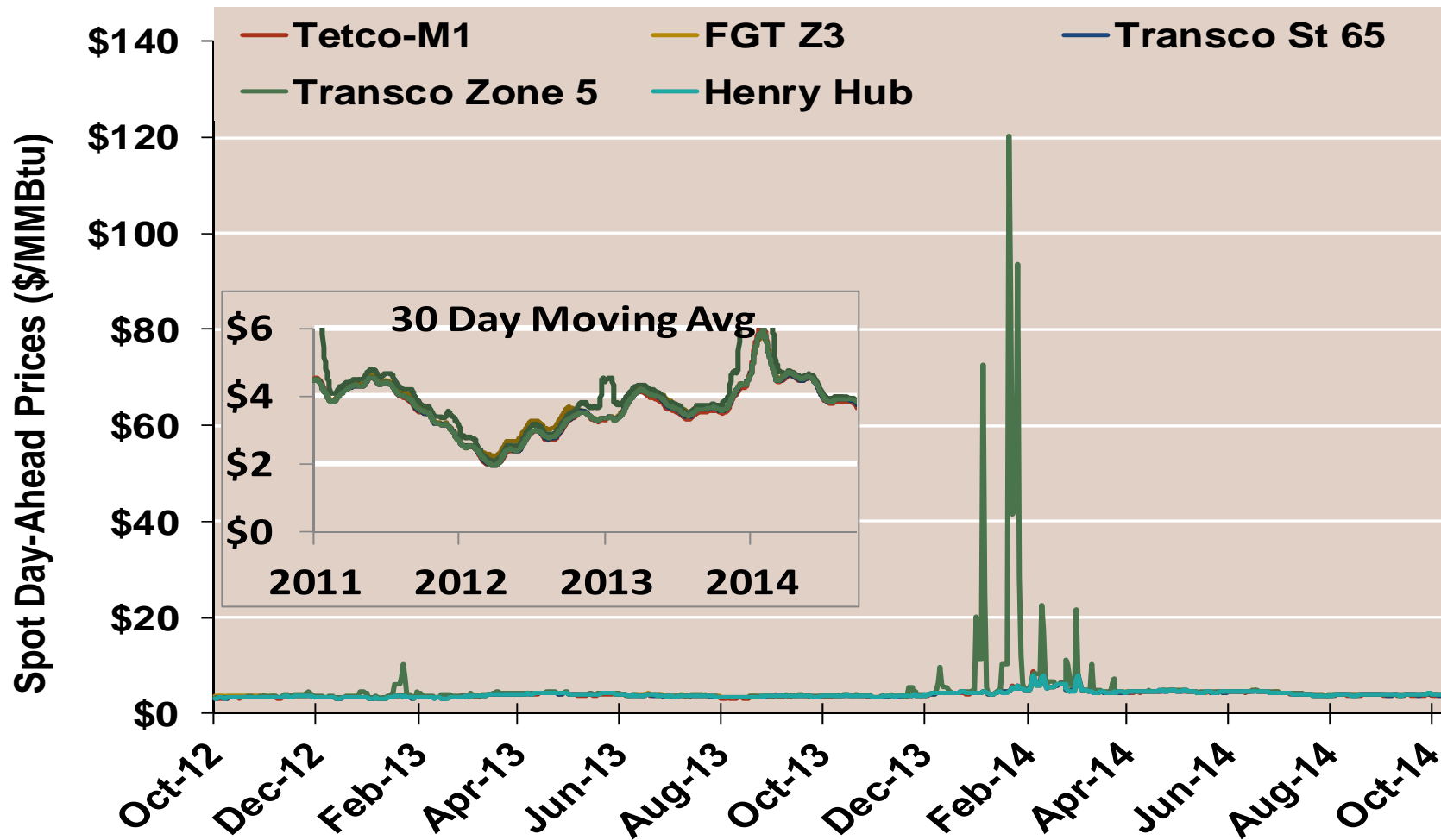
	Average Day Ahead Prices (\$/MMBtu)	FGT Z3	Tetco-M1	Transco St 65	Transco Zone 5	Henry Hub
2011	Annual	4.04	3.98	3.98	4.53	<b>3.98</b>
	Summer	4.22	4.12	4.13	4.36	<b>4.14</b>
	Winter 2011/2012	2.79	2.74	2.74	2.99	<b>2.74</b>
2012	Annual	2.94	2.73	2.75	2.94	<b>2.75</b>
	Summer	2.97	2.65	2.67	2.81	<b>2.69</b>
	Winter 2012/2013	3.51	3.47	3.48	3.95	<b>3.47</b>
2013	Annual	3.77	3.66	3.71	4.01	<b>3.72</b>
	Summer	3.83	3.68	3.74	3.88	<b>3.76</b>
	Winter 2013/2014	4.62	4.61	4.60	9.44	<b>4.61</b>
2014 YTD	Annual	4.54	4.49	4.49	7.08	<b>4.51</b>
	Summer	4.28	4.19	4.22	4.31	<b>4.24</b>
	Winter 2014/2015					

Notes:

Source: Derived from ICE data

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### Southeast Day-Ahead Prices

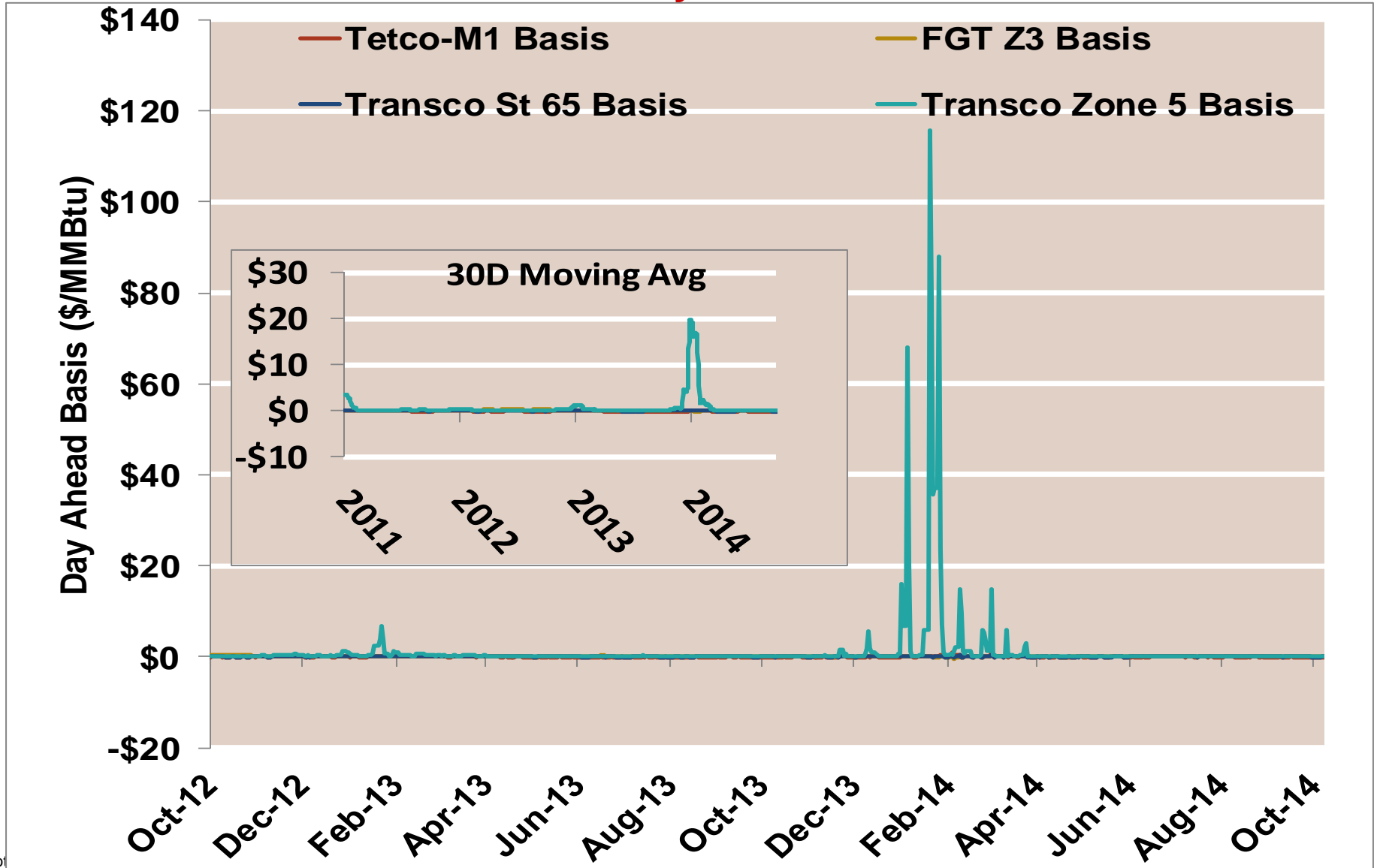


Notes:

Source: Derived from ICE data

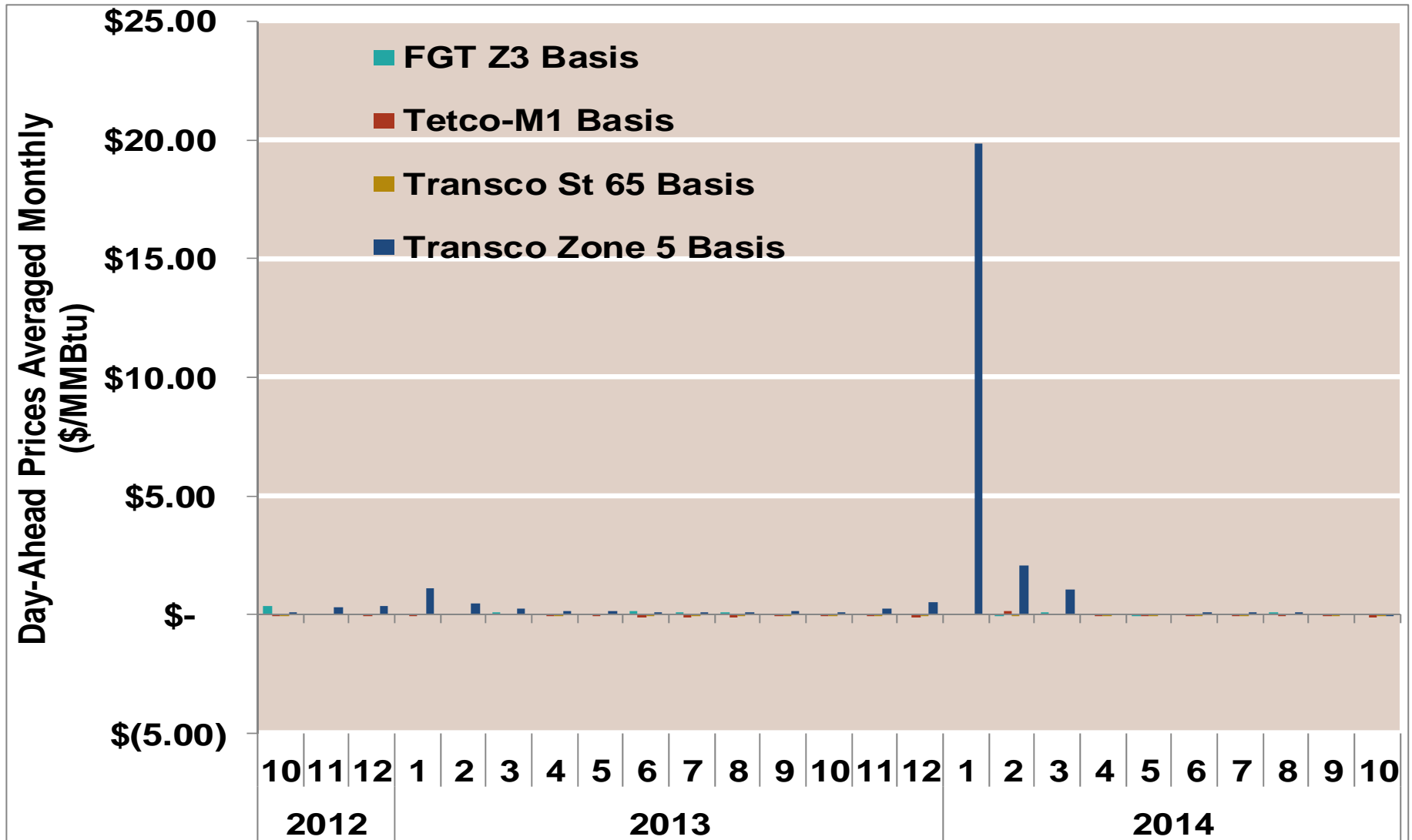
Updated 10/28/2014

### Southeast Day-Ahead Basis



Note

### Southeast Monthly Average Basis Value To Henry Hub



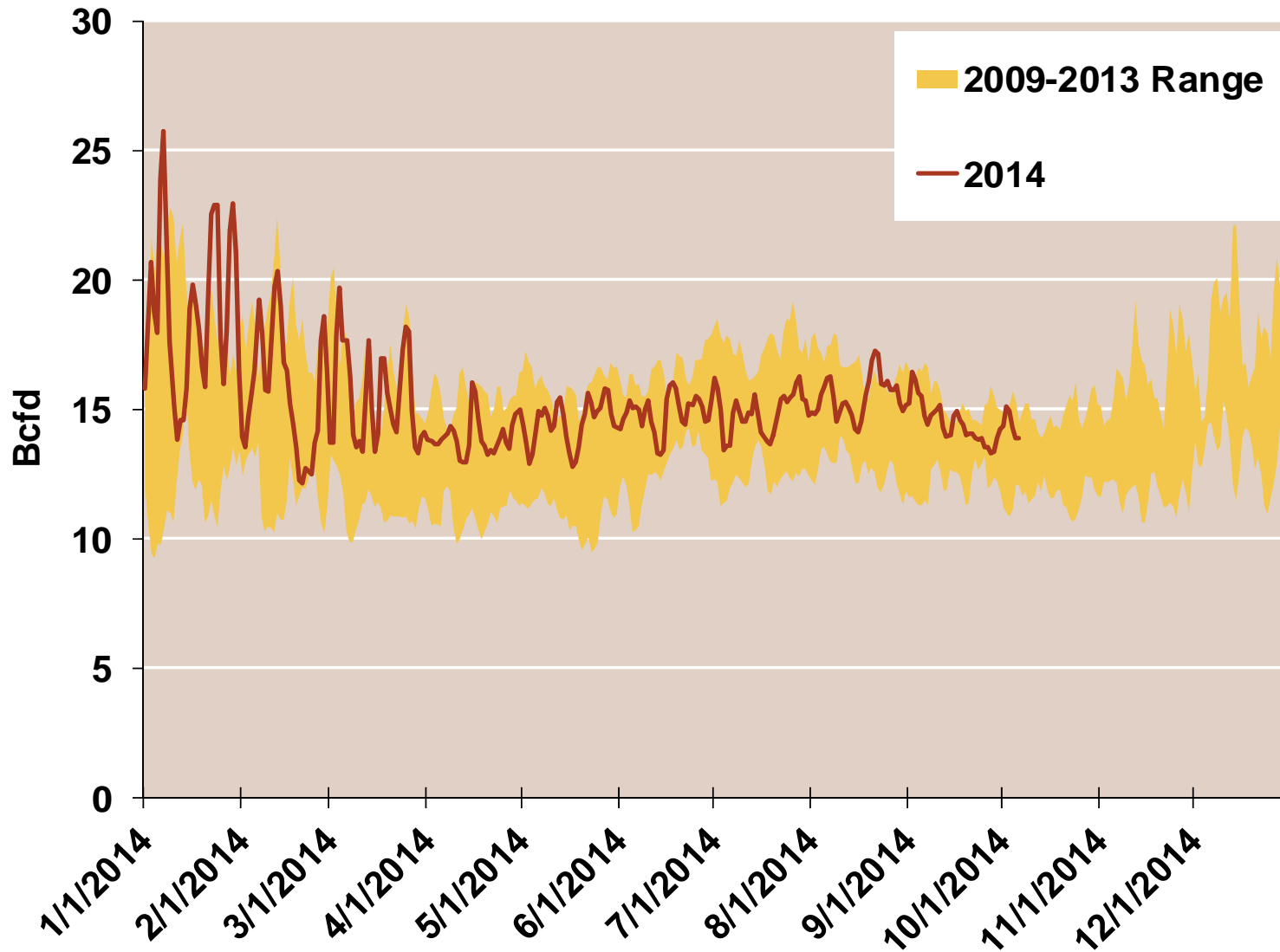
Notes:

Source: Derived from ICE data

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### Daily Southeast Natural Gas Demand All Sectors

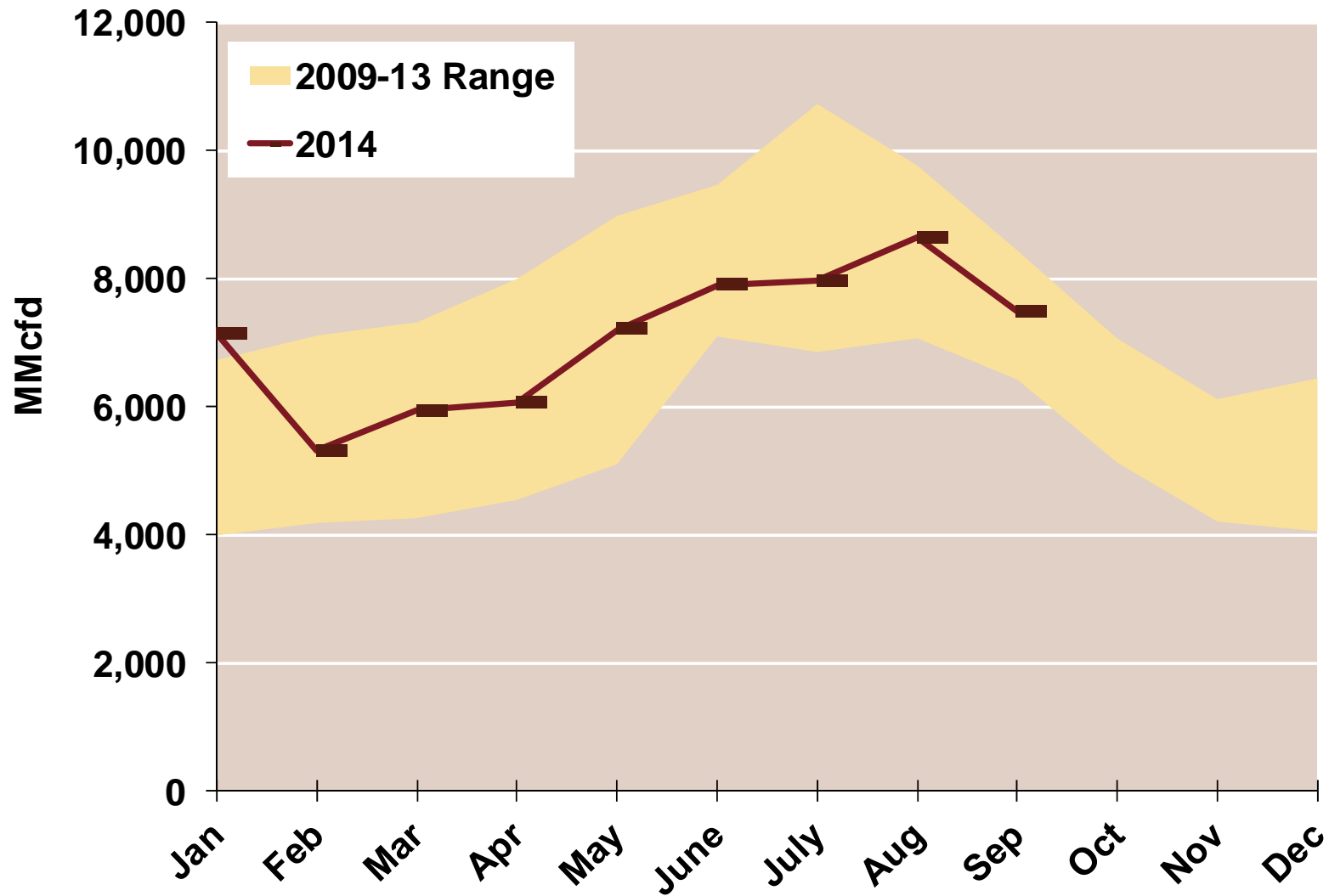


Source: Derived from *Bentek Energy* data

Note: Southeast is defined as North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, and Tennessee.

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## Southeast Natural Gas Consumption for Power Generation



Source: Derived from *Bentek Energy* data

Note: Southeast is defined as North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, and Tennessee.

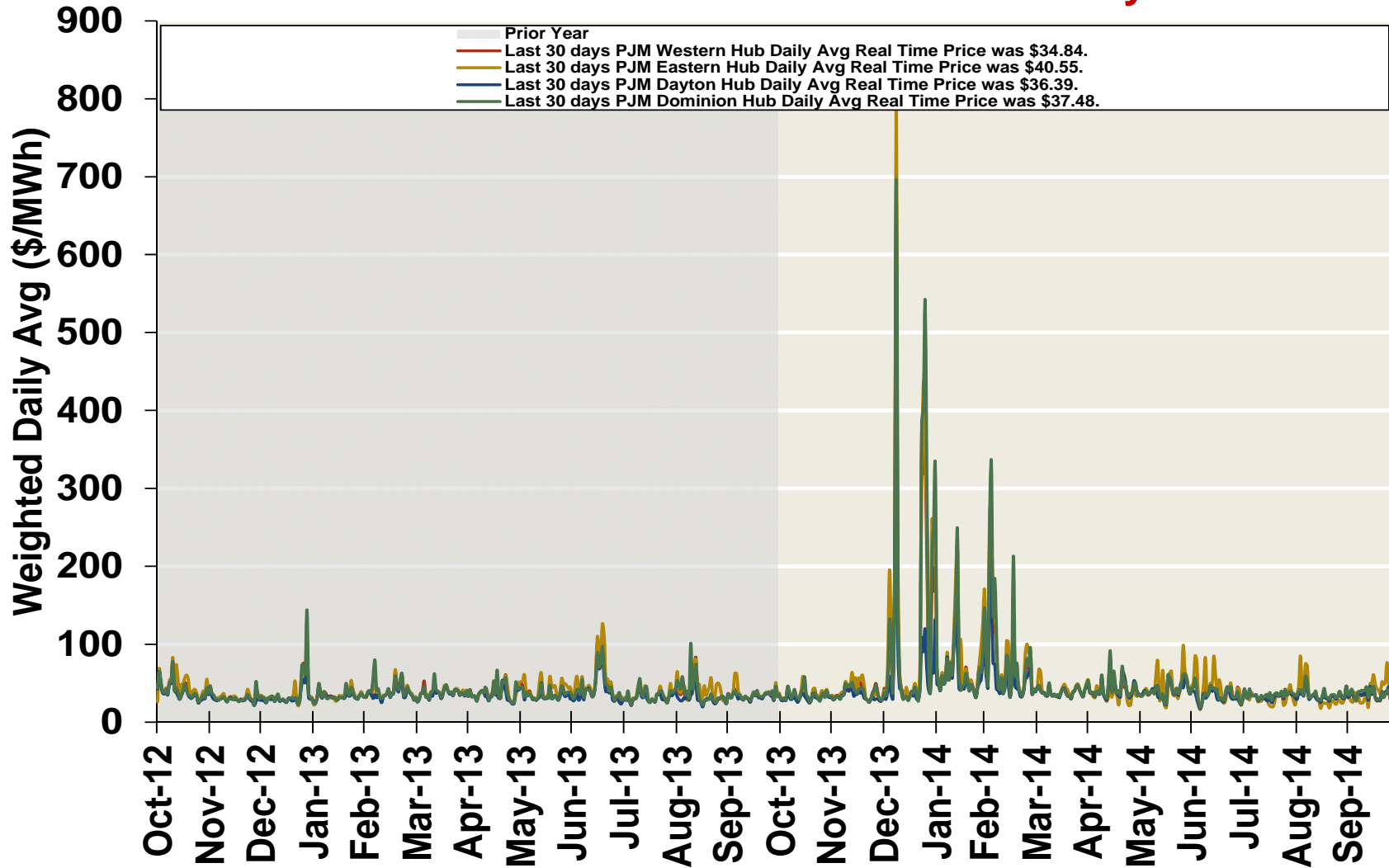
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# Electricity Markets

## East

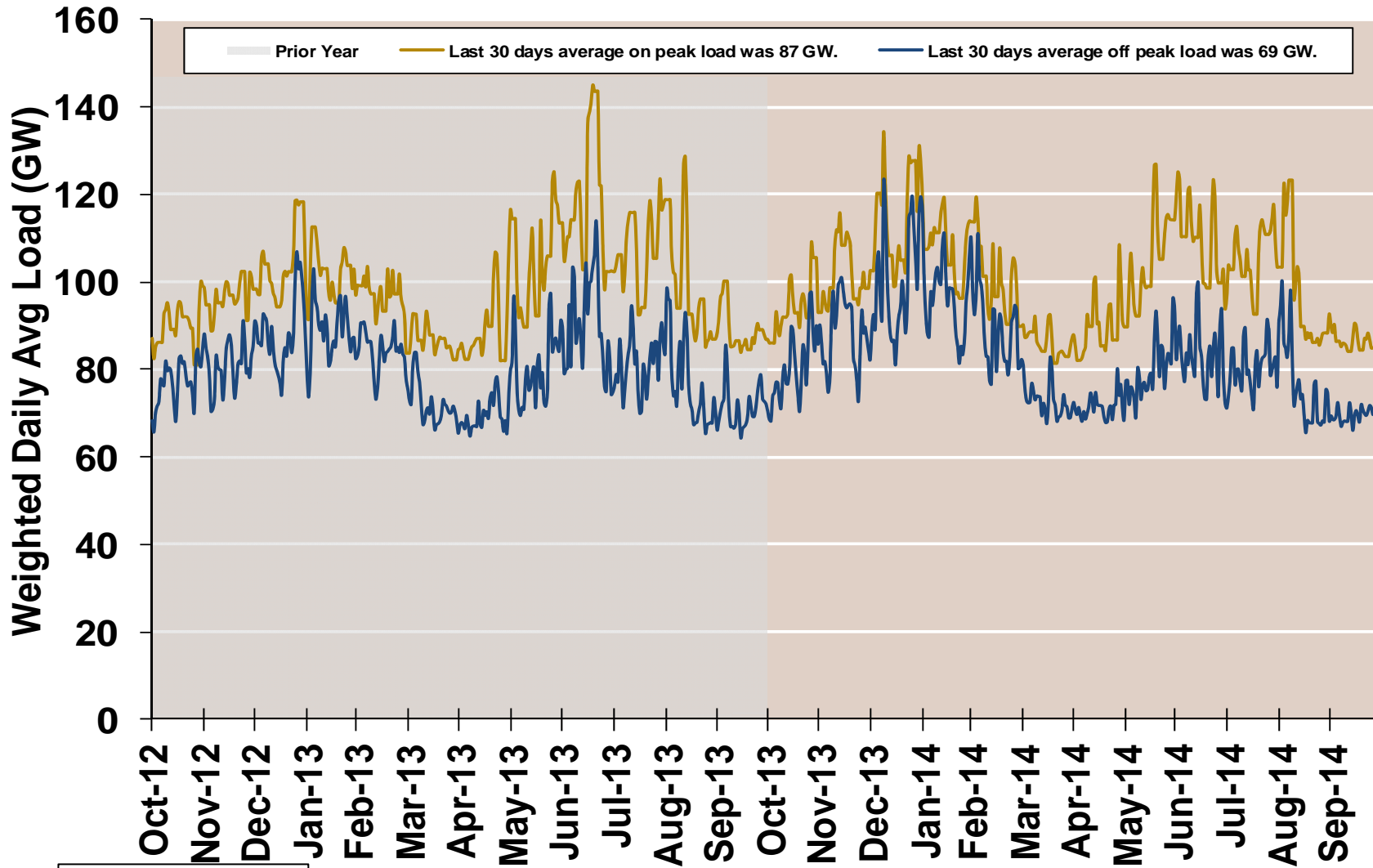
## PJM Real Time Prices—Two Year History



Source: Genscape via Bloomberg

Updated: 10/29/2014

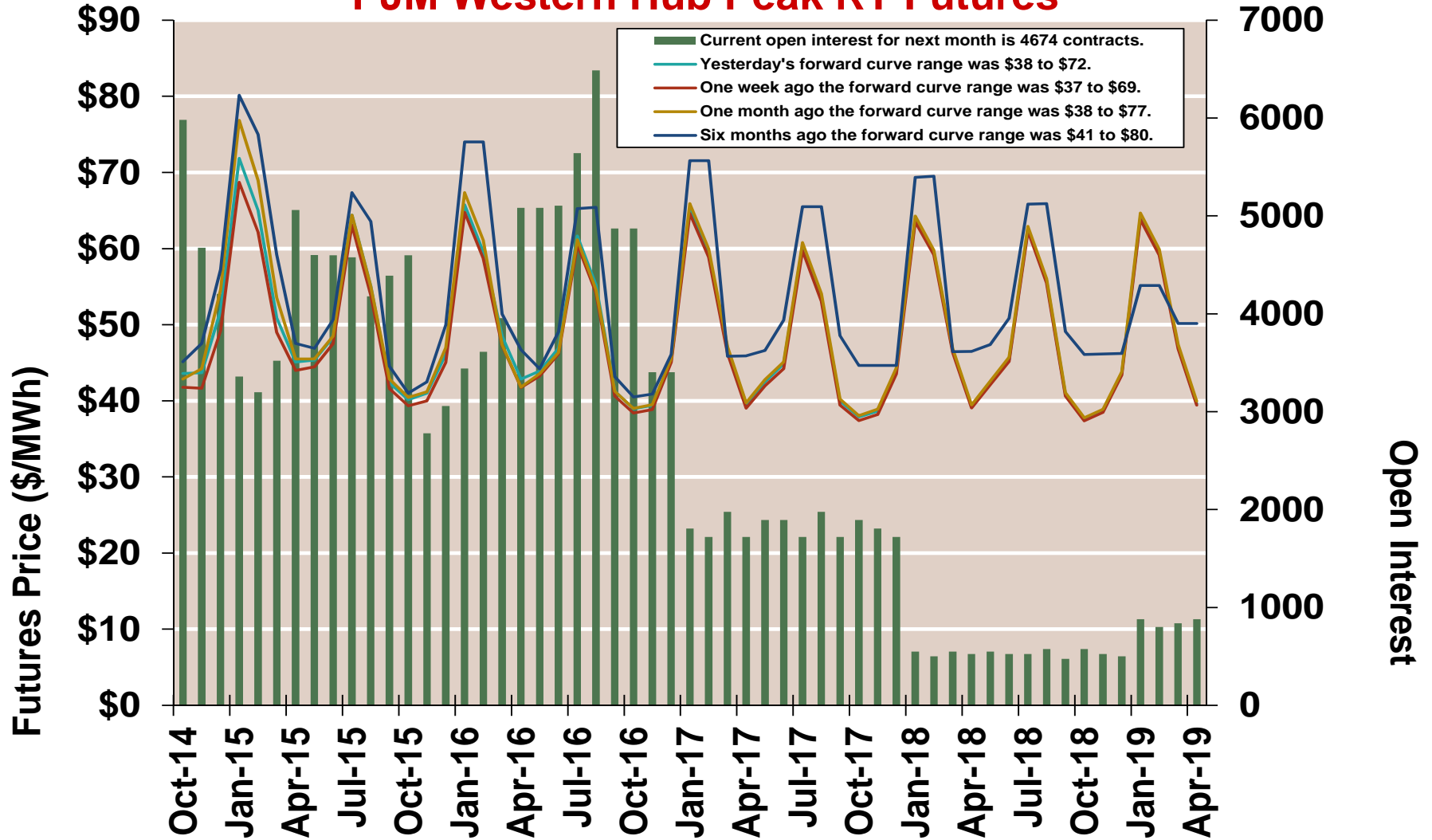
### PJM System Daily Average Load —Two Year History



Source: Genscape via Bloomberg

Updated: 10/29/2014

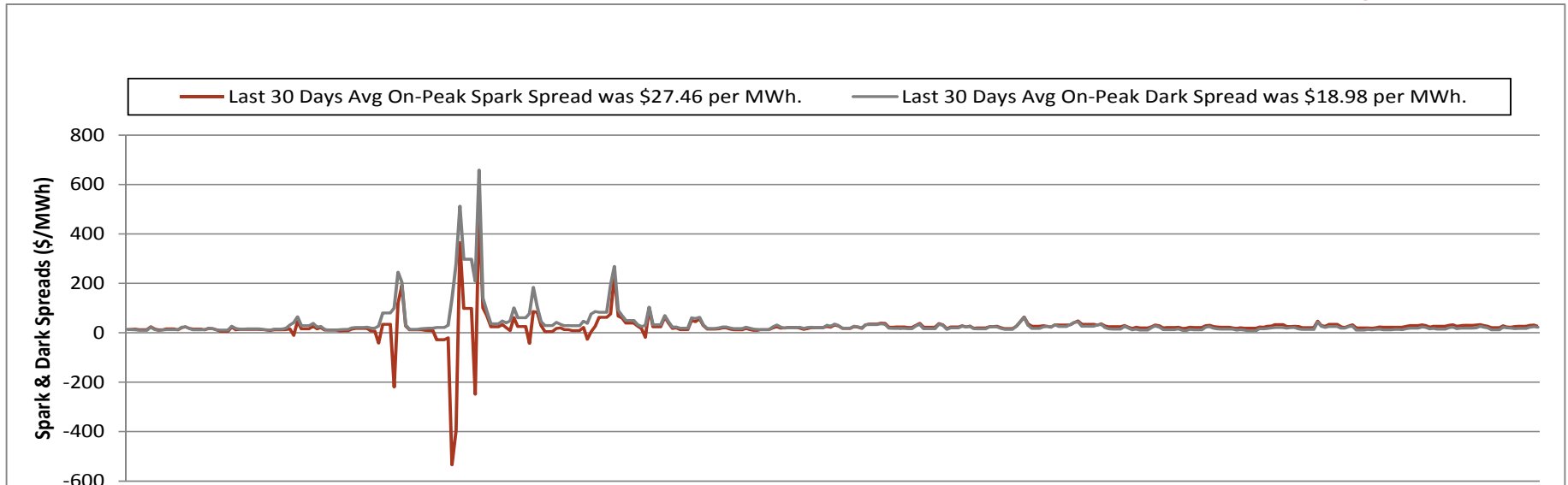
### PJM Western Hub Peak RT Futures



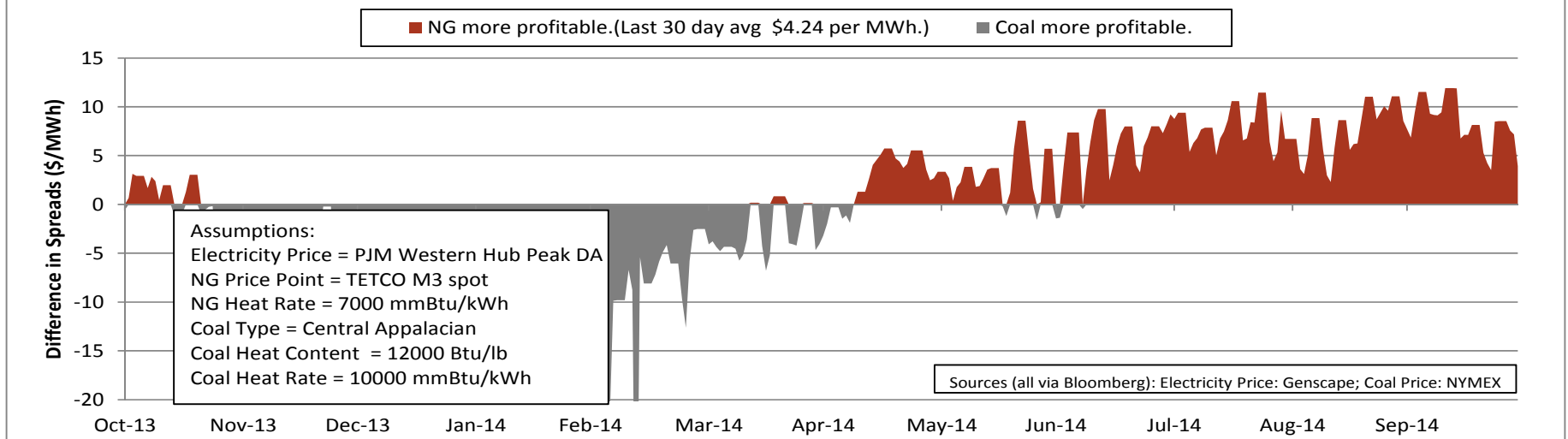
Source: NYMEX Clearport via Bloomberg

Updated: 10/29/2014

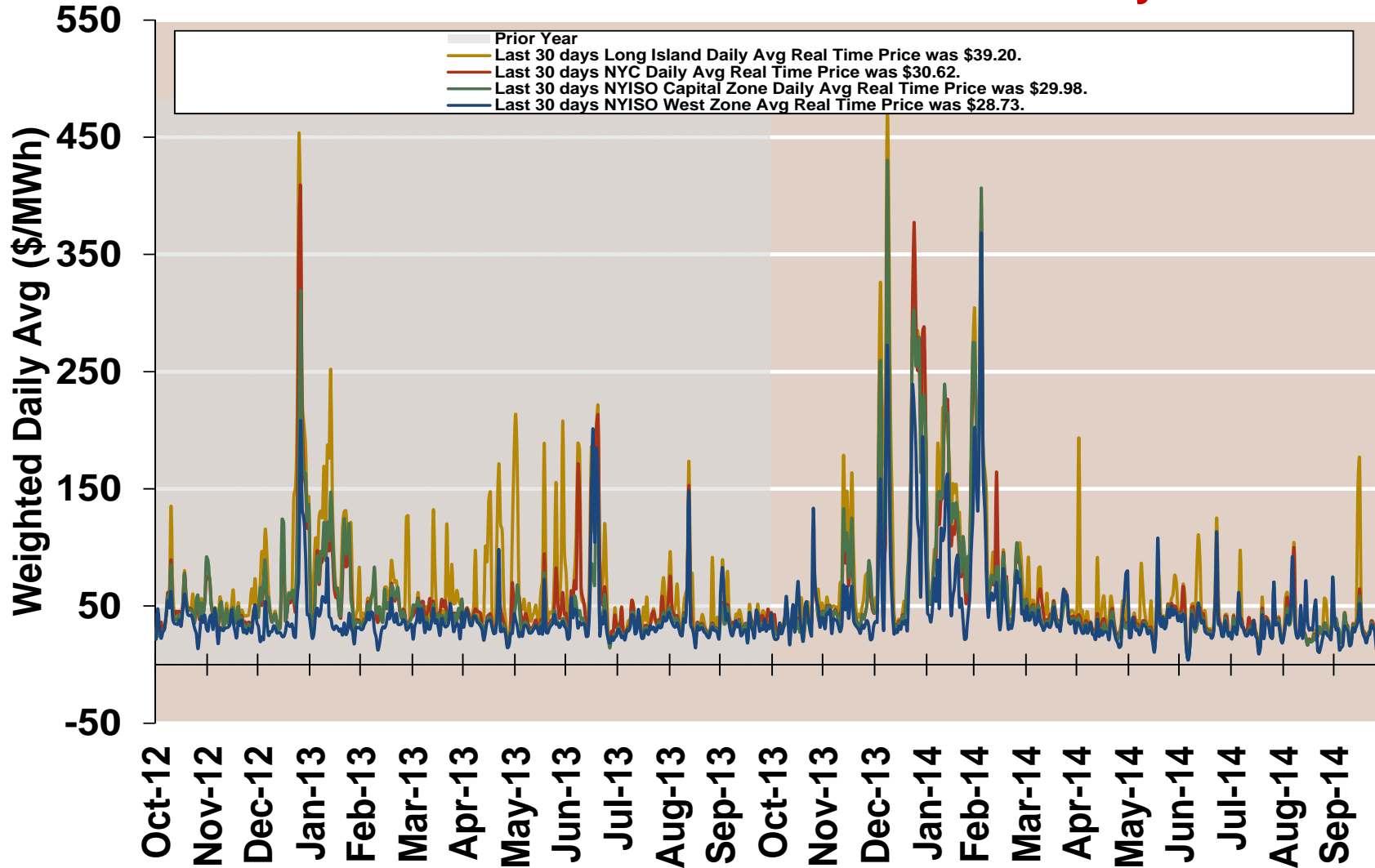
## PJM On-Peak Spark & Dark Spreads – One Year History



## PJM On-Peak Spark Spread minus Dark Spread



## NYISO Real Time Prices—Two Year History

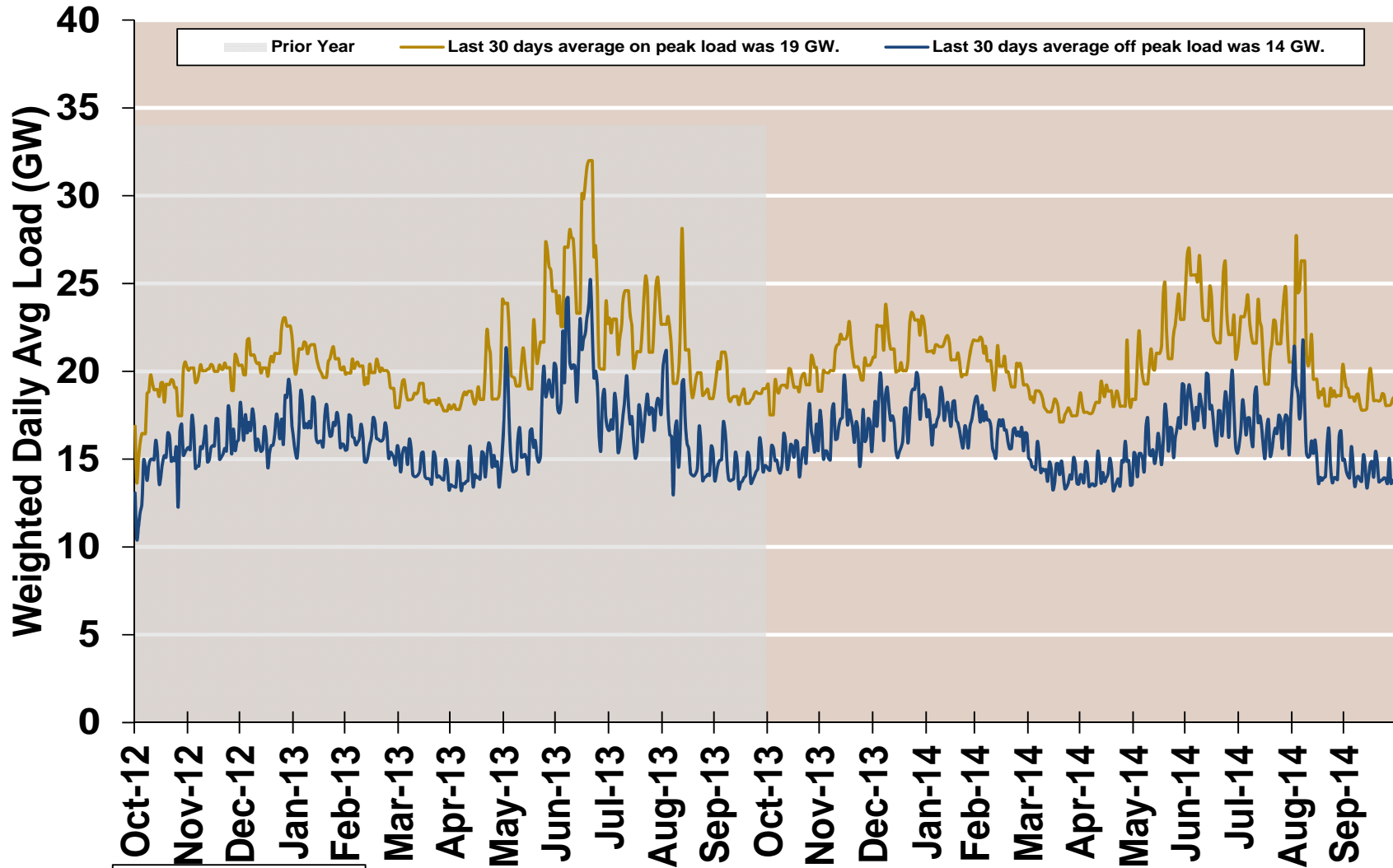


Source: Genscape via Bloomberg

Updated: 10/29/2014



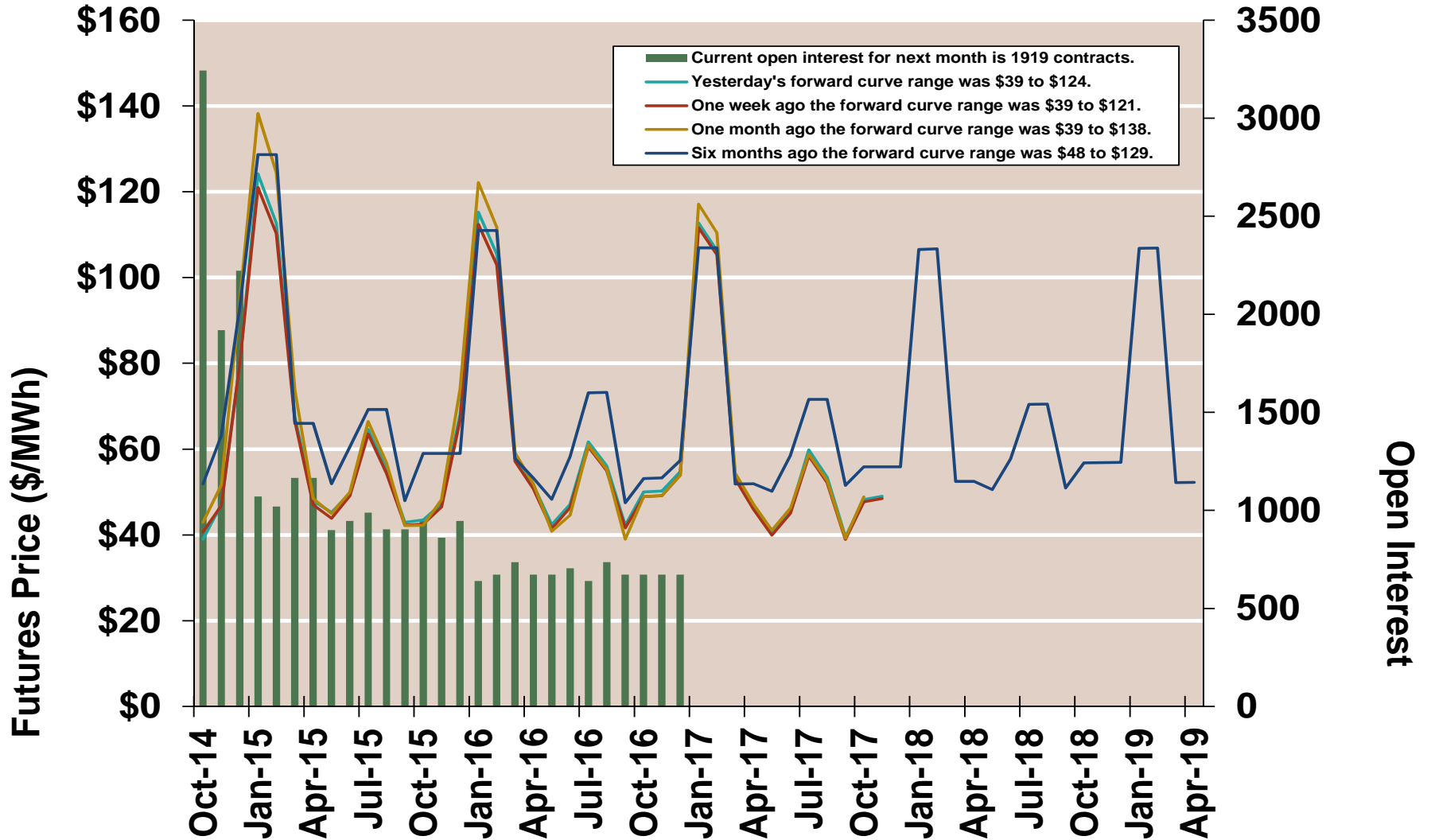
## NYISO System Daily Average Load — Two Year History



Source: Genscape via Bloomberg

Updated: 10/29/2014

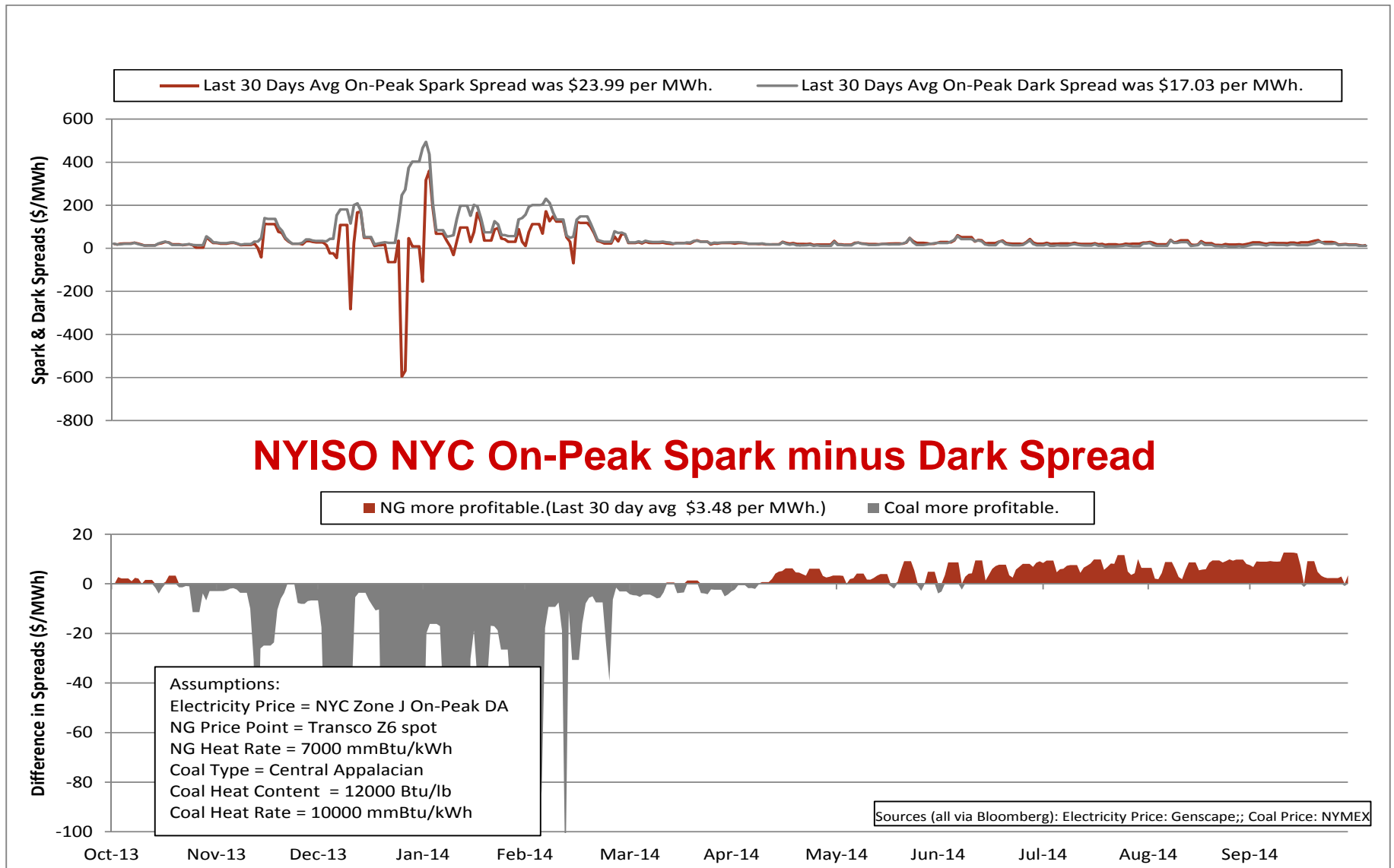
## NYISO Hudson Valley Zone Peak DA Futures



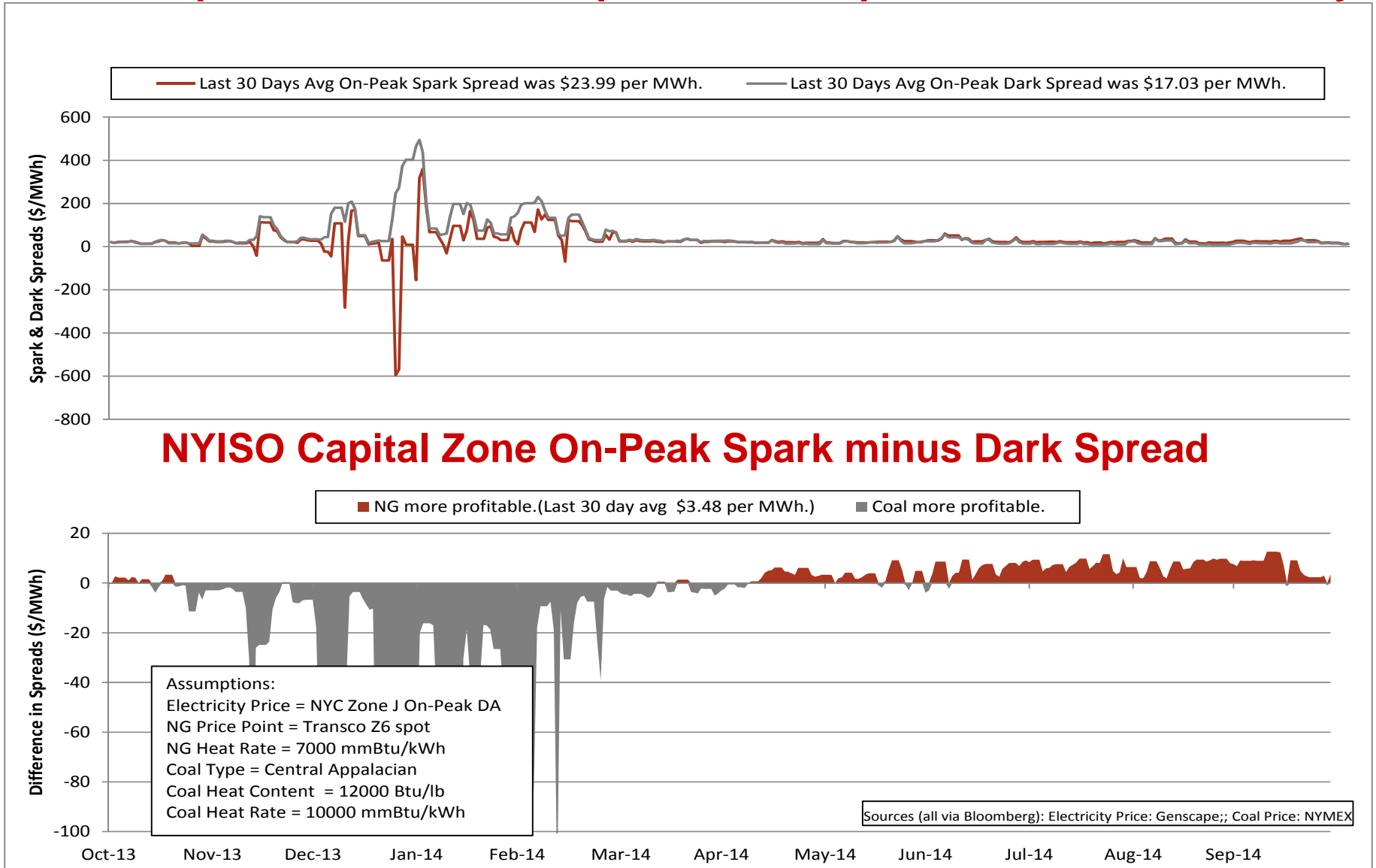
Source: NYMEX Clearport via Bloomberg

Updated: 10/29/2014

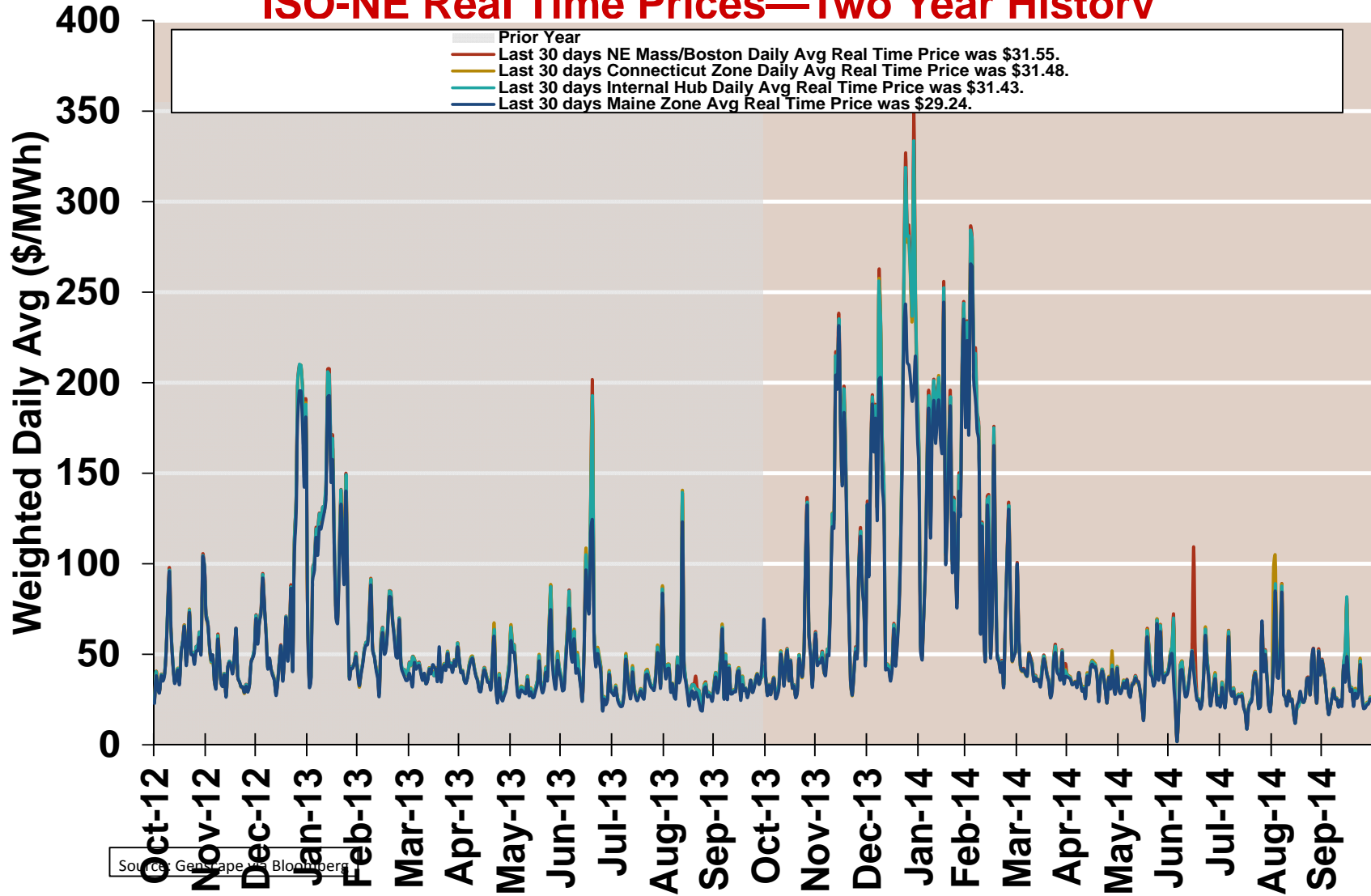
## NYISO NYC On-Peak Spark & Dark Spreads – One Year History



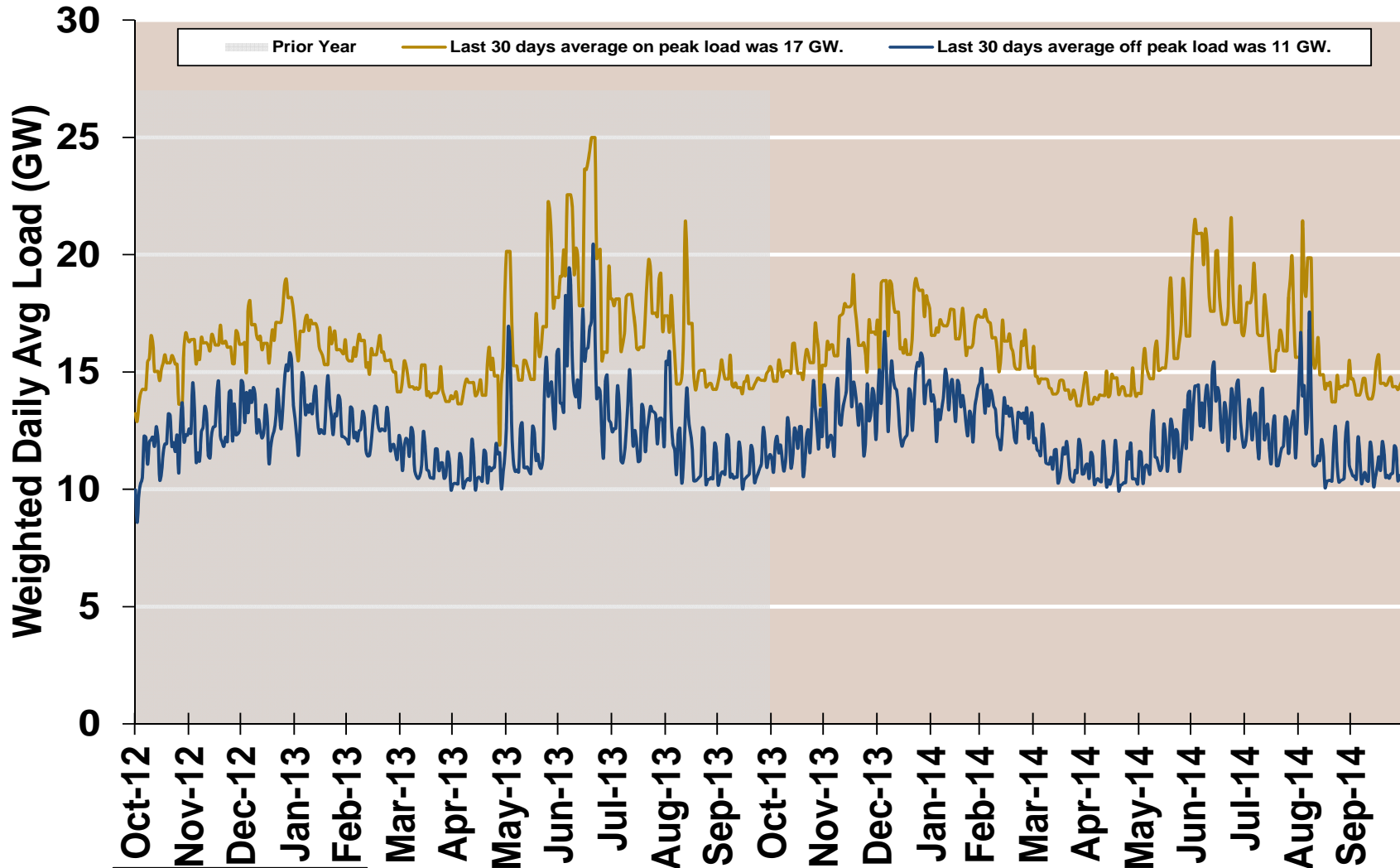
## NYISO Capital Zone On-Peak Spark & Dark Spreads – One Year History



## ISO-NE Real Time Prices—Two Year History



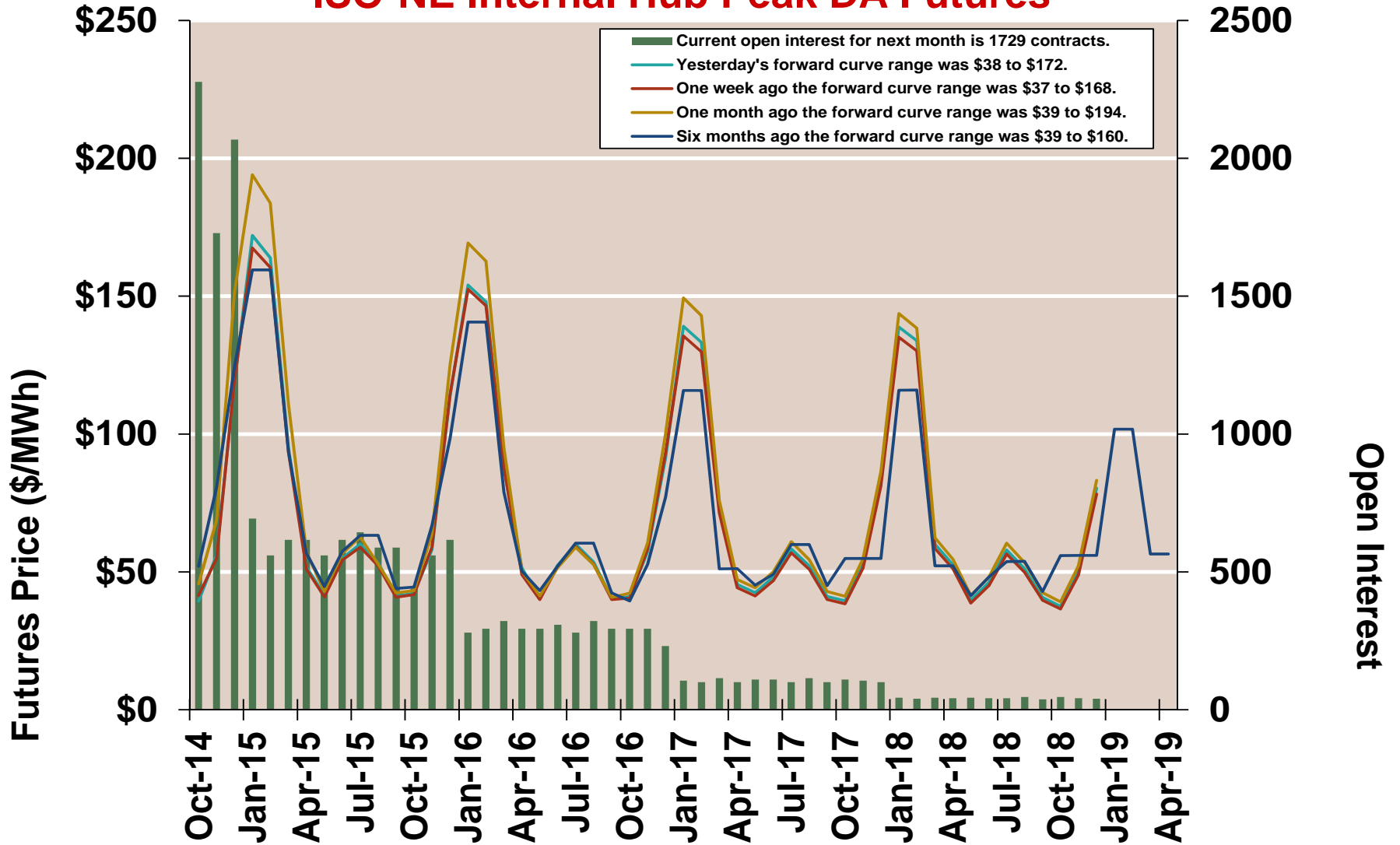
## ISO-NE System Daily Average Load —Two Year History



Source: Genscape via Bloomberg

Updated: 10/29/2014

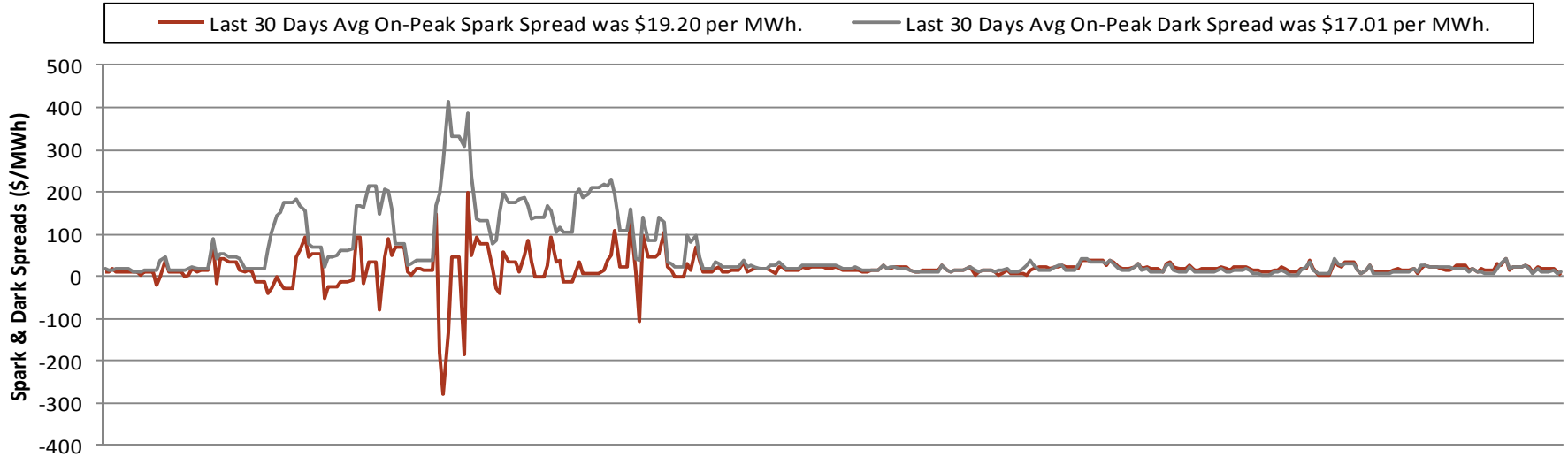
### ISO-NE Internal Hub Peak DA Futures



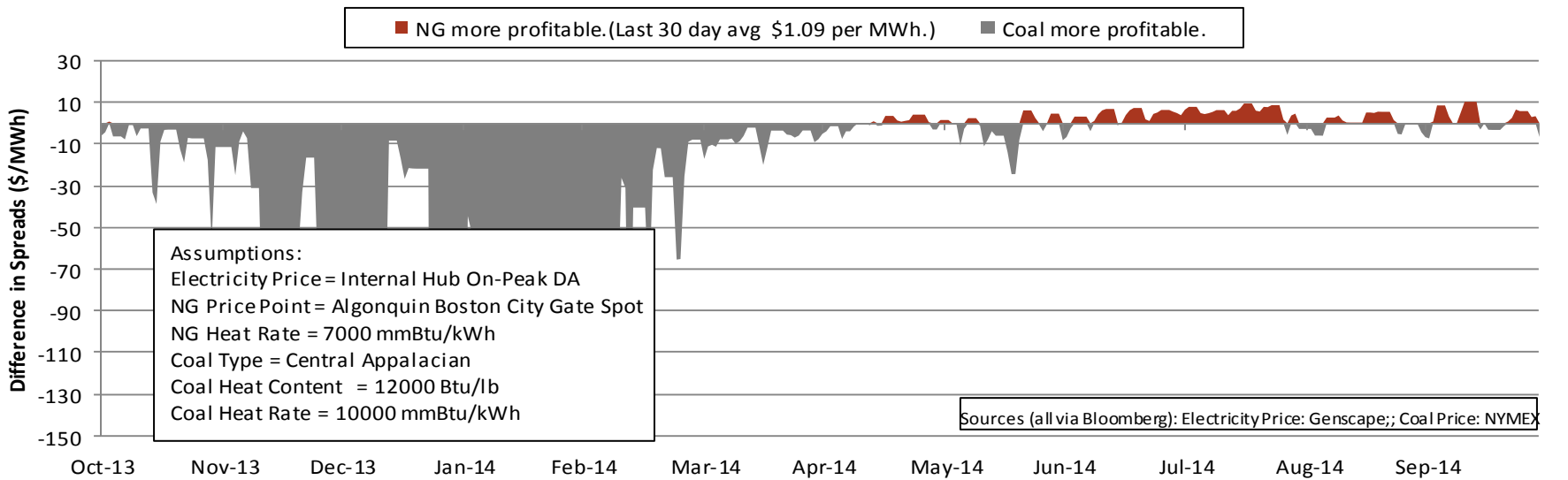
Source: NYMEX Clearport via Bloomberg

Updated: 10/29/2014

## ISO-NE On-Peak Spark & Dark Spreads – One Year History

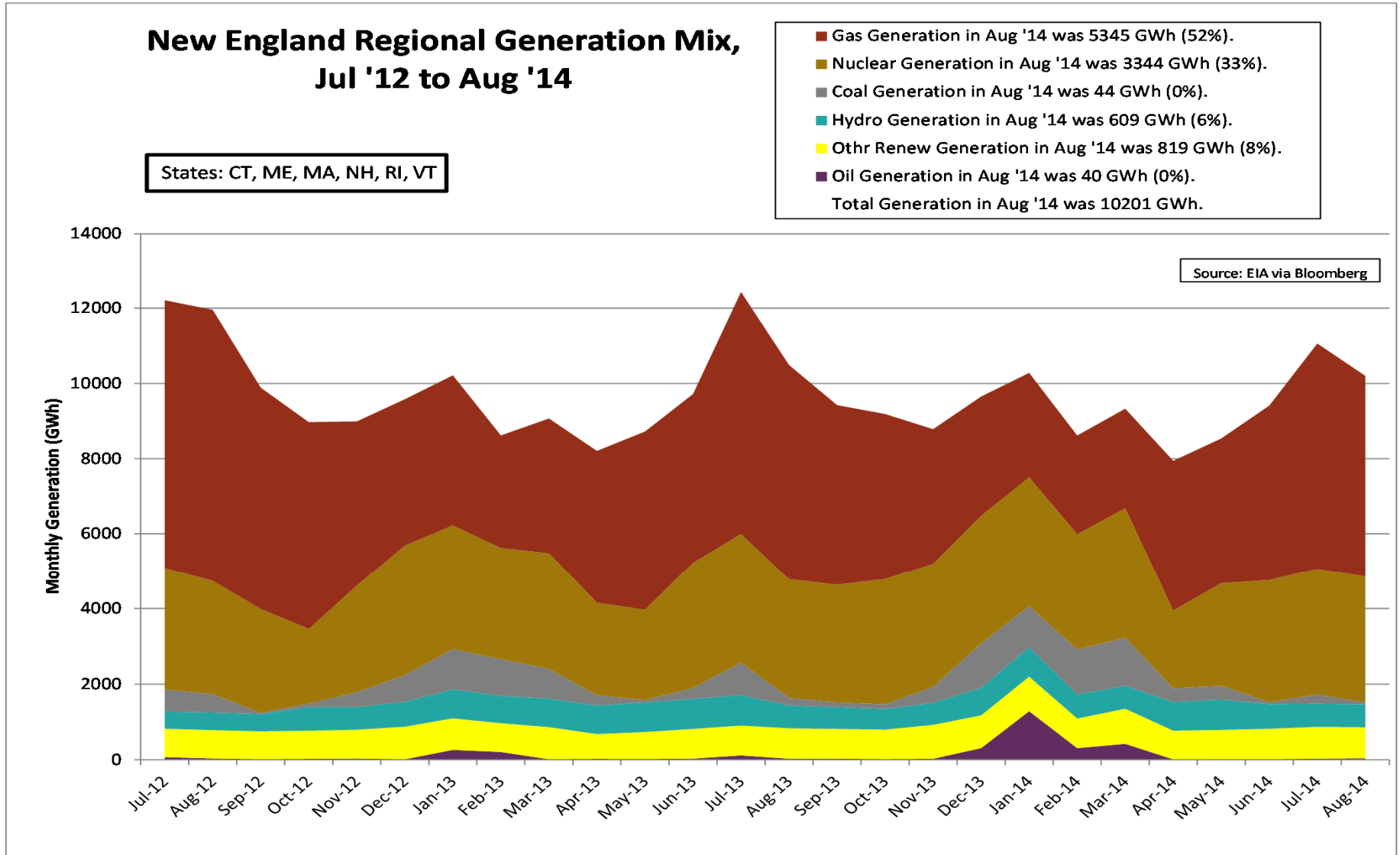


## ISO-NE On-Peak Spark minus Dark Spread

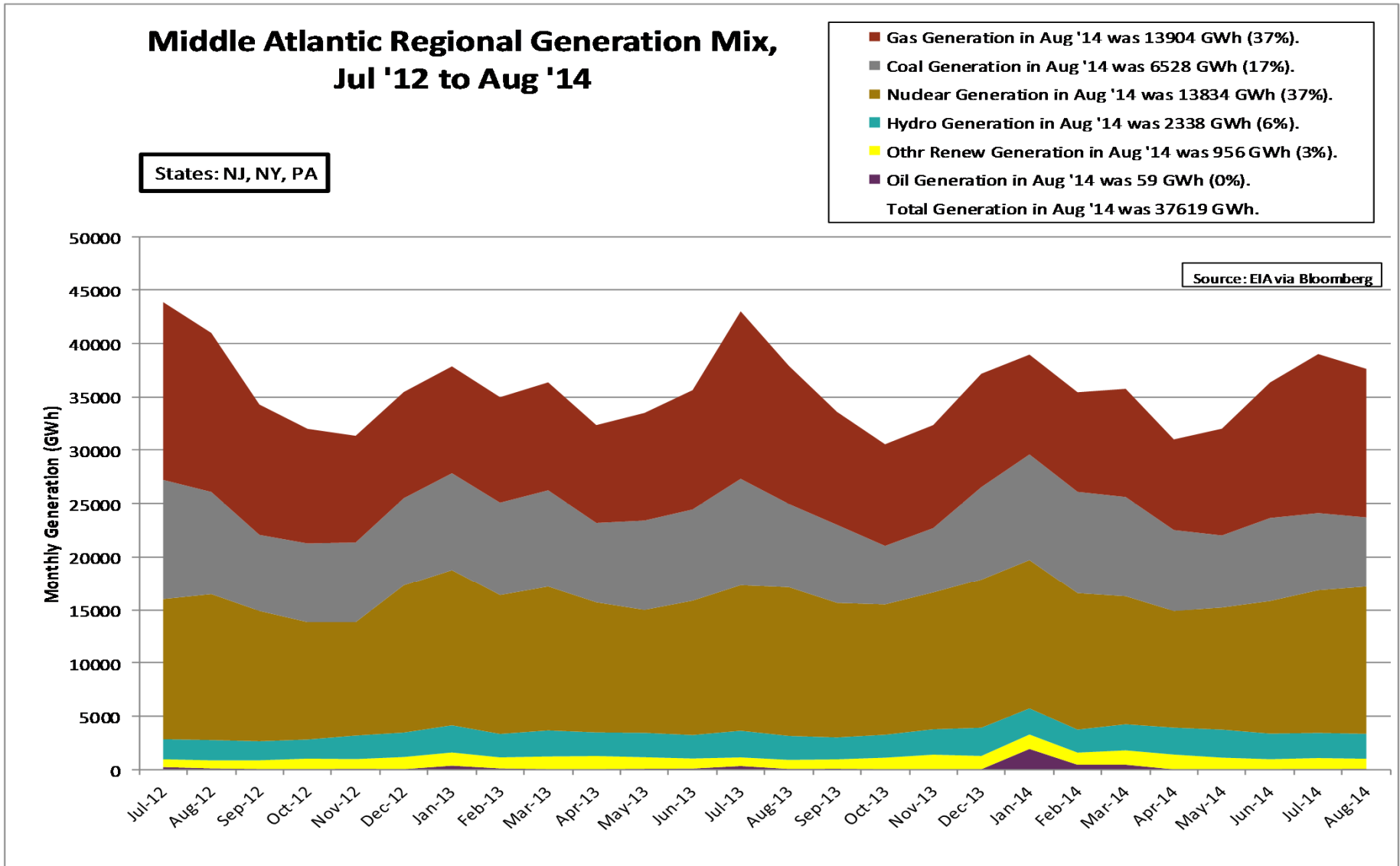




## New England Generation Mix

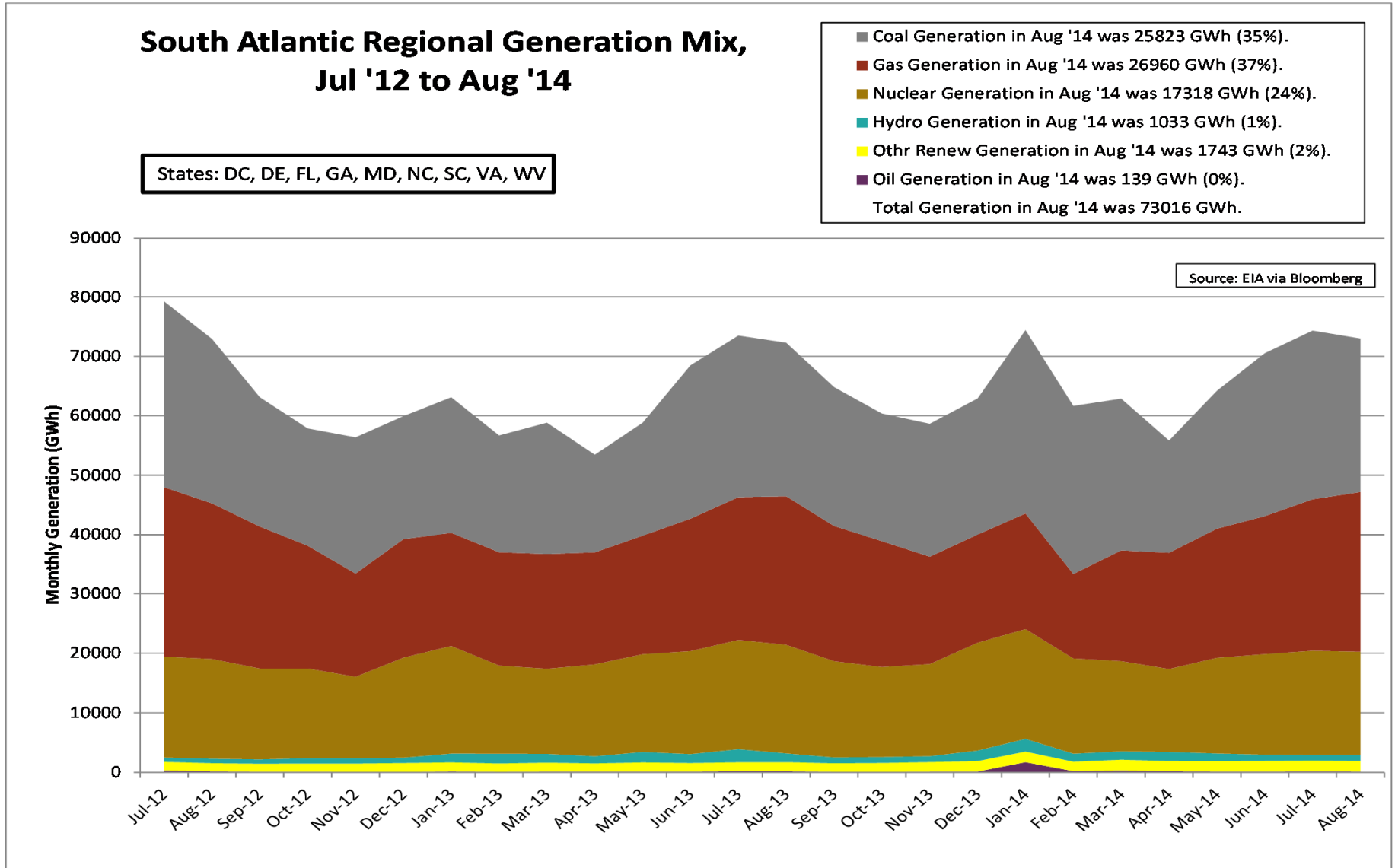


## Mid Atlantic Generation Mix



Updated: 10/29/2014

## South Atlantic Generation Mix



Updated: 10/29/2014