

OE ENERGY MARKET SNAPSHOT

West Version – September 2014 Data

Office of Enforcement
Federal Energy Regulatory Commission
November 2014

2014/2015 Winter Assessment

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

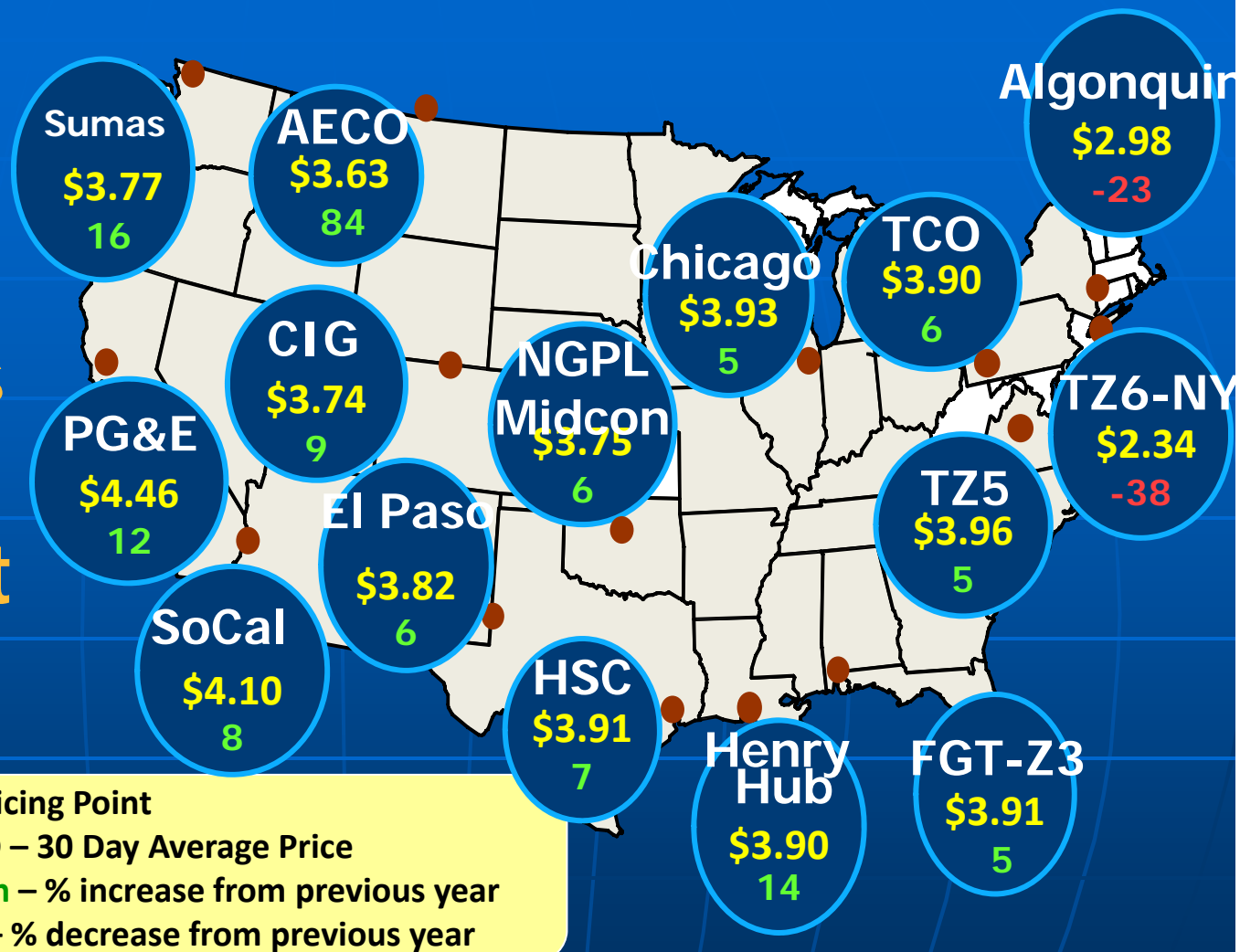
Developments

- 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.

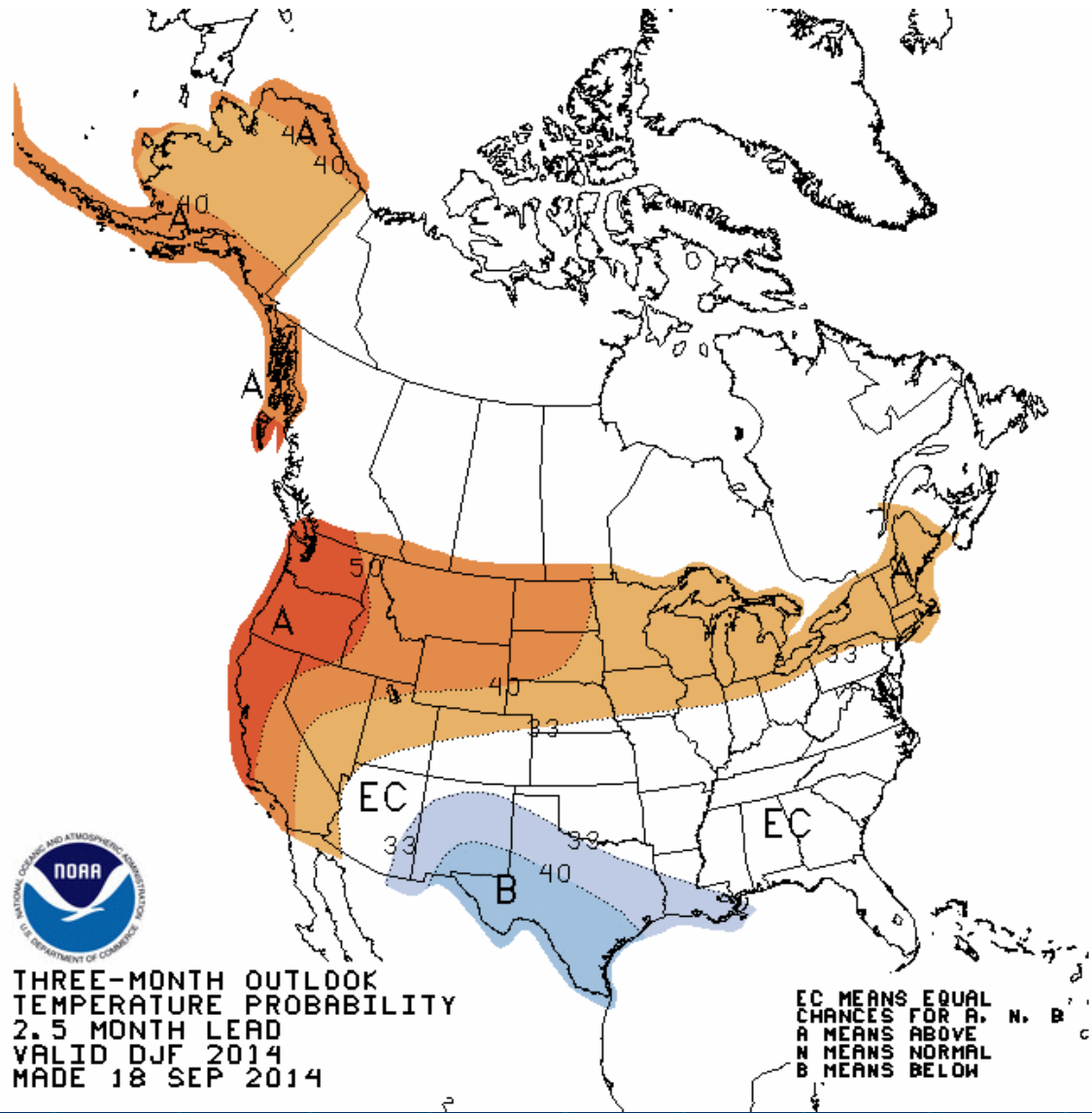
Uncertain Winter Forecast

Source: NOAA National Weather Service

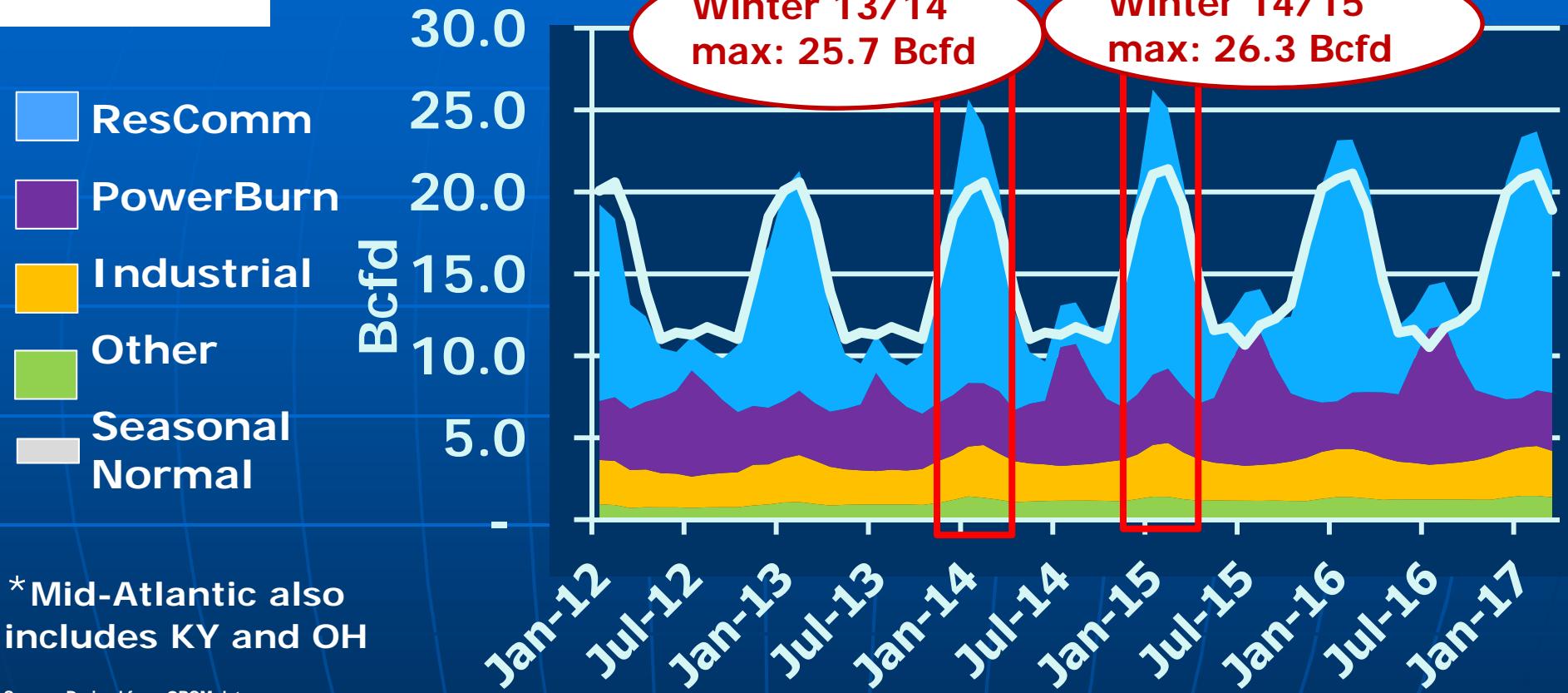


THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
2.5 MONTH LEAD
VALID DJF 2014
MADE 18 SEP 2014

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



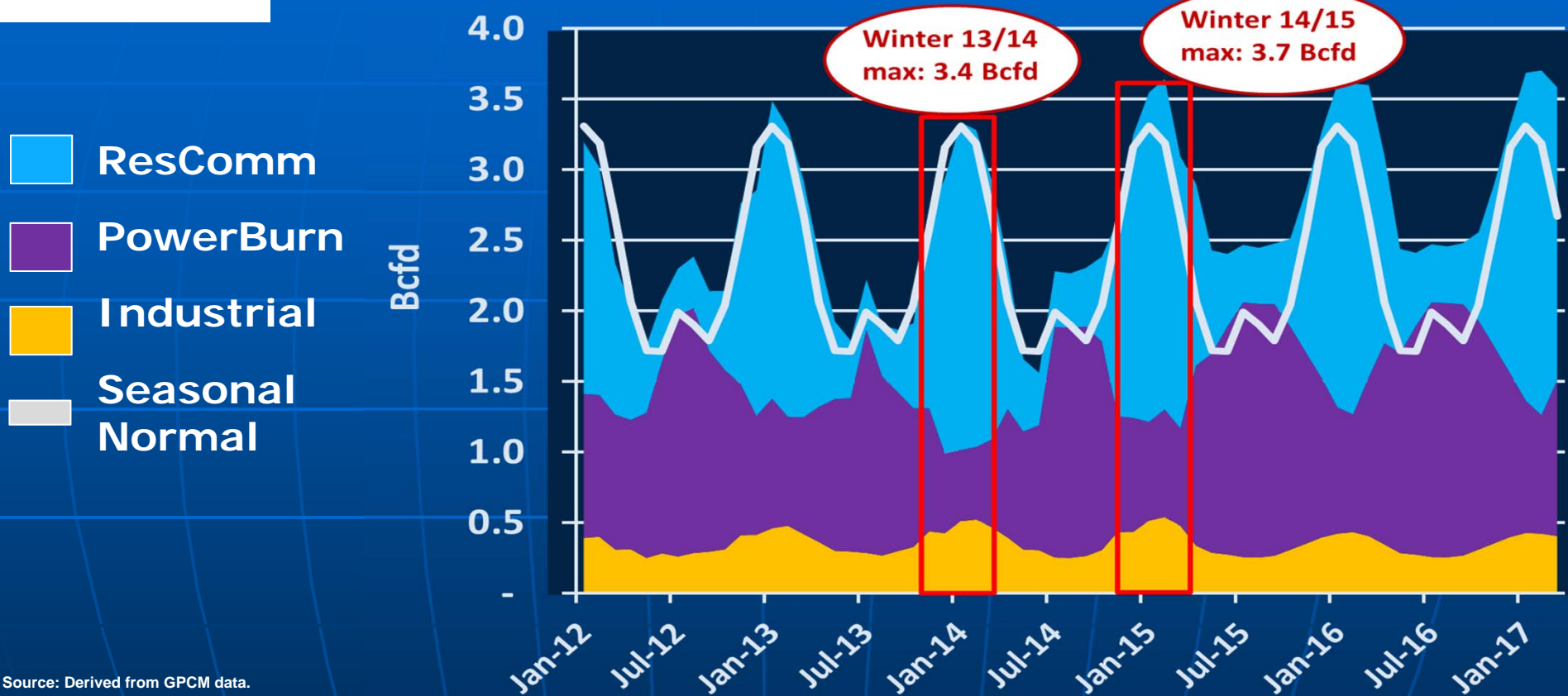
Mid-Atlantic* Gas Demand at Historical High Levels



* Mid-Atlantic also includes KY and OH

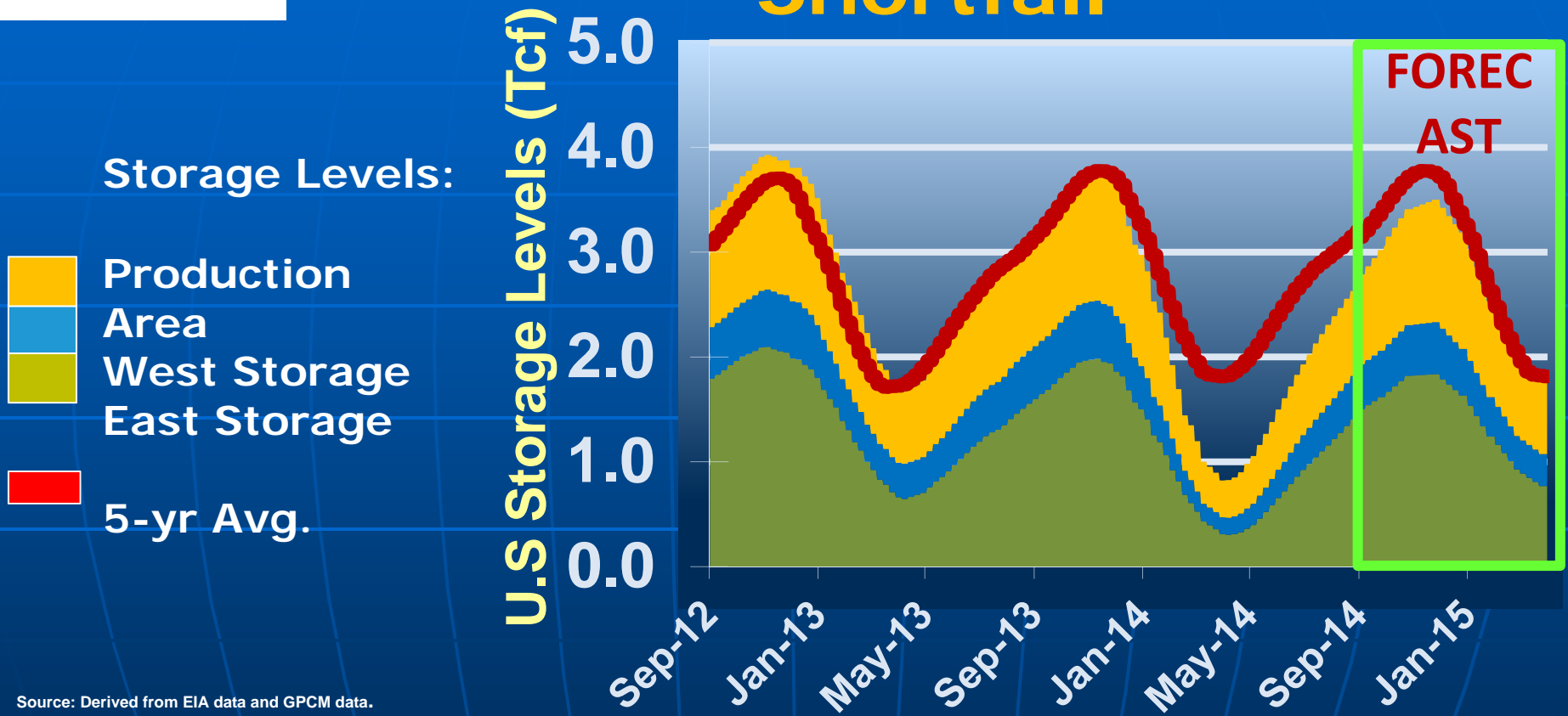
Source: Derived from GPCM data.

Fuel Diversity Helps New England Gas Demand



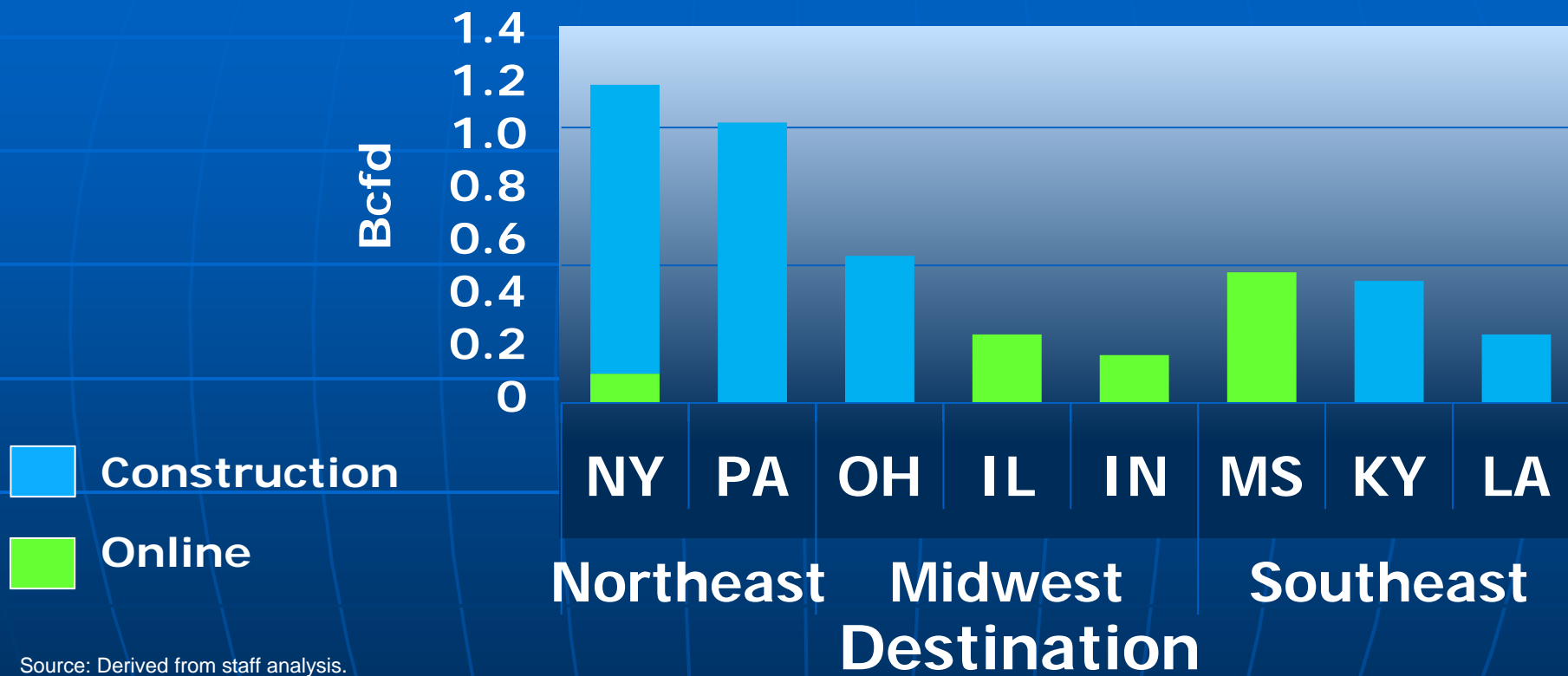
Source: Derived from GPCM data.

Record Storage Injections Help Close the Storage Shortfall



Source: Derived from EIA data and GPCM data.

2014 Pipeline Expansions Target Northeast Production



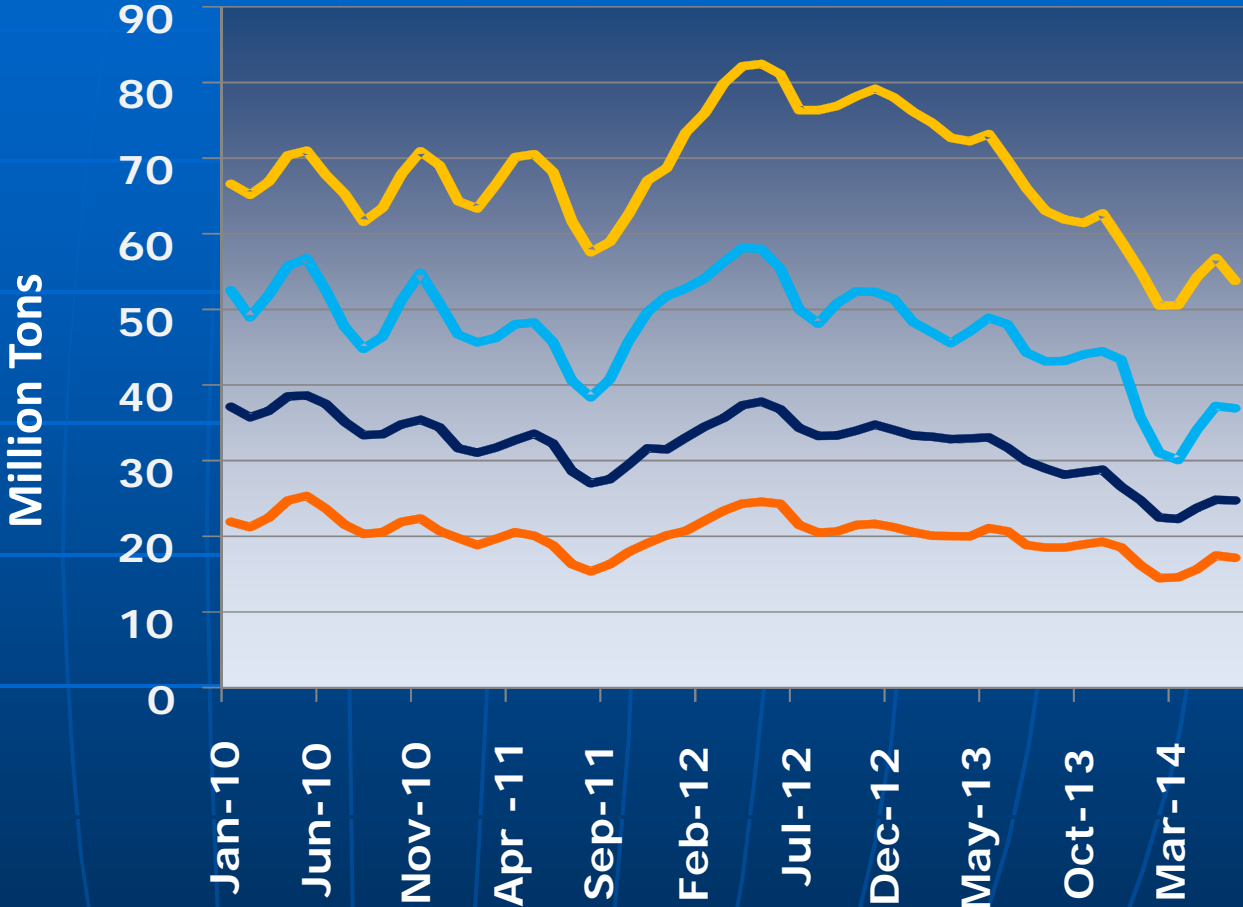
Source: Derived from staff analysis.

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 [^]	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
	Henry Hub	\$4.08	\$3.87
P o w e r	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.

[^]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)

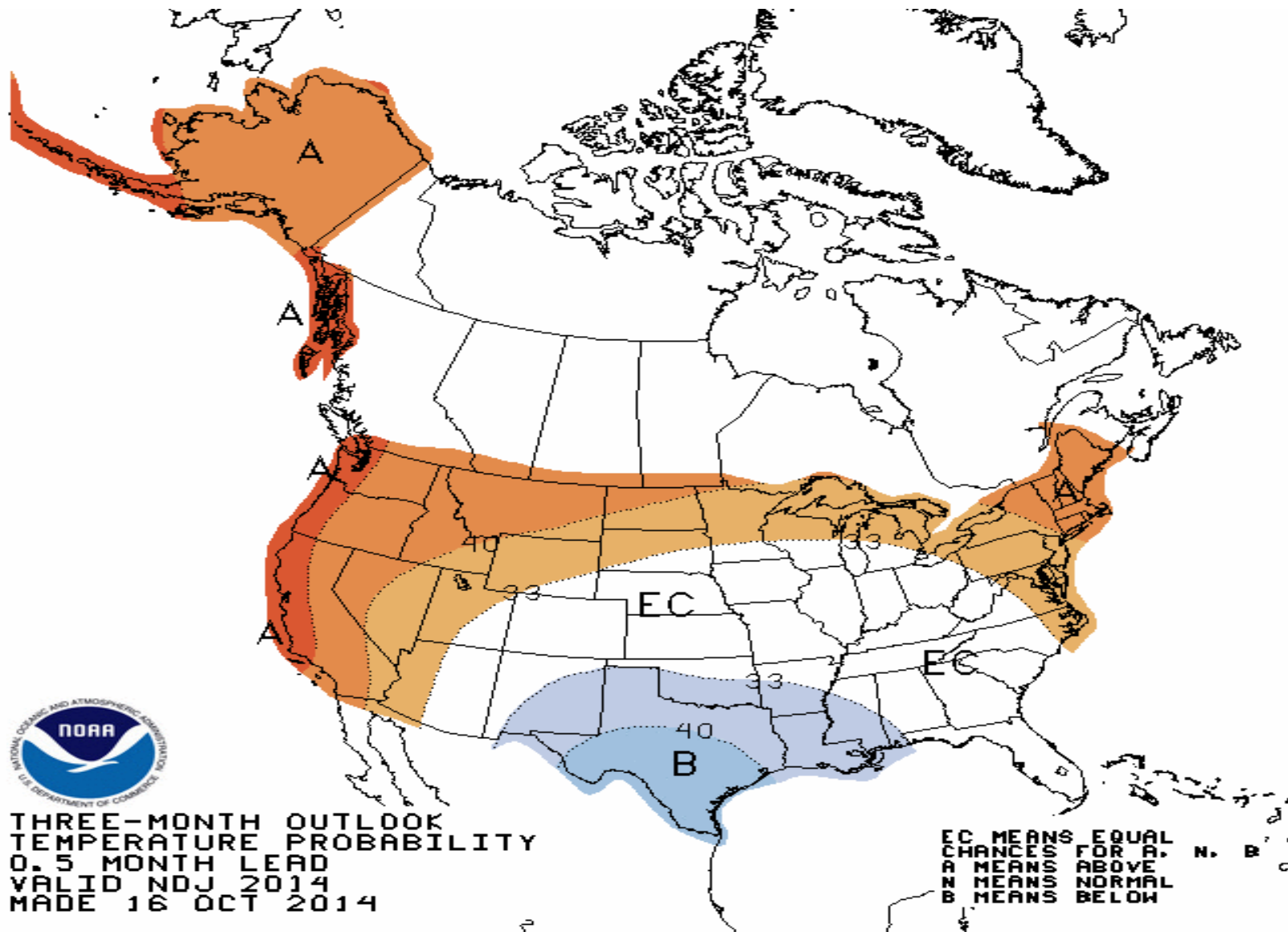
<http://www.ferc.gov/legal/staff-reports.asp>

(see “Energy Infrastructure” tab)

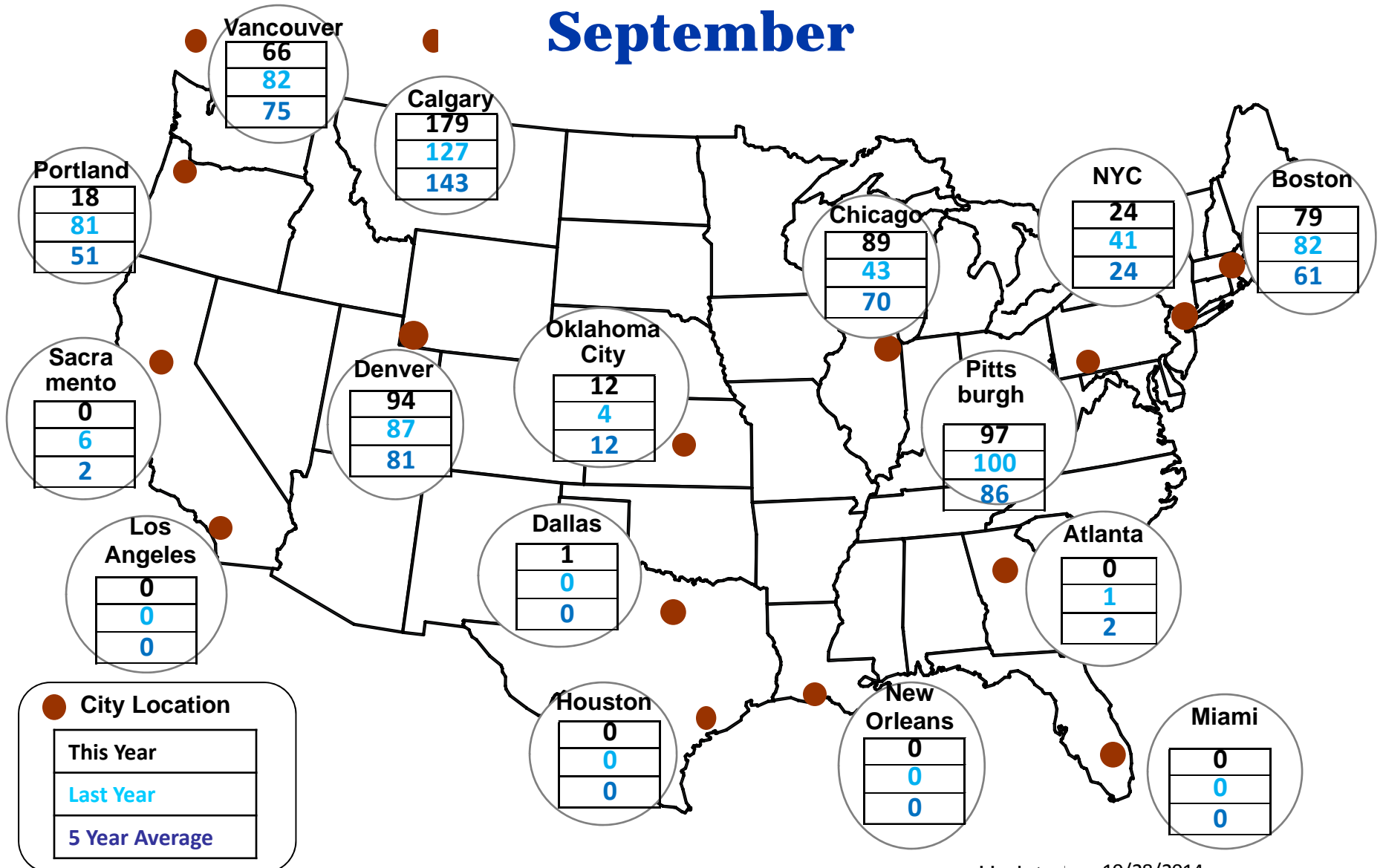


National Slides

NOAA Nov 2014 Through Jan 2015 Outlook



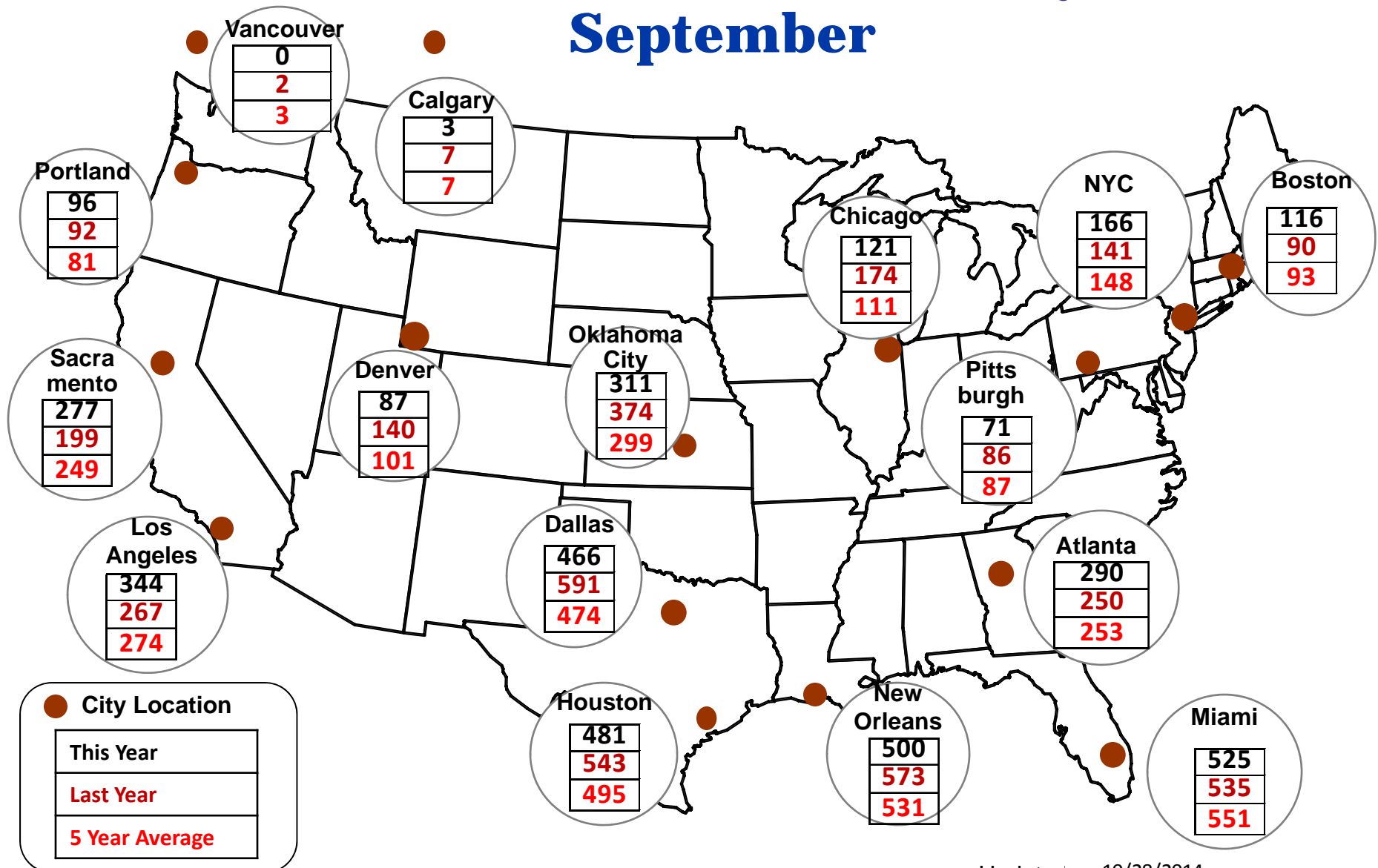
Cumulative HDDs by City September



Source: Bloomberg Weather

Updated 10/28/2014

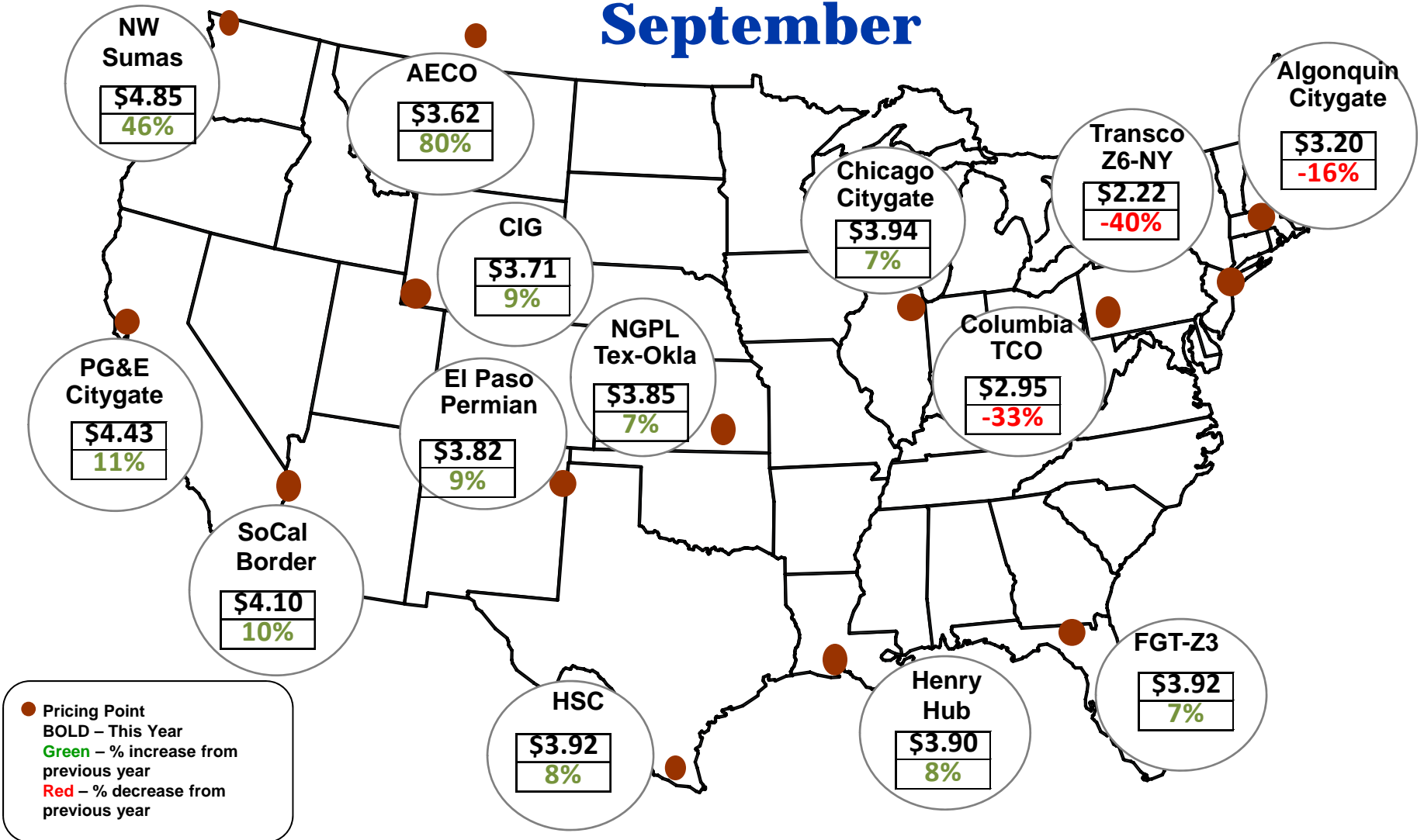
Cumulative CDDs by City September



Source: Bloomberg Weather

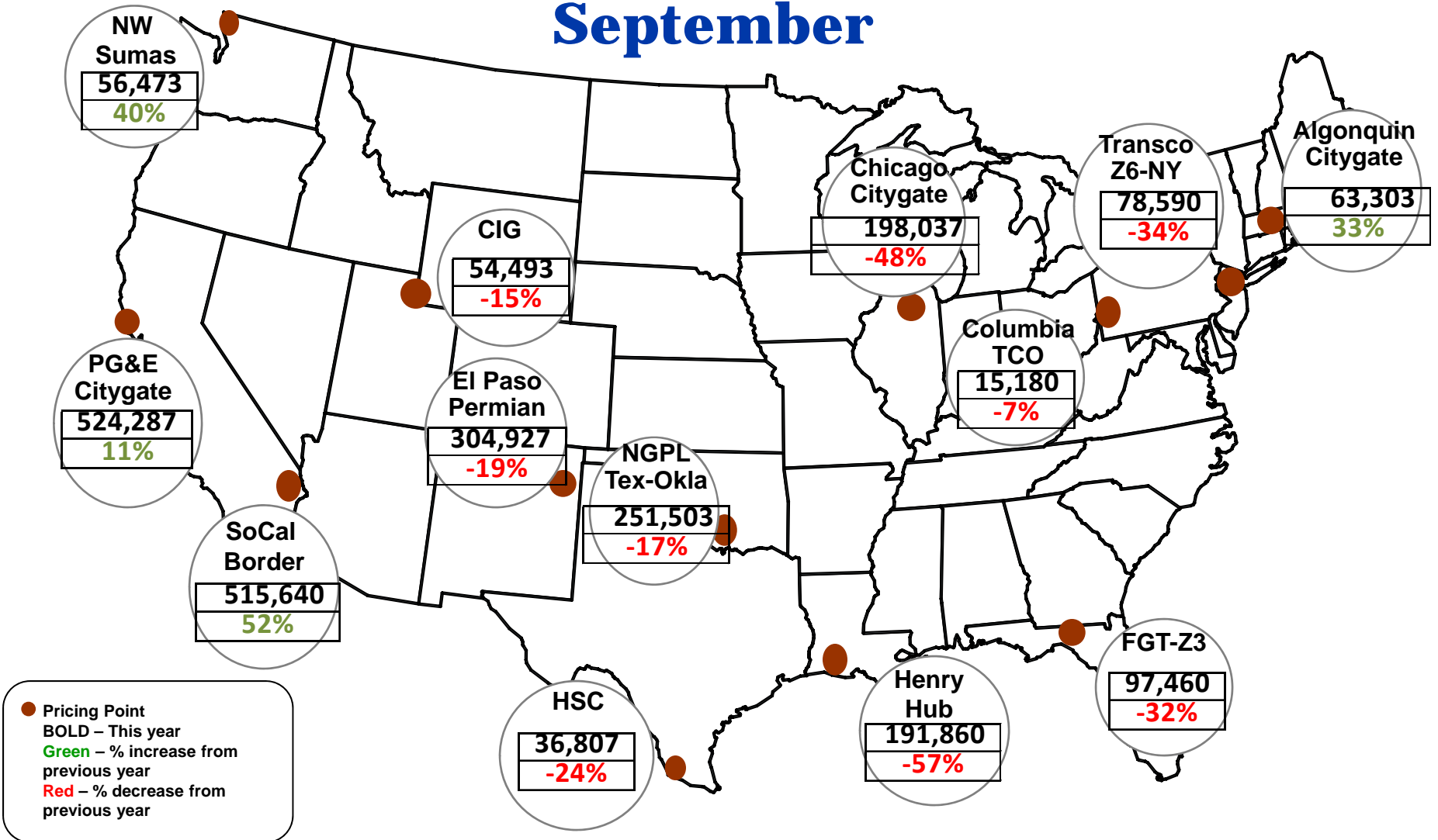
Updated 10/28/2014

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



Source: ICE

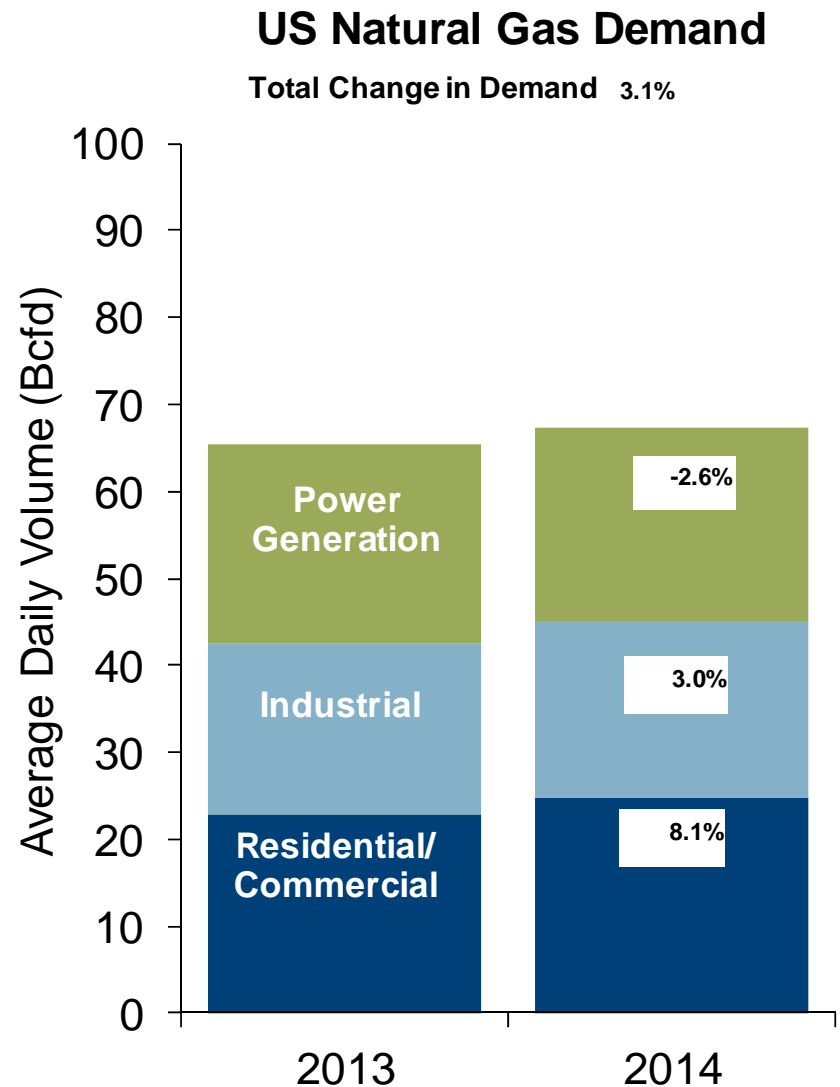
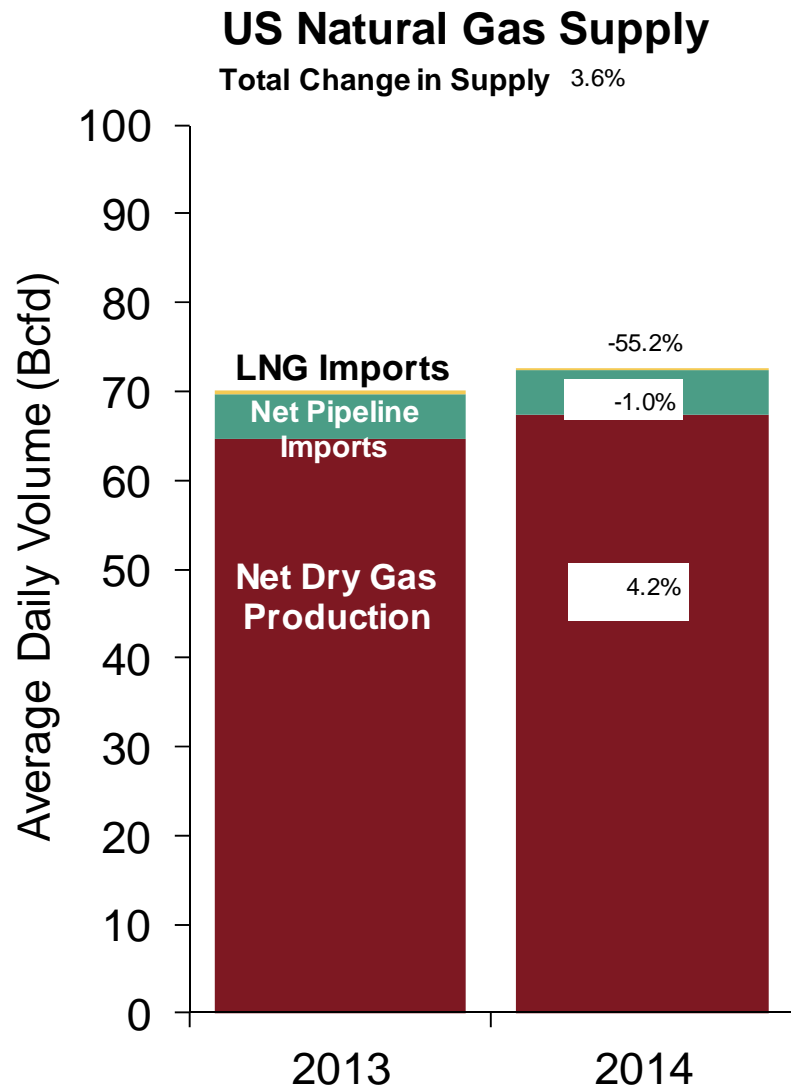
Spot Natural Gas Trading Volumes Average (MMBtus) September



Source: ICE

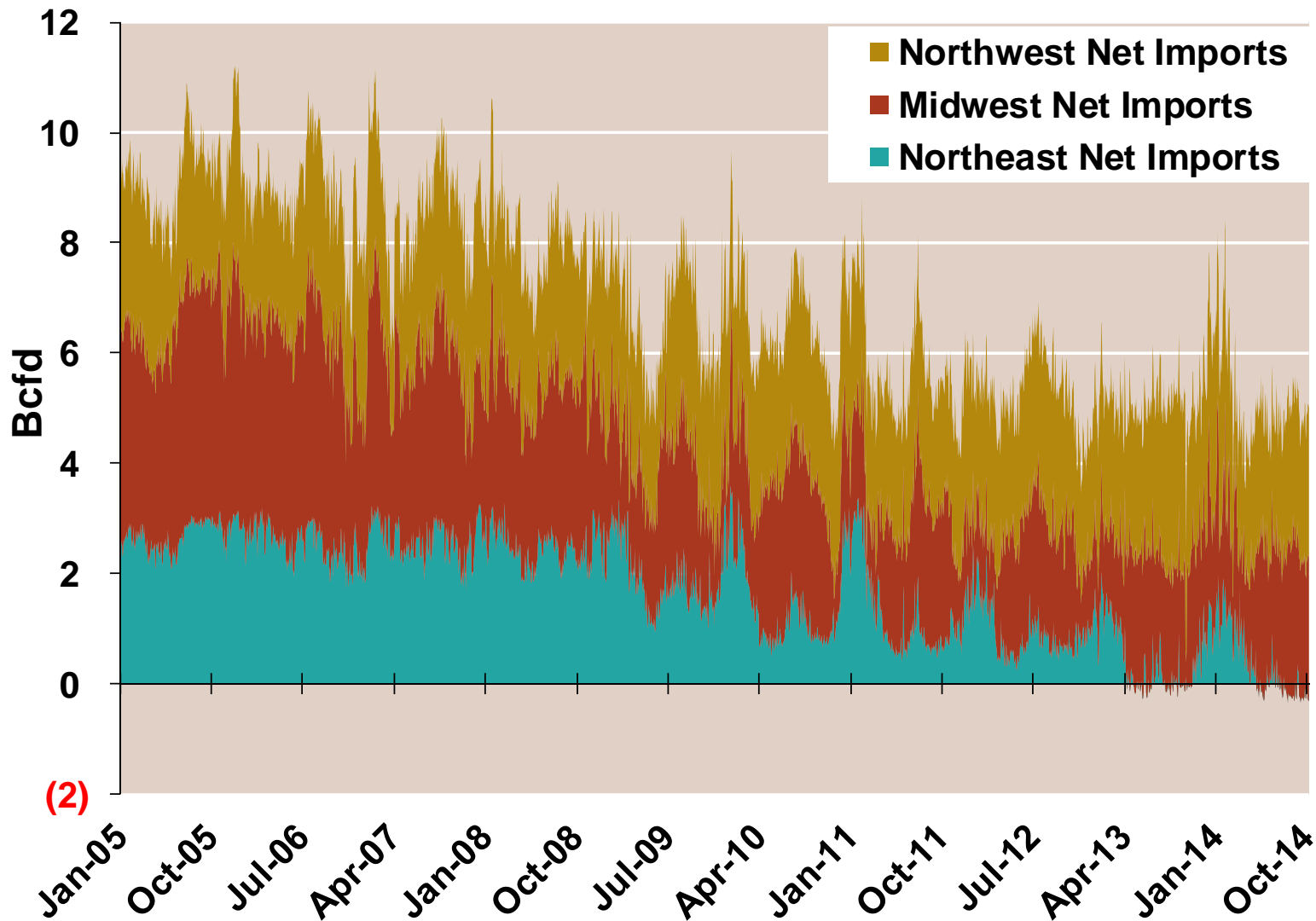
Updated 10/28/2014

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

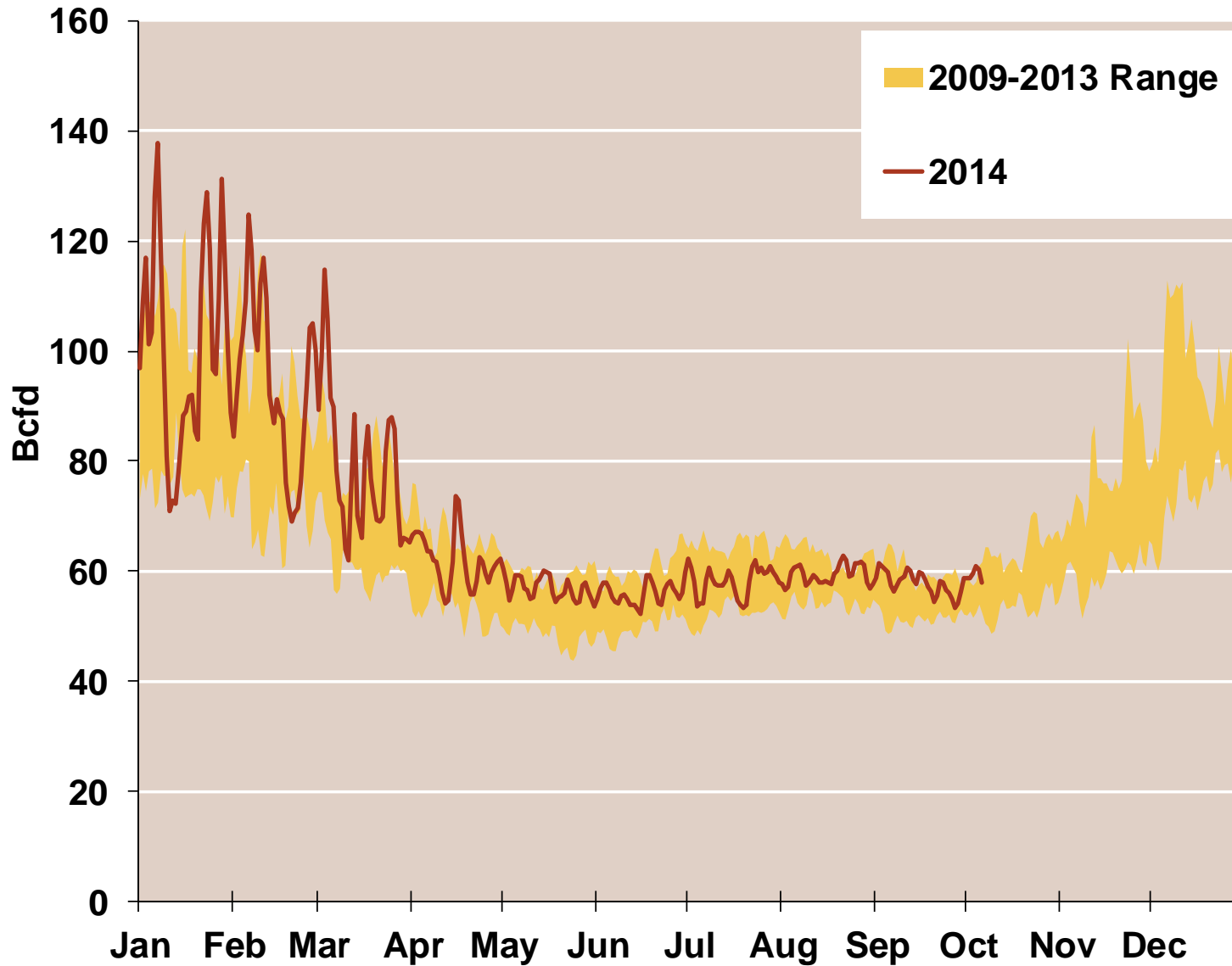


Note: Balance includes all amounts not attributable to other categories.
 Source: Derived from *Bentek Energy* data

Regional Imports from Canada



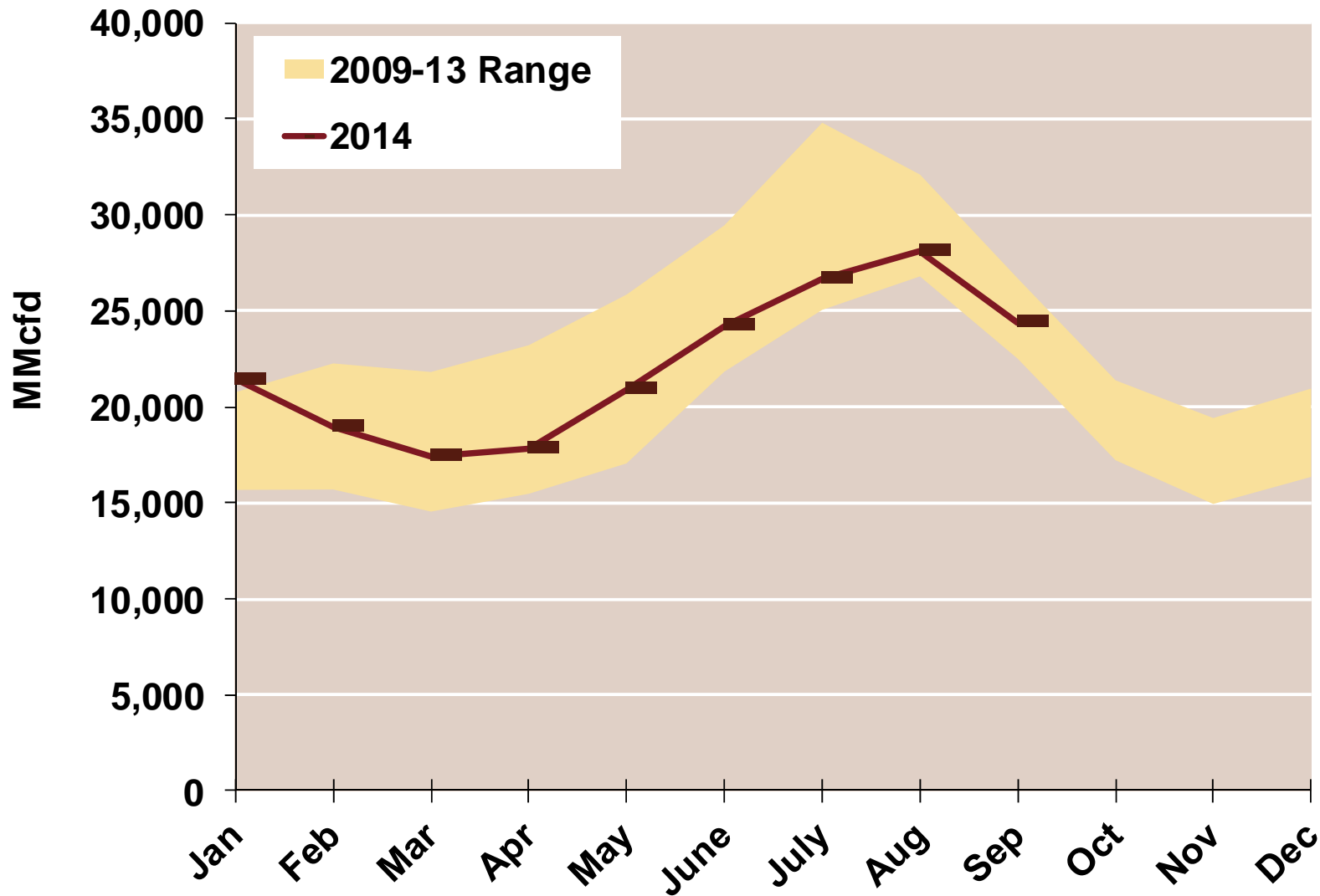
Total U.S. Natural Gas Demand All Sectors



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

Updated: October 2014

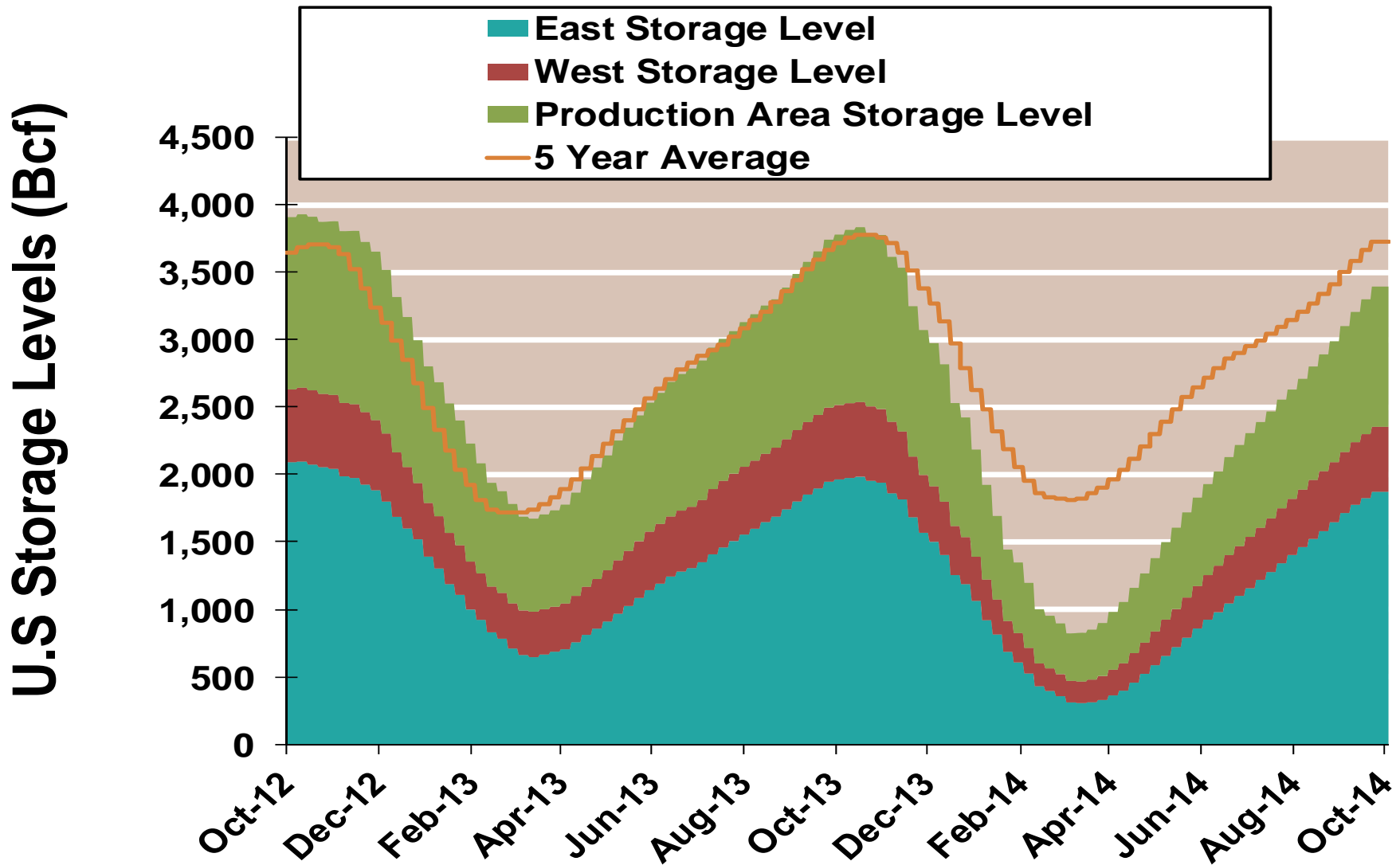
U.S. Natural Gas Consumption for Power Generation



Source: Derived from *Bentek Energy* data

Updated: October 2014

EIA National Storage Inventories by Region

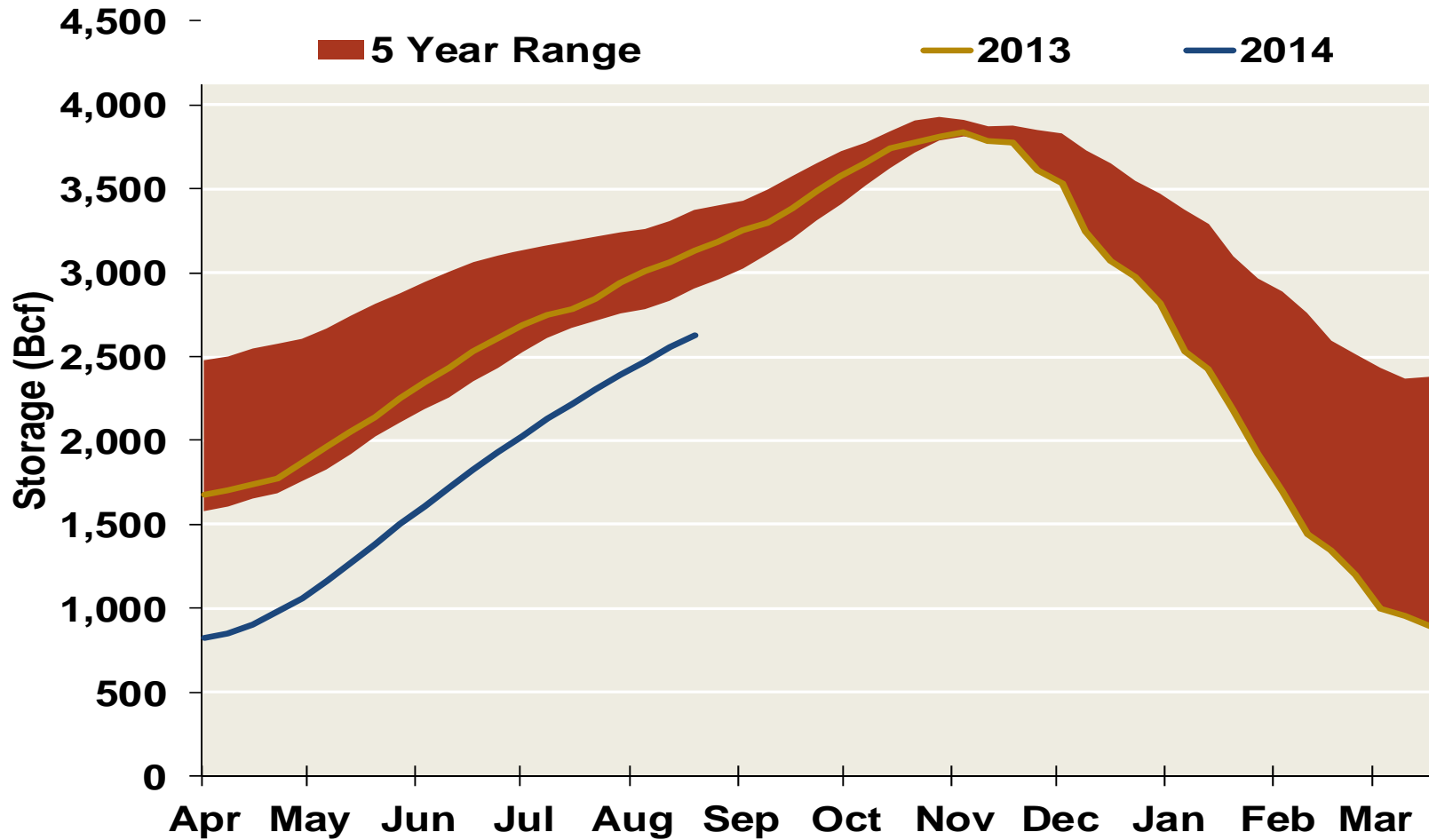


Notes:

Source: Derived from Bloomberg Data

Updated 10/28/2014

EIA National Storage Inventories

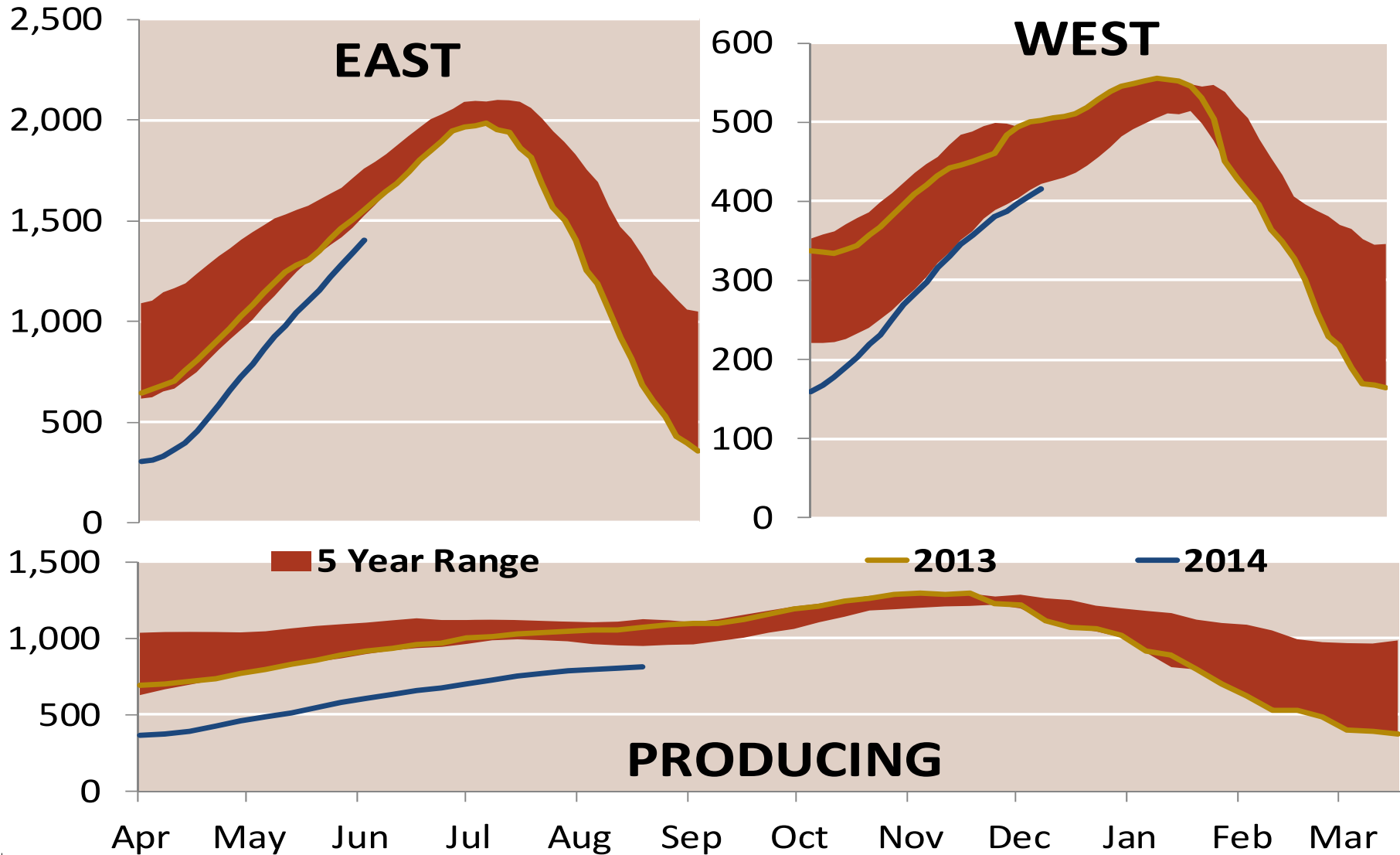


Notes:

Source: Derived from Bloomberg Data

Updated 10/28/2014

EIA Regional Storage Inventories

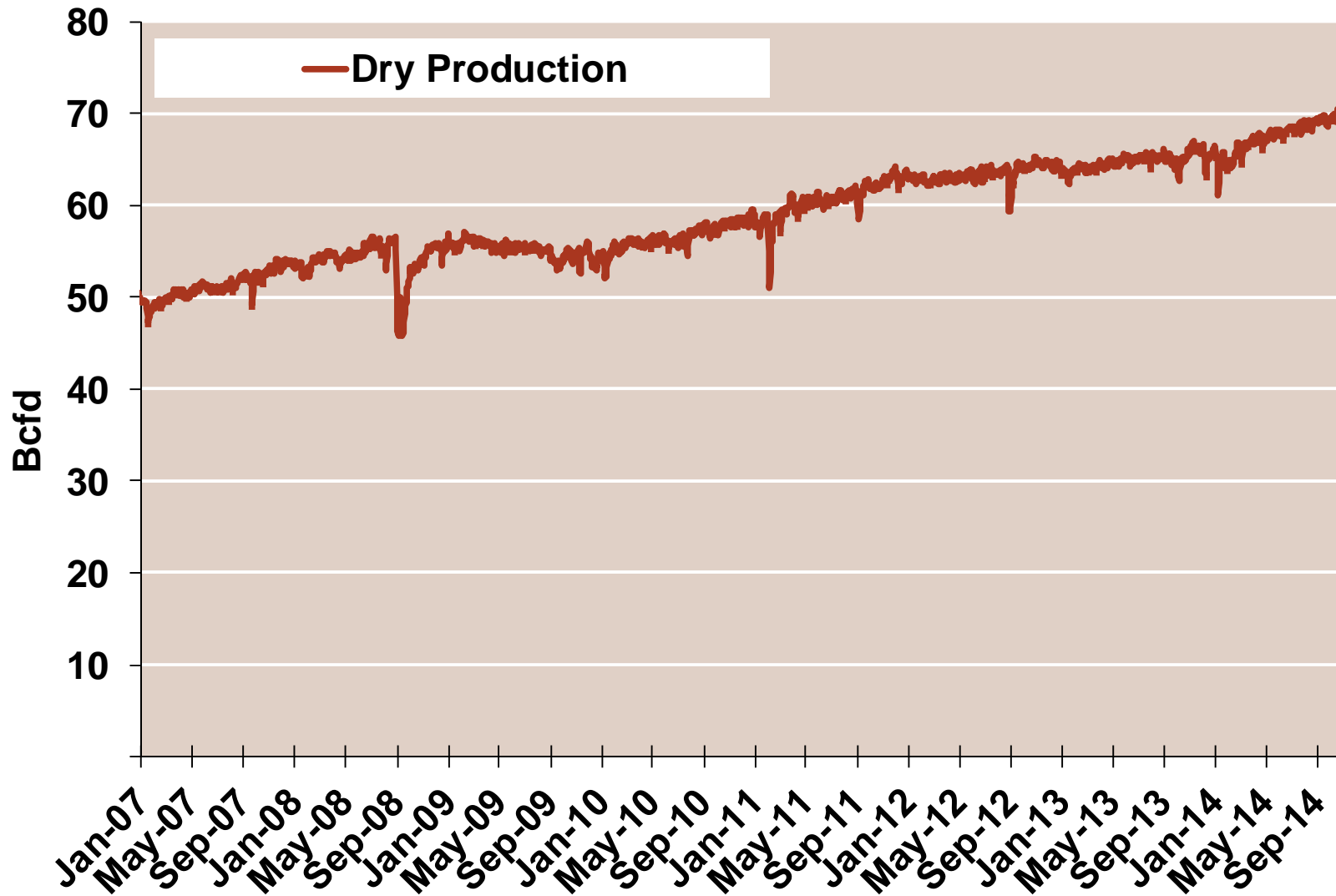


NoI

Source: Derived from Bloomberg Data

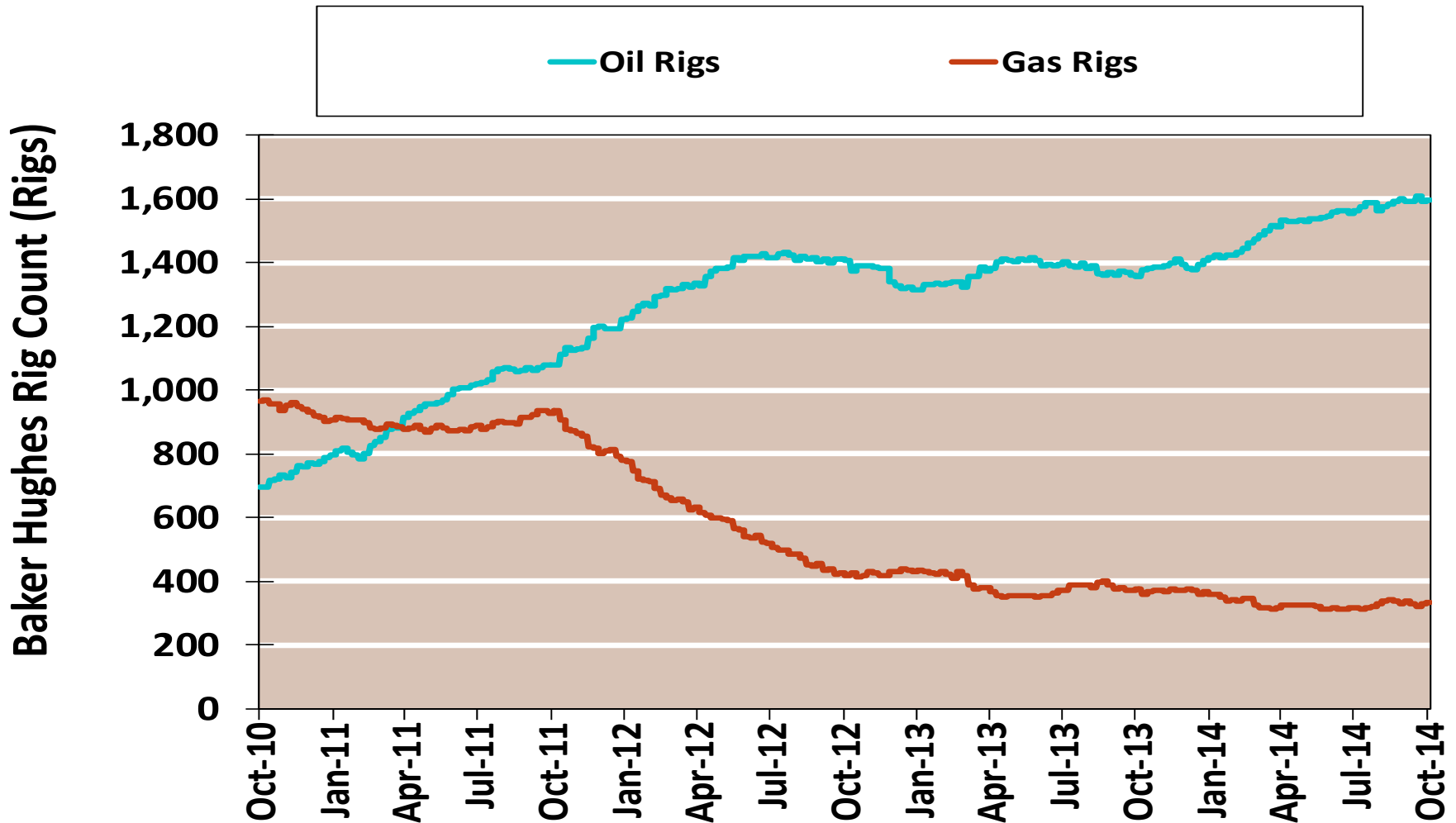
Update 10/28/2014

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

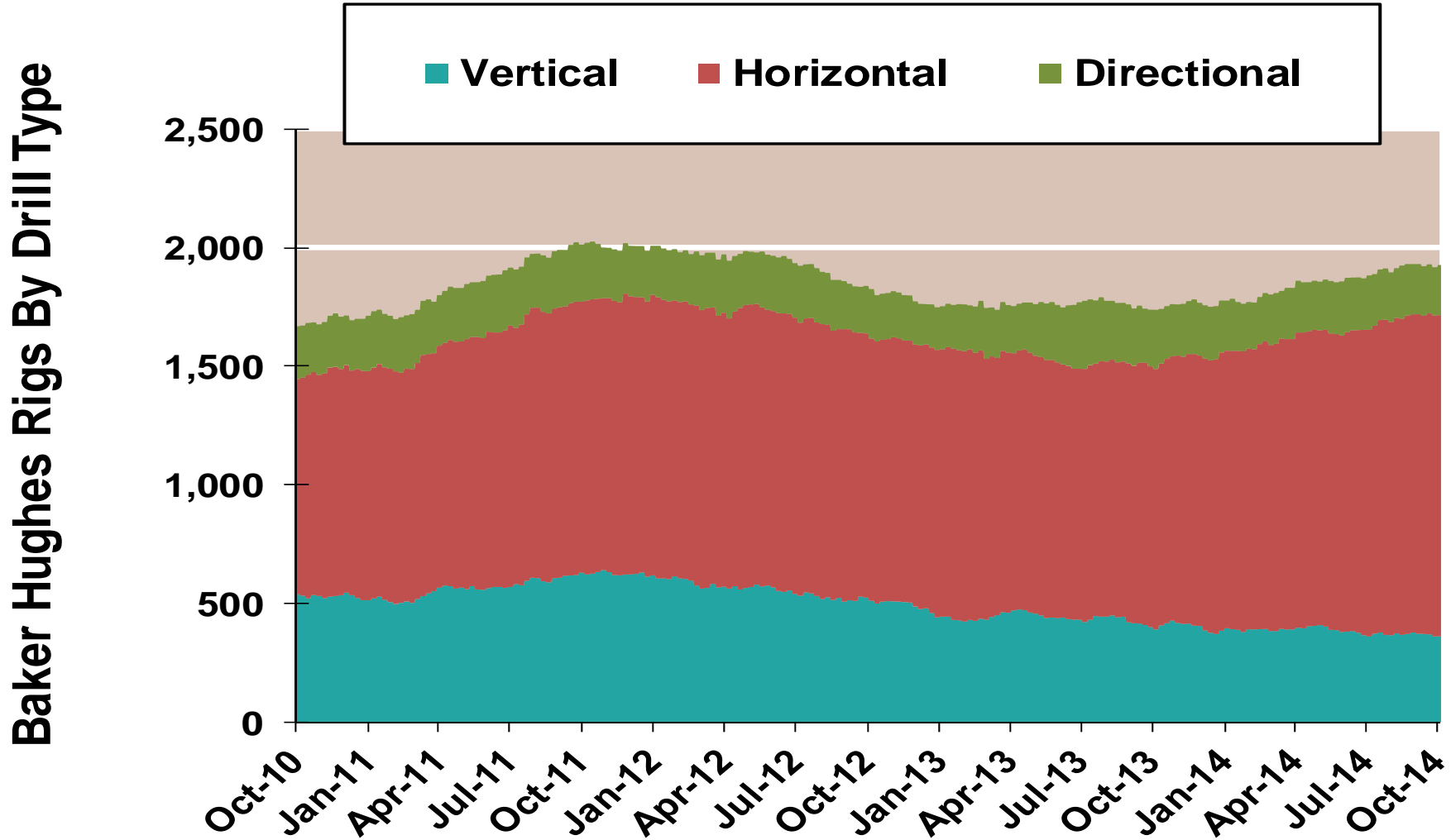


Notes:

Source: Derived from Bloomberg data

Updated 10/28/2014

Total US Rig Count

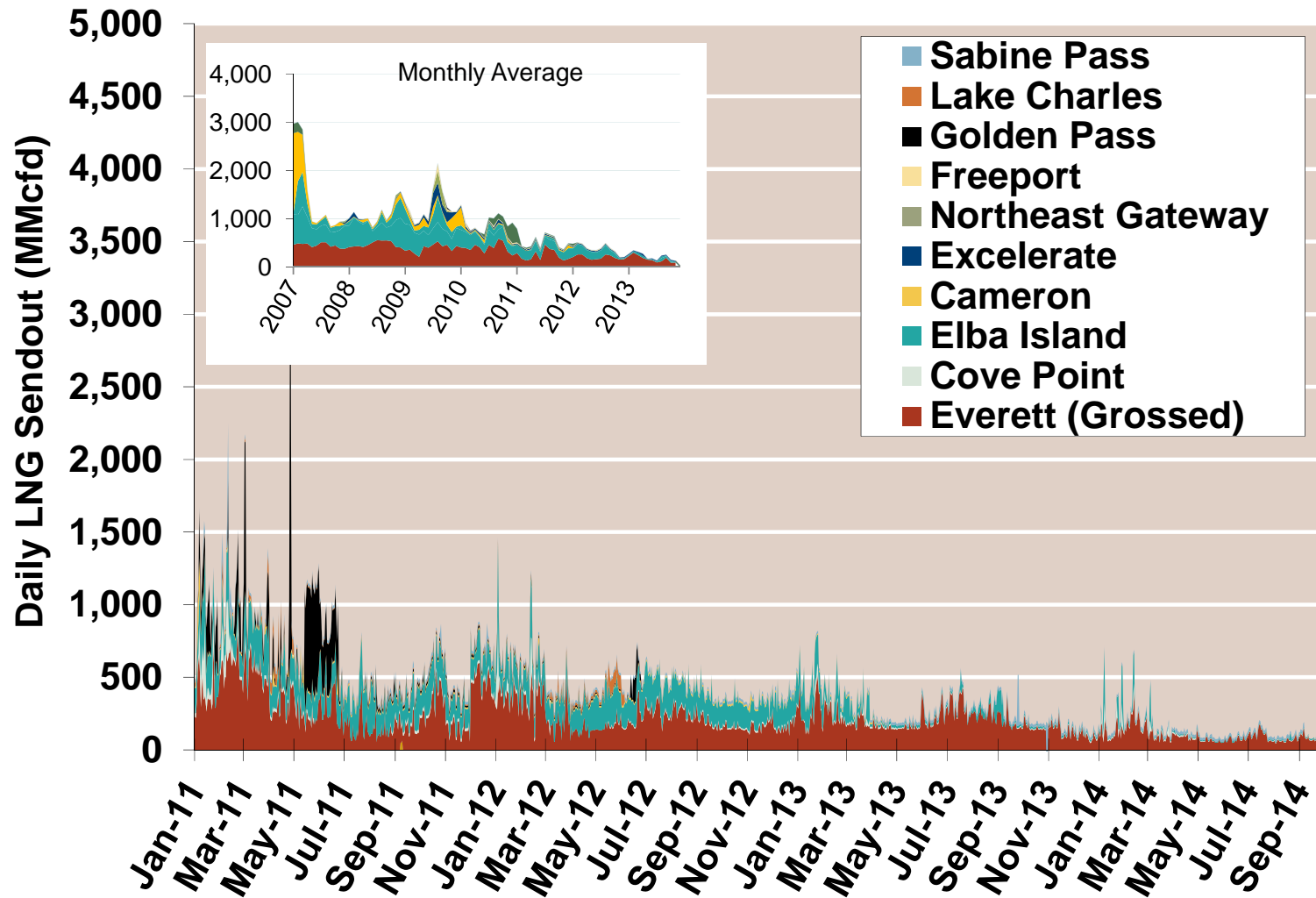


Notes:

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.

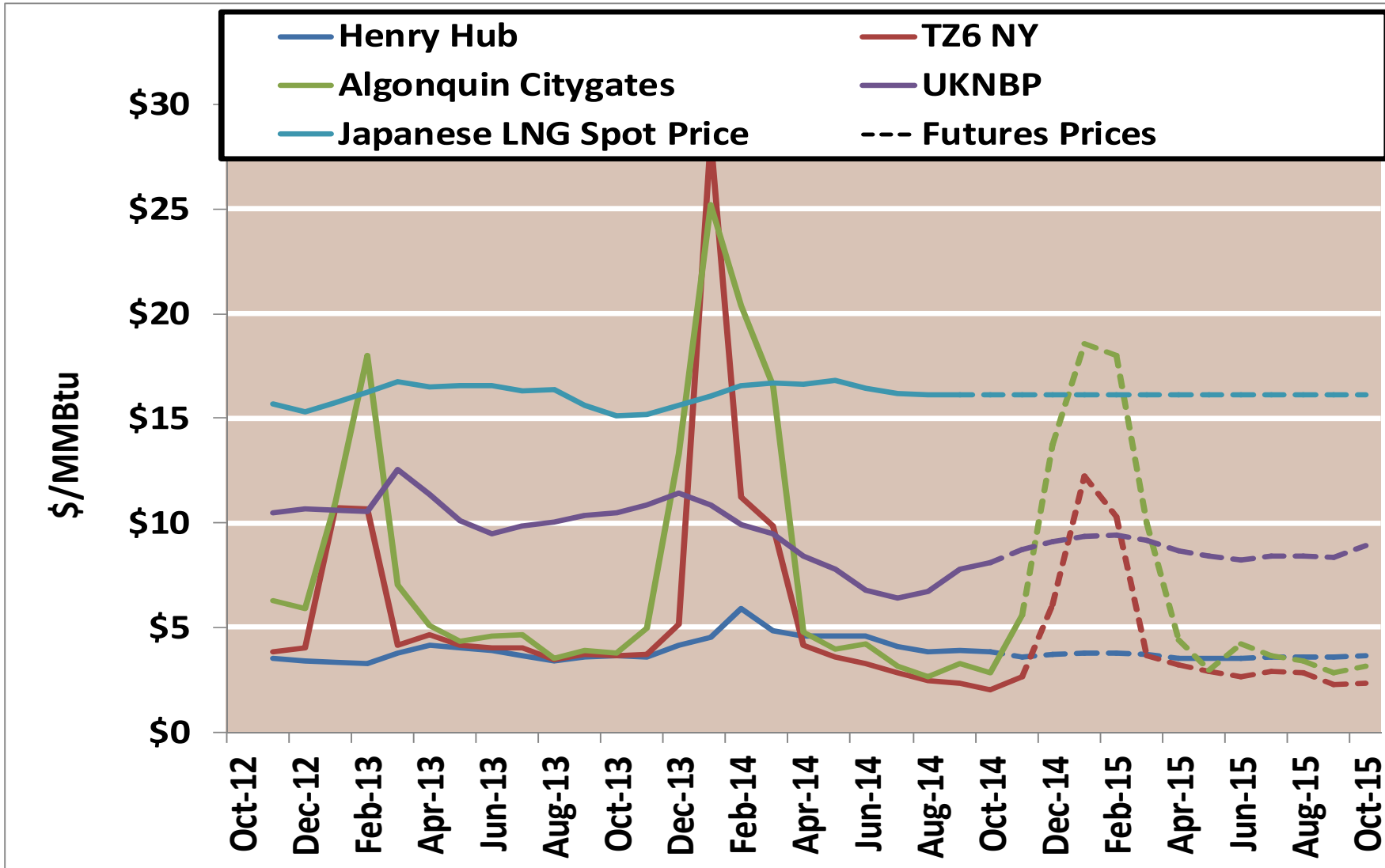
Source: Derived from *Bentek Energy* data

Updated: October 2014

World LNG Estimated October 2014 Landed Prices



Historical and Future World Gas Prices

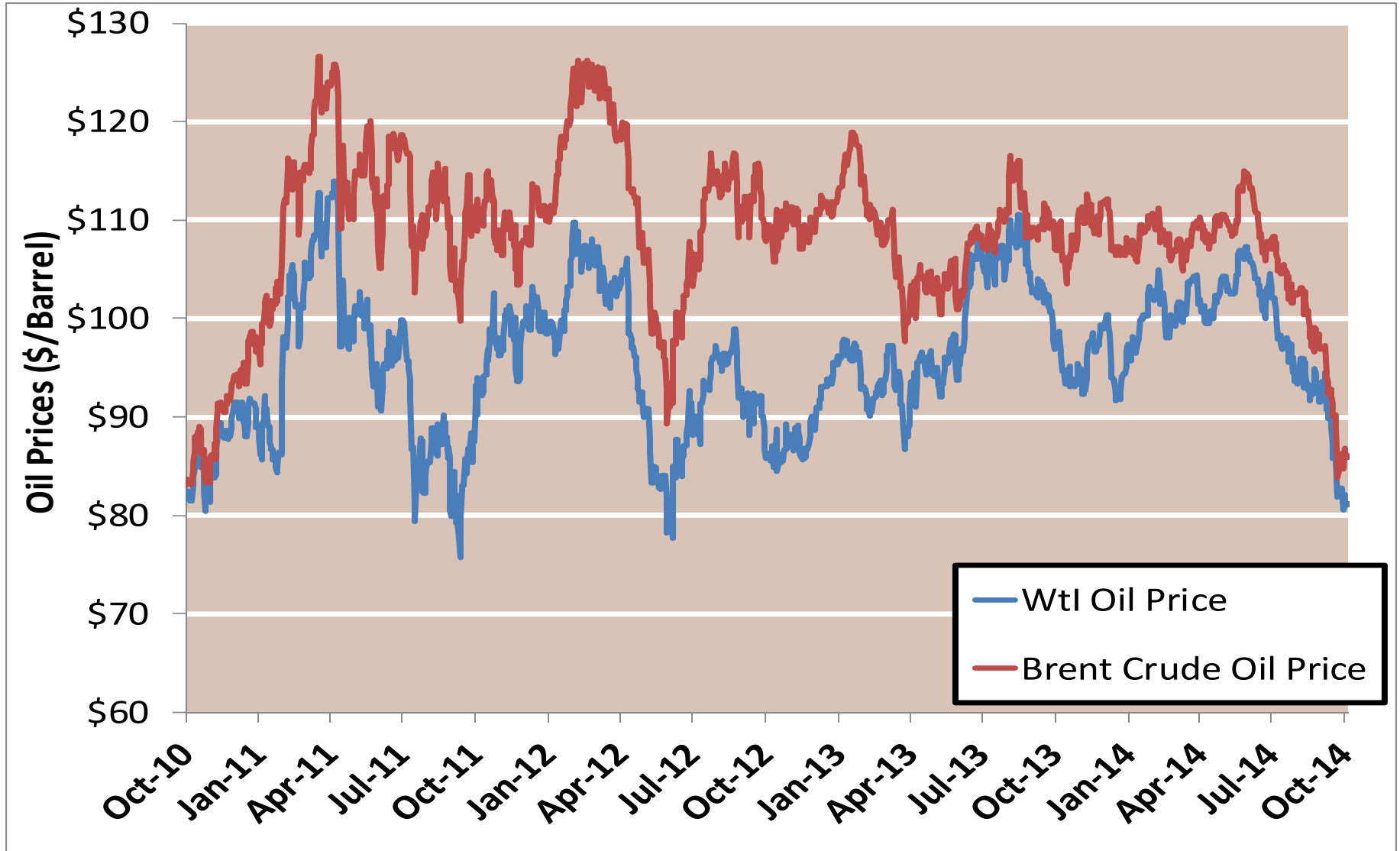


Notes:

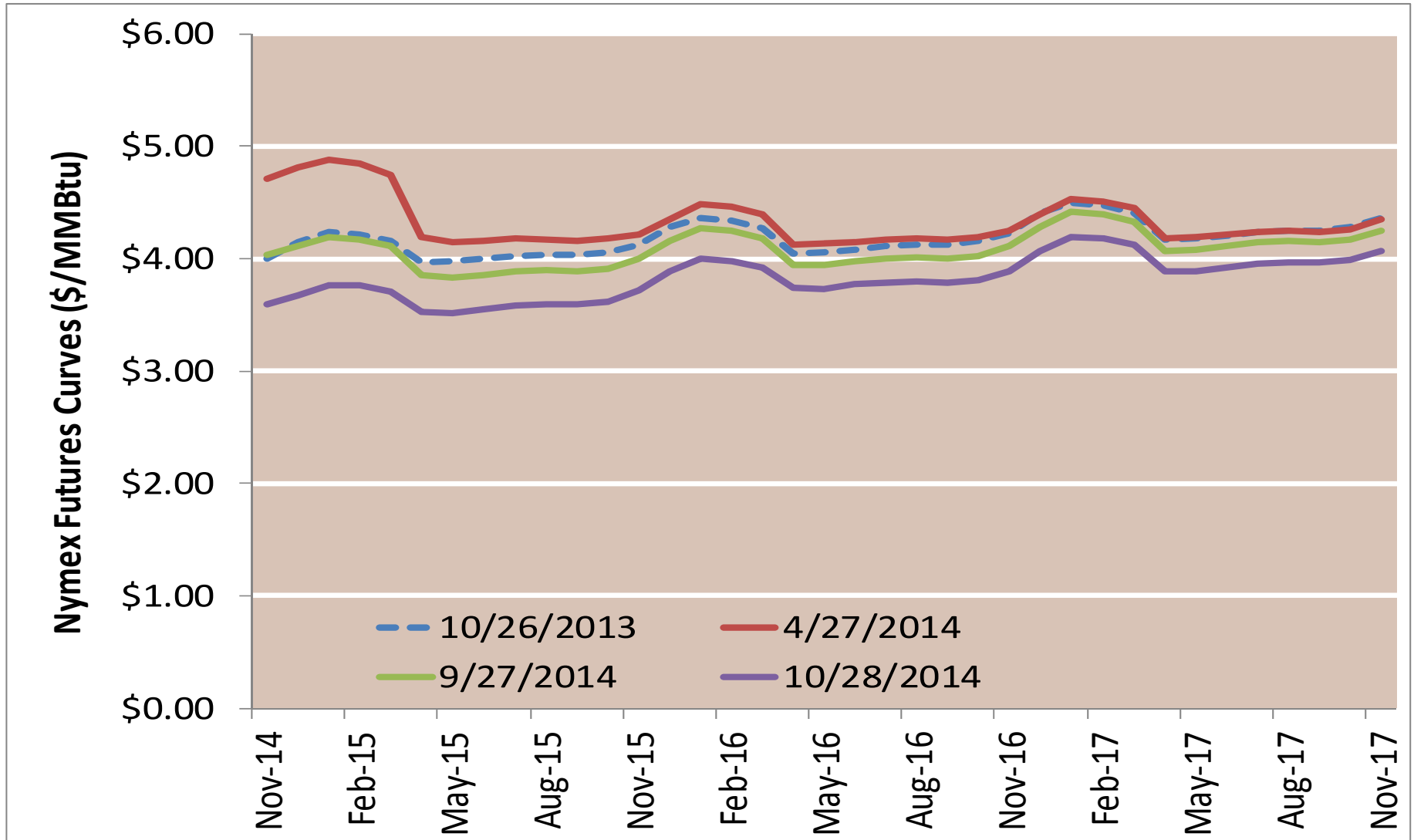
Source: Derived from Bloomberg data

Updated 10/28/2014

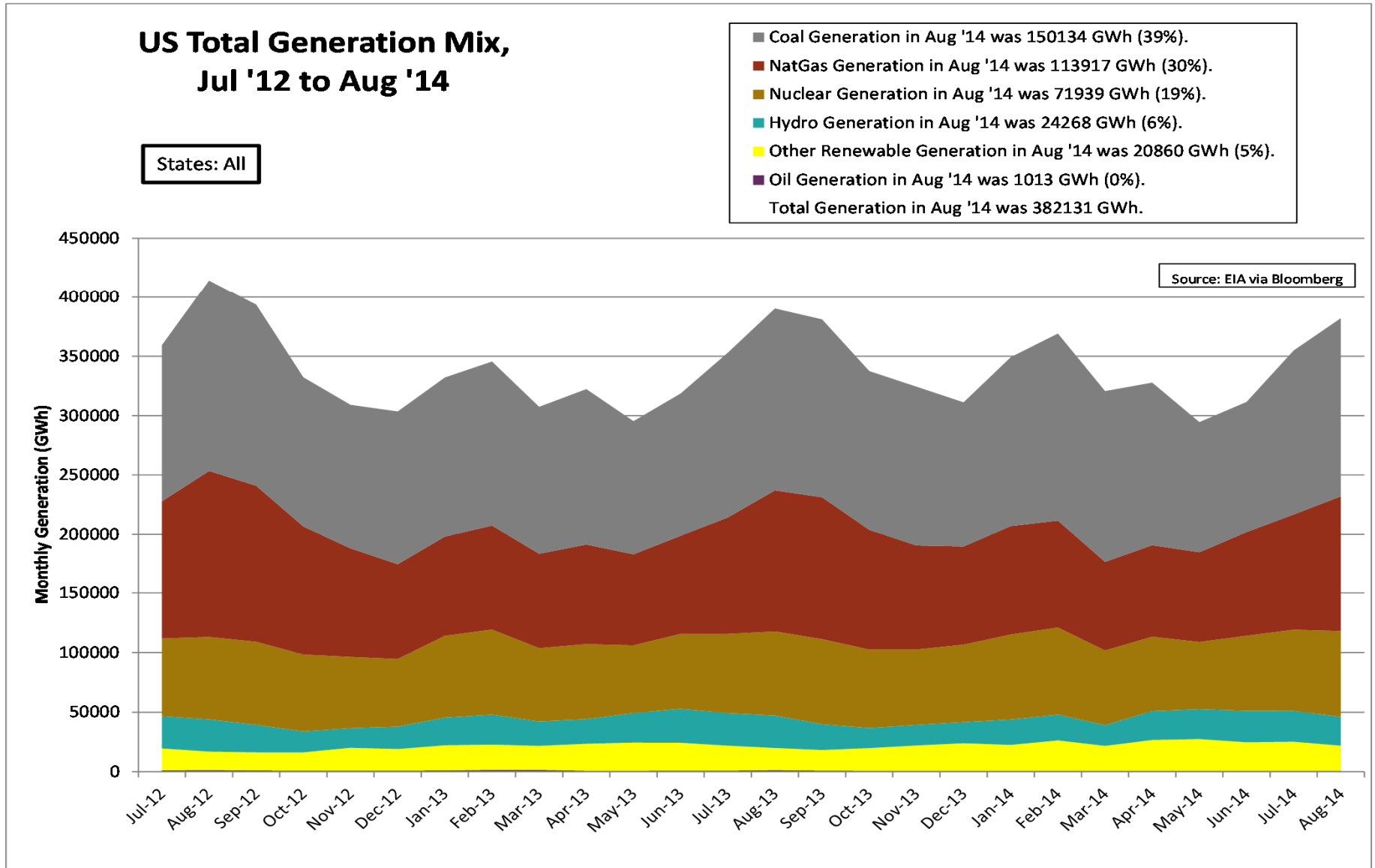
WTI vs Brent Crude Oil Price



Nymex Futures Curves



US Total Generation Mix



Updated: 10/29/2014

Natural Gas and Fuels Markets

West

West Day Ahead Natural Gas Prices Averaged Annually/Seasonally

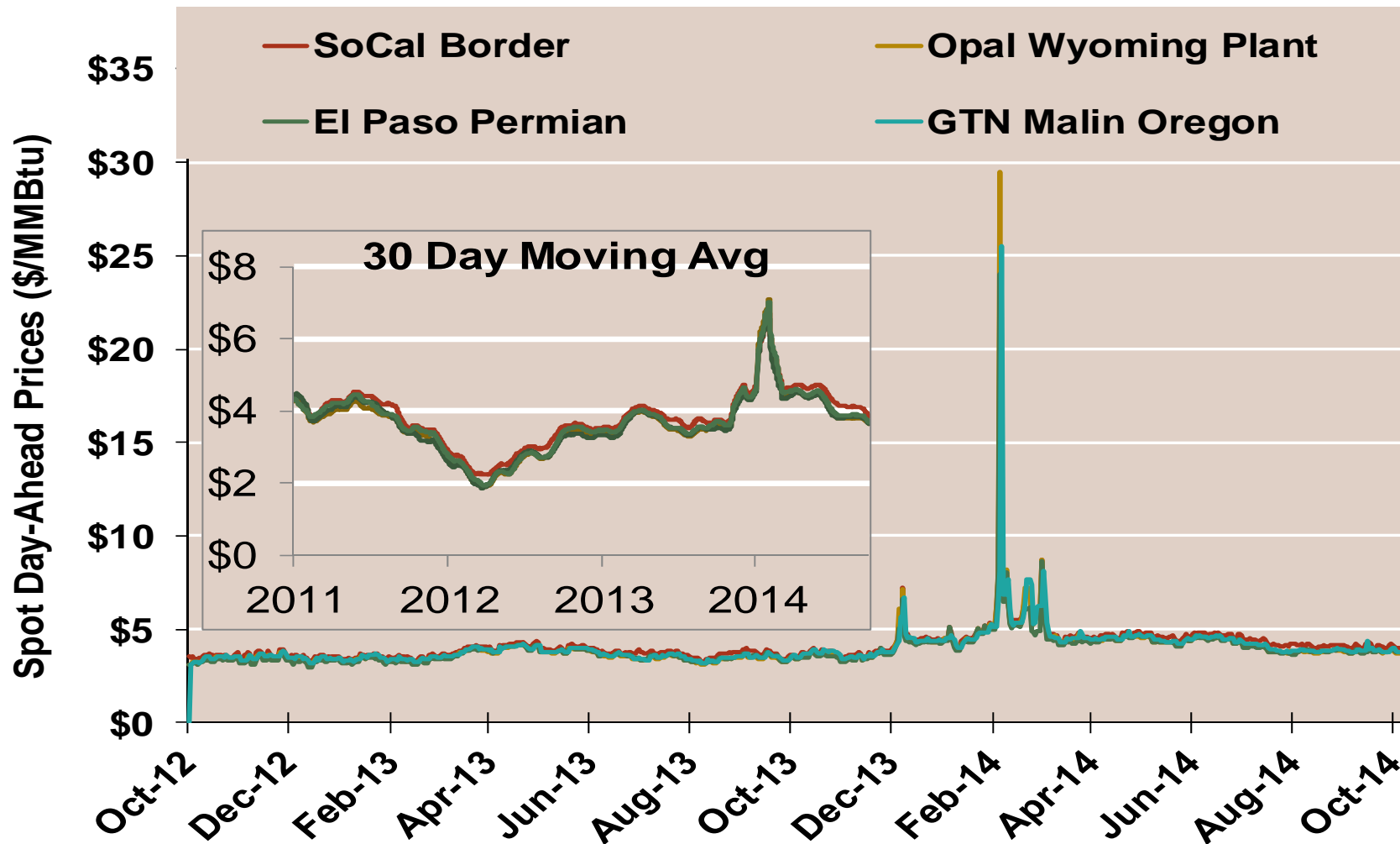
	Average Day Ahead Prices (\$/MMBtu)	SoCal Border	Opal Wyoming Plant	El Paso Permian	GTN Malin Oregon	Henry Hub
2011	Annual	4.05	3.81	3.87	3.94	3.98
	Summer	4.18	3.89	3.99	4.03	4.14
	Winter 2011/2012	2.98	2.75	2.69	2.86	2.74
2012	Annual	2.91	2.68	2.67	2.73	2.75
	Summer	2.83	2.58	2.61	2.61	2.69
	Winter 2012/2013	3.62	3.46	3.38	3.52	3.47
2013	Annual	3.83	3.65	3.63	3.71	3.72
	Summer	3.82	3.61	3.63	3.67	3.76
	Winter 2013/2014	4.89	4.88	4.68	4.88	4.61
2014 YTD	Annual	4.72	4.56	4.47	4.60	4.51
	Summer	4.18	3.89	3.99	4.03	4.14
	Winter 2014/2015					

Notes:

Source: ICE

Updated 10/28/2014

West Daily Day-Ahead Prices

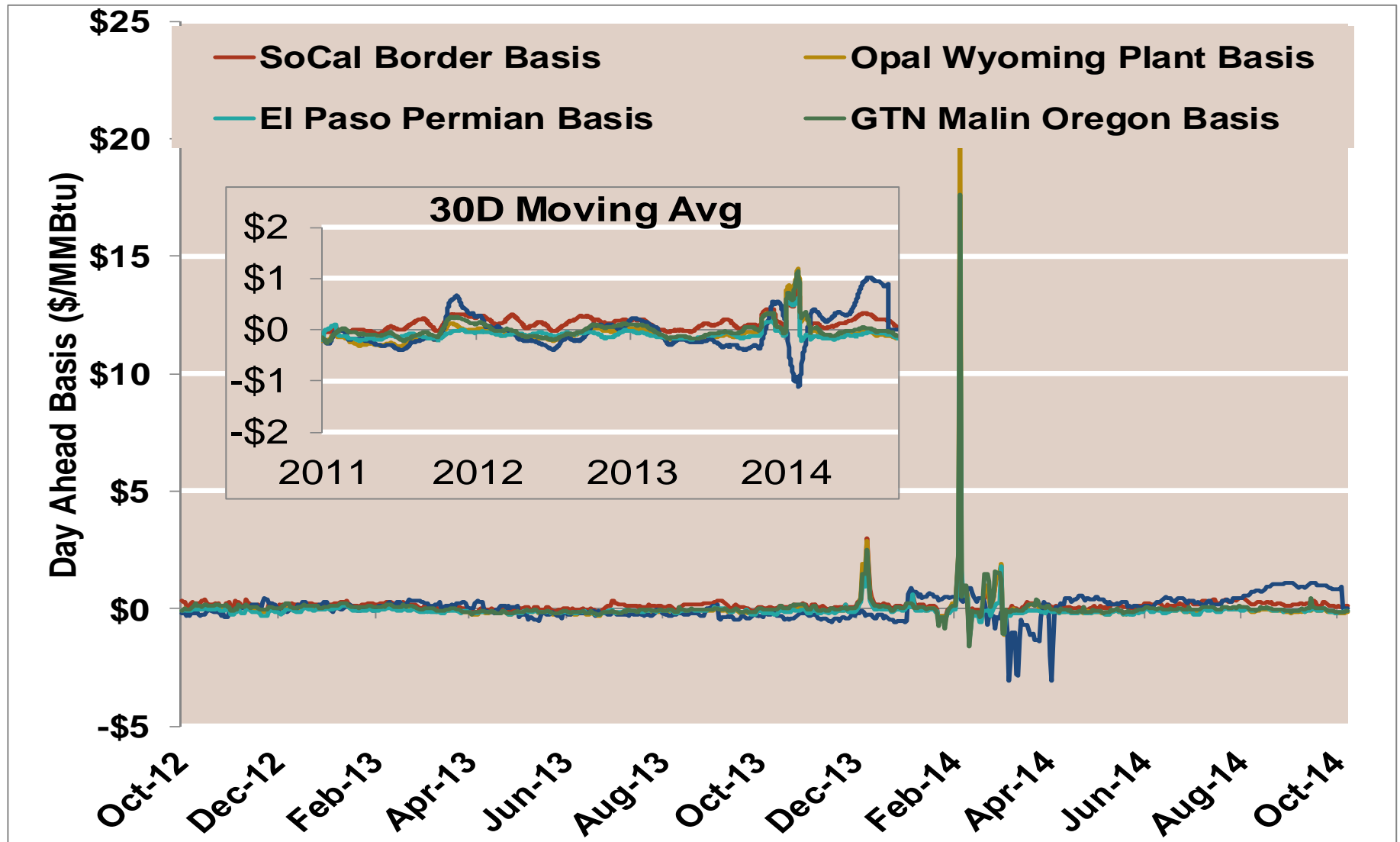


Notes:

Source: ICE

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West Daily Day-Ahead Basis

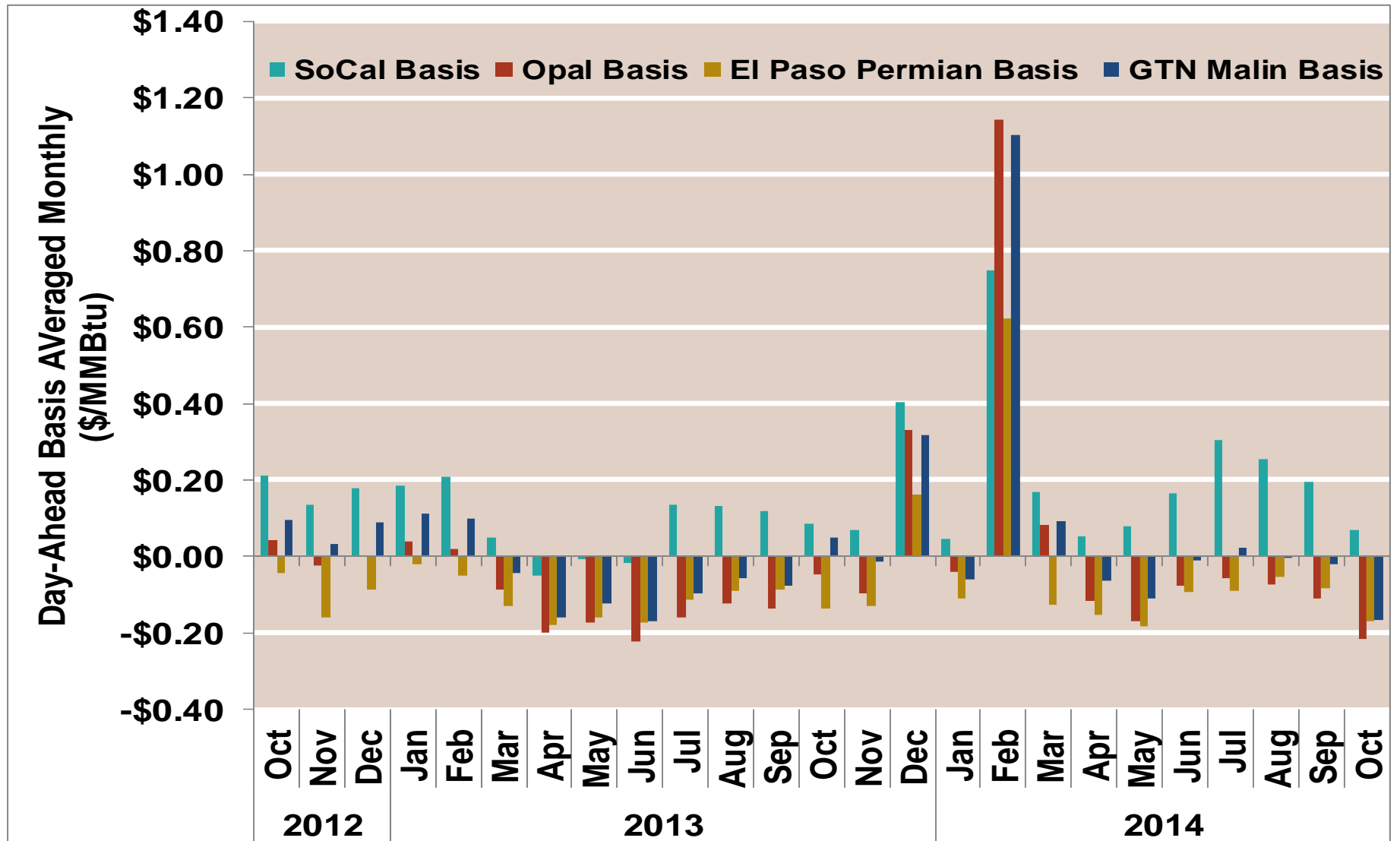


Notes:

Source: ICE

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West Average Monthly Basis

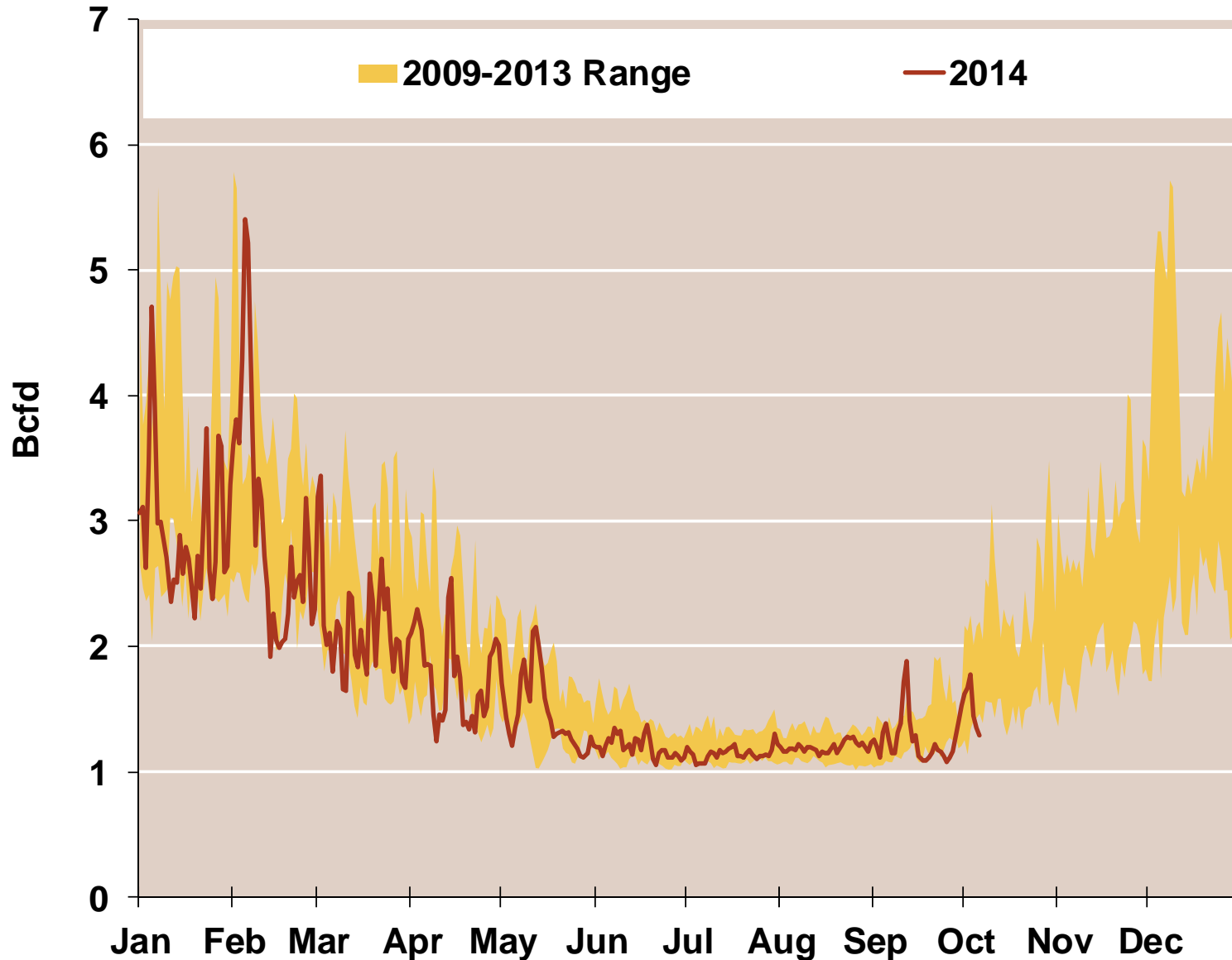


Notes:

Source: ICE

Updated 10/28/2014

Daily Rockies Natural Gas Demand All Sectors

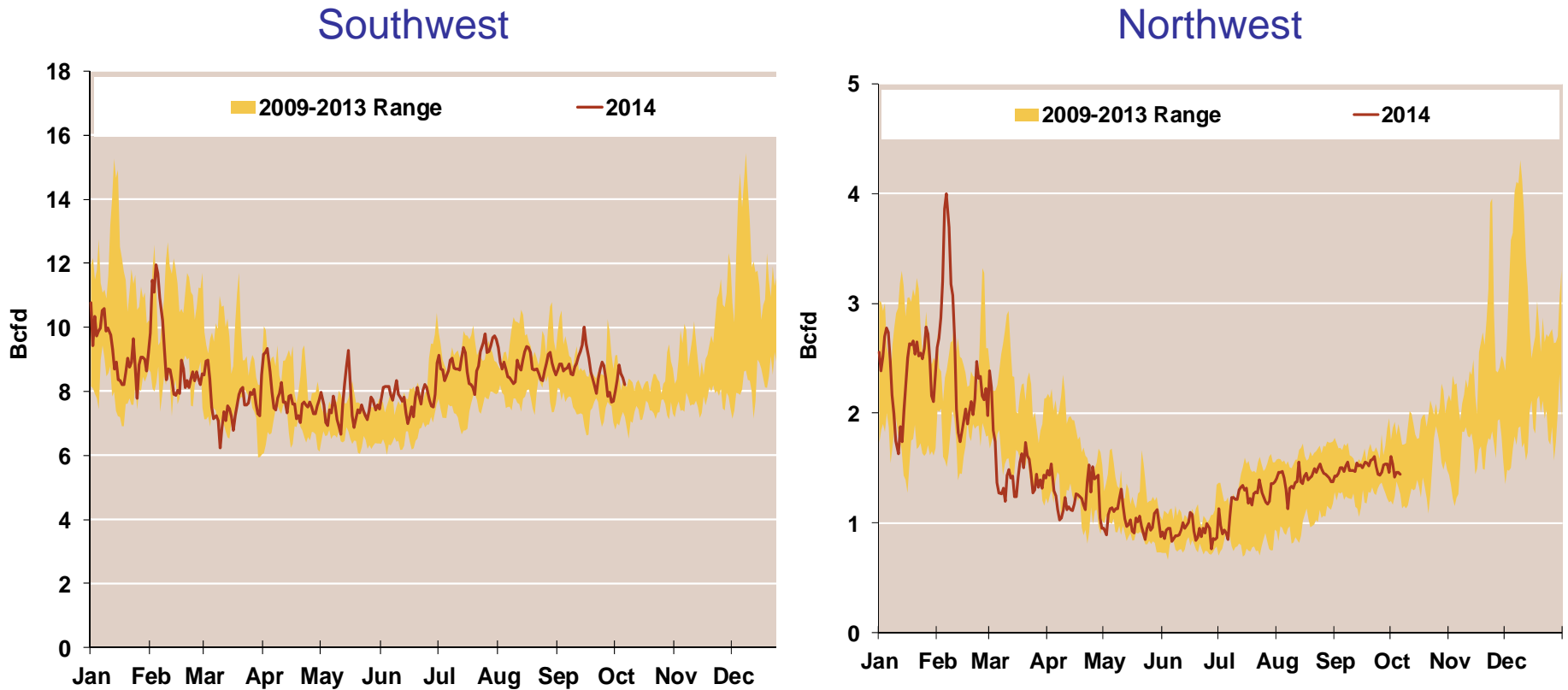


Source: Derived from *Bentek Energy* data

Note: Rockies is defined as Montana, Wyoming, Colorado, and Utah

Updated: October 2014

Daily Southwest and Northwest Natural Gas Demand All Sectors



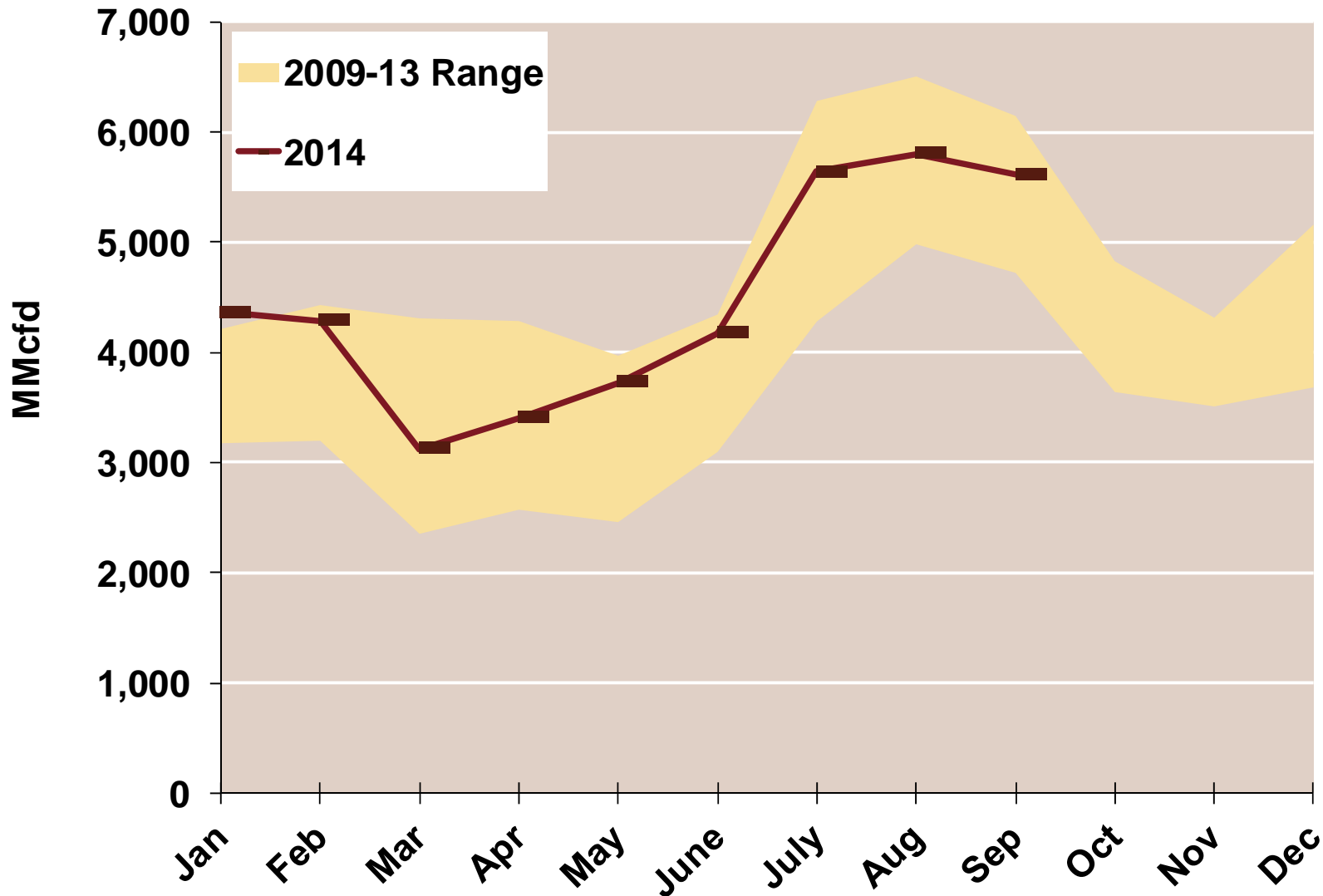
Source: Derived from *Bentek Energy* data

Note: Data derived from interstate natural gas pipeline flows.

Southwest is defined as New Mexico, Arizona, California, Nevada and the Northwest is defined as Idaho, Oregon, and Washington

Updated: October 2014

West Natural Gas Consumption for Power Generation



Source: Derived from *Bentek Energy* data

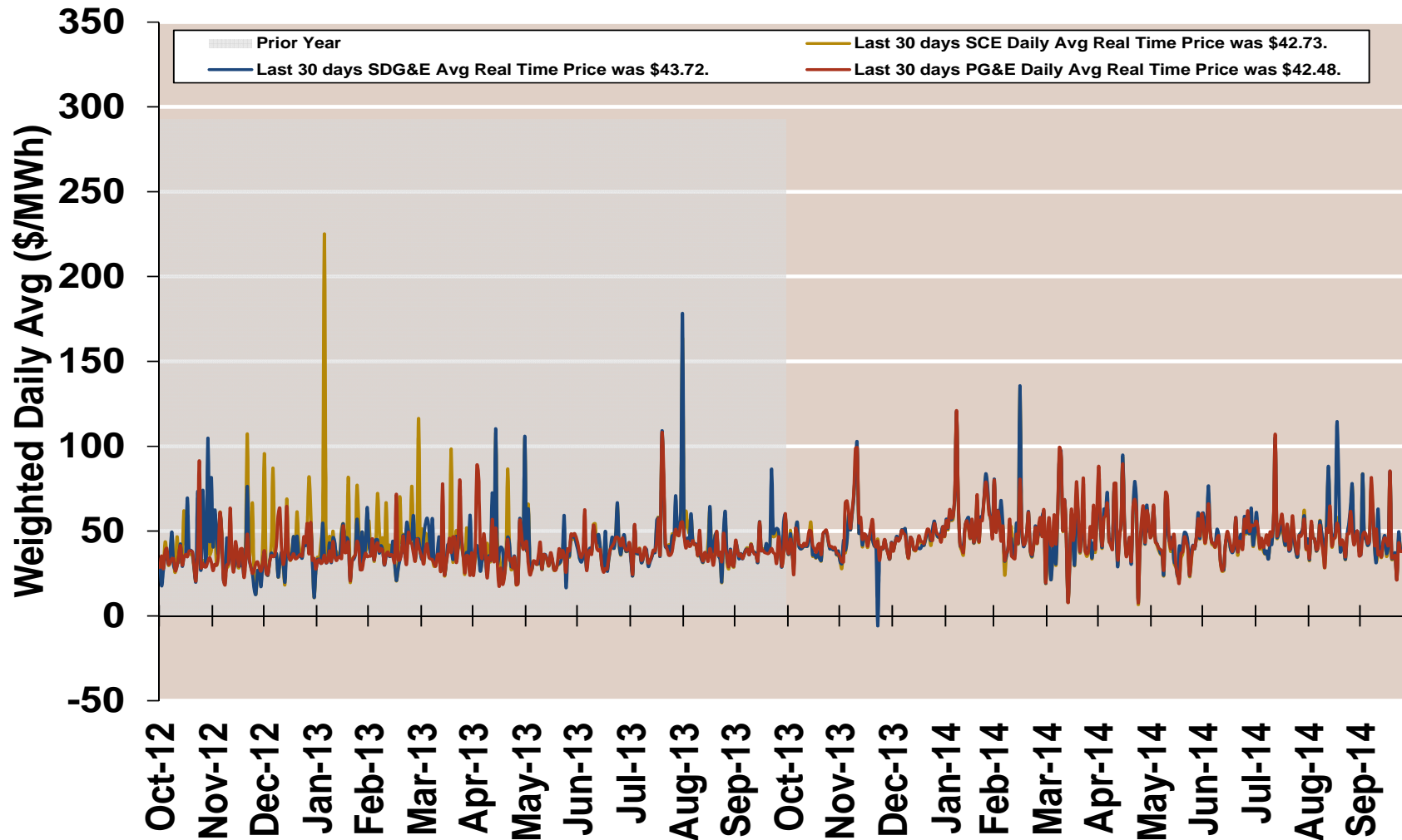
Note: West is defined as Montana, Wyoming, Colorado, Utah New Mexico, Arizona, California, Nevada , Idaho, Oregon, and Washington



Electricity Markets

West

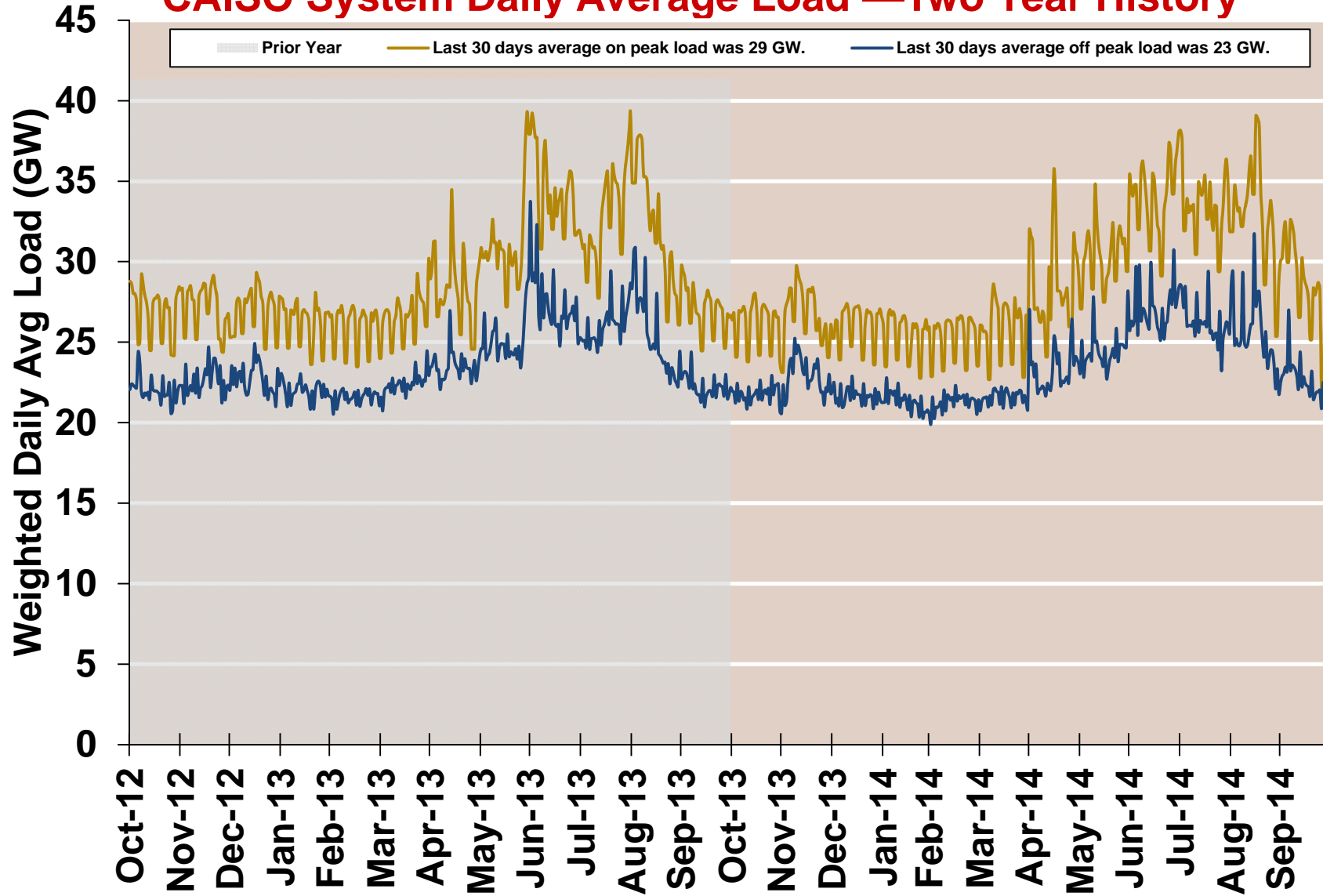
CAISO Real Time Prices—Two Year History



Source: Genscape via Bloomberg

Updated: 10/29/2014

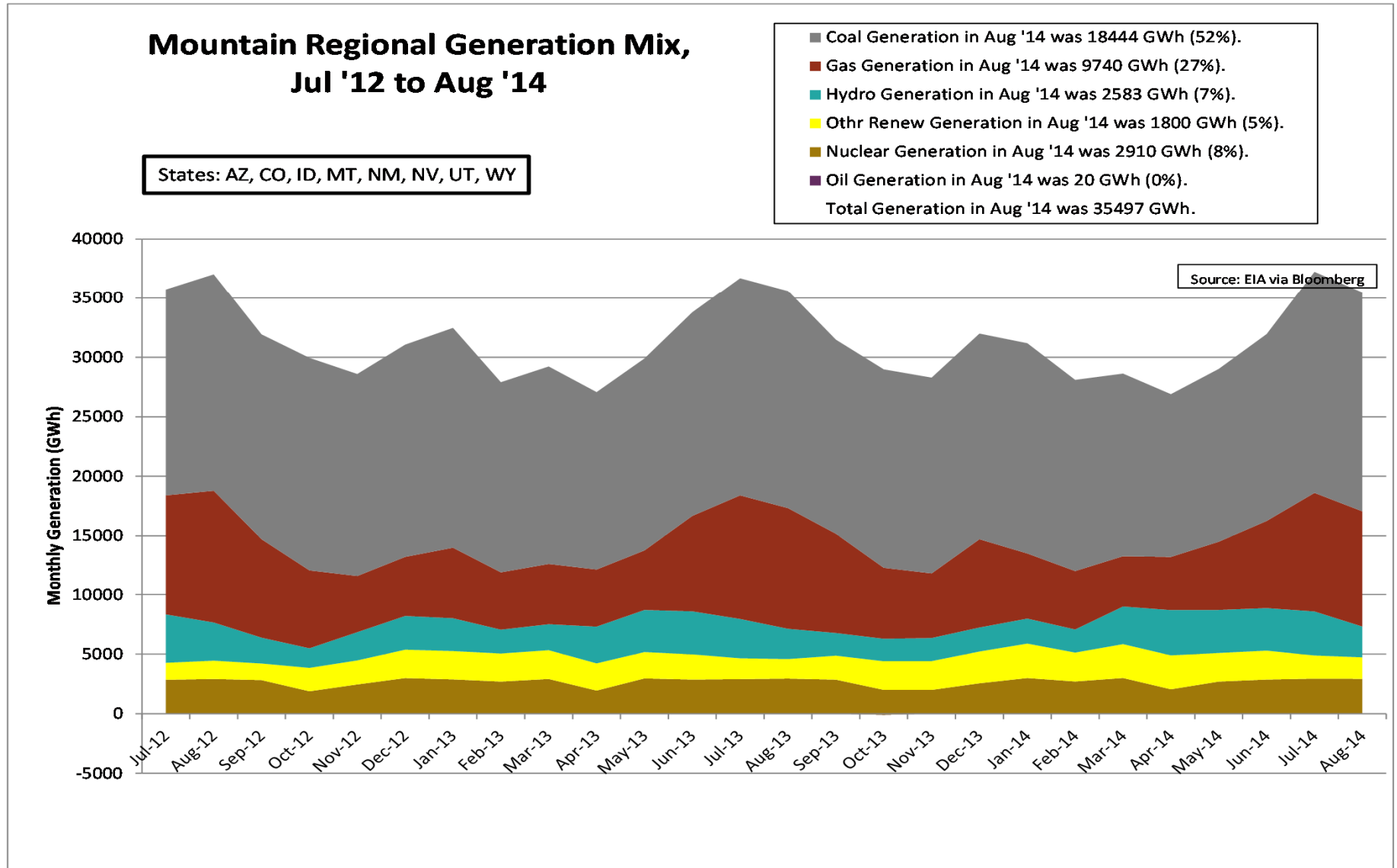
CAISO System Daily Average Load — Two Year History



Source: Genscape via Bloomberg

Updated: 10/29/2014

Mountain Regional Generation Mix



Pacific Contiguous Generation Mix

