

OE ENERGY MARKET SNAPSHOT

Central Version – September 2014 Data

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

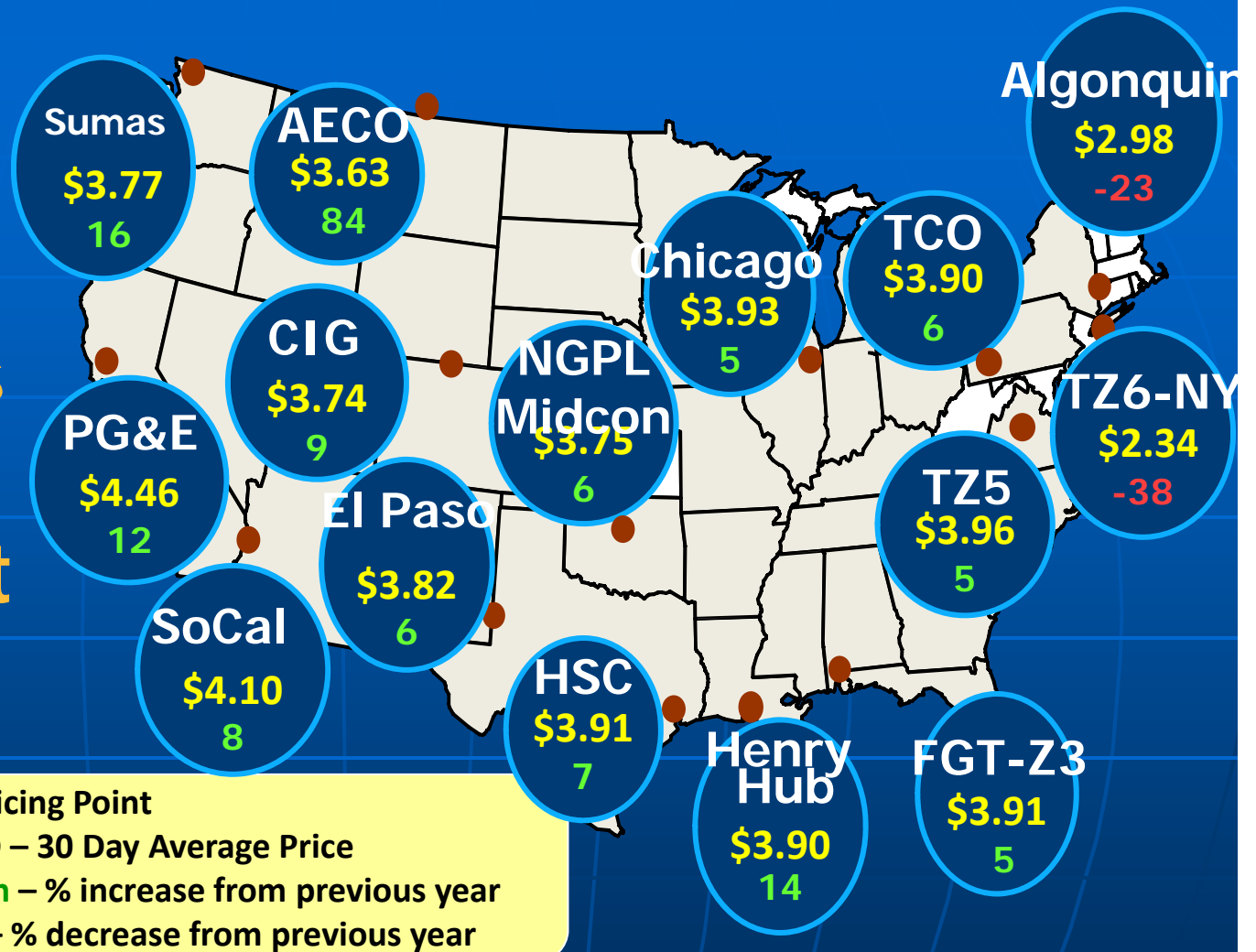
Developments

- 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.

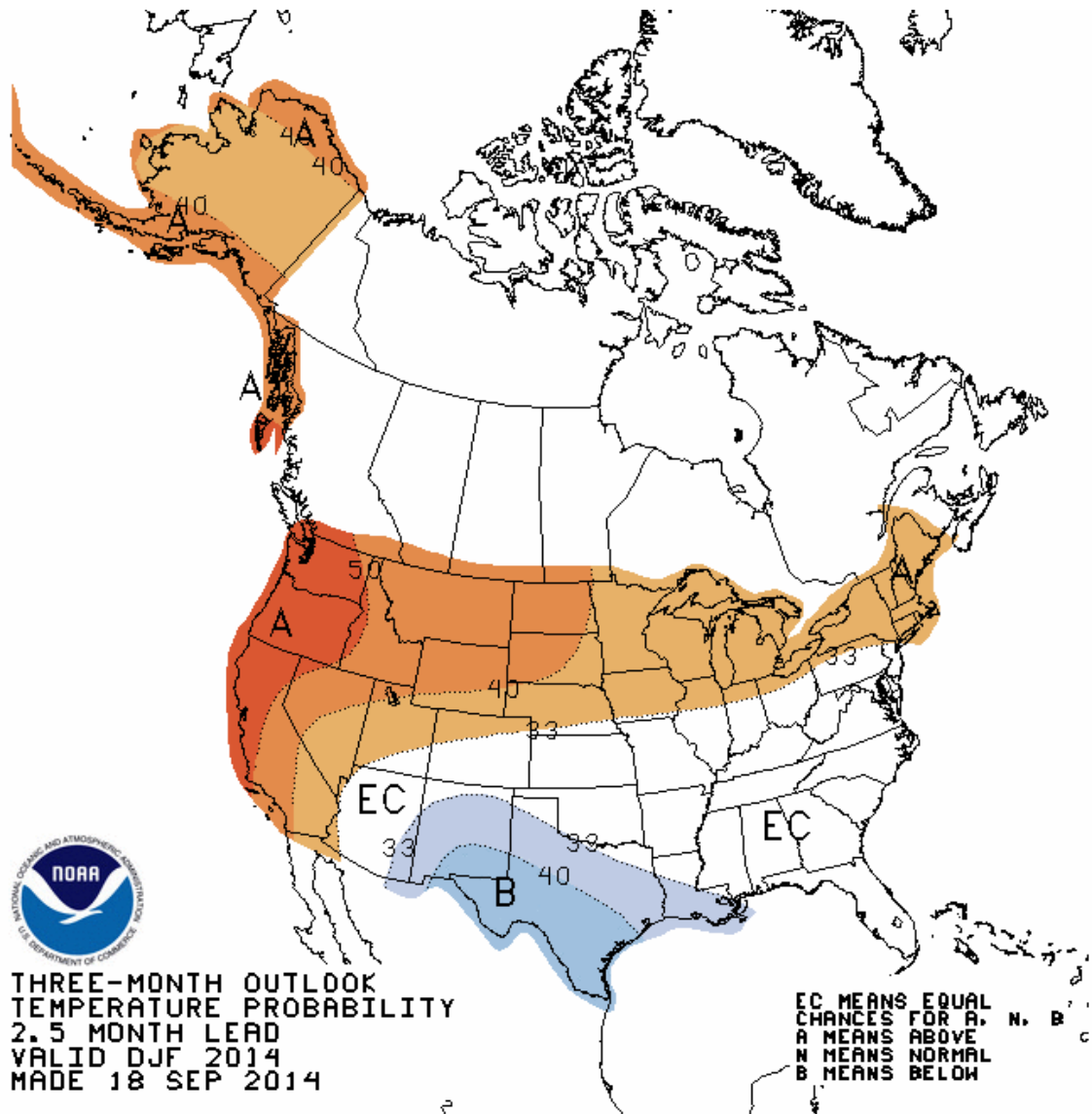
Uncertain Winter Forecast

Source: NOAA National Weather Service

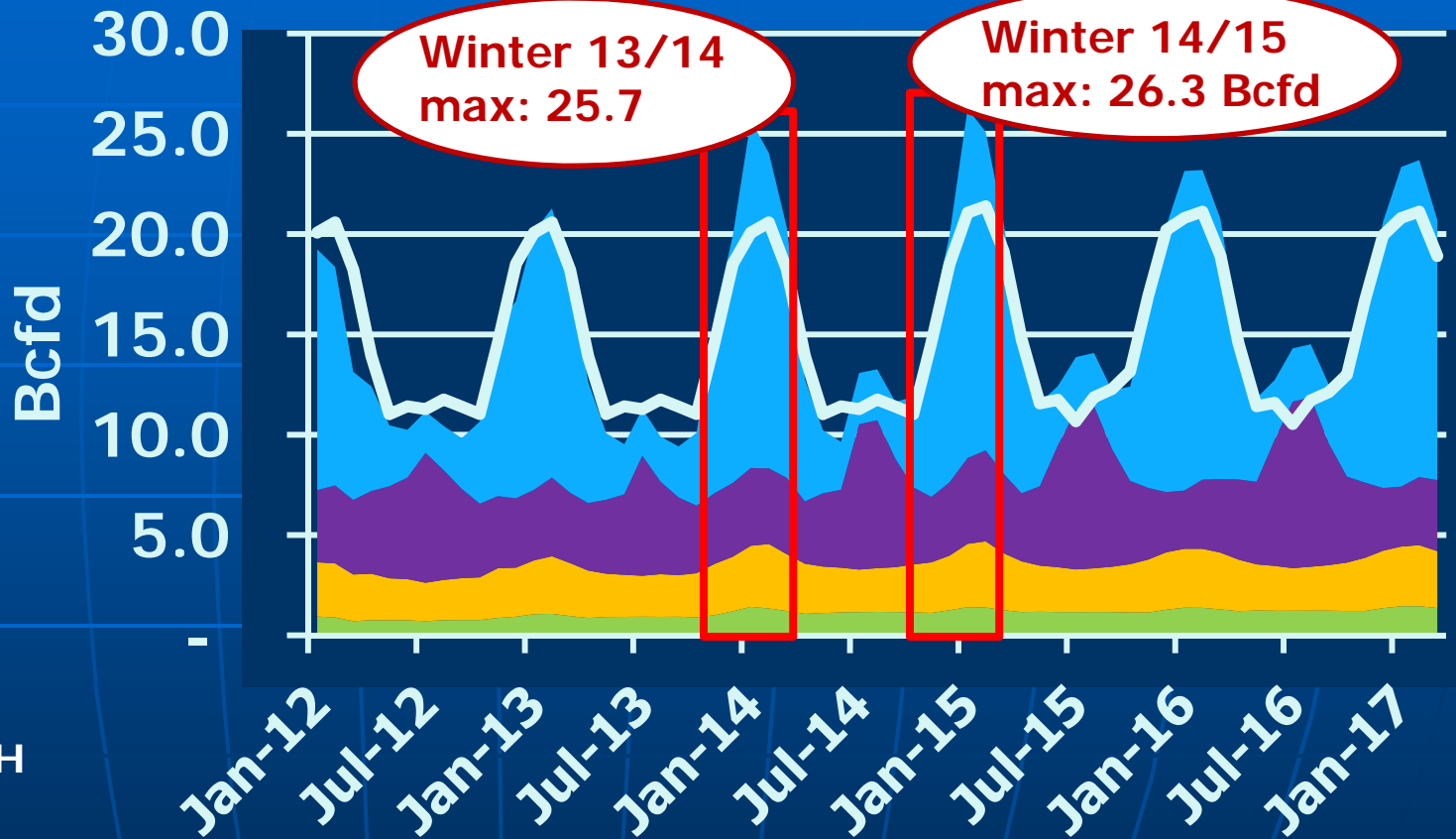


THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
2.5 MONTH LEAD
VALID DJF 2014
MADE 18 SEP 2014

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



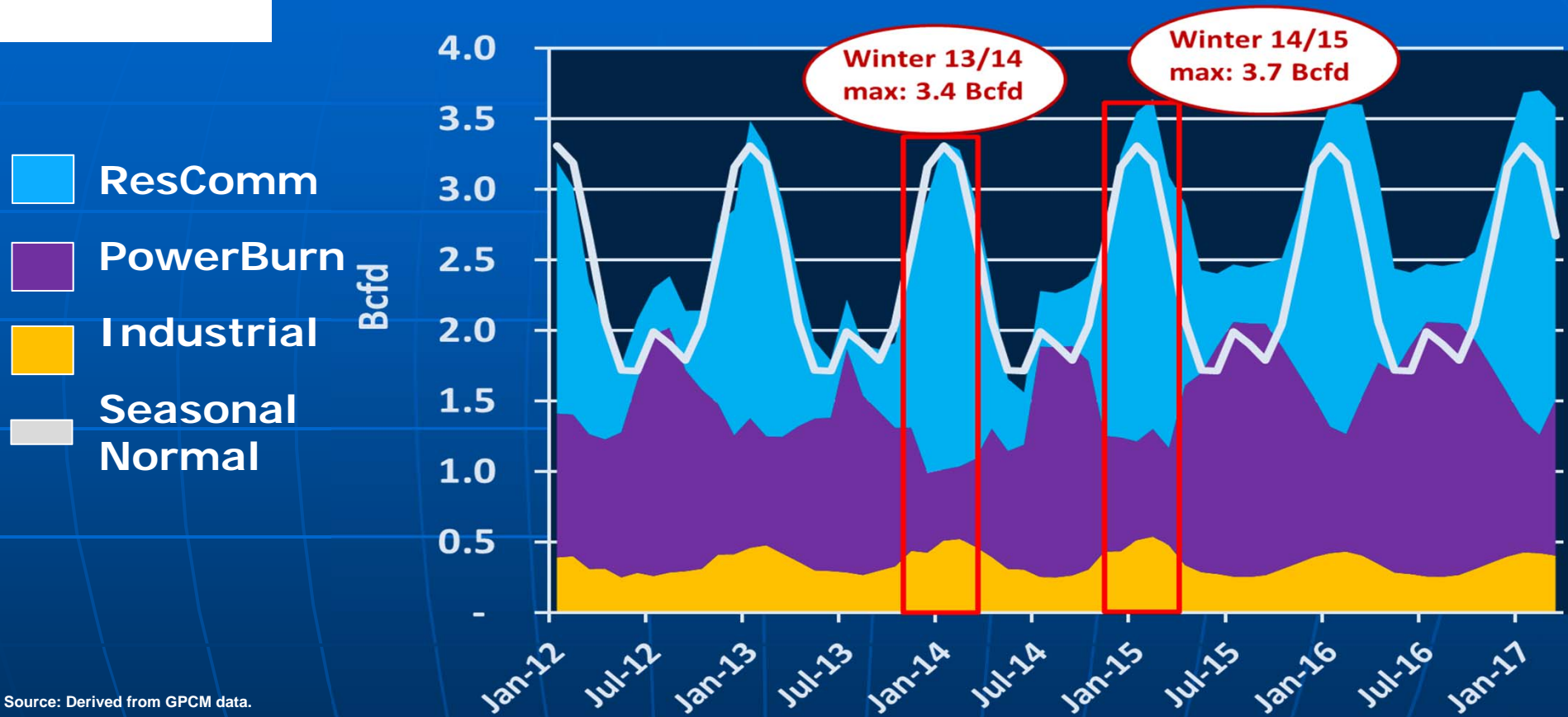
Mid-Atlantic* Gas Demand at Historical High Levels



* Mid-Atlantic also includes KY and OH

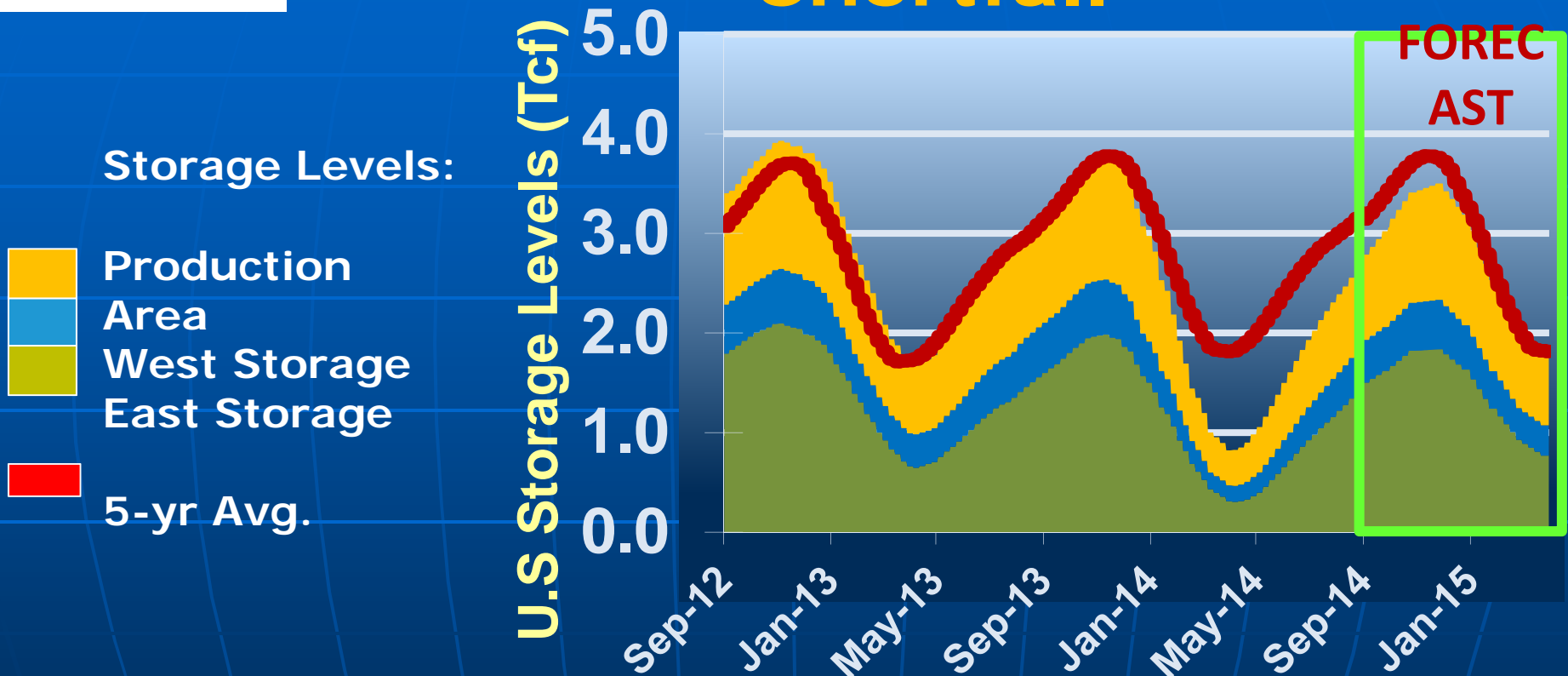
Source: Derived from GPCM data.

Fuel Diversity Helps New England Gas Demand



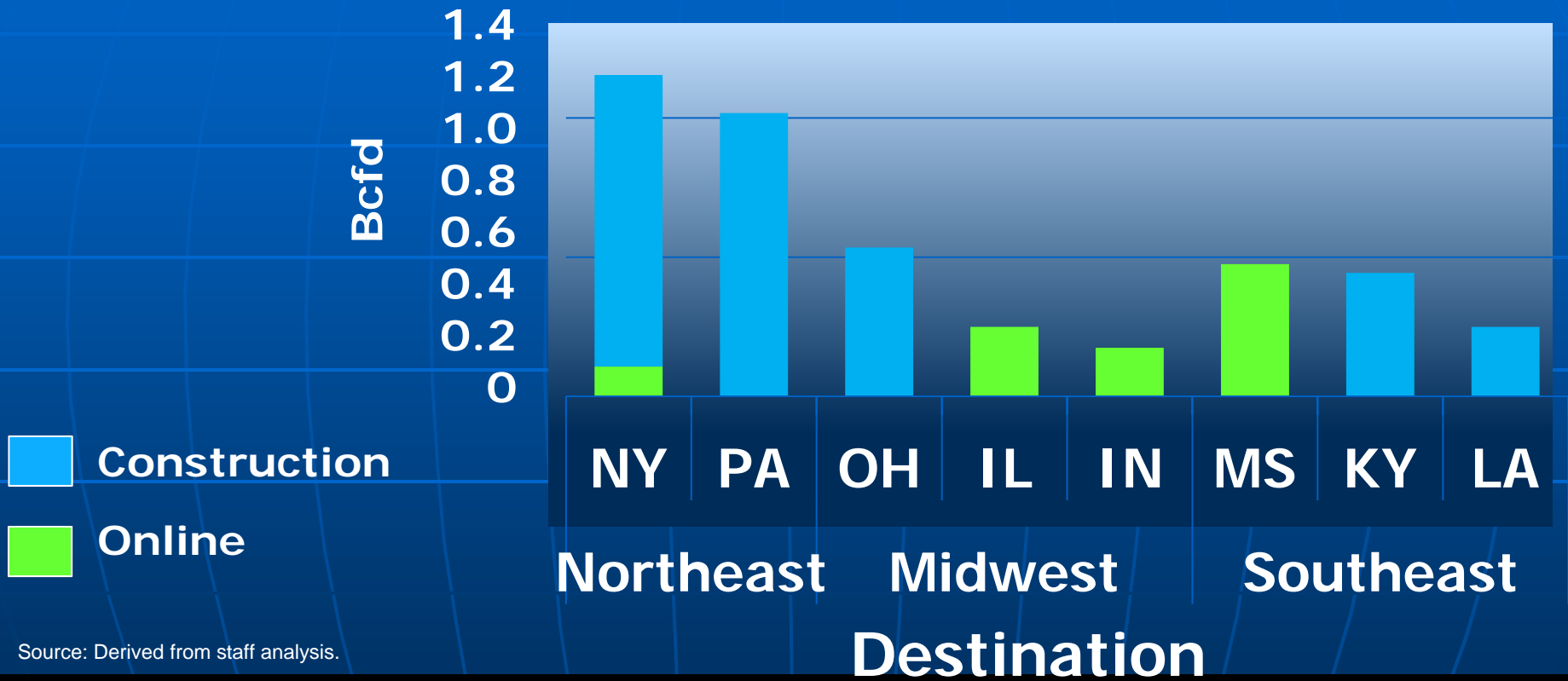
Source: Derived from GPCM data.

Record Storage Injections Help Close the Storage Shortfall



Source: Derived from EIA data and GPCM data.

2014 Pipeline Expansions Target Northeast Production

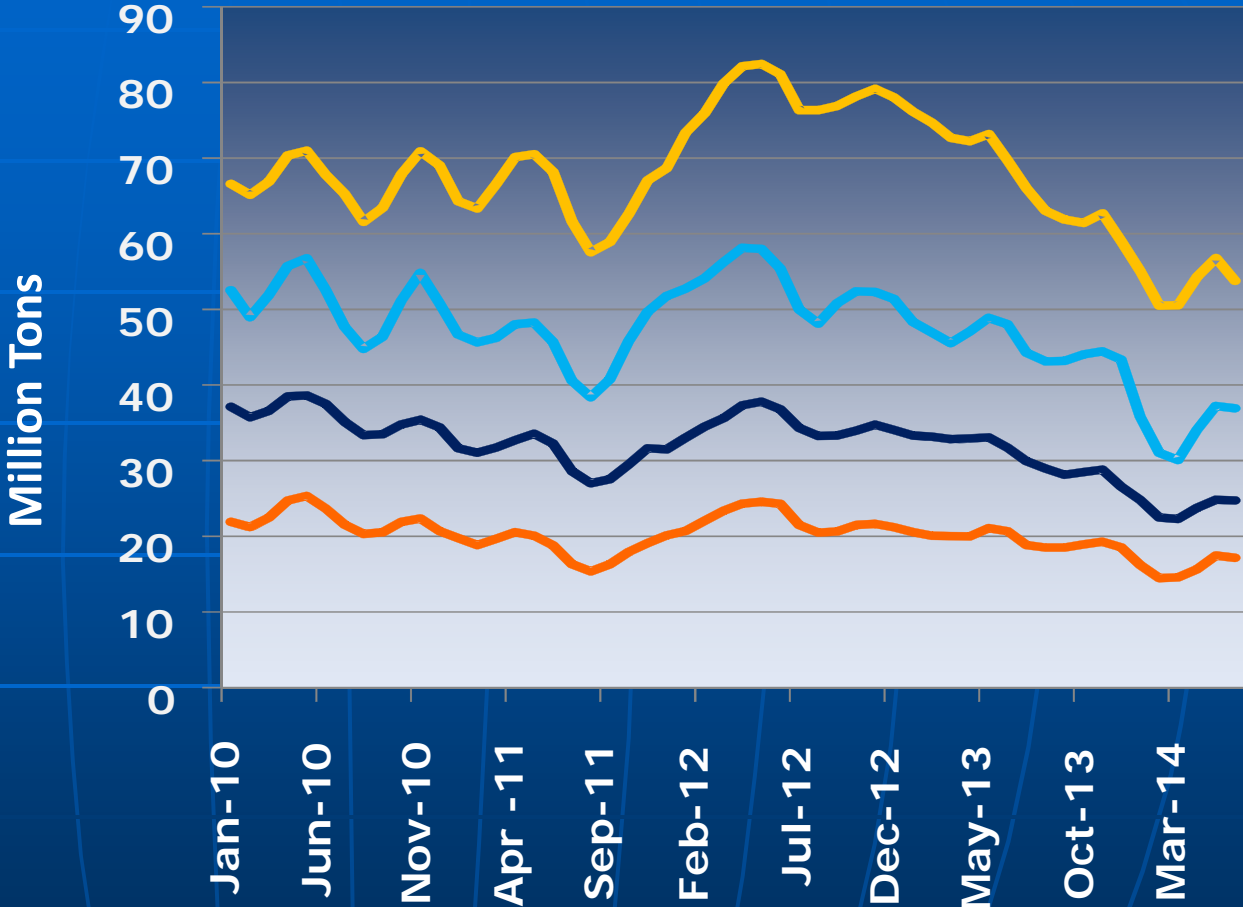


Winter Electric Market Challenges

- 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

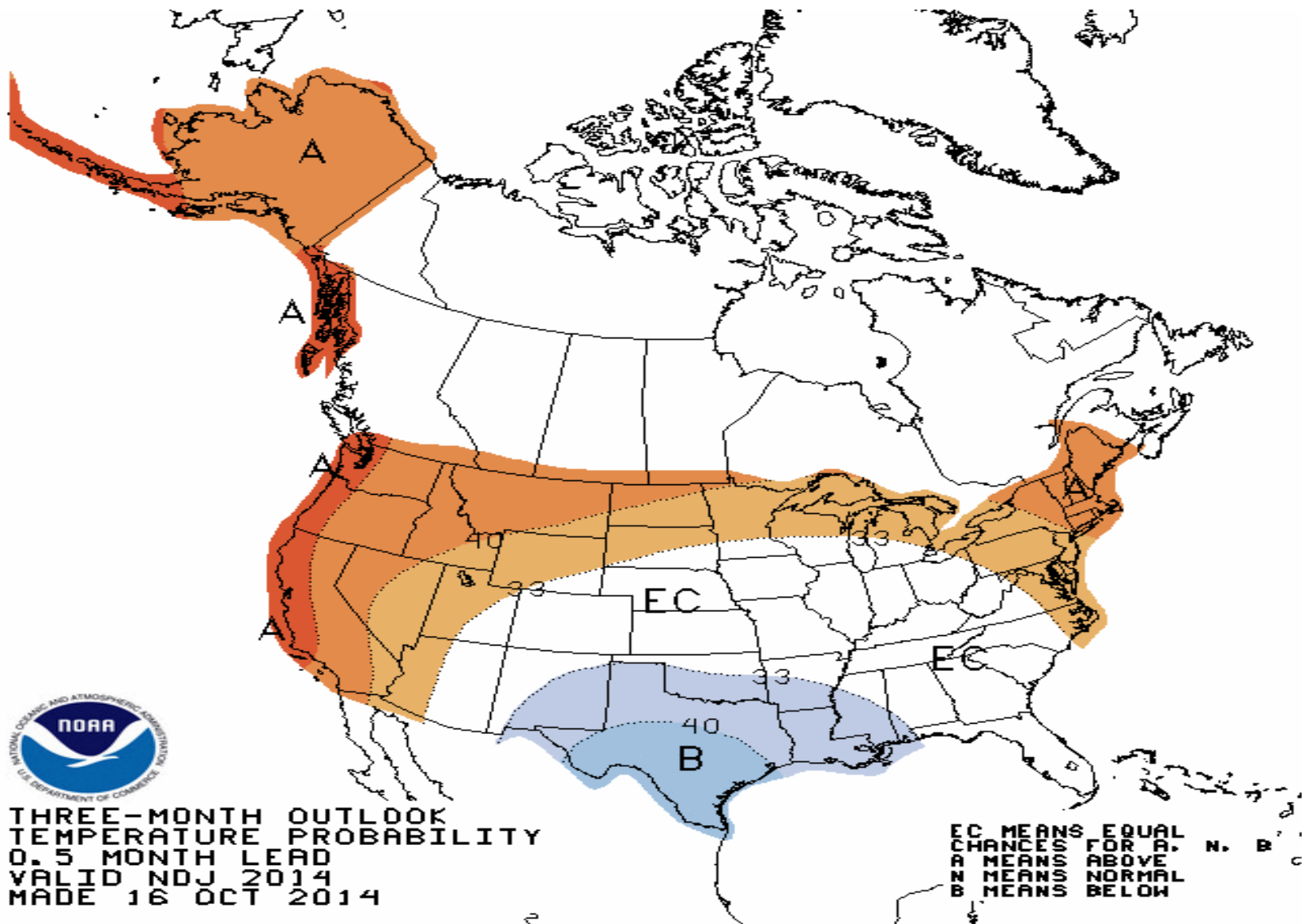
<http://www.ferc.gov/legal/staff-reports.asp>

(see “Energy Infrastructure” tab)

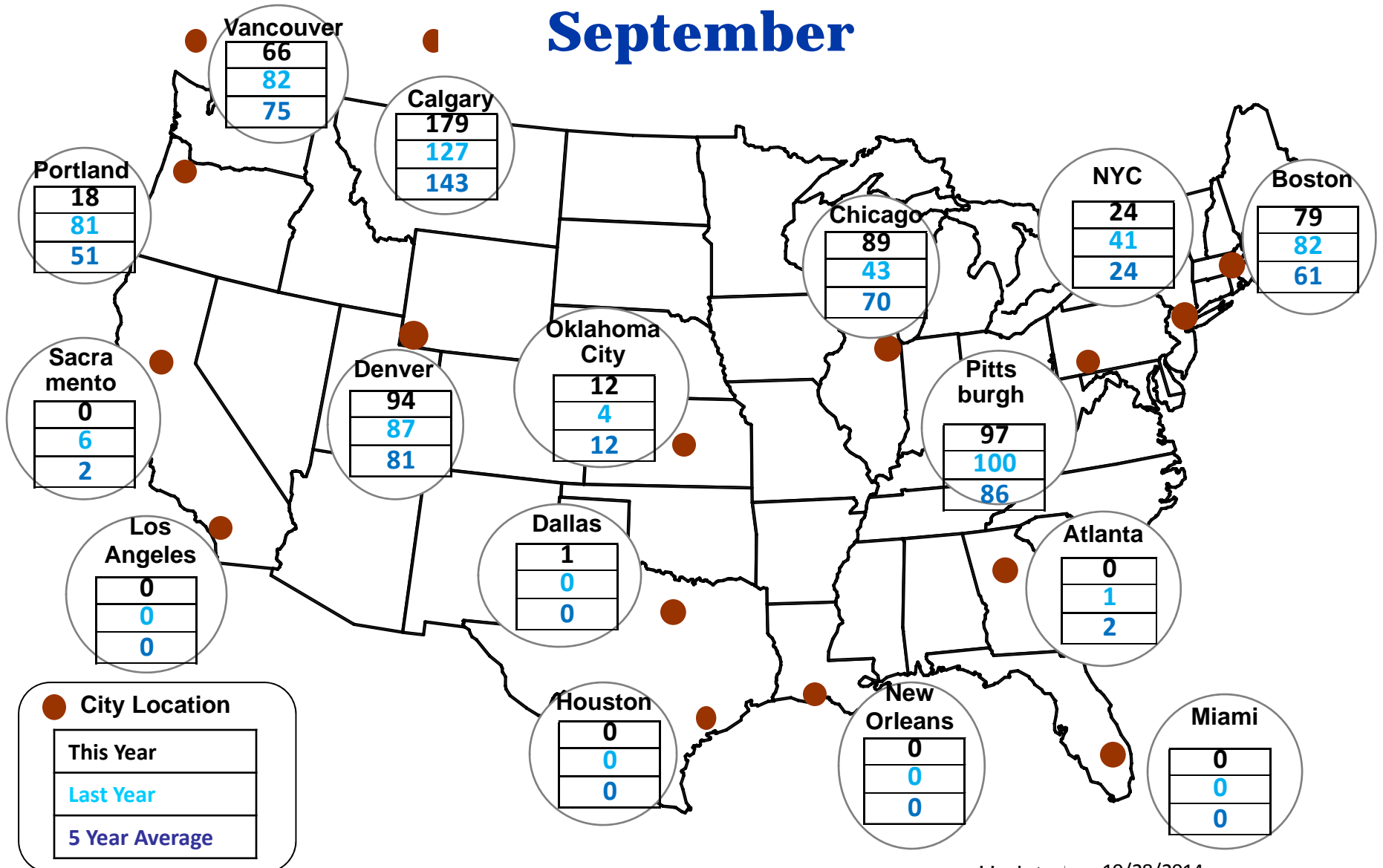


National Slides

NOAA Nov 2014 Through Jan 2015 Outlook



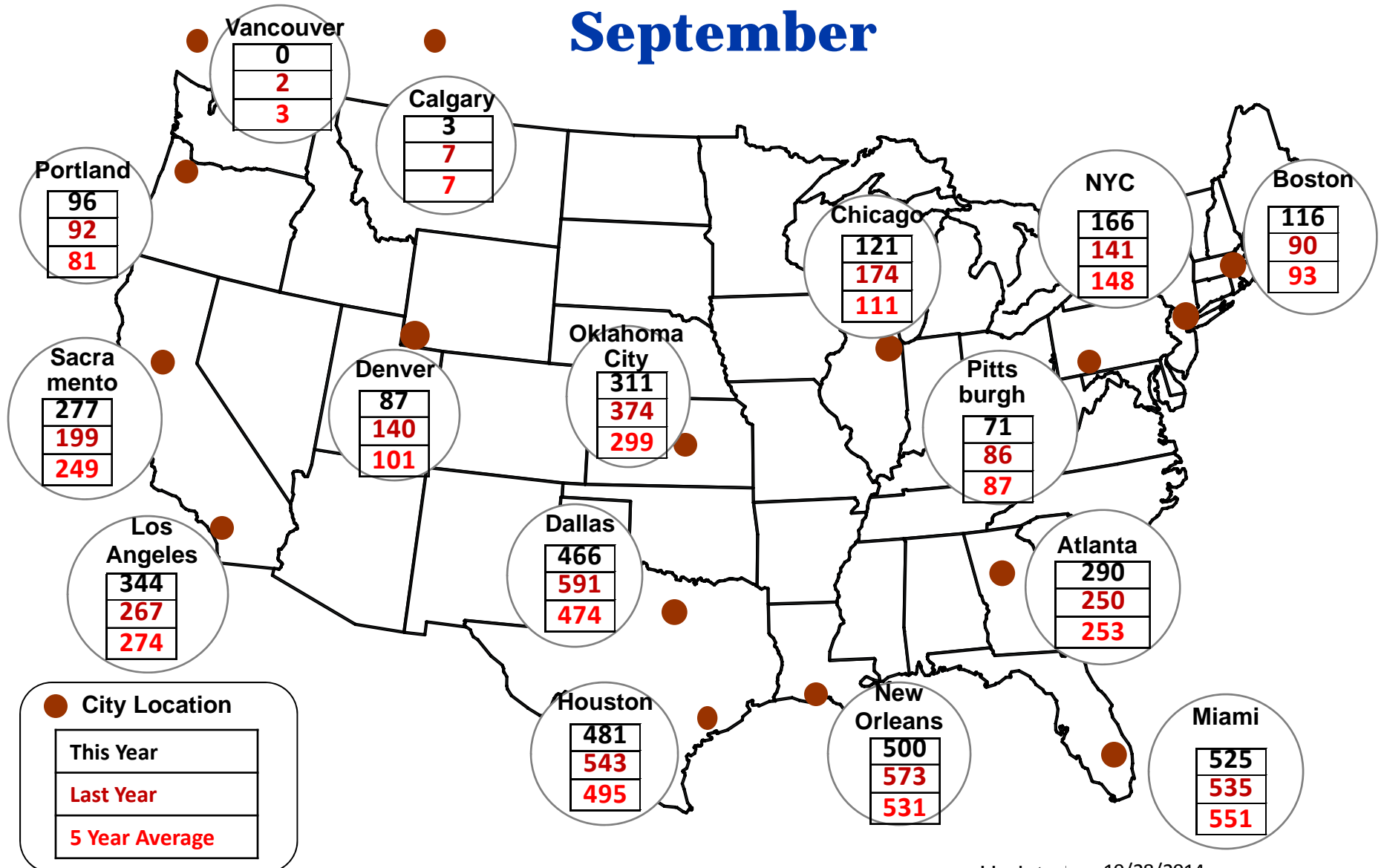
Cumulative HDDs by City September



Source: Bloomberg Weather

Updated 10/28/2014

Cumulative CDDs by City September



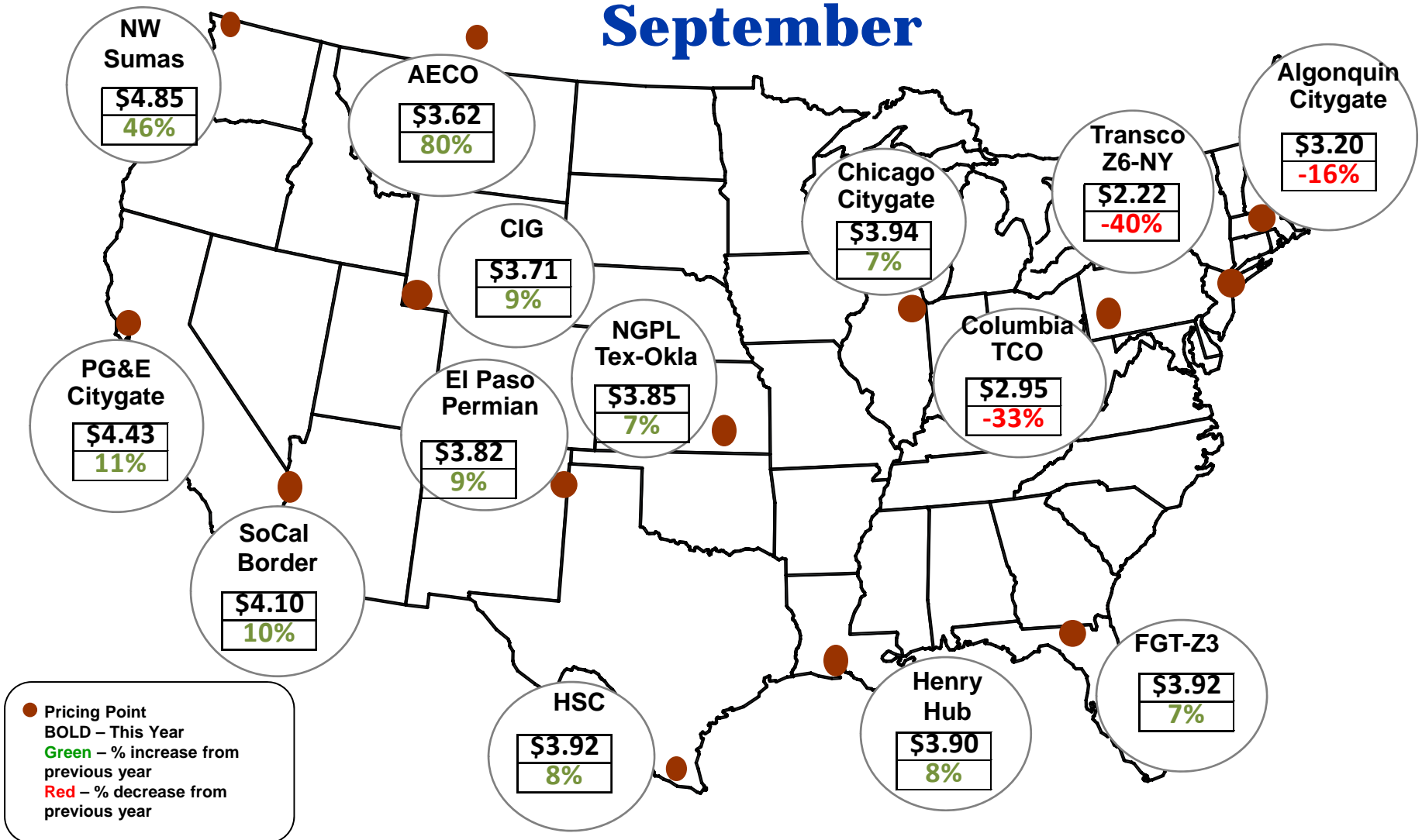
Source: Bloomberg Weather

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Spot Natural Gas Prices

Average (\$/MMBtu)

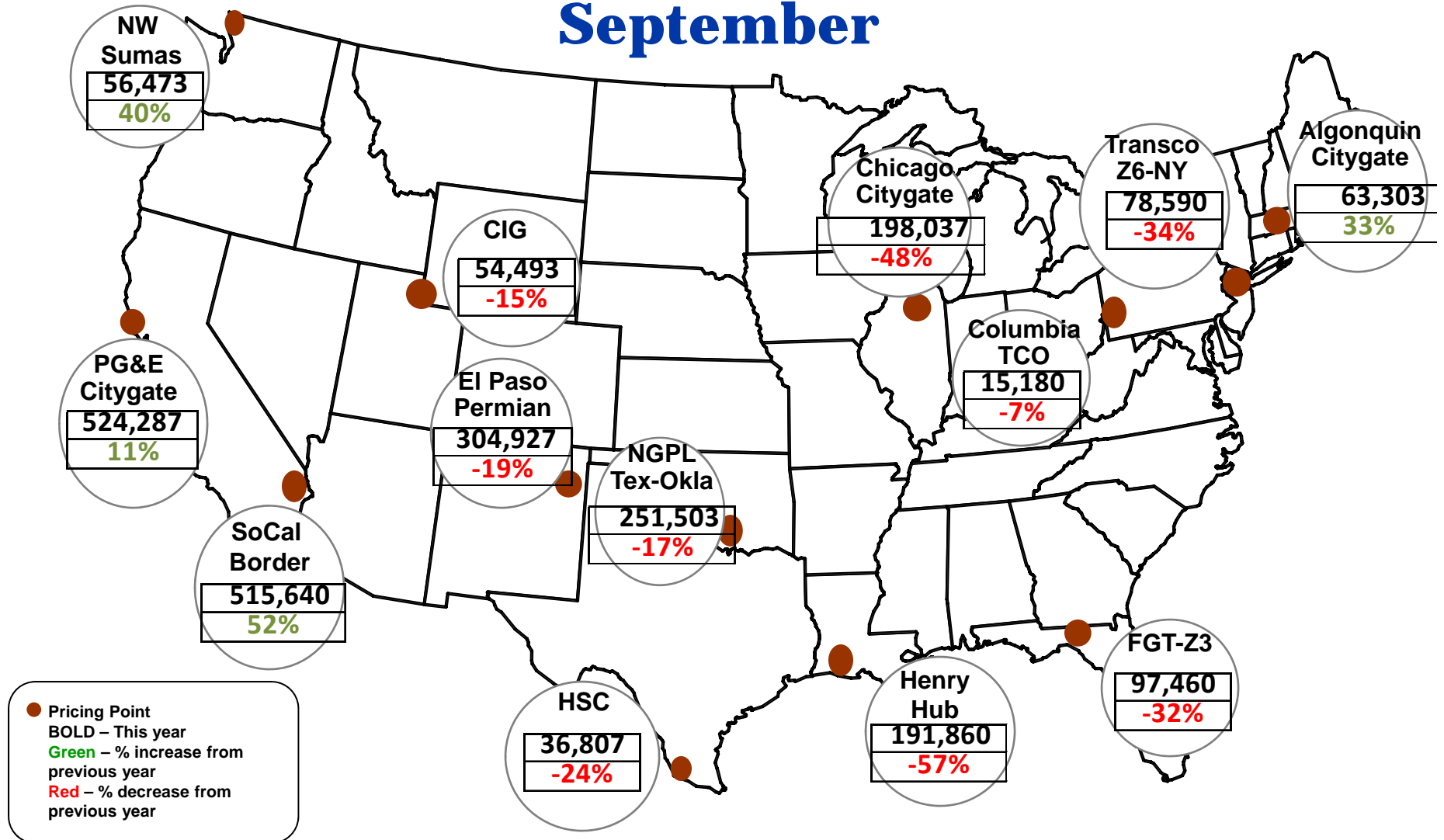
September



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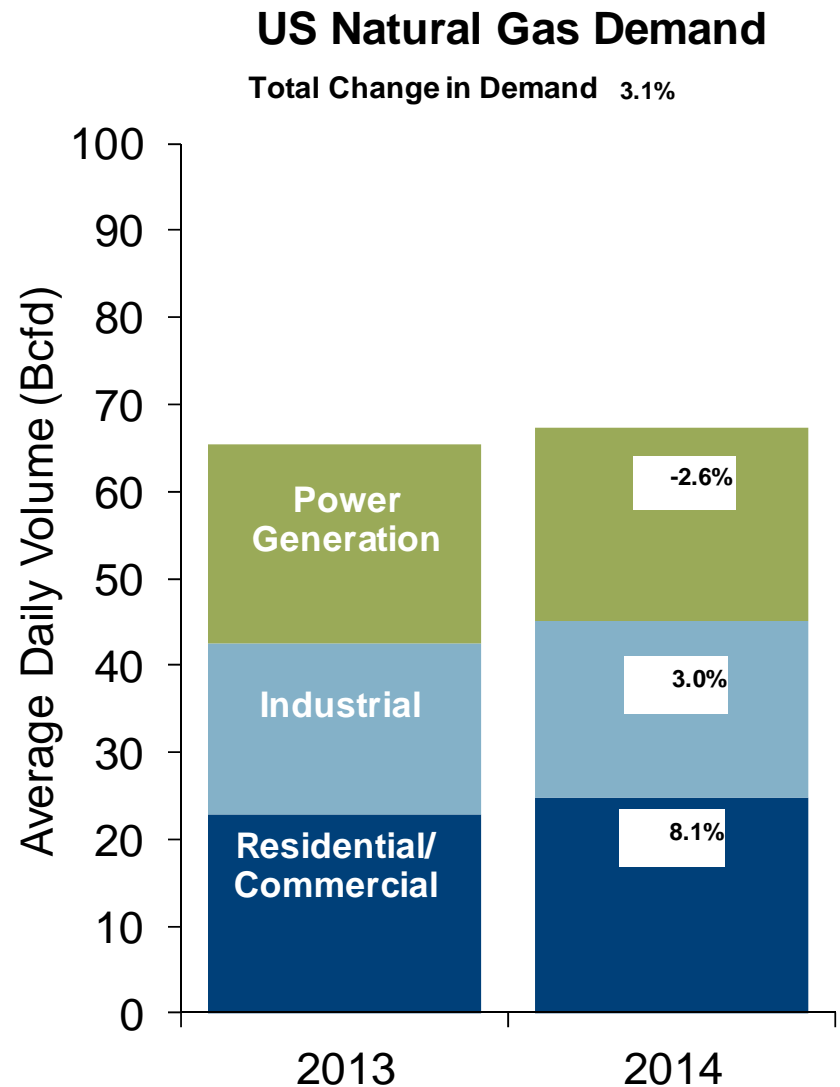
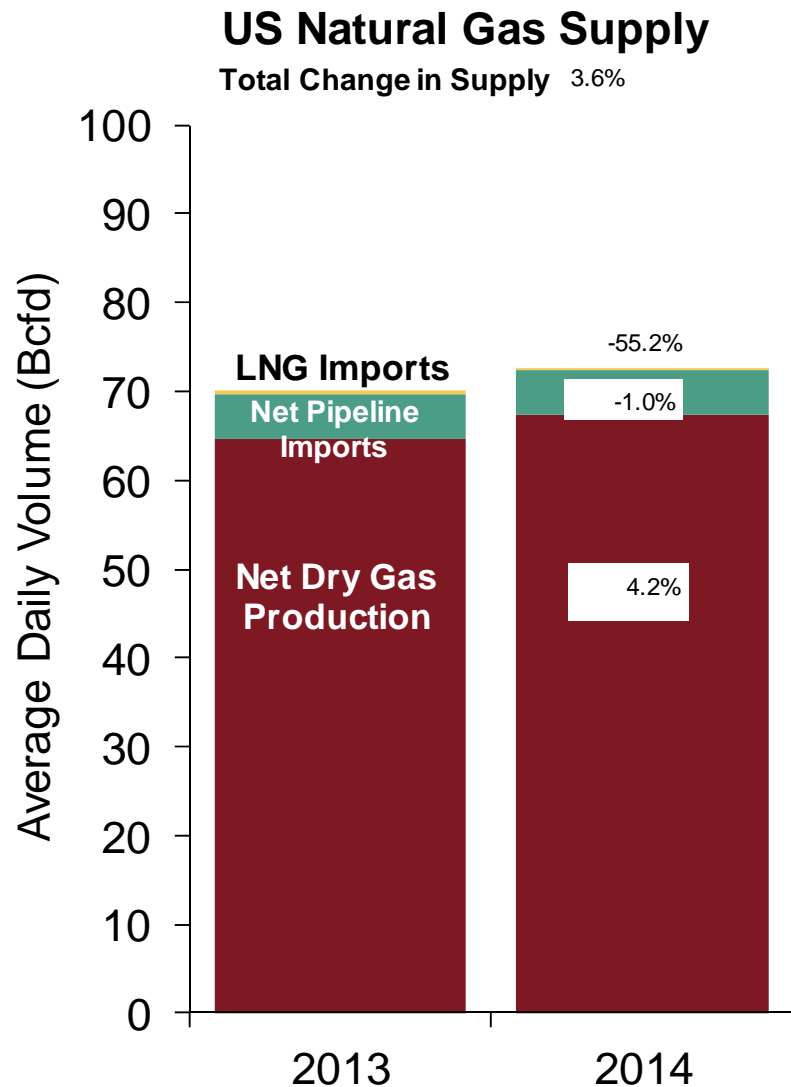
Spot Natural Gas Trading Volumes Average (MMBtus) September



Source: ICE

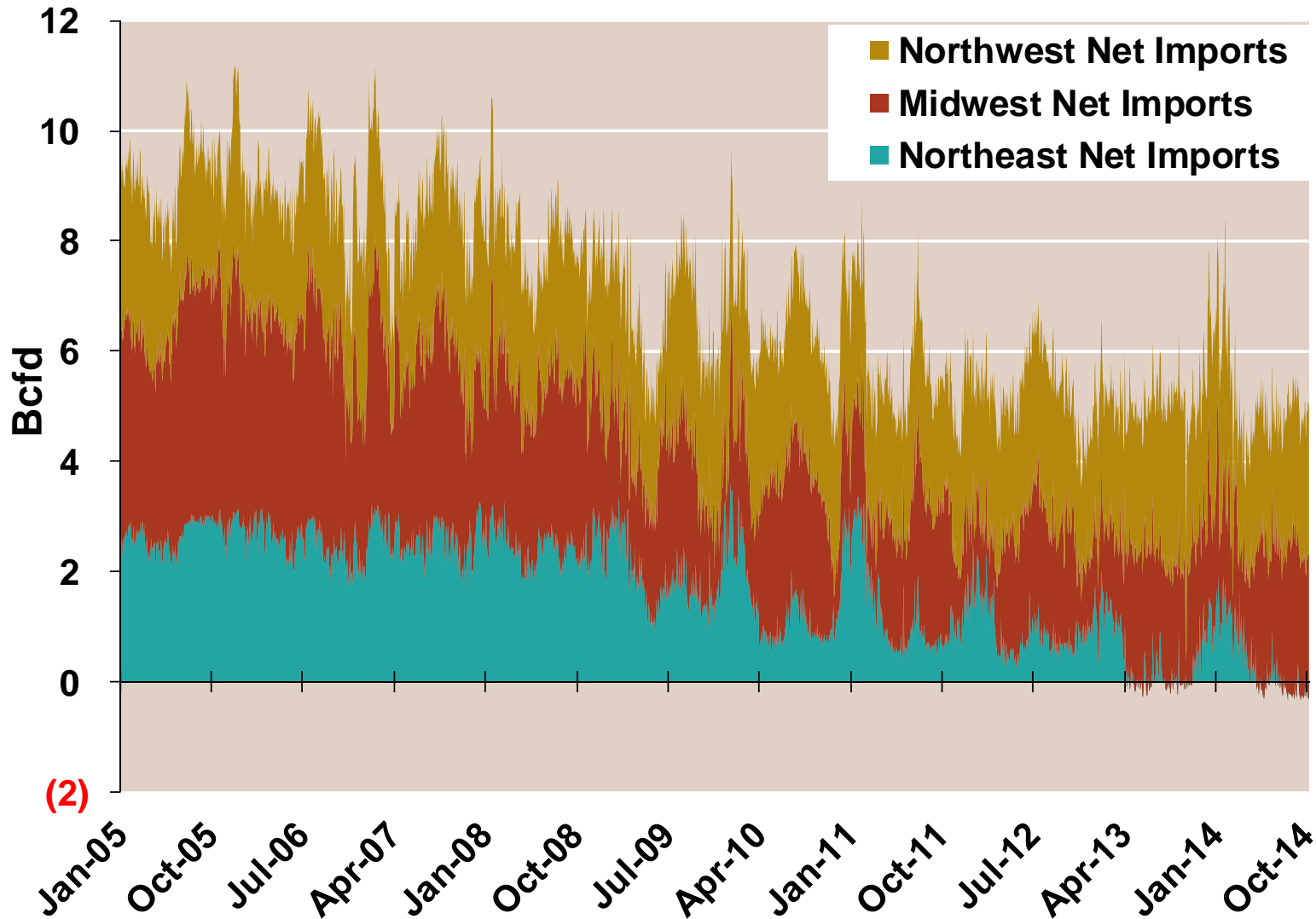
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U.S. NG Supply and Demand Year to Date - Sep 2013 vs. Sep 2014

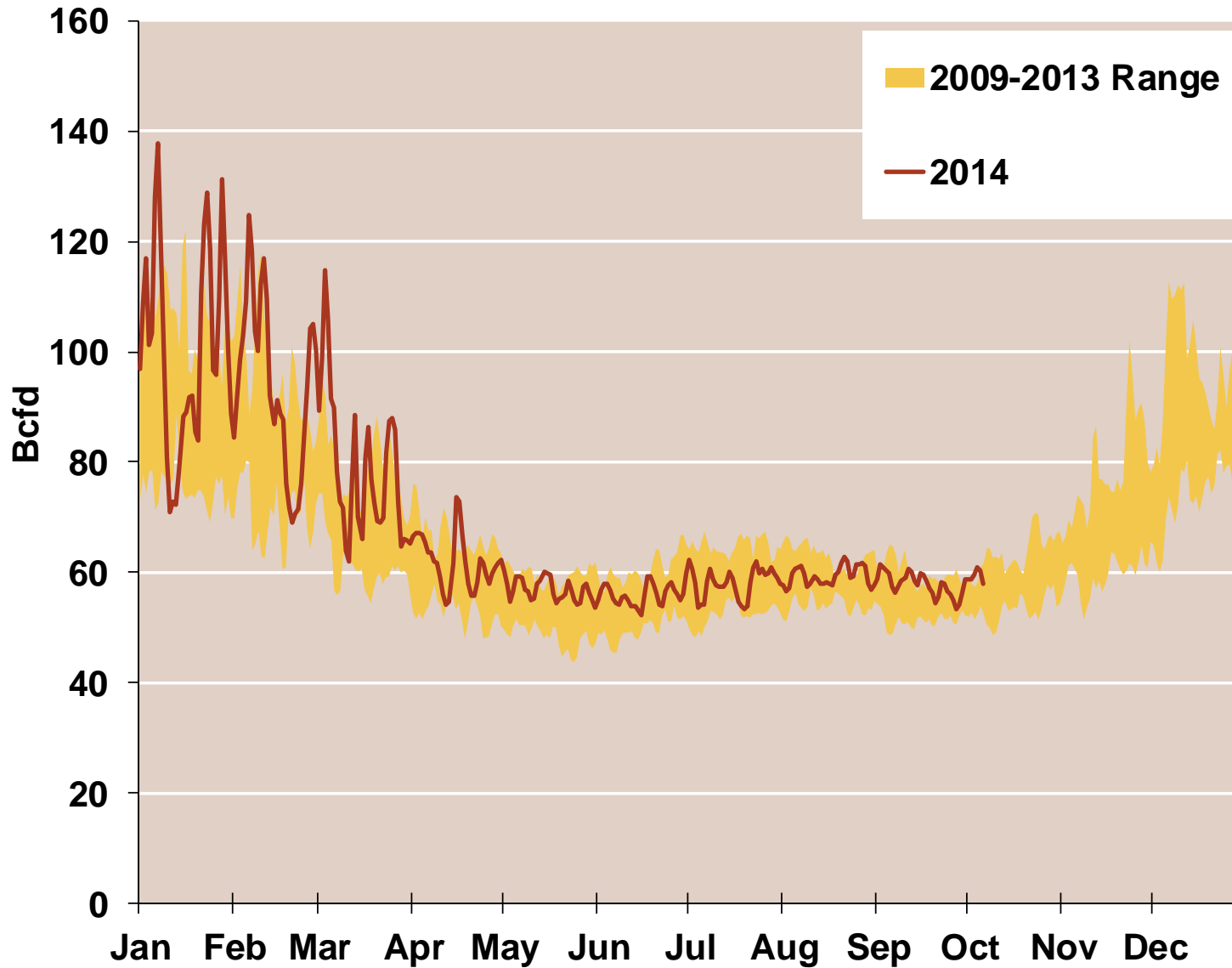


Note: Balance includes all amounts not attributable to other categories.
 Source: Derived from *Bentek Energy* data

Regional Imports from Canada



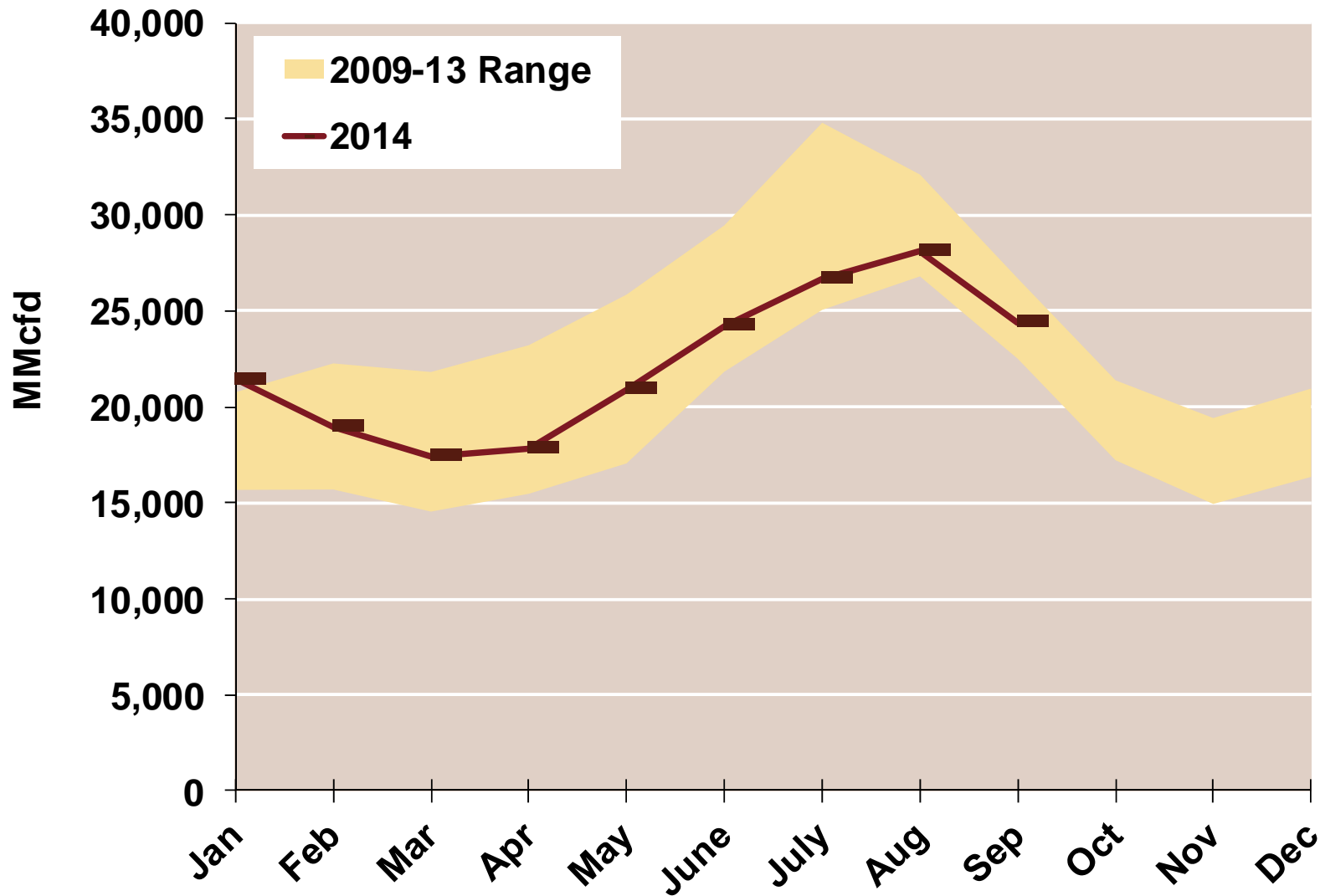
Total U.S. Natural Gas Demand All Sectors



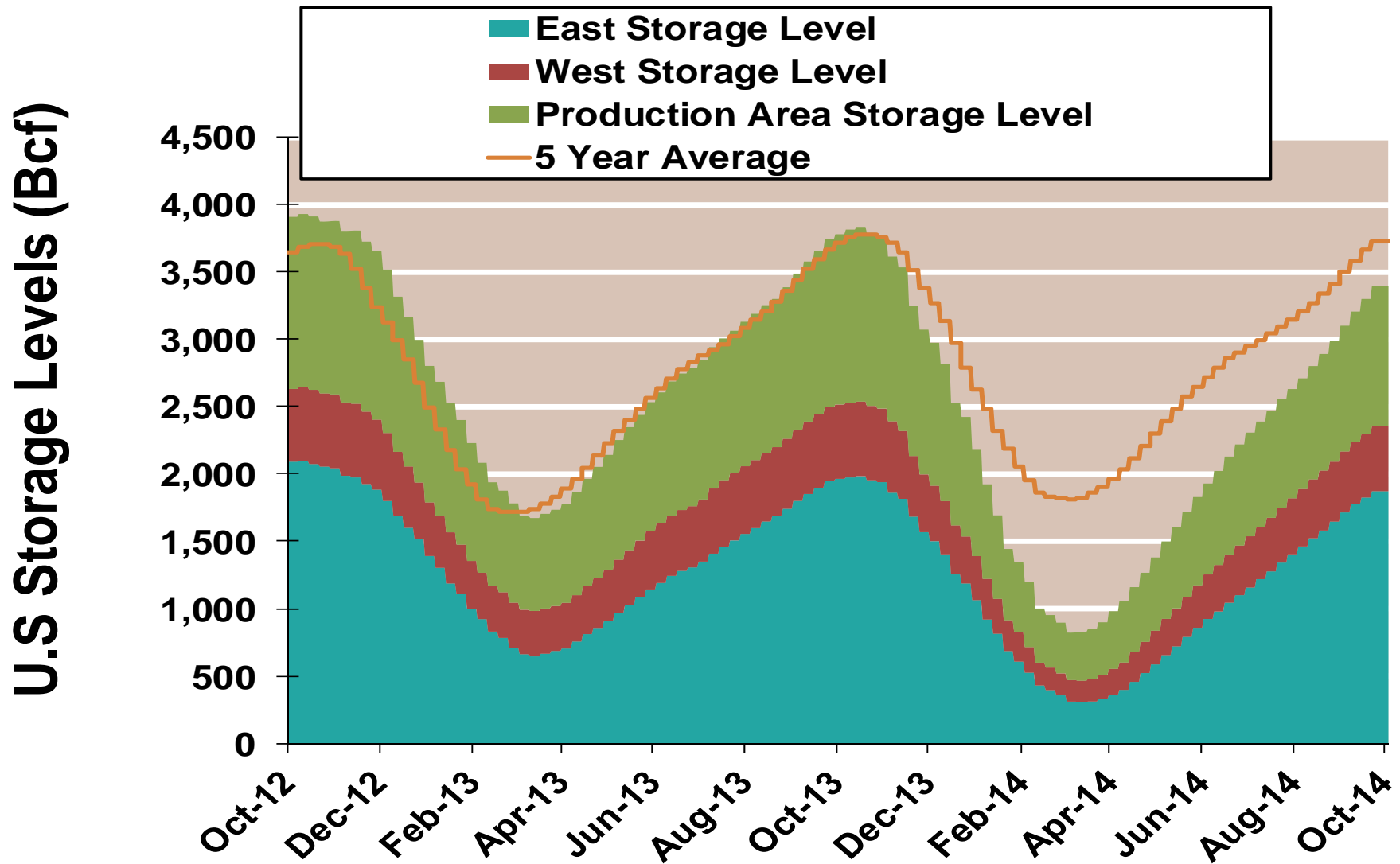
Source: Derived from *Bentek Energy* data, derived from interstate pipeline flow and modeled data.

Updated: October 2014

U.S. Natural Gas Consumption for Power Generation



EIA National Storage Inventories by Region

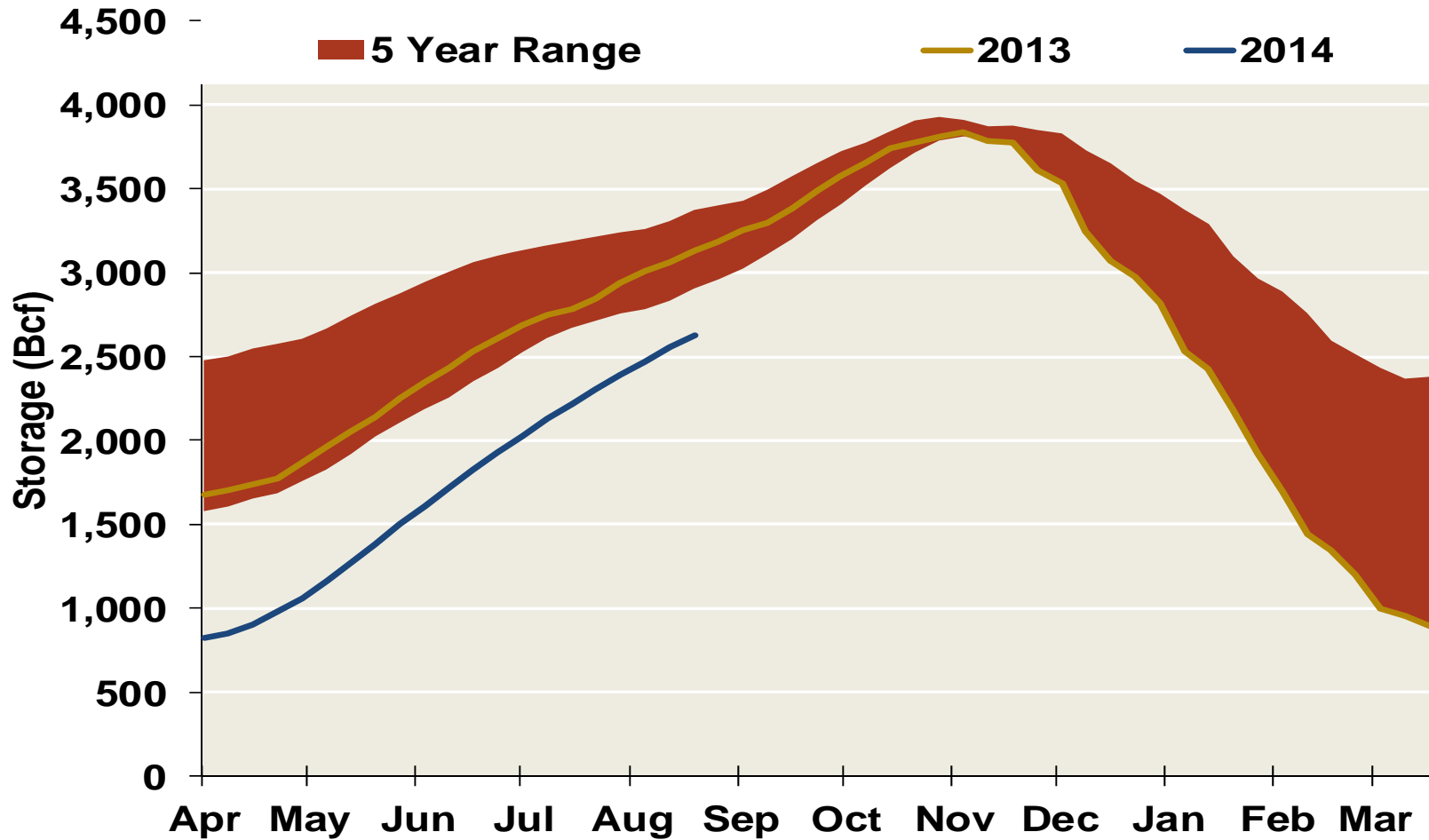


Notes:

Source: Derived from Bloomberg Data

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EIA National Storage Inventories

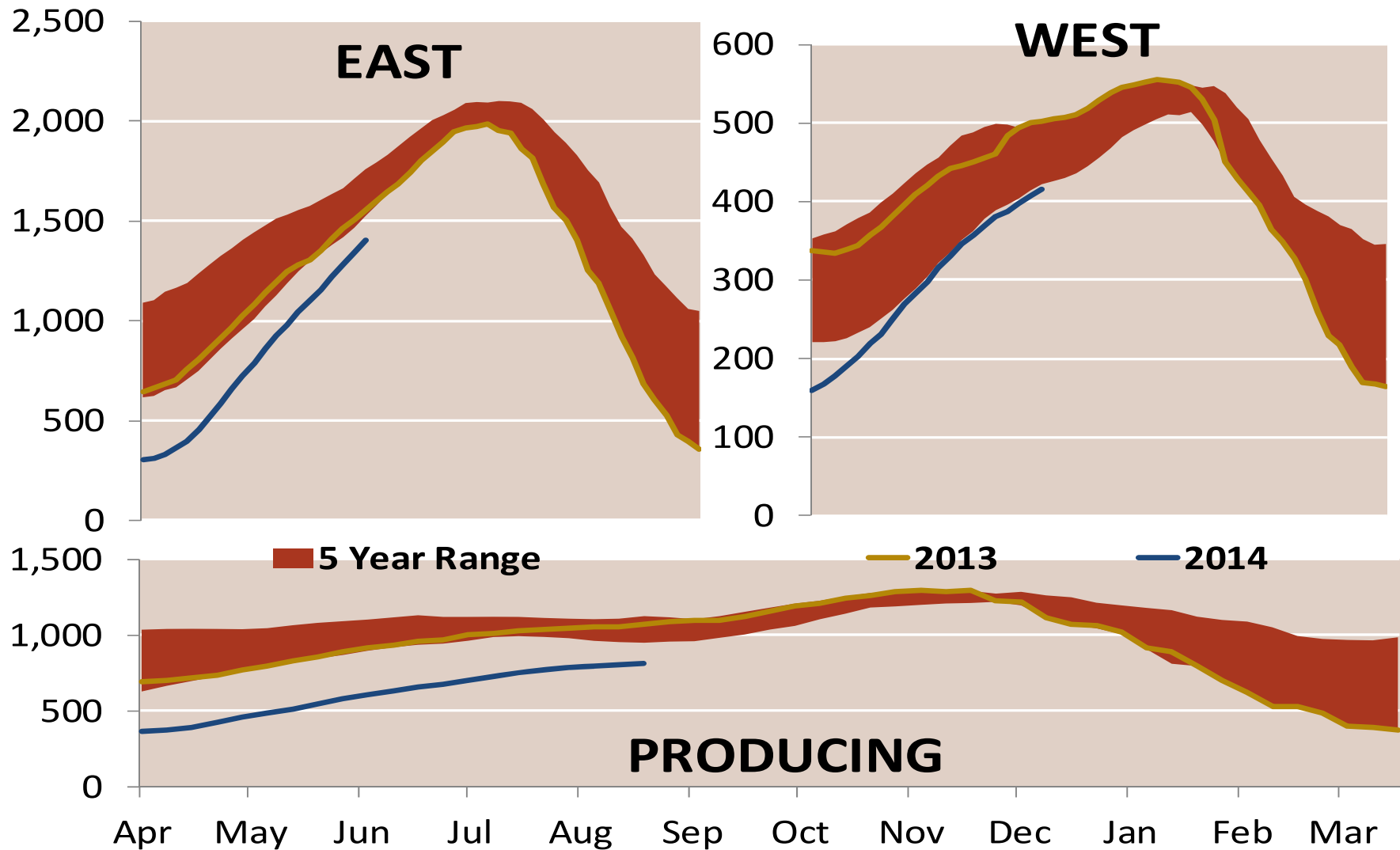


Notes:

Source: Derived from Bloomberg Data

Update 10/28/2014

EIA Regional Storage Inventories

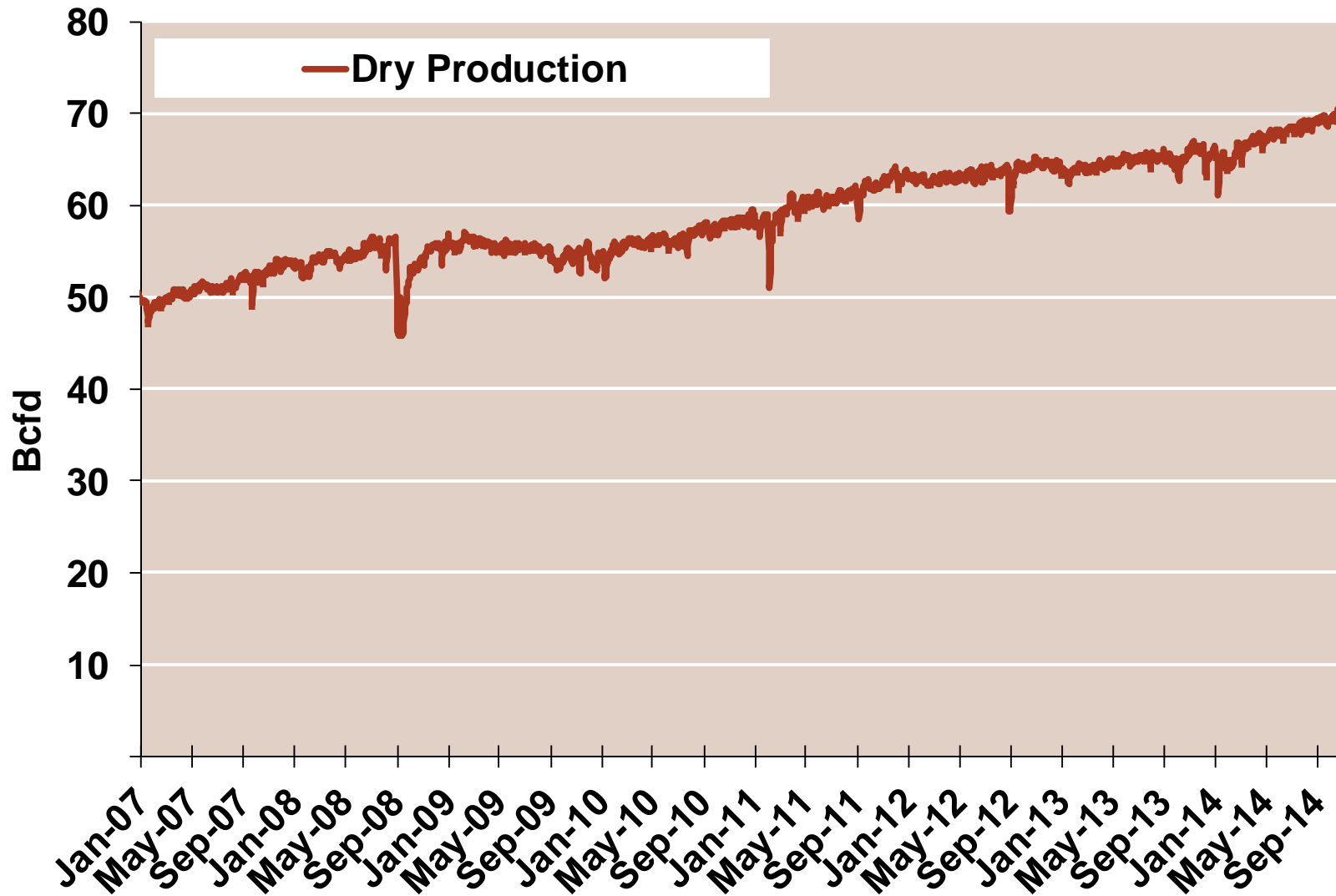


Notes:

Source: Derived from Bloomberg Data

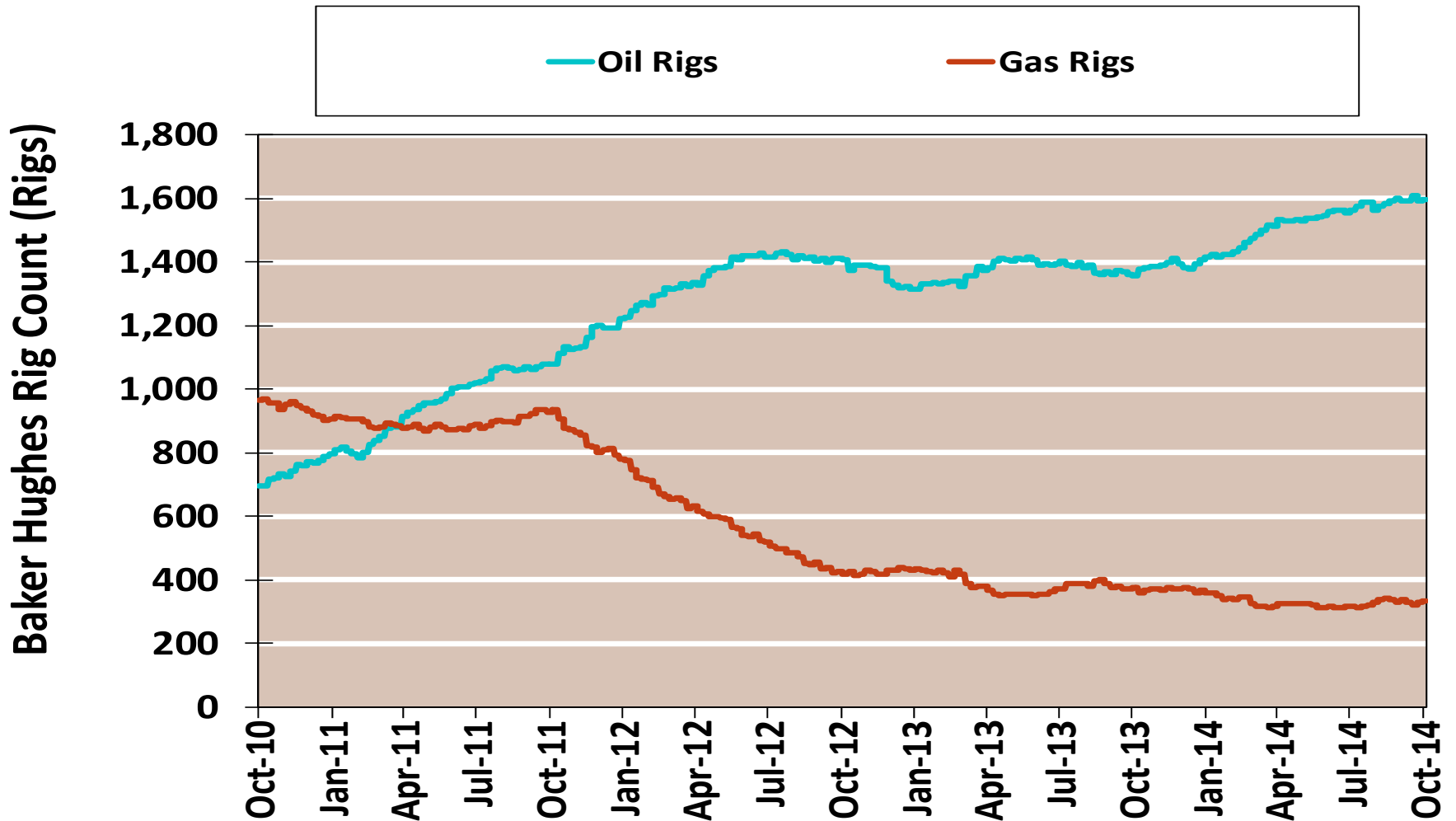
Update 10/28/2014

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



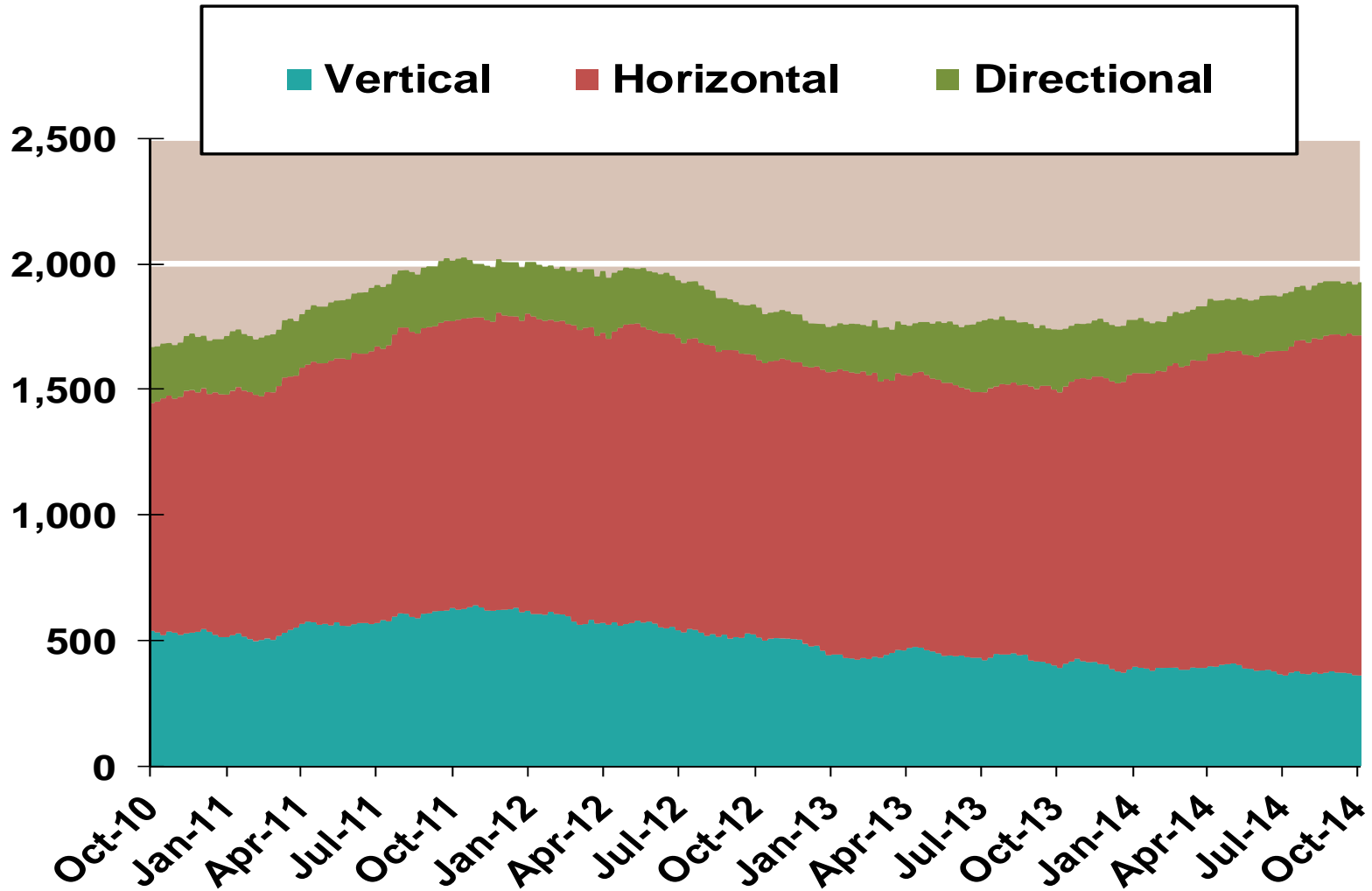
Notes:

Source: Derived from Bloomberg data

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Total US Rig Count

Baker Hughes Rigs By Drill Type

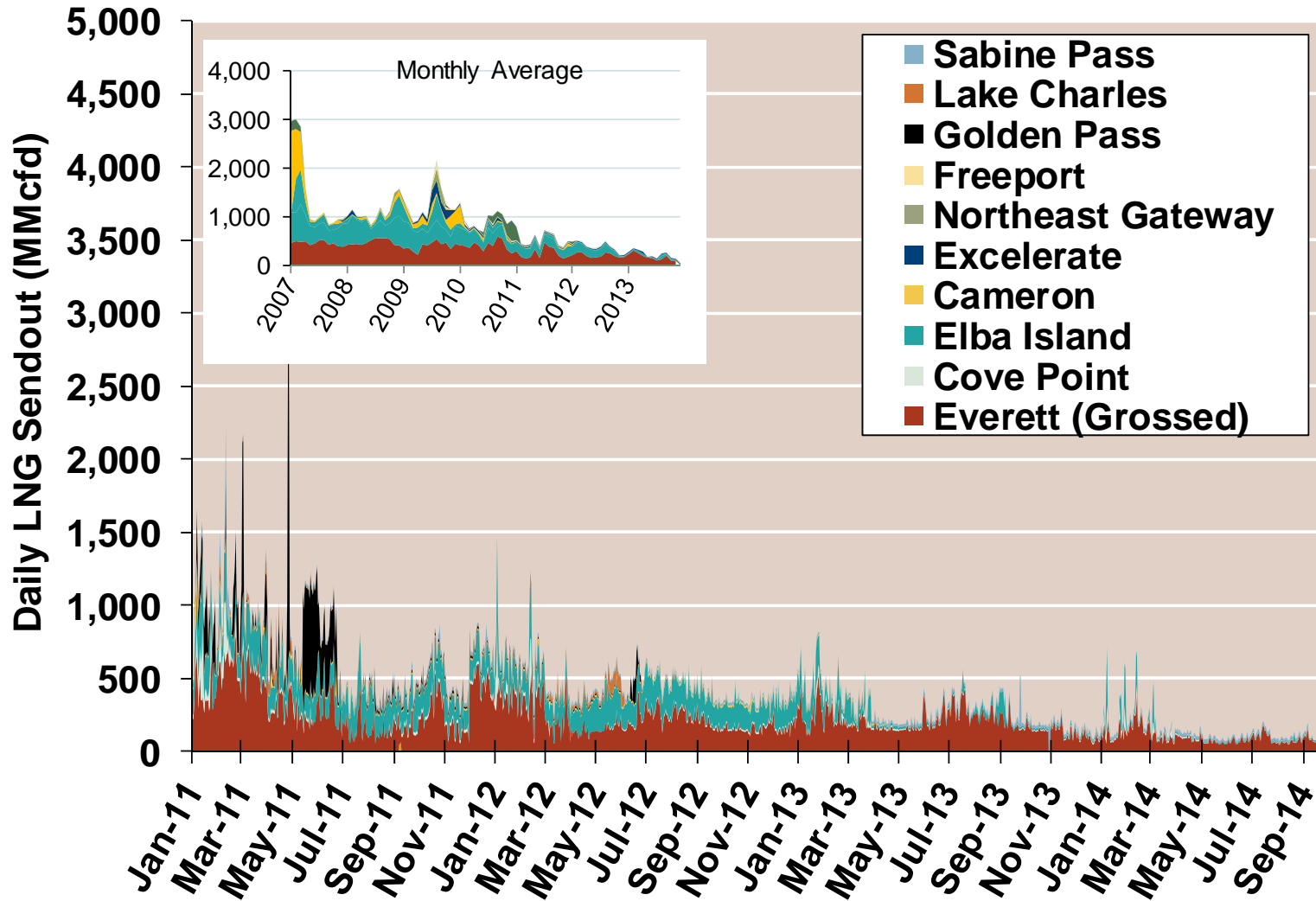


Notes:

Source: Derived from Bloomberg data

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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

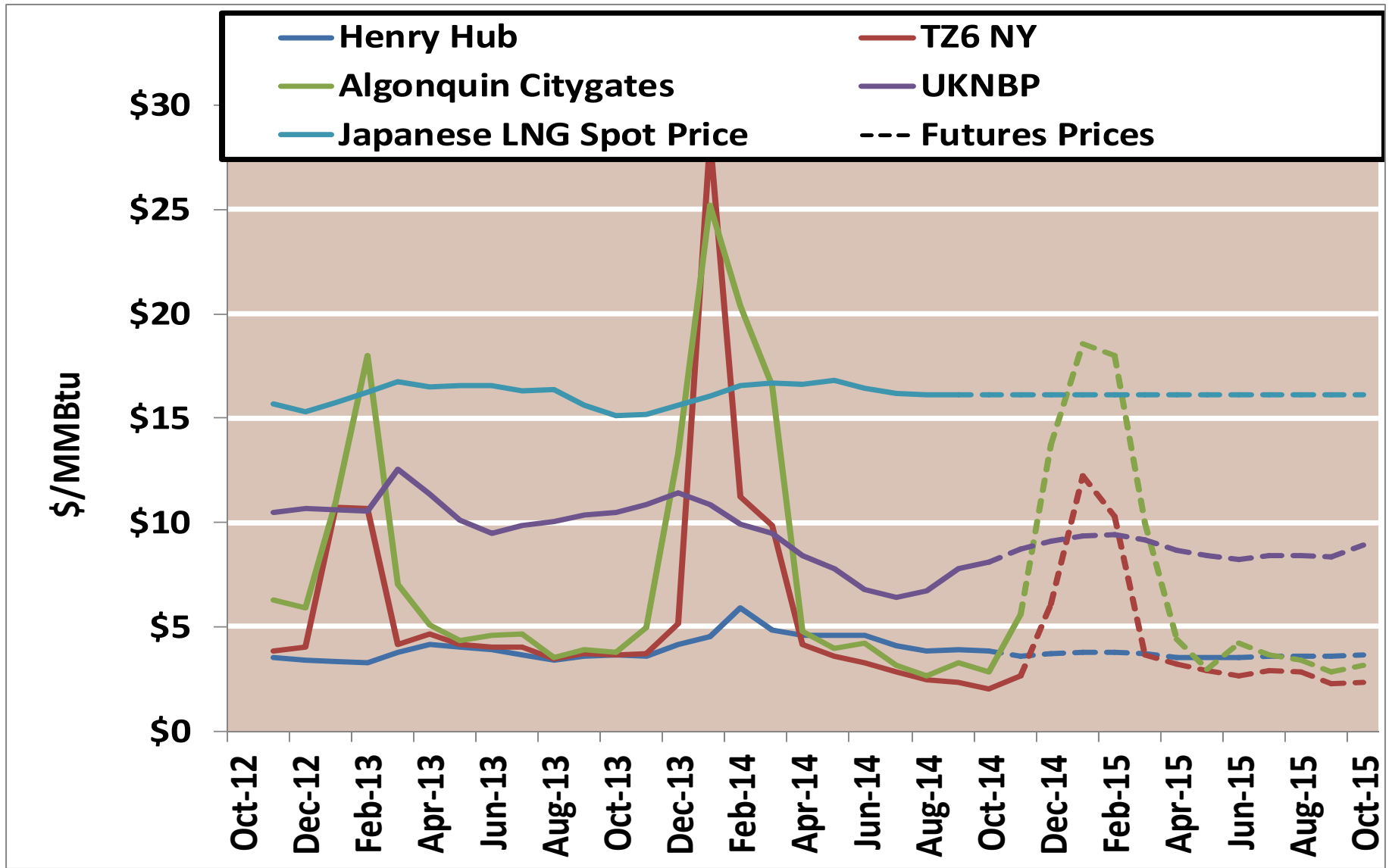


Source: Waterborne Energy, Inc. Data in \$US/MMBtu

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

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Historical and Future World Gas Prices

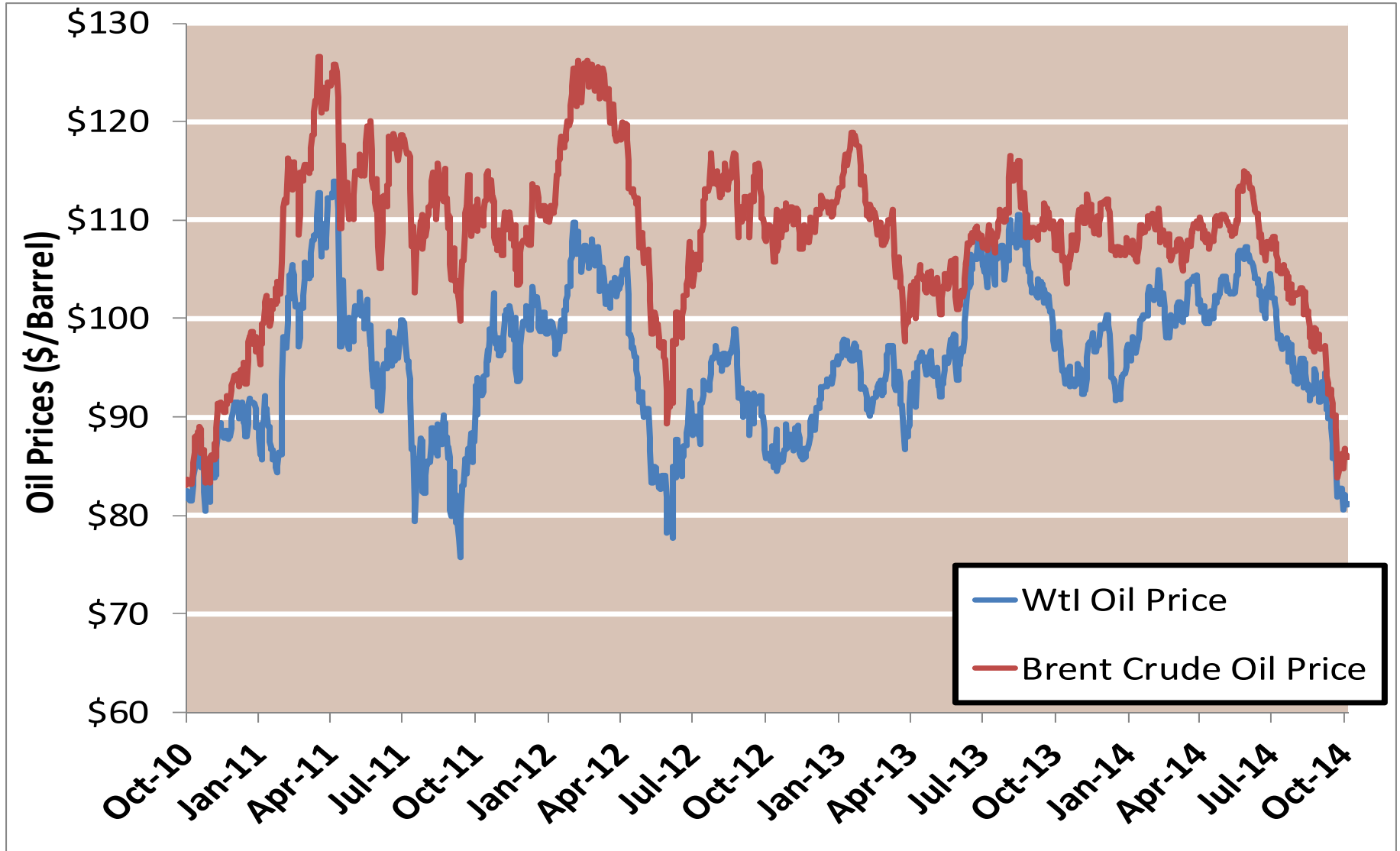


Notes:

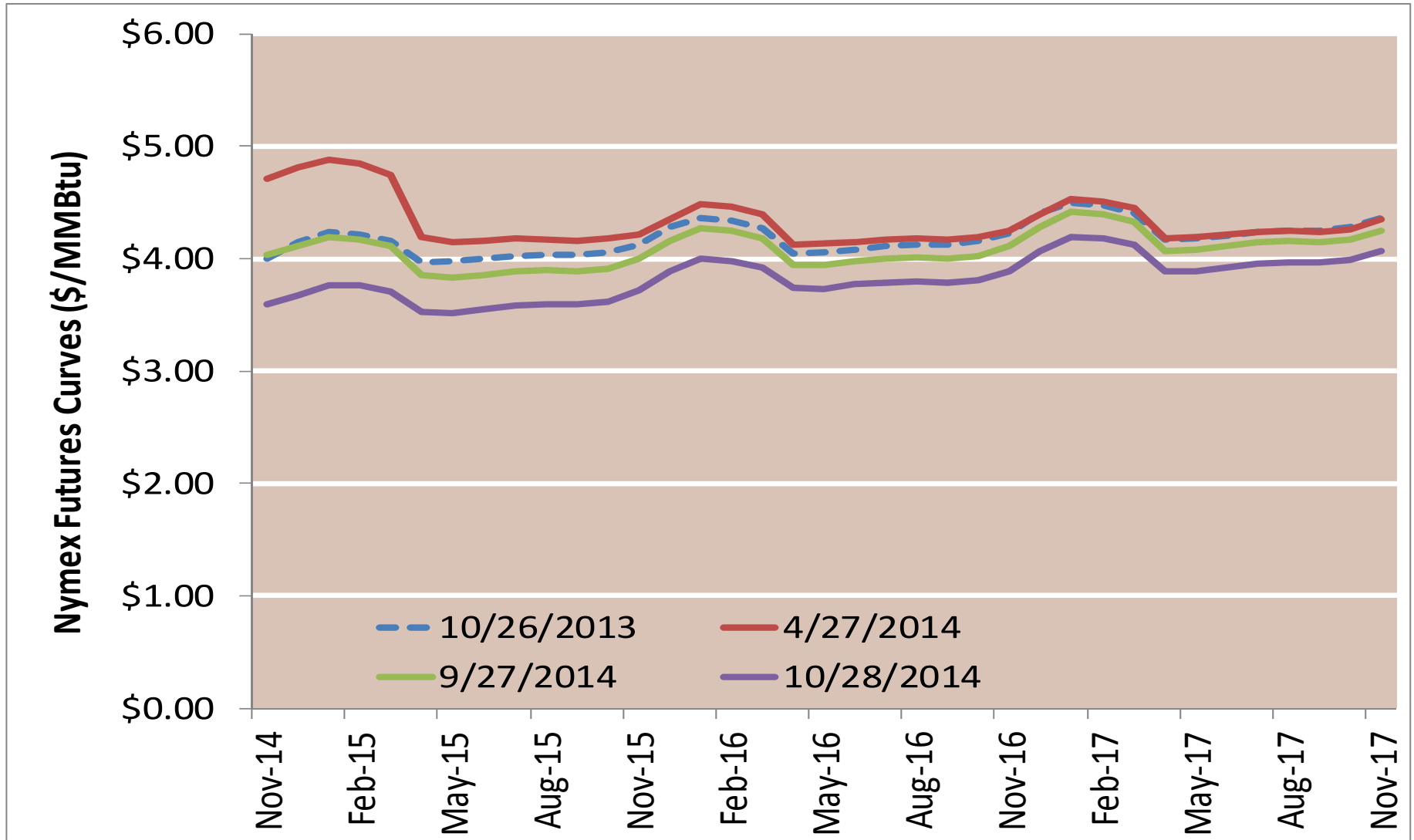
Source: Derived from Bloomberg data

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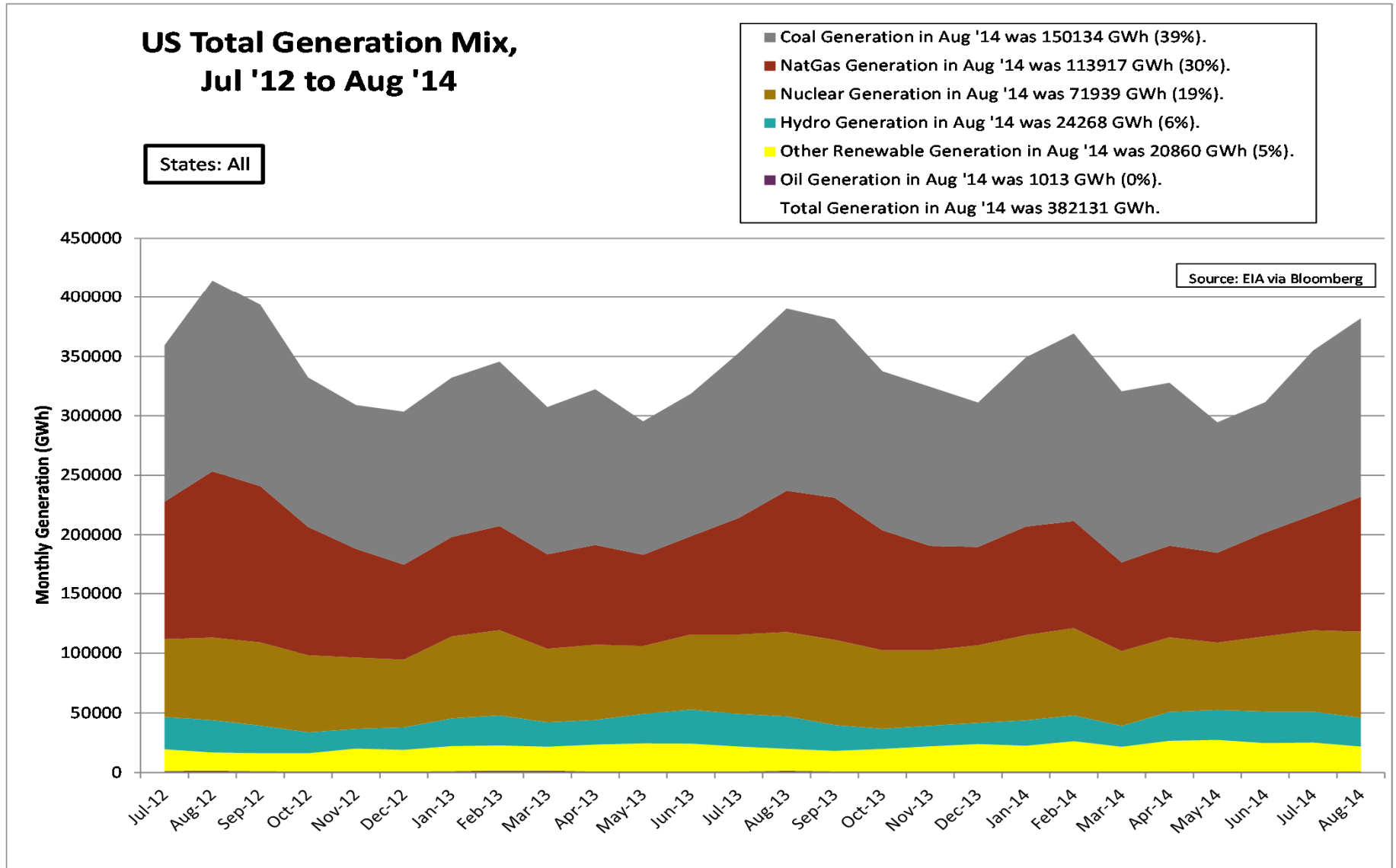
WTI vs Brent Crude Oil Price



Nymex Futures Curves



US Total Generation Mix



Updated: 10/29/2014



Natural Gas and Fuels Markets

Central

Midwest Day-Ahead Natural Gas Prices Averaged Annually/Seasonally

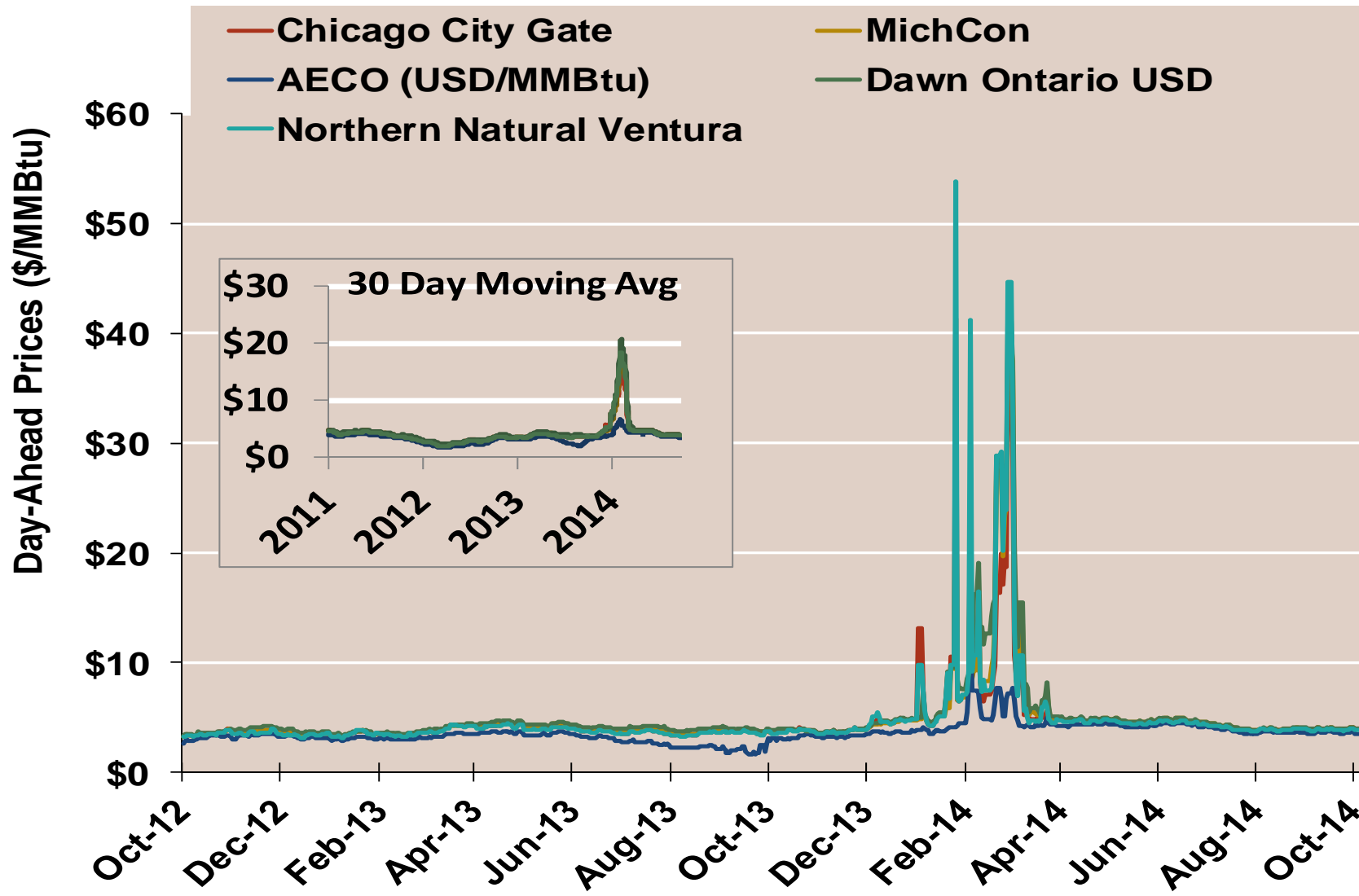
	Average Day Ahead Prices (\$/MMBtu)	Chicago City Gate	MichCon	AECO C Hub Natural Gas/USD	Dawn Ontario USD	NNG/NBP Ventura	Henry Hub
2011	Annual	4.11	4.20	3.66	4.37	4.03	3.98
	Summer	4.22	4.33	3.78	4.44	4.13	4.14
	Winter 2011/2012	2.87	2.95	2.49	3.21	2.78	2.74
2012	Annual	2.85	2.90	2.39	3.07	2.77	2.75
	Summer	2.77	2.80	2.24	2.93	2.70	2.69
	Winter 2012/2013	3.63	3.67	3.22	3.84	3.57	3.47
2013	Annual	3.85	3.91	3.09	4.08	3.80	3.72
	Summer	3.84	3.96	2.94	4.15	3.77	3.76
	Winter 2013/2014	7.42	7.81	4.36	8.68	8.19	4.61
2014 YTD	Annual	6.02	6.31	4.30	6.77	6.40	4.51
	Summer	4.30	4.40	3.99	4.43	4.24	4.24
	Winter 2014/2015						

Notes:

Source: Derived from ICE data

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Midwest Day-Ahead Prices

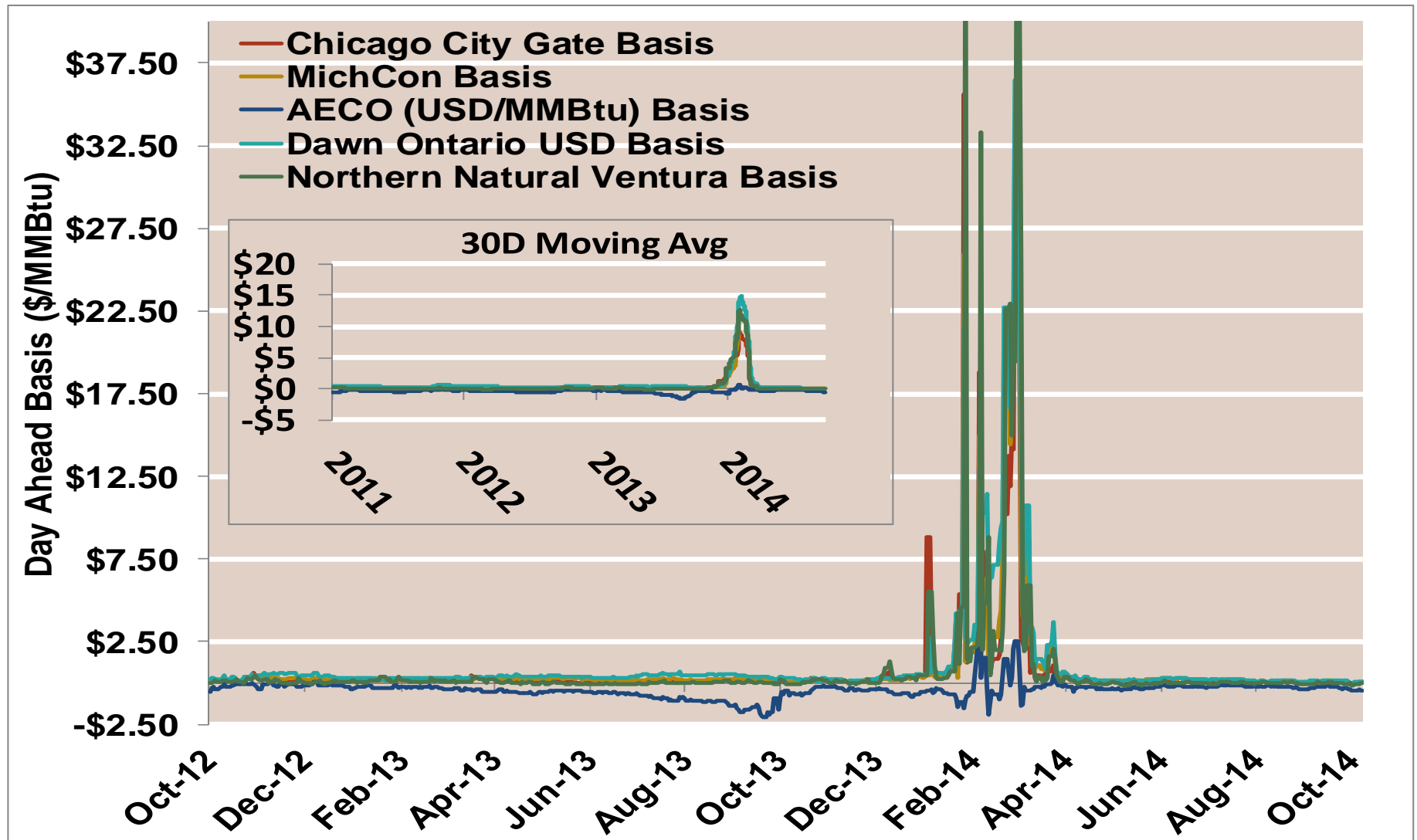


Notes:

Source: Derived from ICE data

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Midwest Day-Ahead Basis

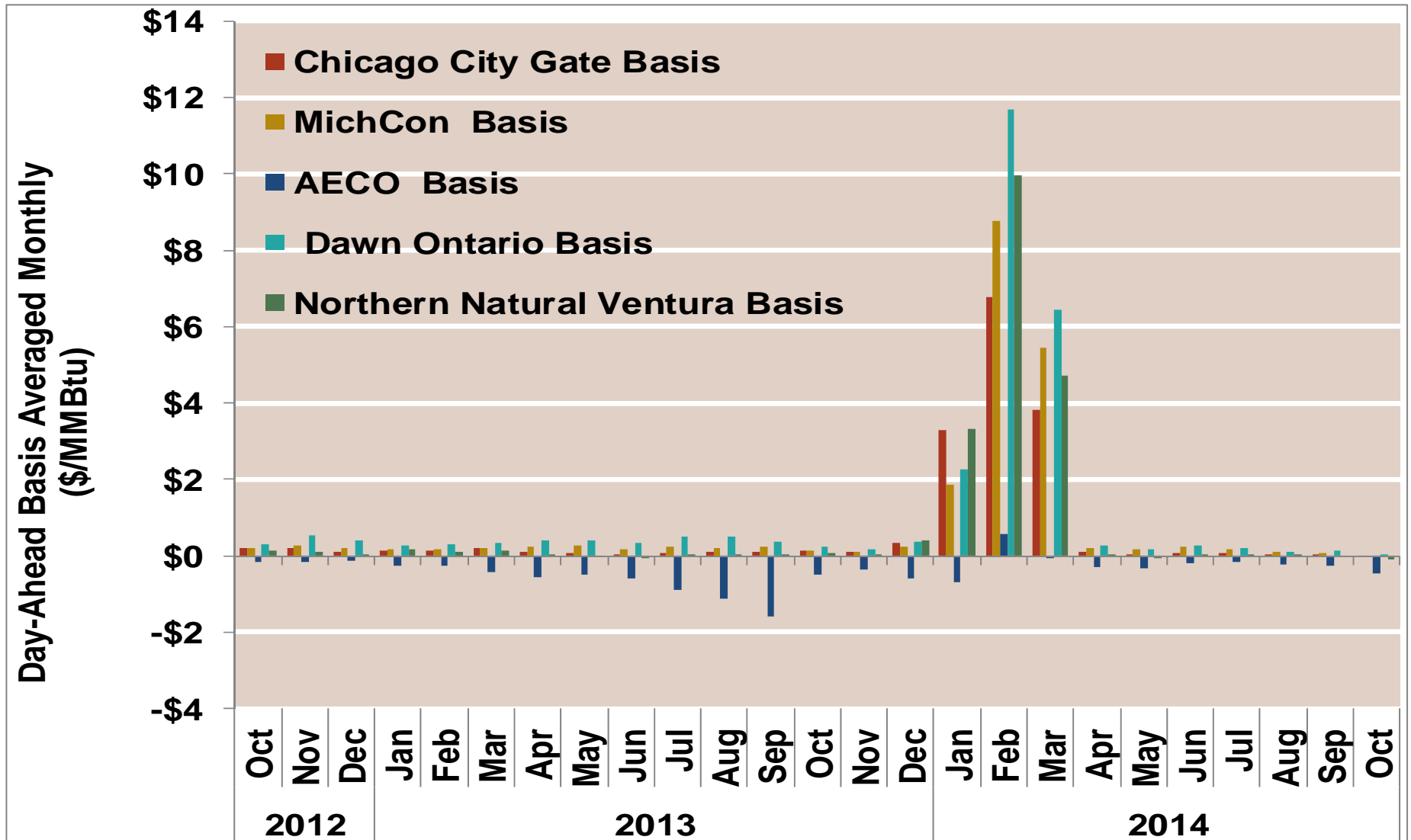


Notes:

Source: Derived from ICE data

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Midwest Monthly Average Basis Value To Henry Hub

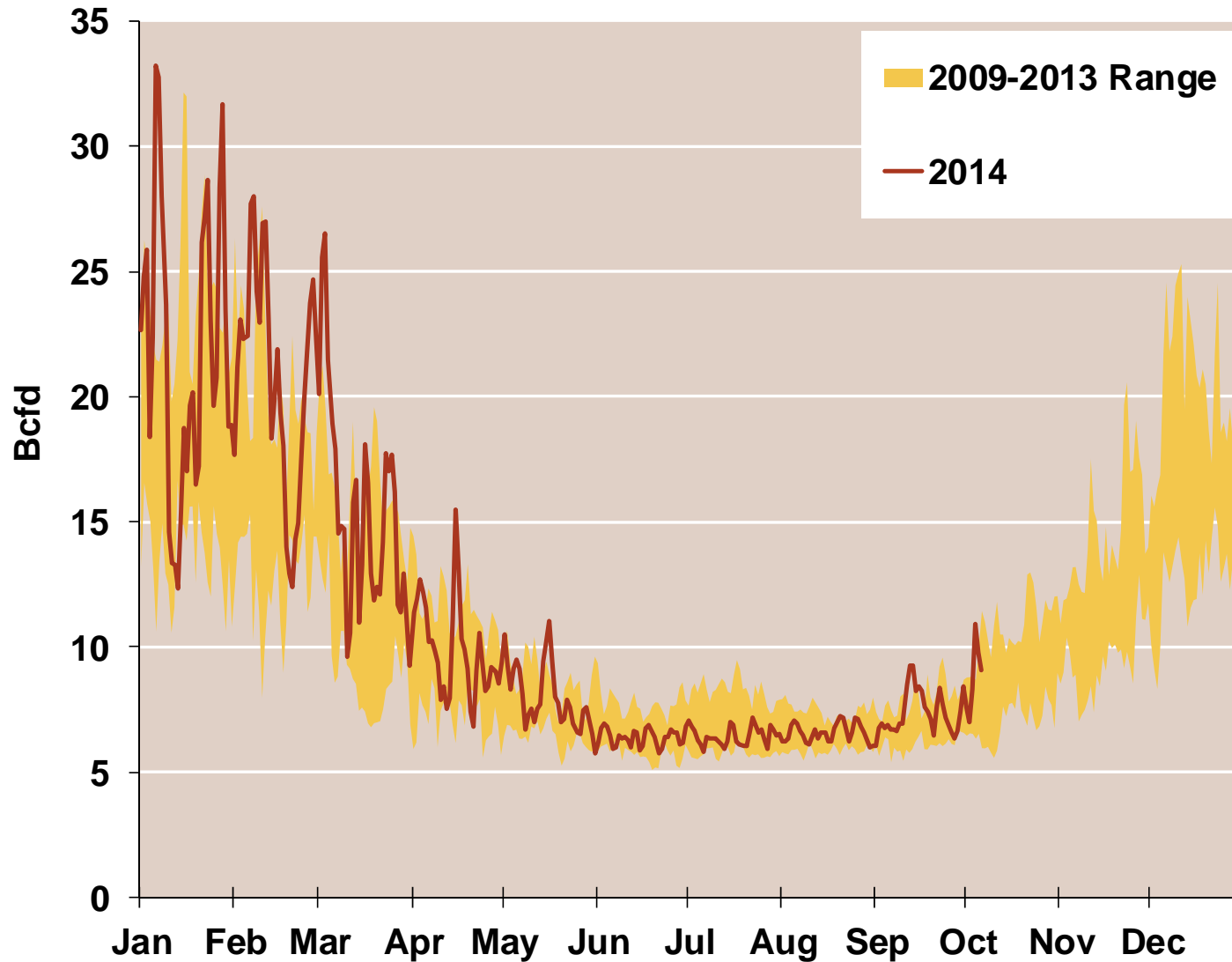


Notes:

Source: Derived from ICE data

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Daily Midwest Natural Gas Demand All Sectors

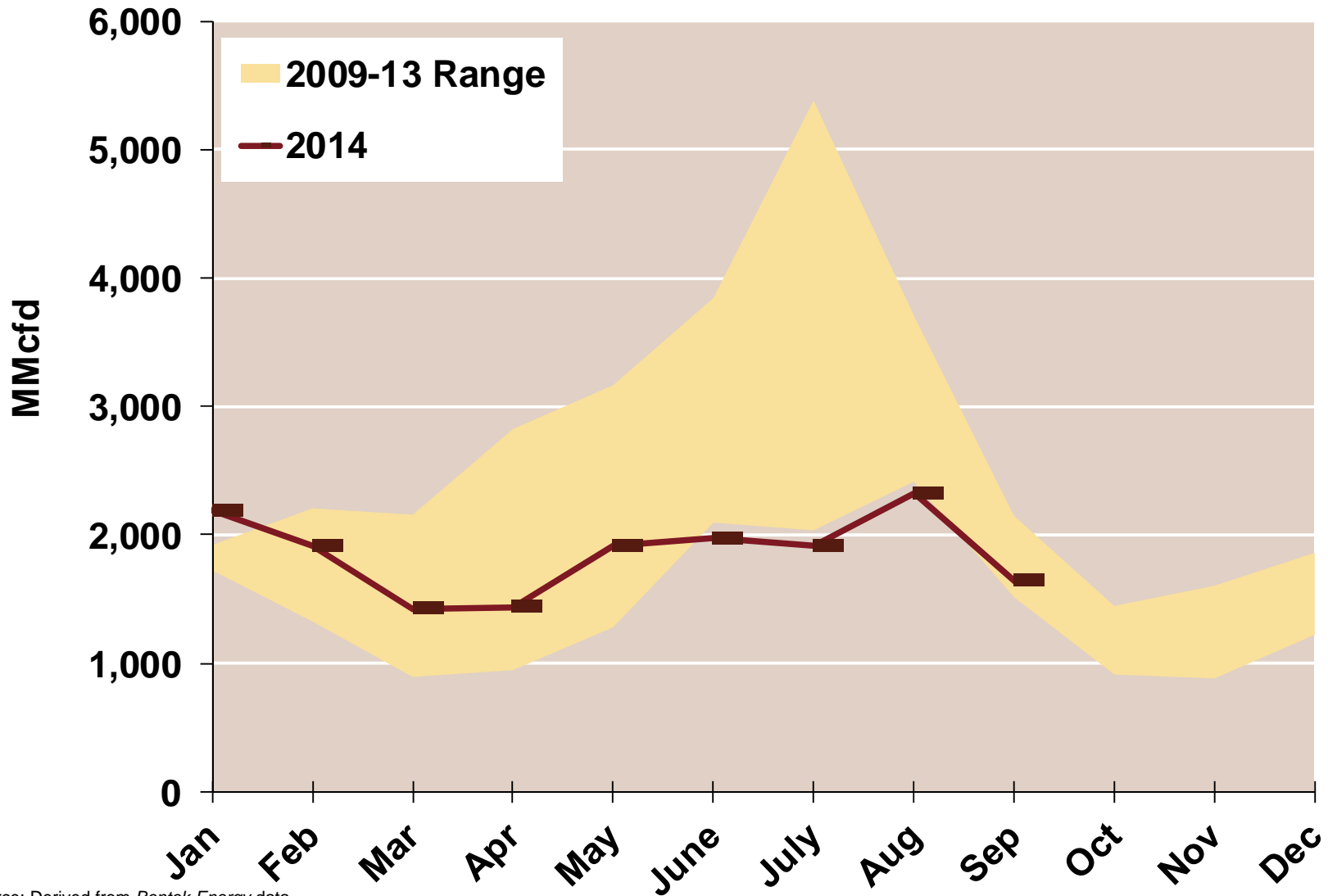


Source: Derived from *Bentek Energy* data

Note: Midwest is defined as Michigan, Indiana, Illinois, Wisconsin, Iowa, Minnesota, Nebraska, South Dakota, and North Dakota

Updated: October 2014

Midwest Natural Gas Consumption for Power Generation

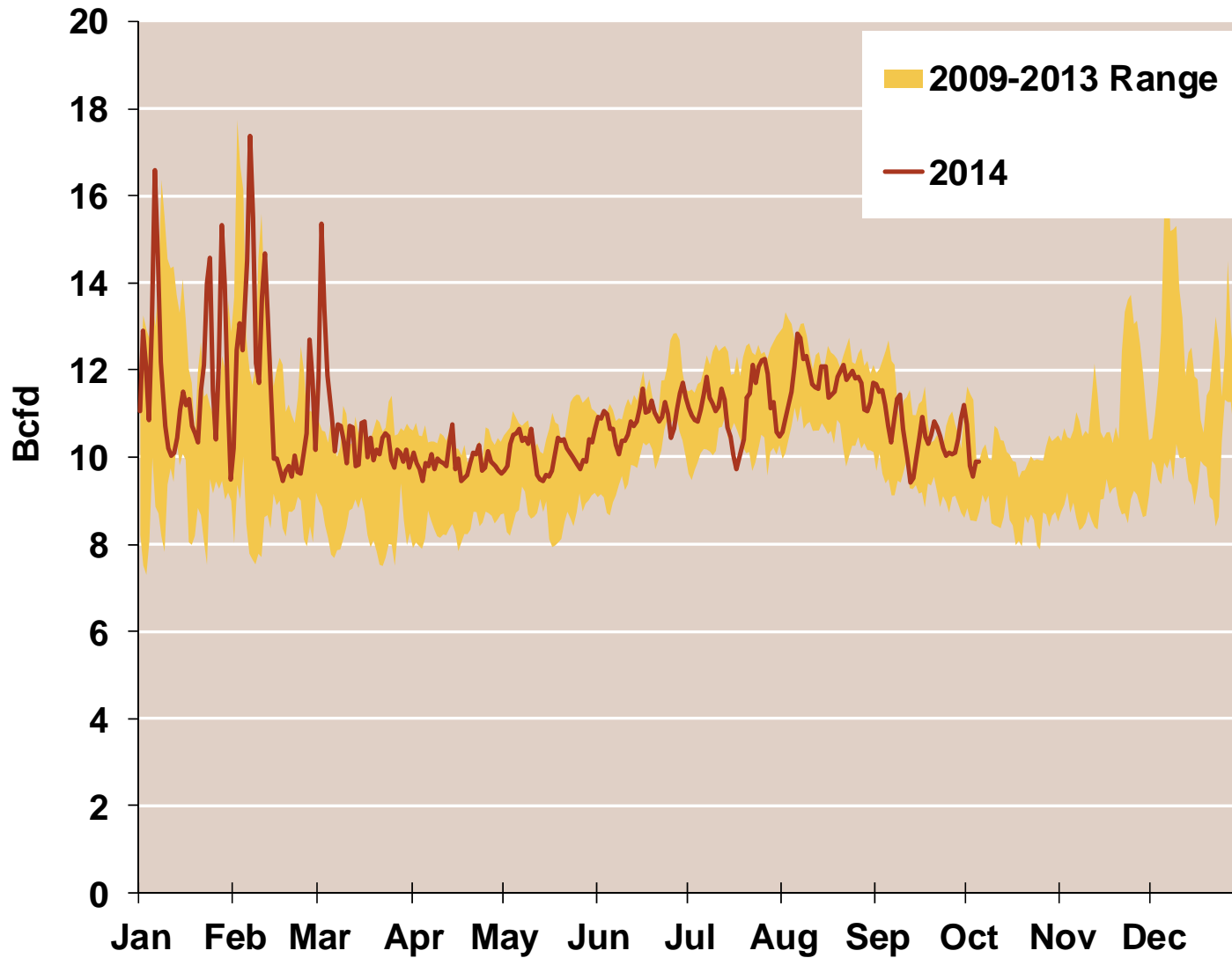


Source: Derived from Bentek Energy data

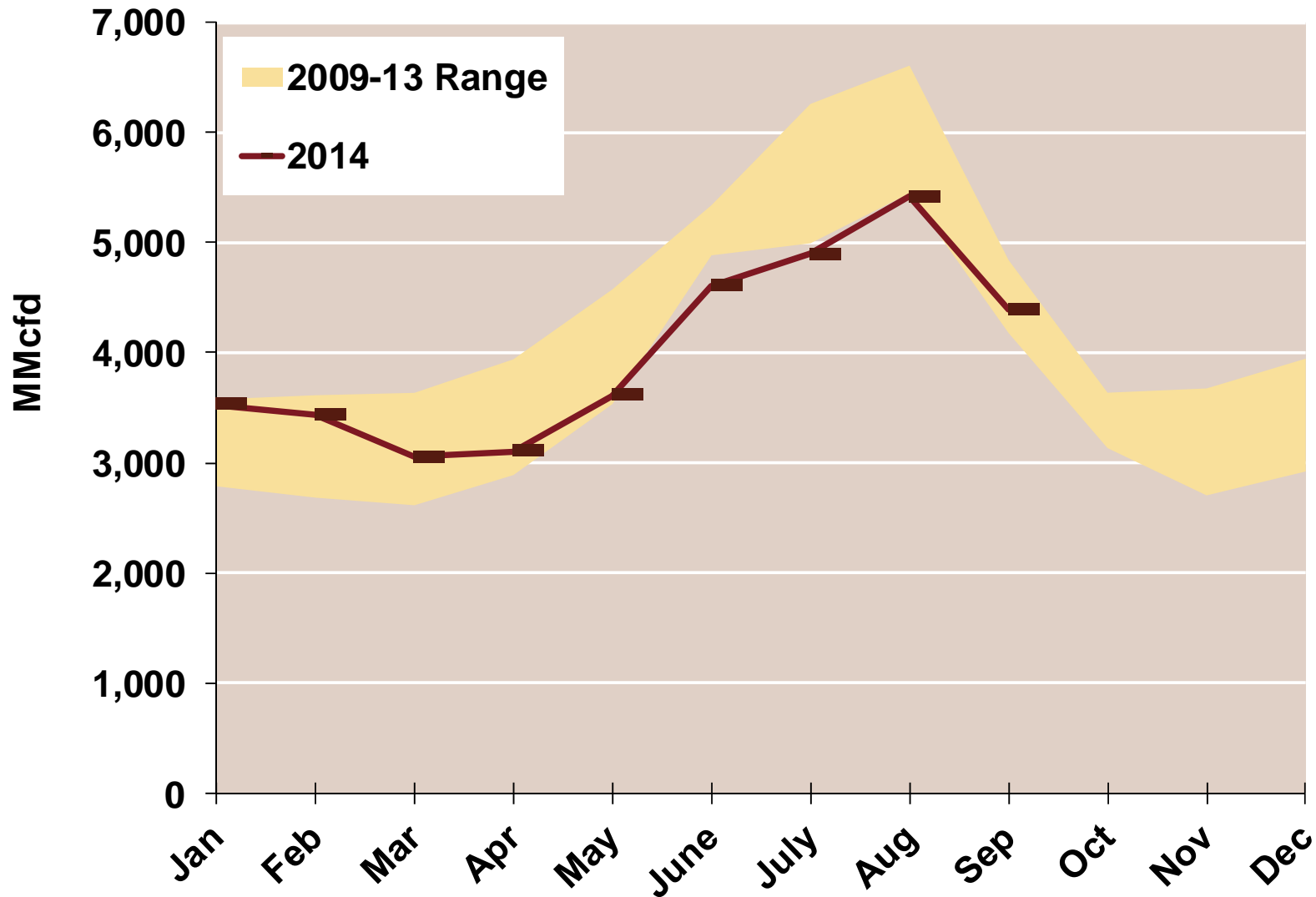
Note: Midwest is defined as Michigan, Indiana, Illinois, Wisconsin, Iowa, Minnesota, Nebraska, South Dakota, and North Dakota

Updated: October 2014

Daily Texas Natural Gas Demand All Sectors



Texas Natural Gas Consumption for Power Generation



Source: Derived from *Bentek Energy* data

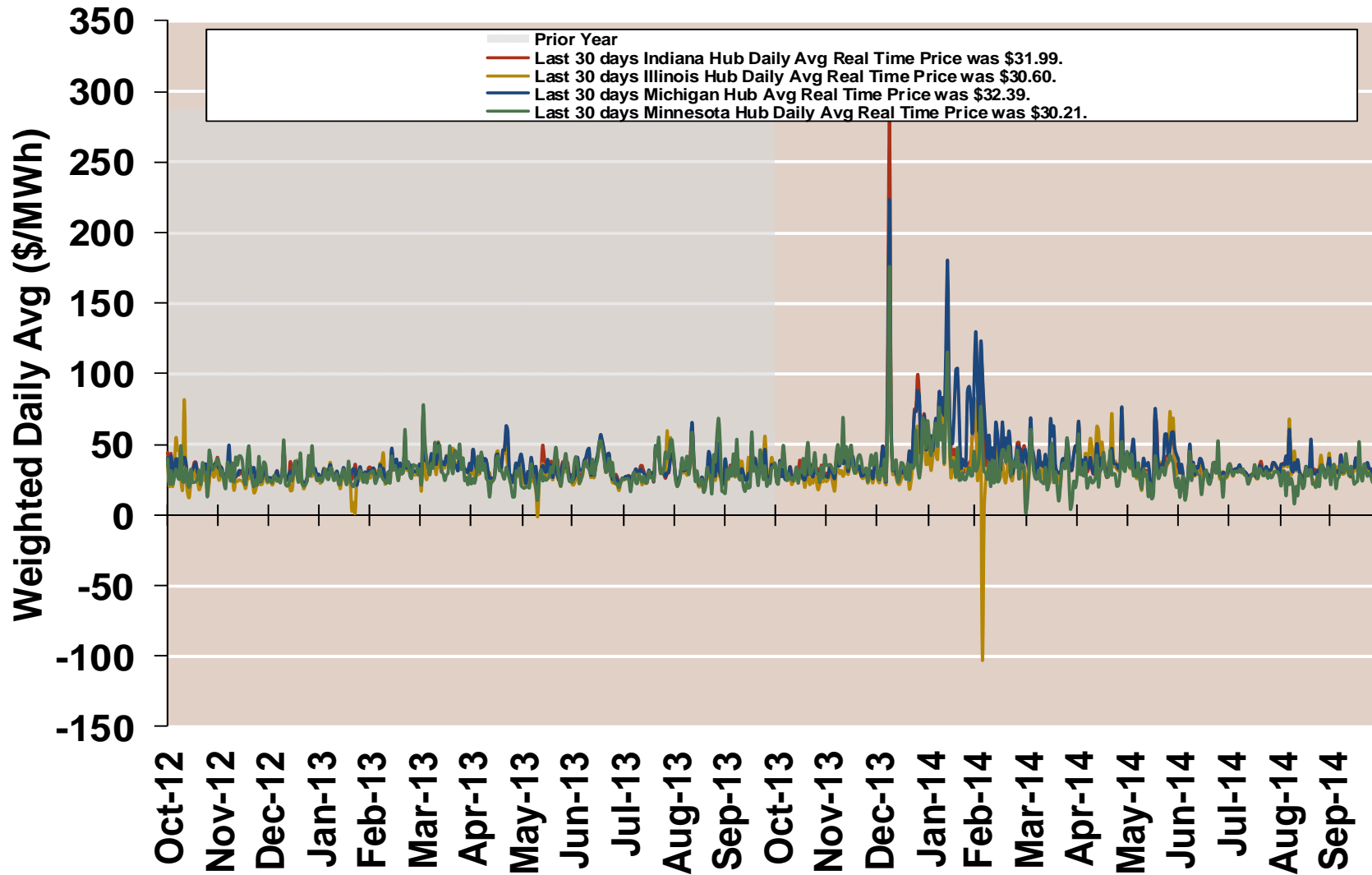
Updated: October 2014



Electricity Markets

Central

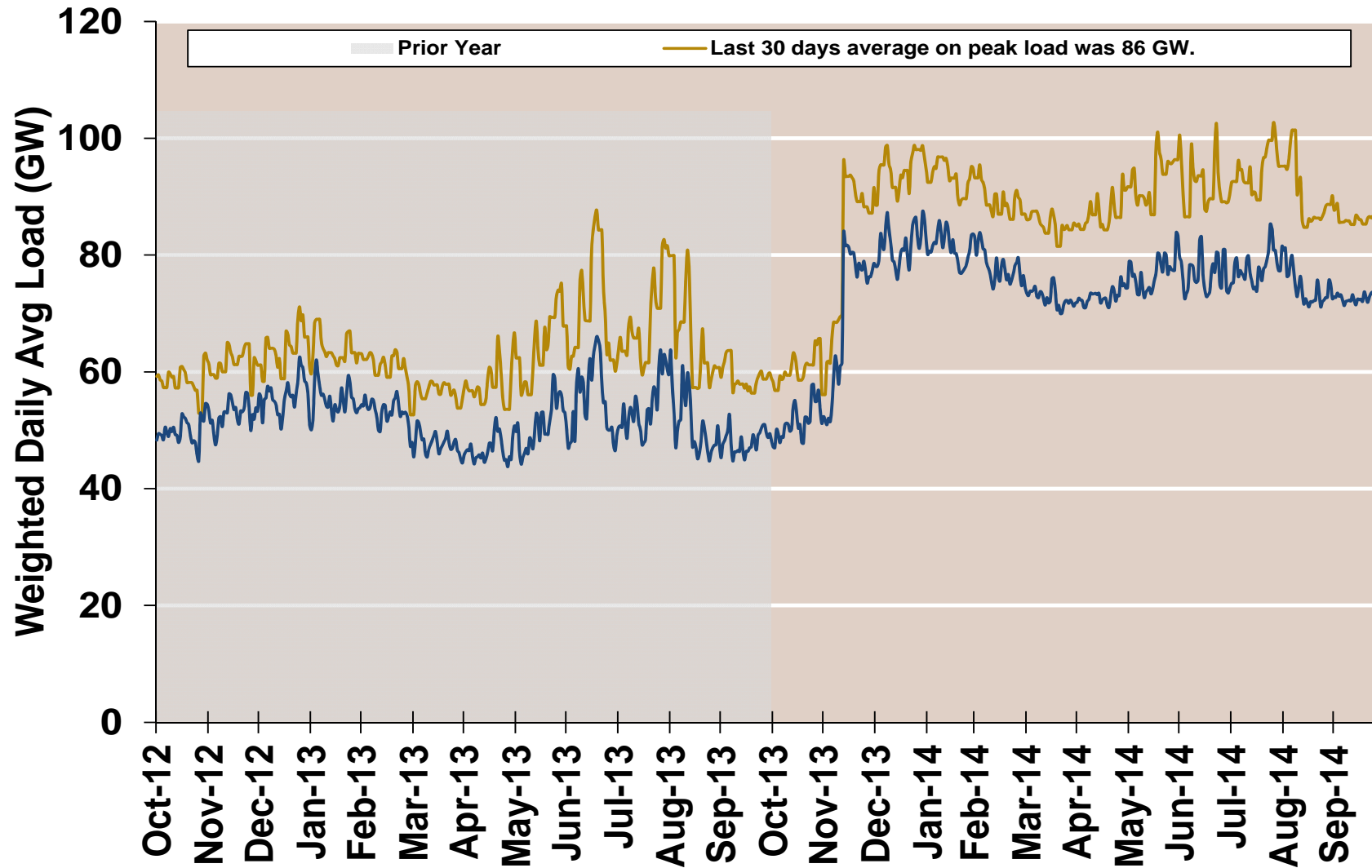
MISO Real Time Prices—Two Year History



Source: Genscape via Bloomberg

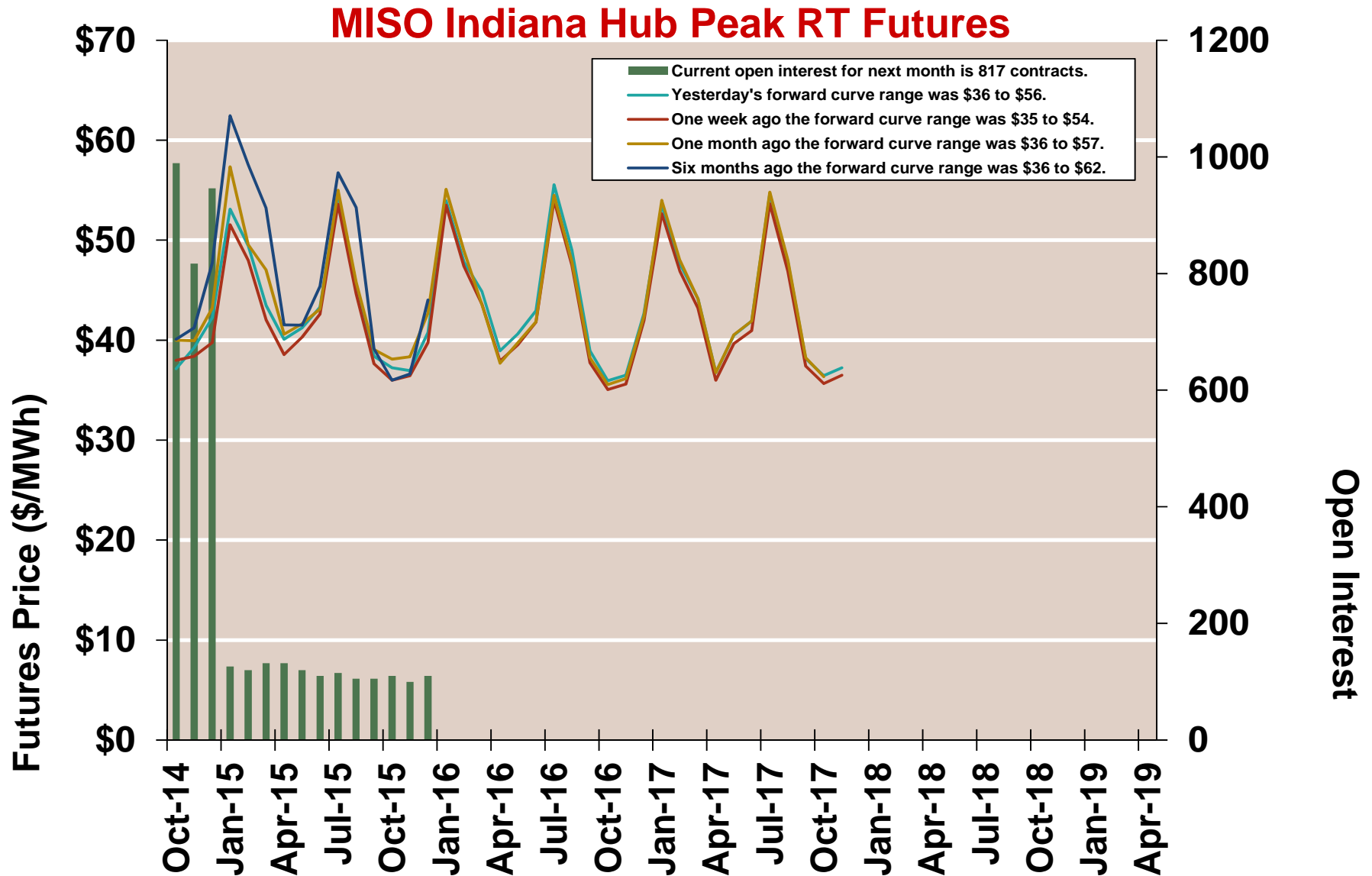
Updated: 10/29/2014

MISO System Daily Average Load — Two Year History



Source: Genscape via Bloomberg

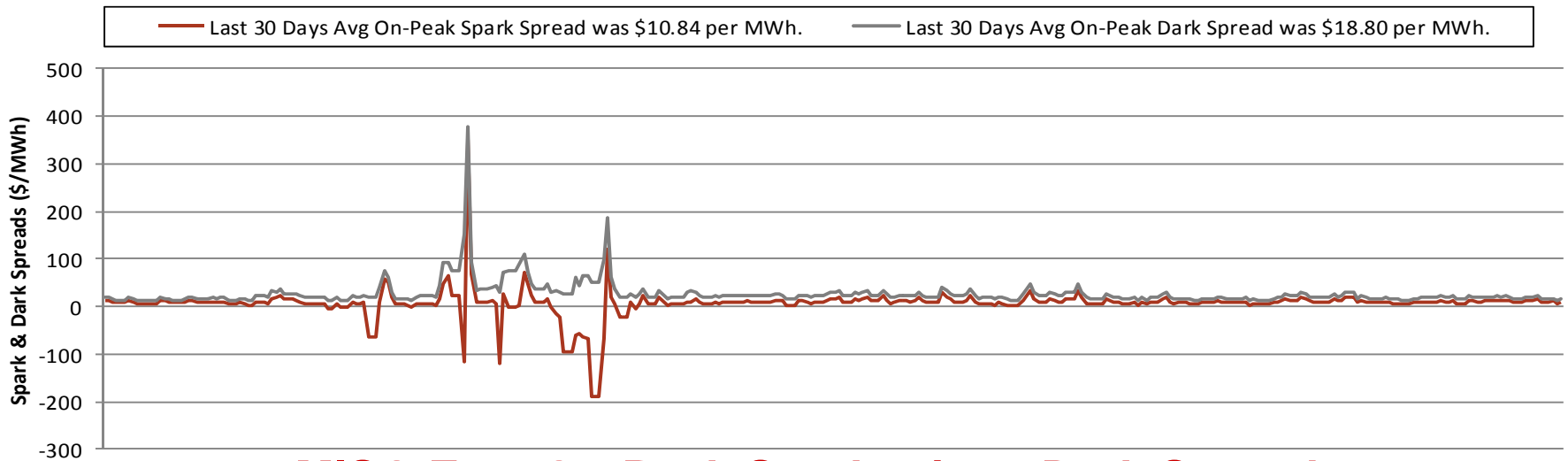
Updated: 10/29/2014



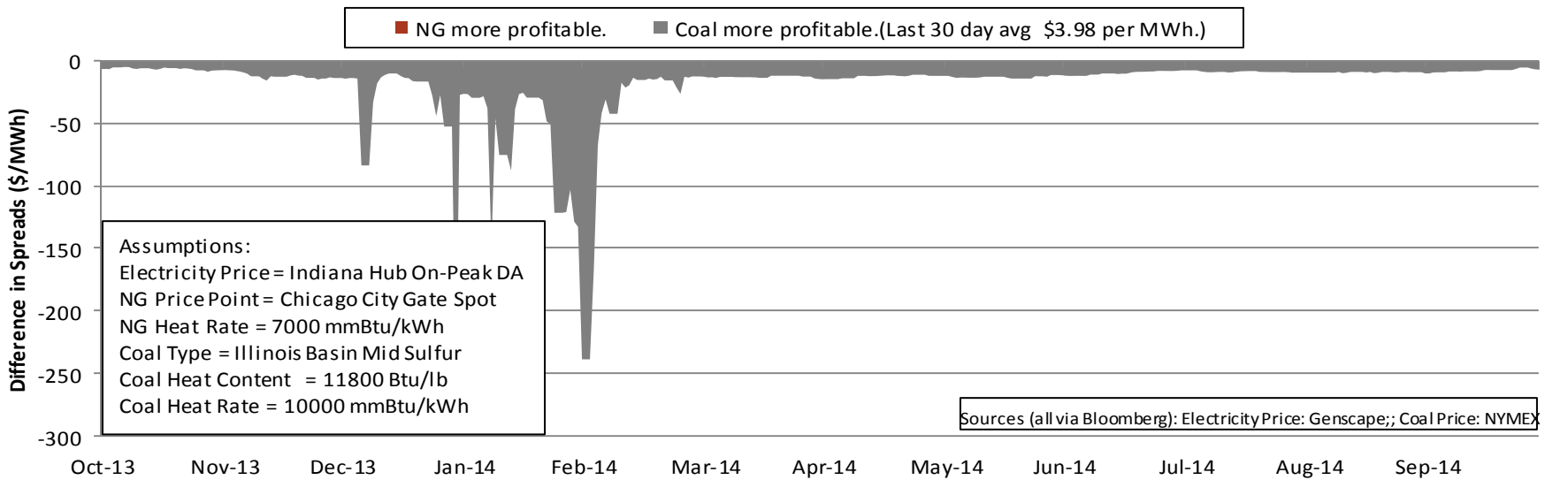
Source: NYMEX Clearport via Bloomberg

Updated: 10/29/2014

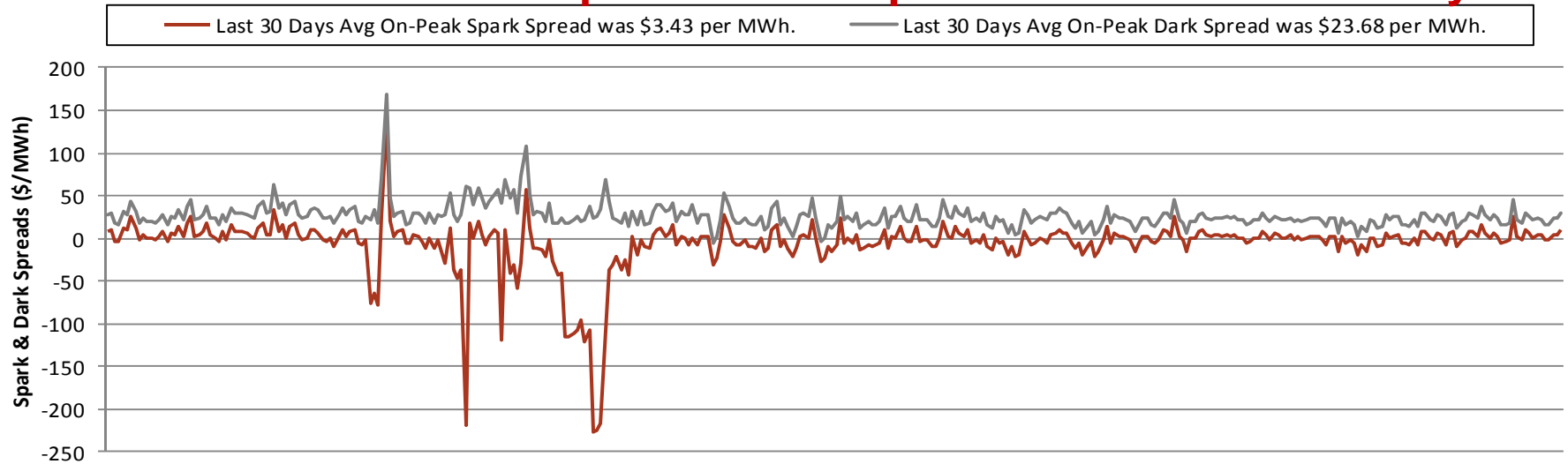
MISO East On-Peak Spark & Dark Spreads – One Year History



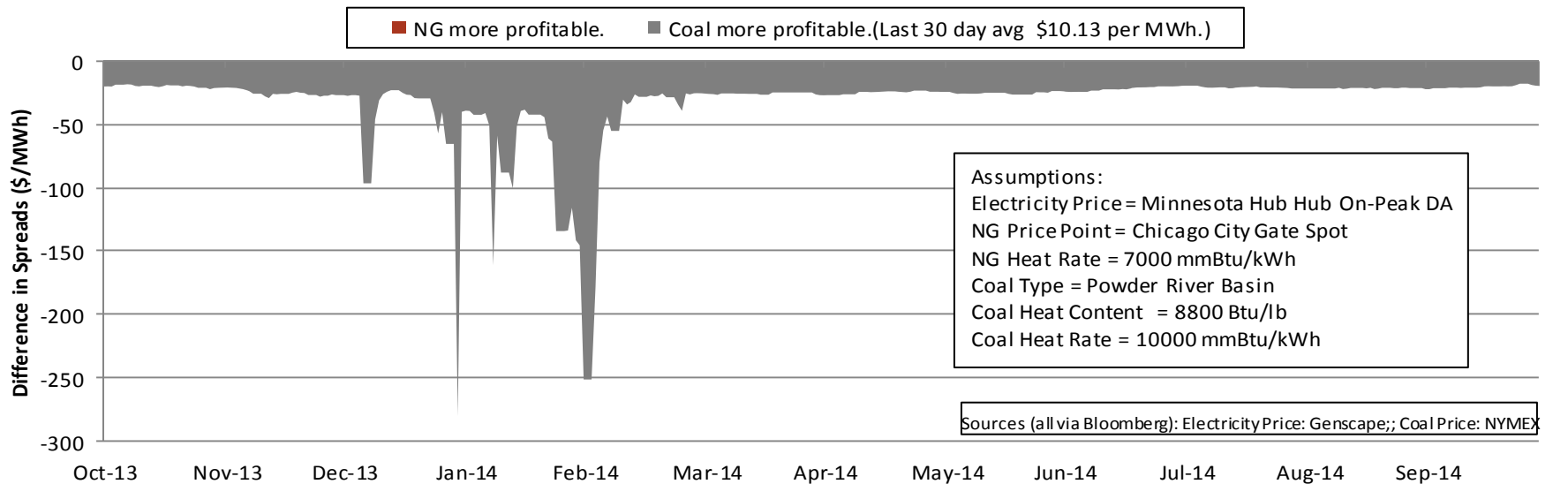
MISO East On-Peak Spark minus Dark Spread



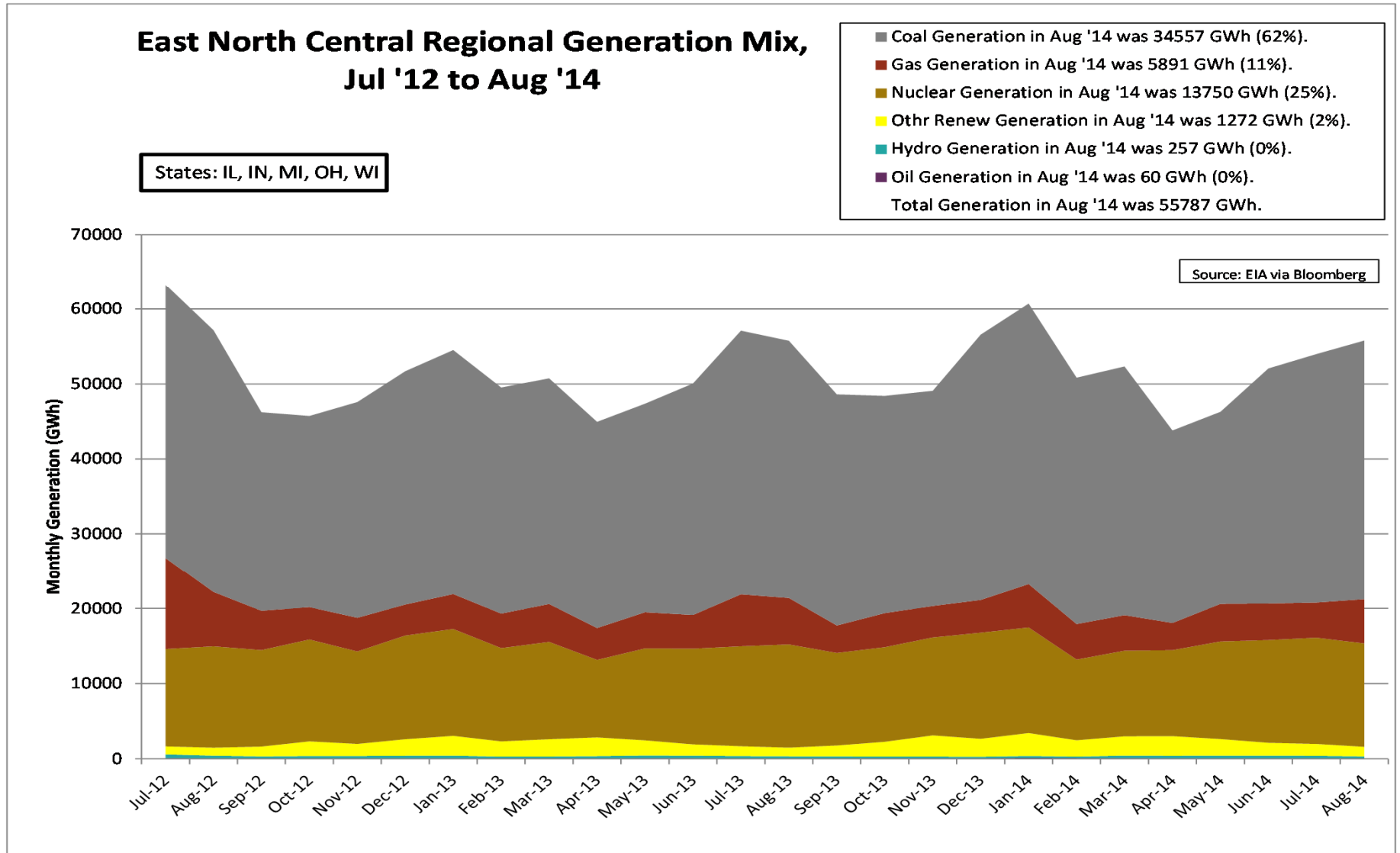
MISO West On-Peak Spark & Dark Spreads – One Year History



MISO West On-Peak Spark minus Dark Spread



East North Central Generation Mix



East South Central Generation Mix

