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

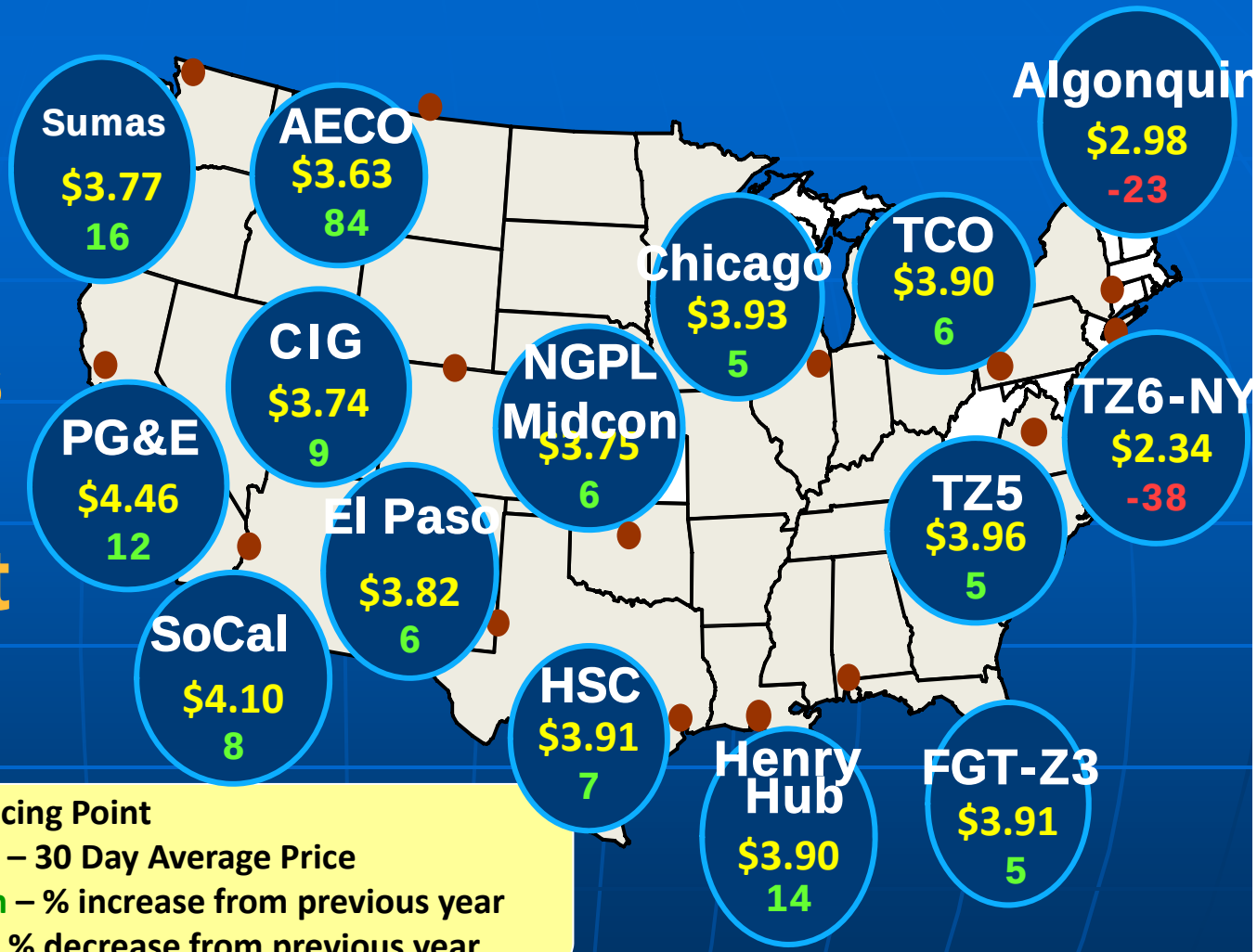
Developments

- 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

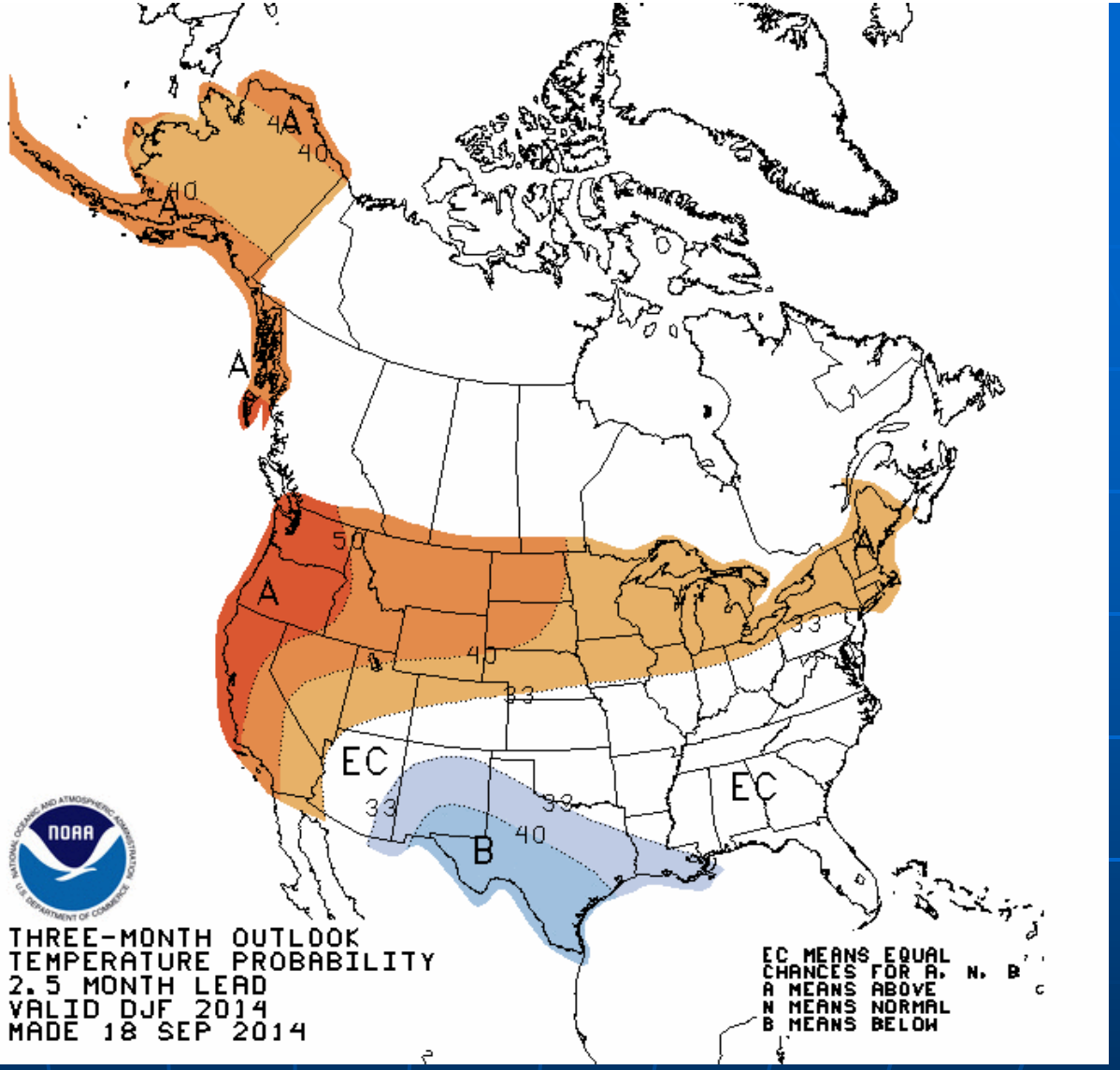
Higher Natural Gas Prices Across Most of the Country



● Pricing Point
BOLD – 30 Day Average Price
Green – % increase from previous year
Red – % decrease from previous year

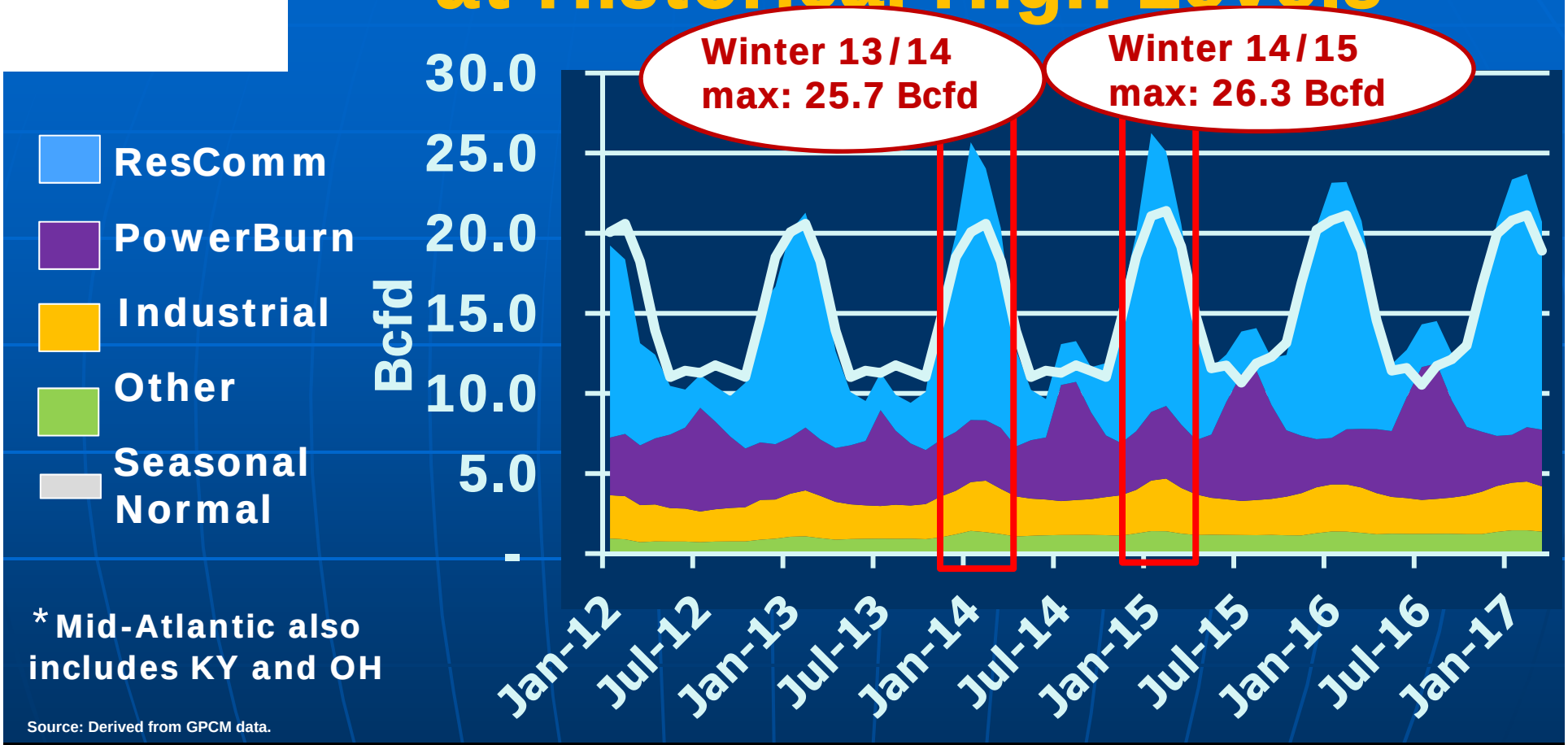
Source: Derived from ICE data.
Note: Prices through September 30, 2014.

Uncertain Winter Forecast



Source: NOAA National Weather Service

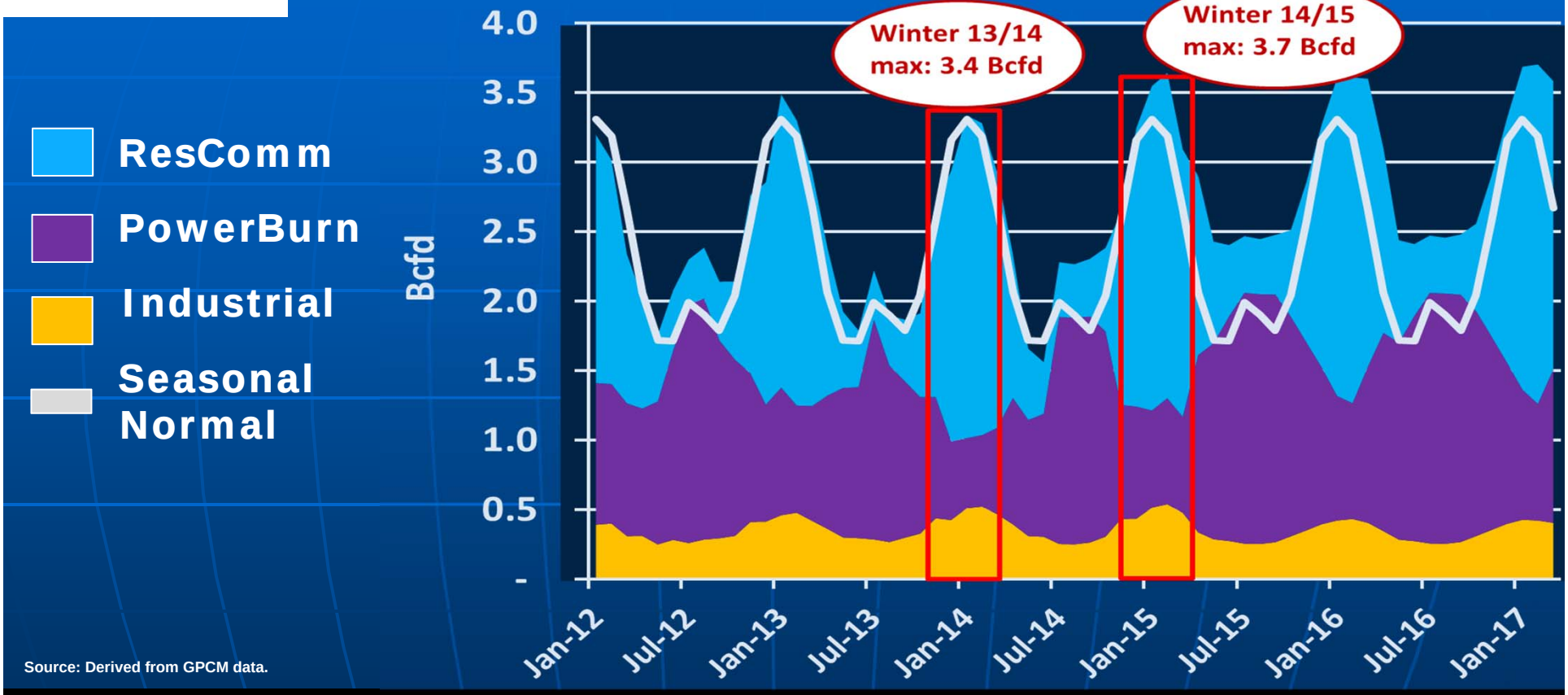
Mid-Atlantic* Gas Demand at Historical High Levels



*Mid-Atlantic also includes KY and OH

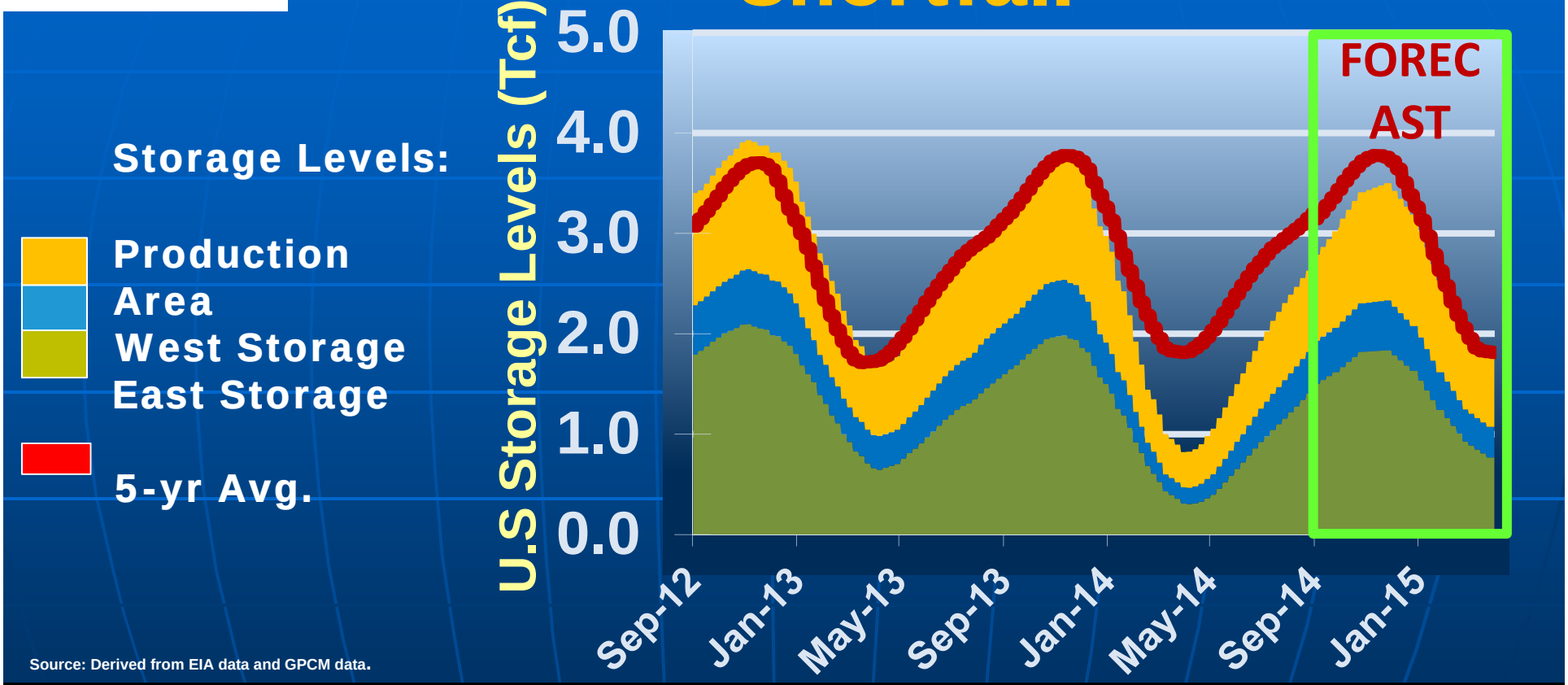
Source: Derived from GPCM data.

Fuel Diversity Helps New England Gas Demand



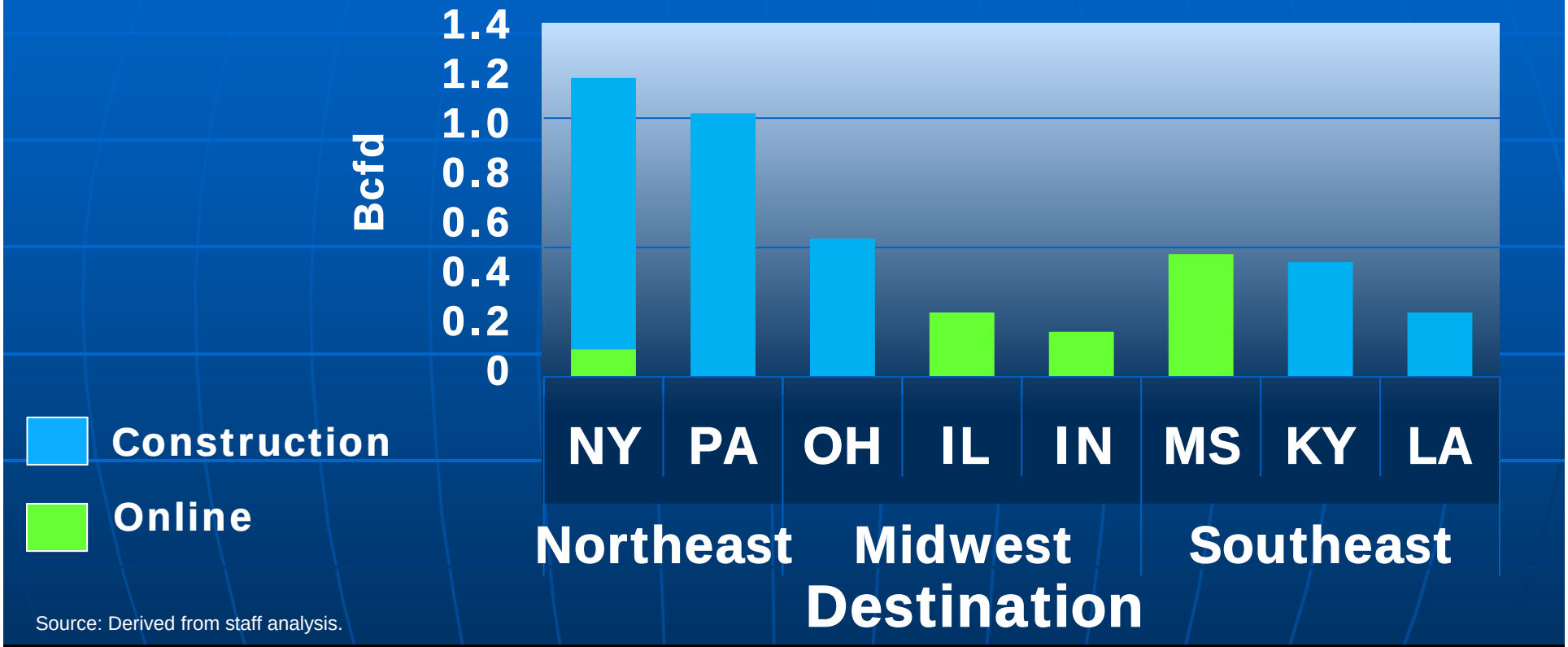
Source: Derived from GPCM data.

Record Storage Injections Help Close the Storage Shortfall



Source: Derived from EIA data and GPCM data.

2014 Pipeline Expansions Target Northeast Production

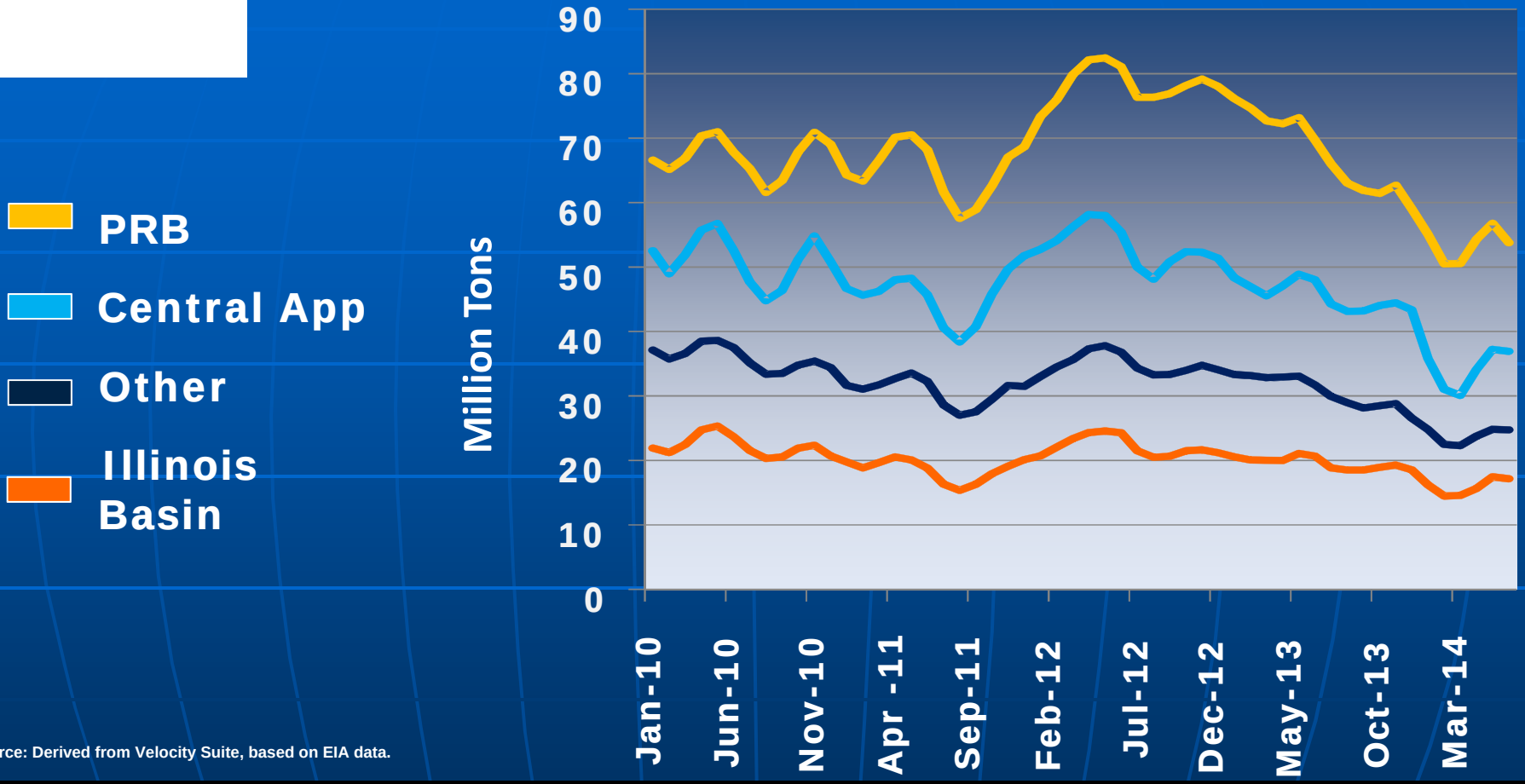


Source: Derived from staff analysis.

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



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

Futures Prices Elevated

Location	2015^	2014*
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
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

Gas

Power

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

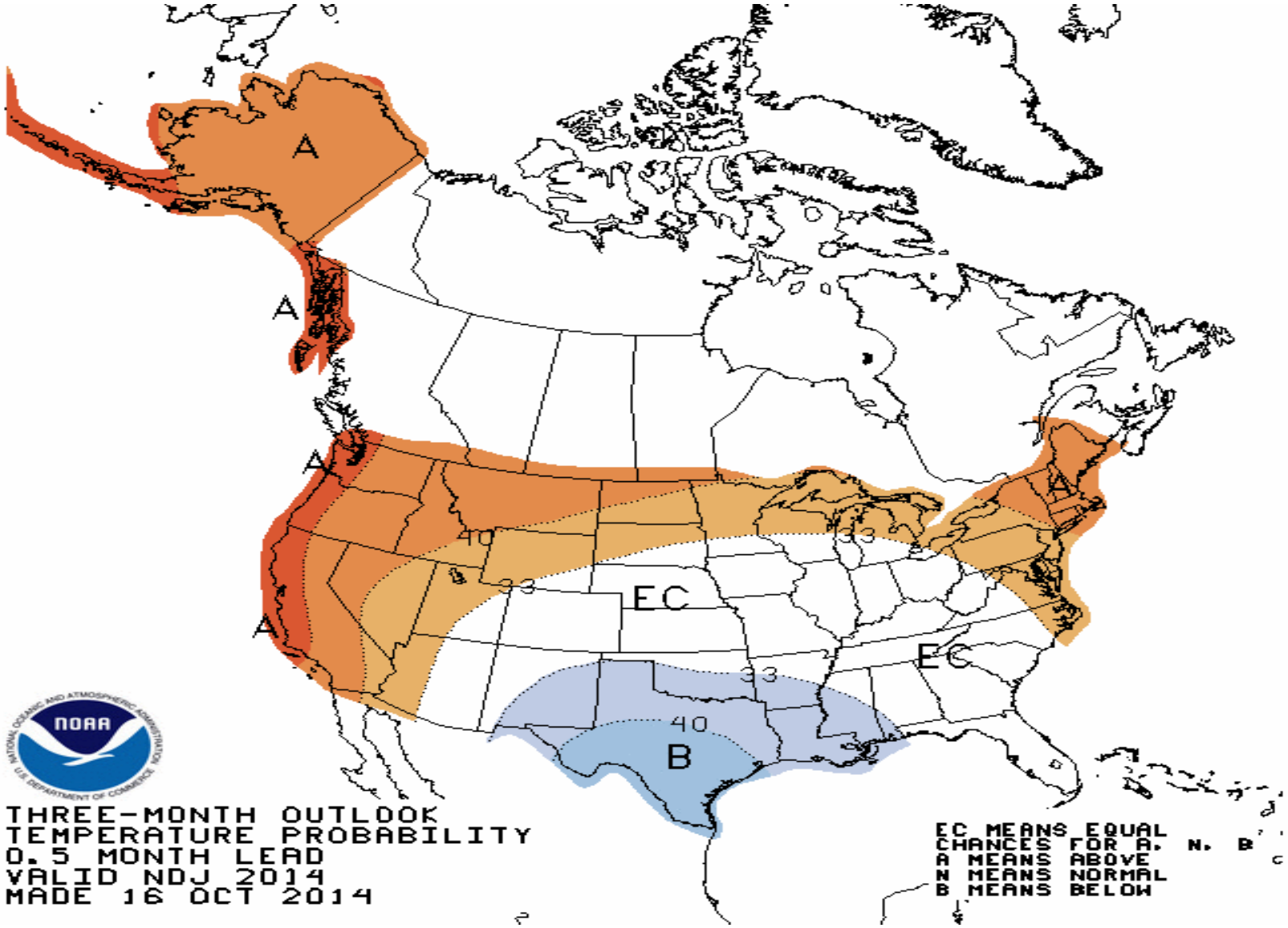
Infrastructure Report

Office of Energy Projects Energy Infrastructure Update
http://www.ferc.gov/legal/staff-reports.asp

(see “Energy Infrastructure” tab)

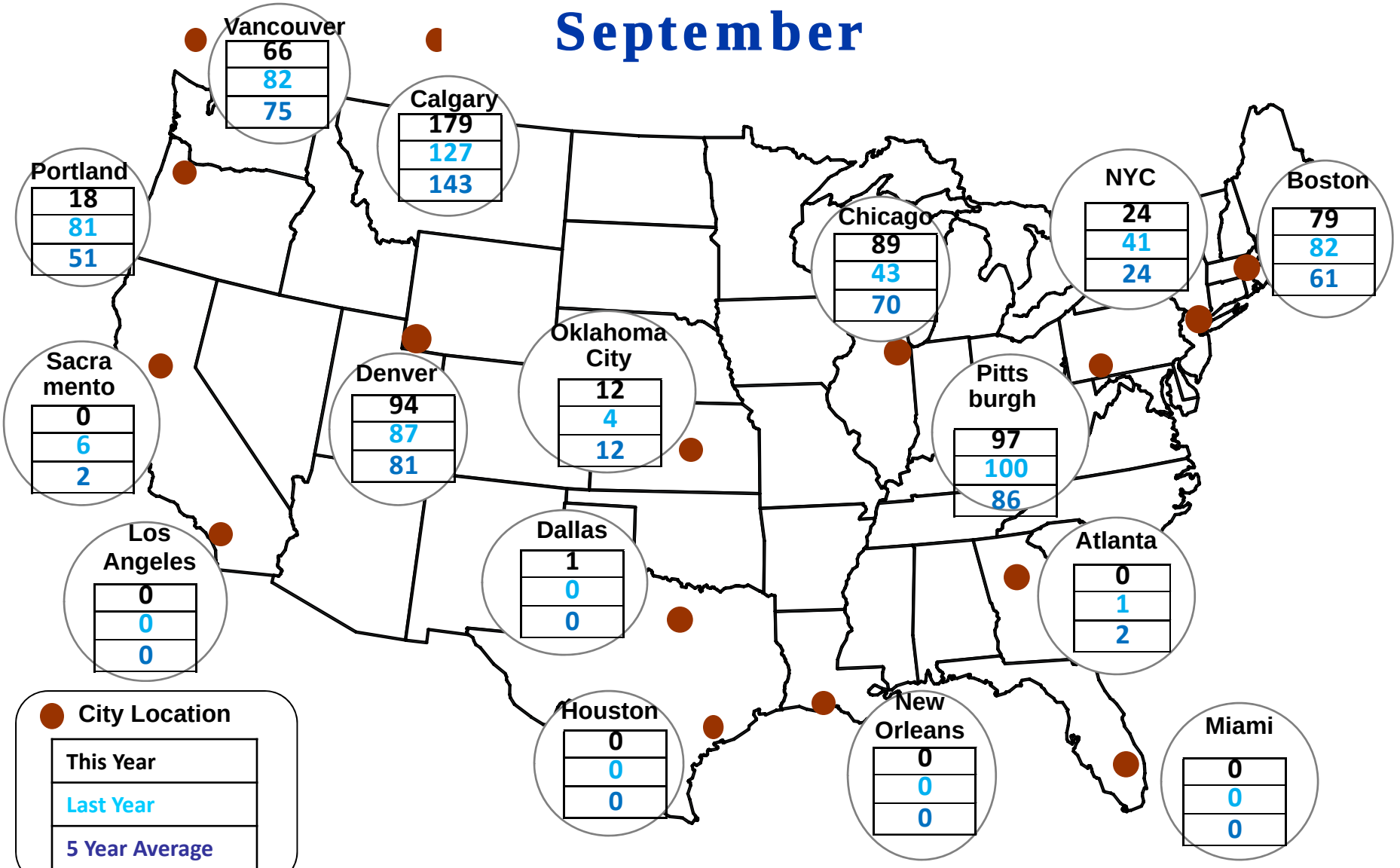
National Slides

NOAA Nov 2014 Through Jan 2015 Outlook



Cumulative HDDs by City

September



Source: Bloomberg Weather

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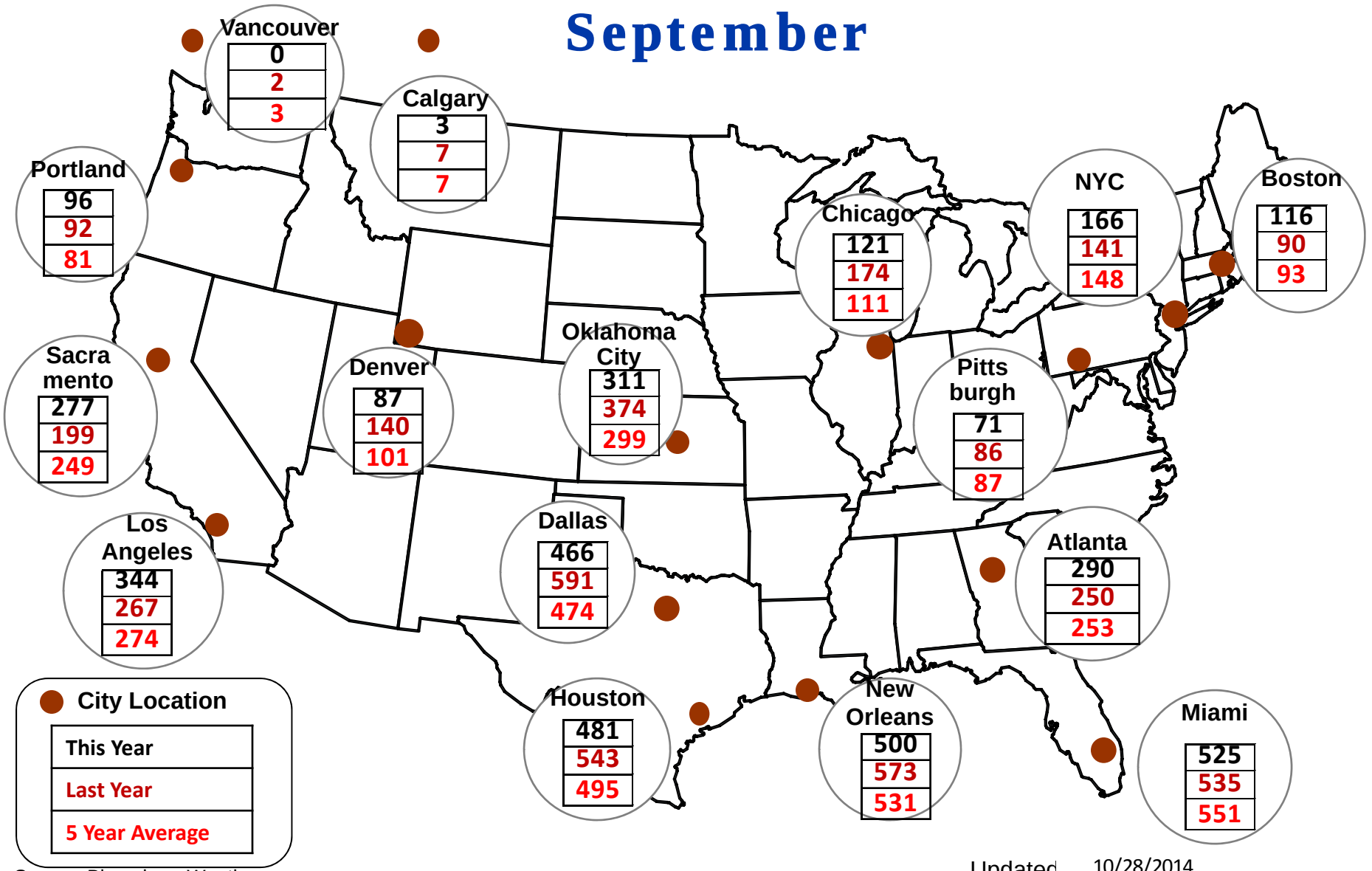
Cumulative CDDs by City
September



Source: Bloomberg Weather

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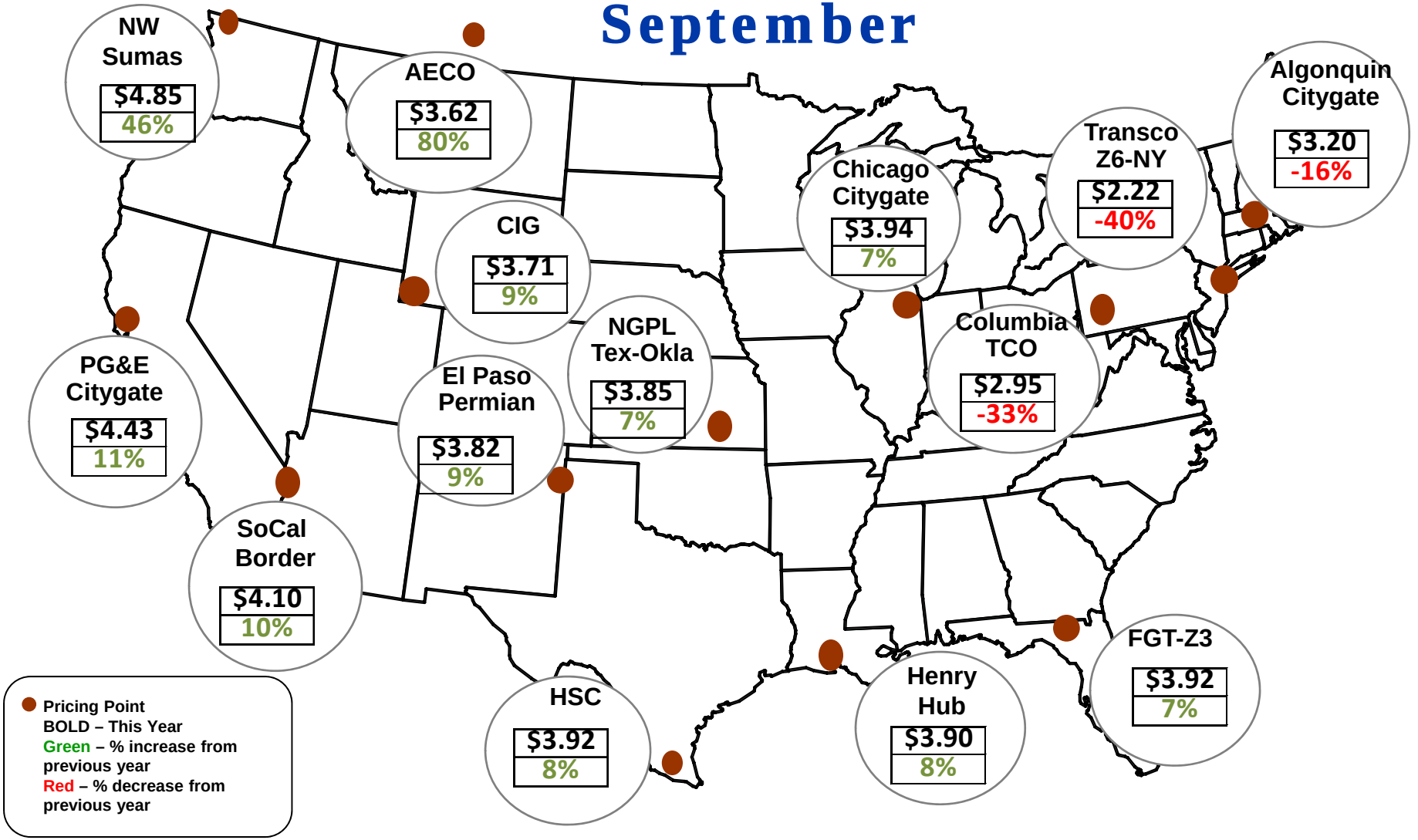
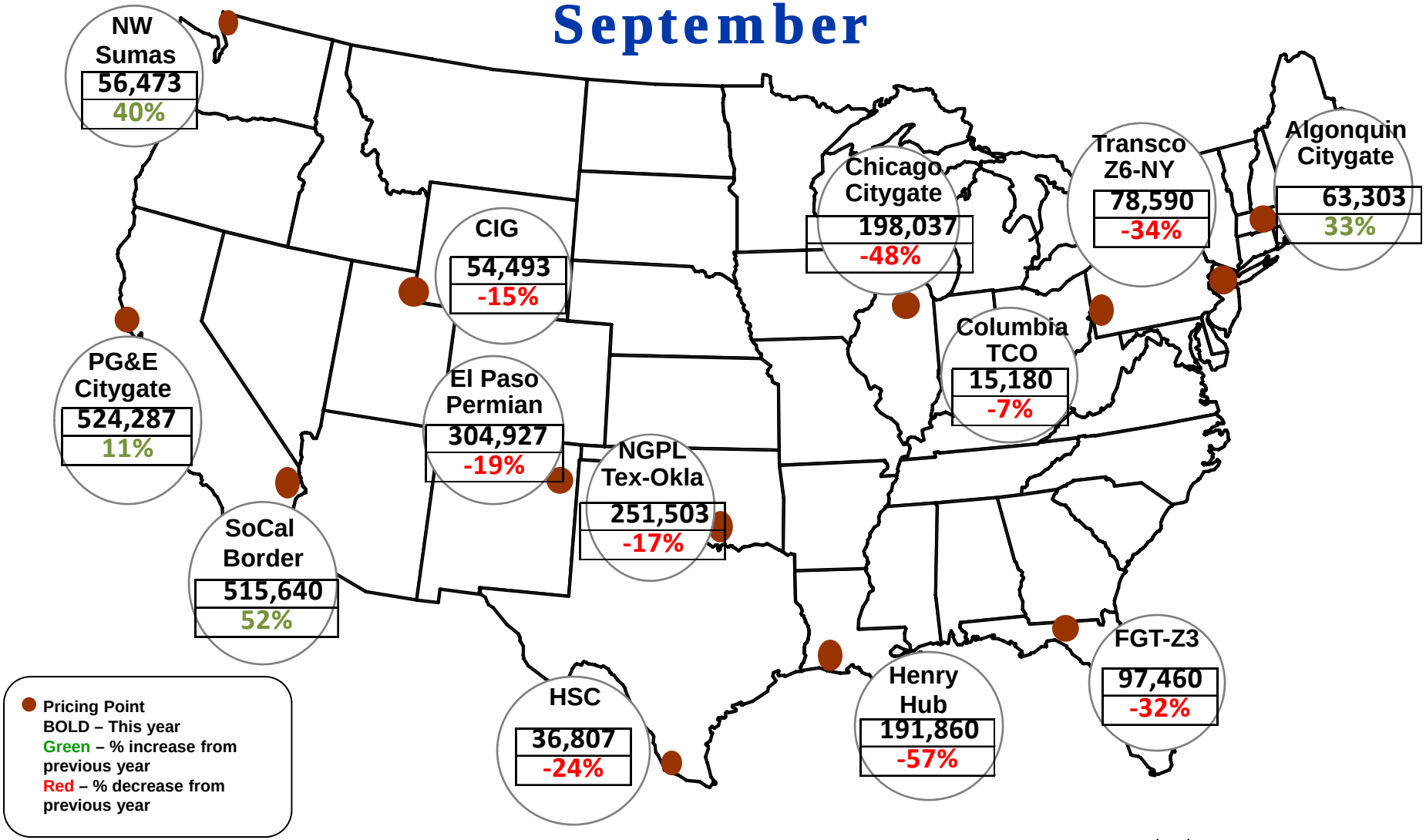
Spot Natural Gas Prices
Average ($/MMBtu)
September



Source: ICE

Updatec 10/28/2014

Spot Natural Gas Trading Volumes Average (MMBtus) September



Source: ICE

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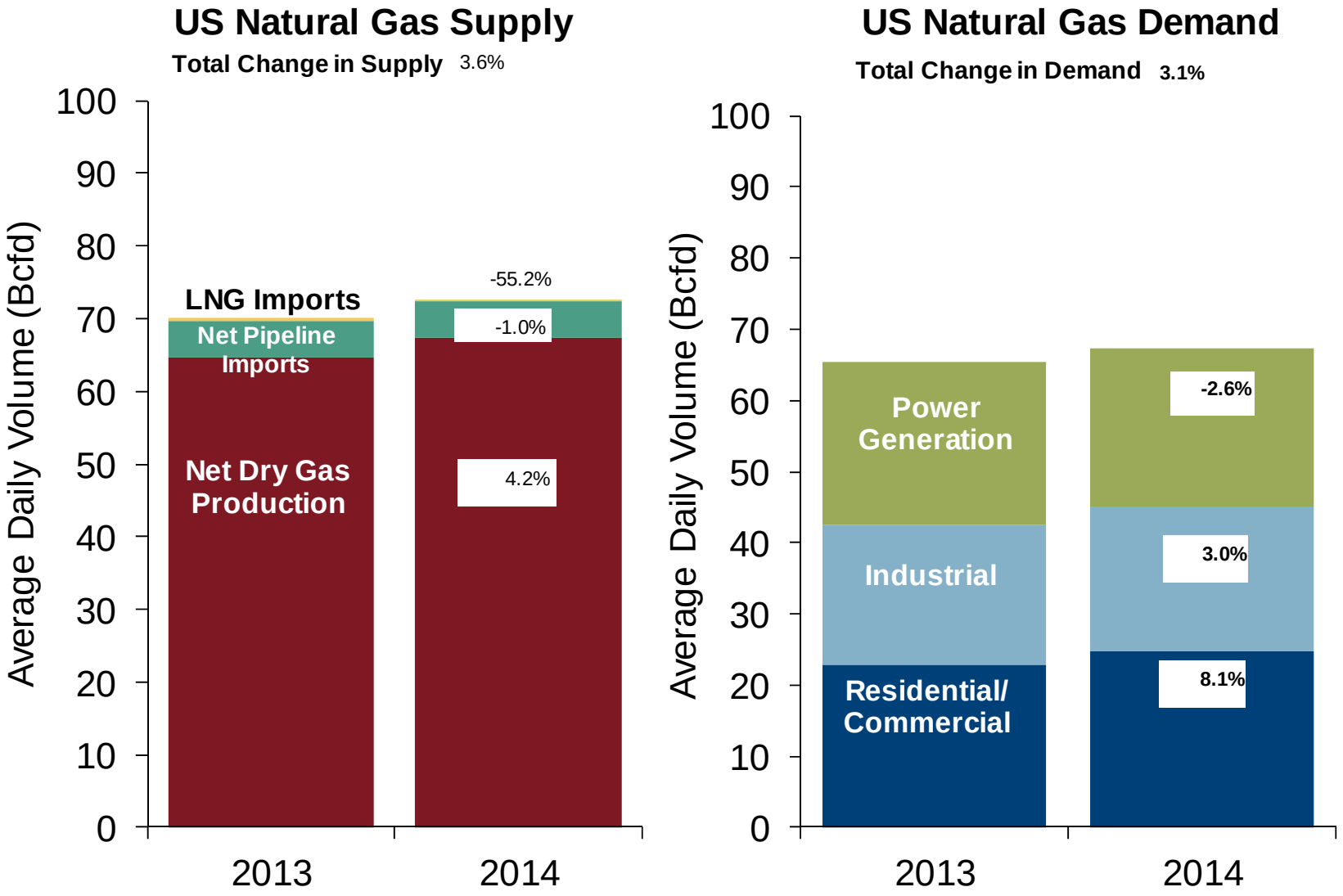
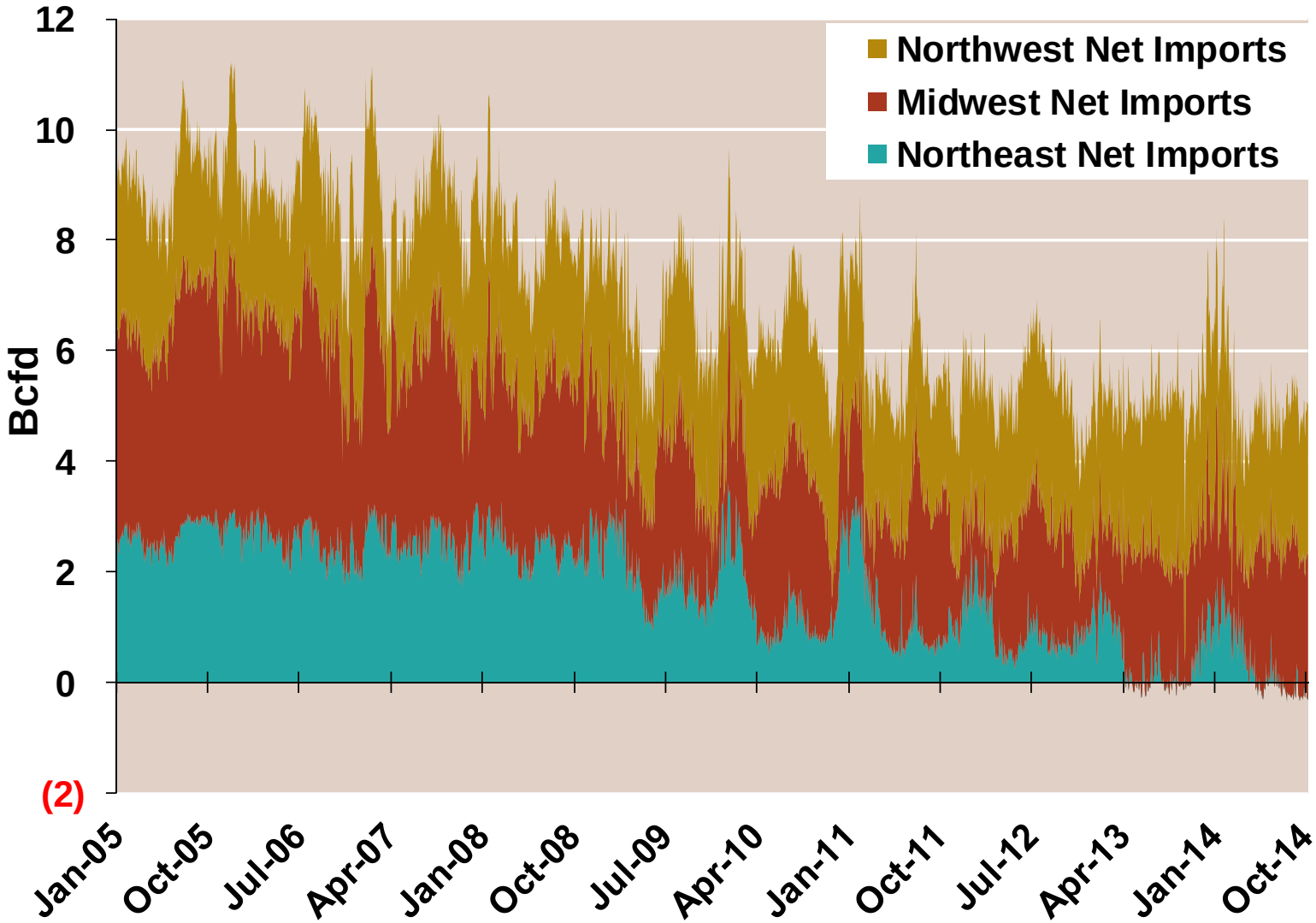
U.S. NG Supply and Demand Year to Date - Sep 2013 vs. Sep 2014



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

Updated: October 2014

Regional Imports from Canada



Source: Derived from *Bentek Energy* data

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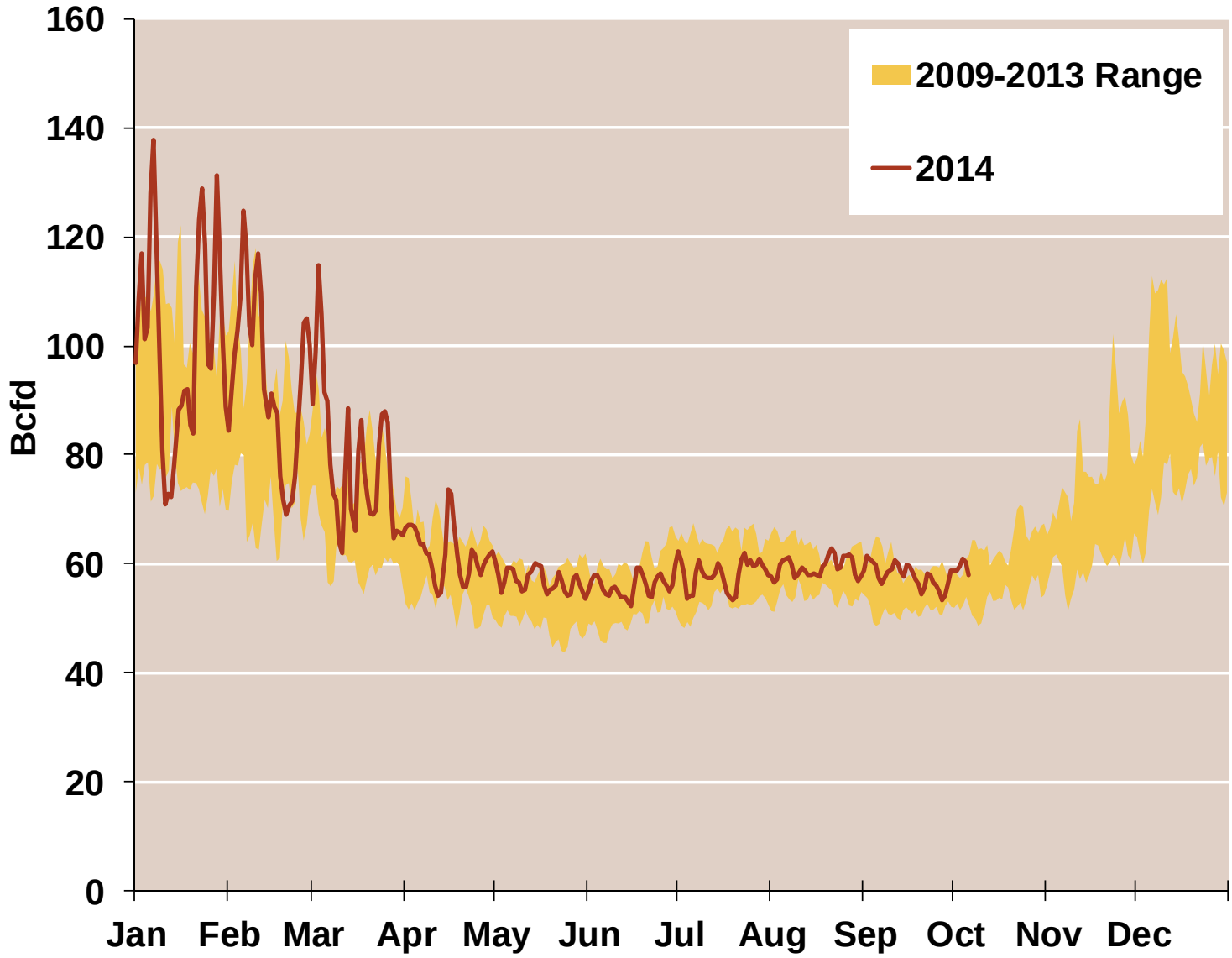
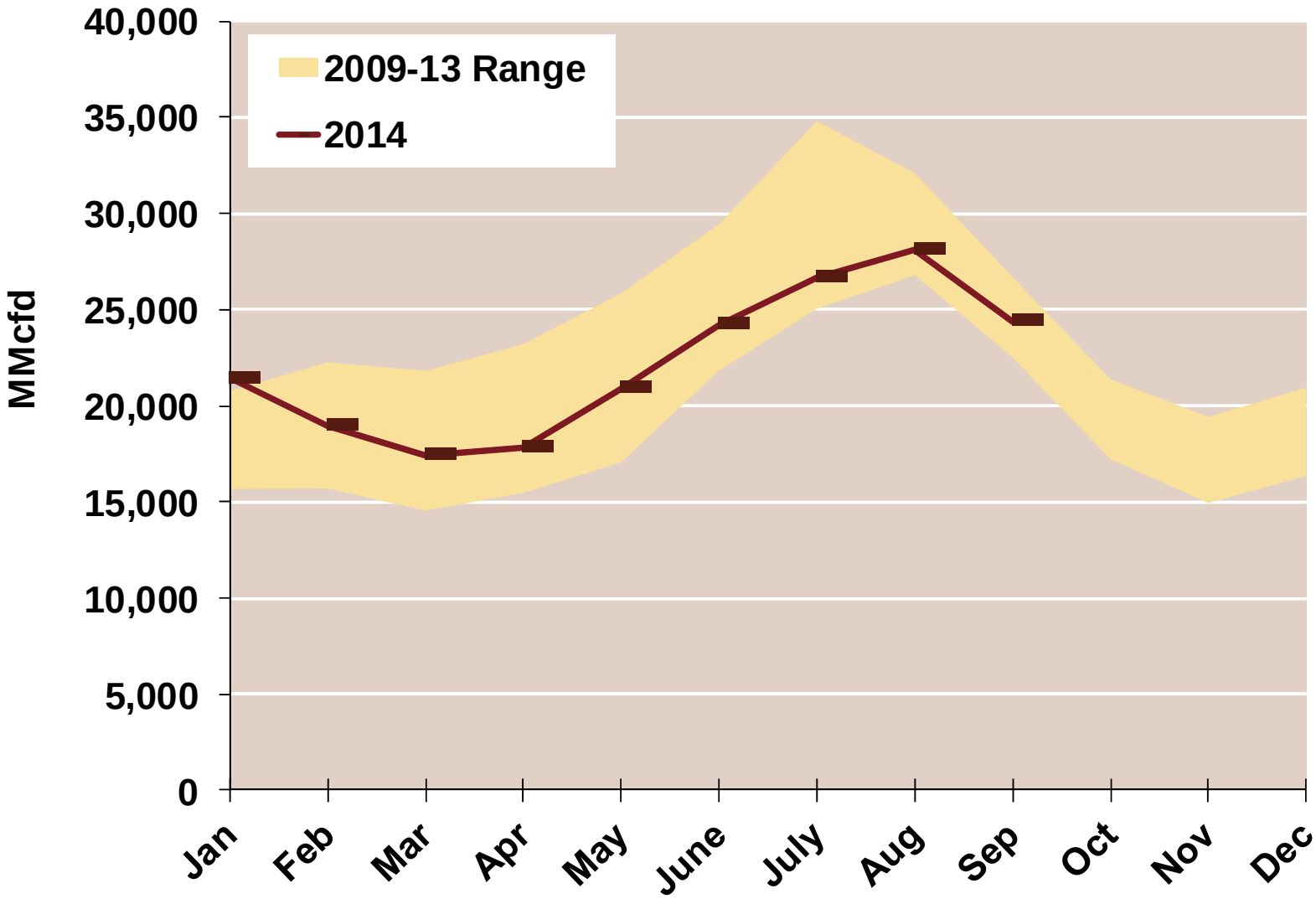
Total U.S. Natural Gas Demand All Sectors



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

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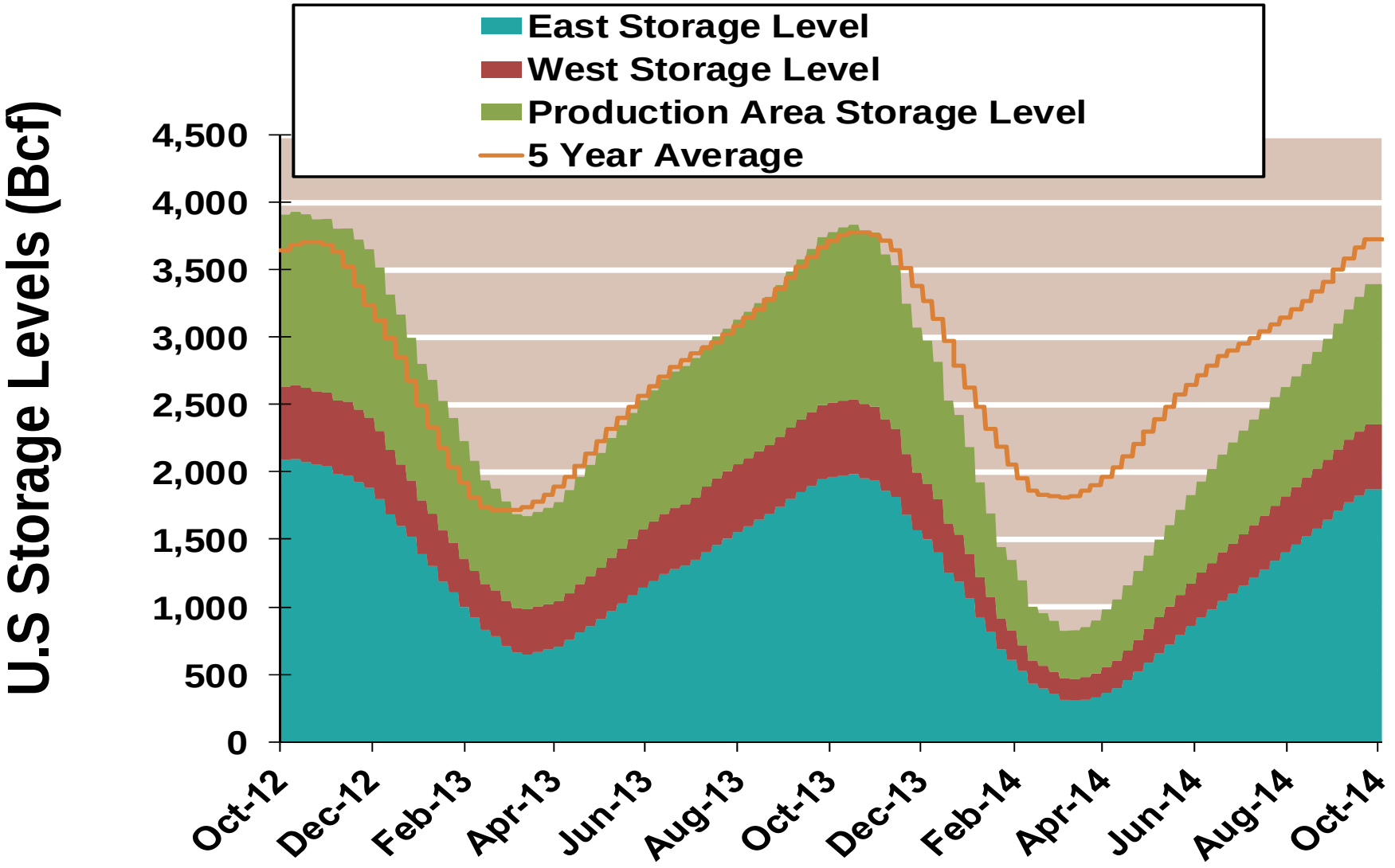
EIA National Storage Inventories by Region



Notes:

Source: Derived from Bloomberg Data

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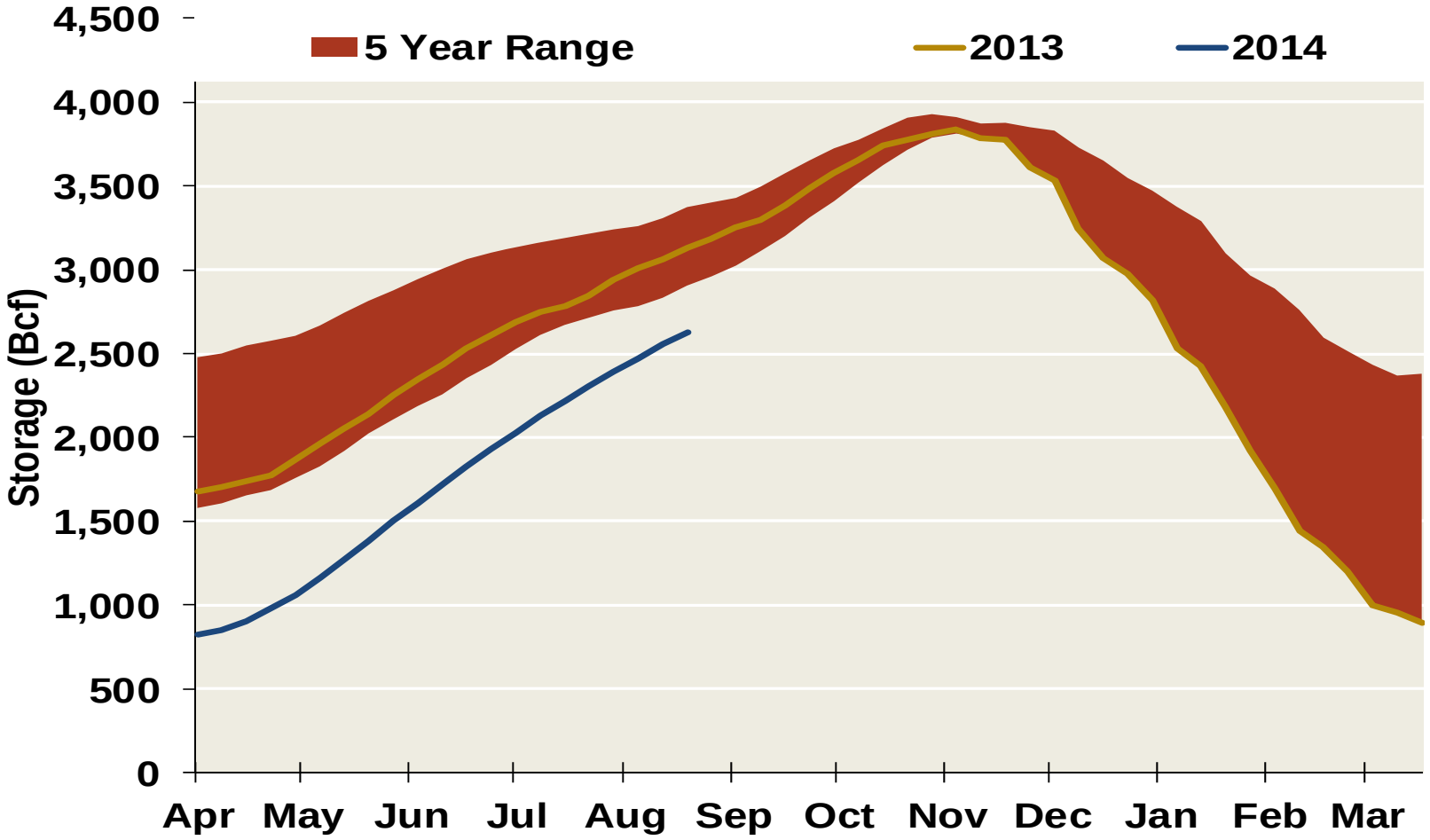
EIA National Storage Inventories



Notes:

Source: Derived from Bloomberg Data

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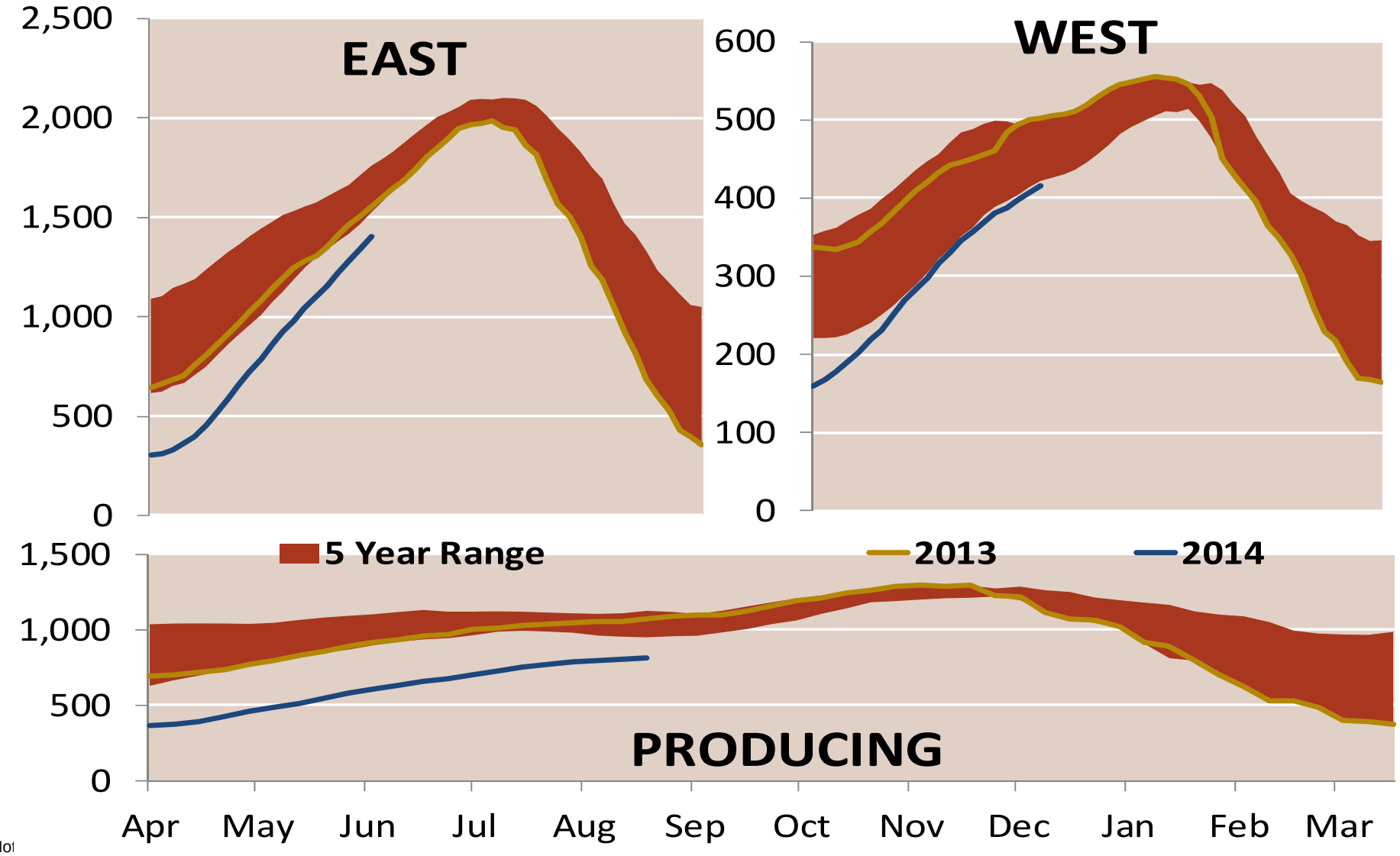
EIA Regional Storage Inventories

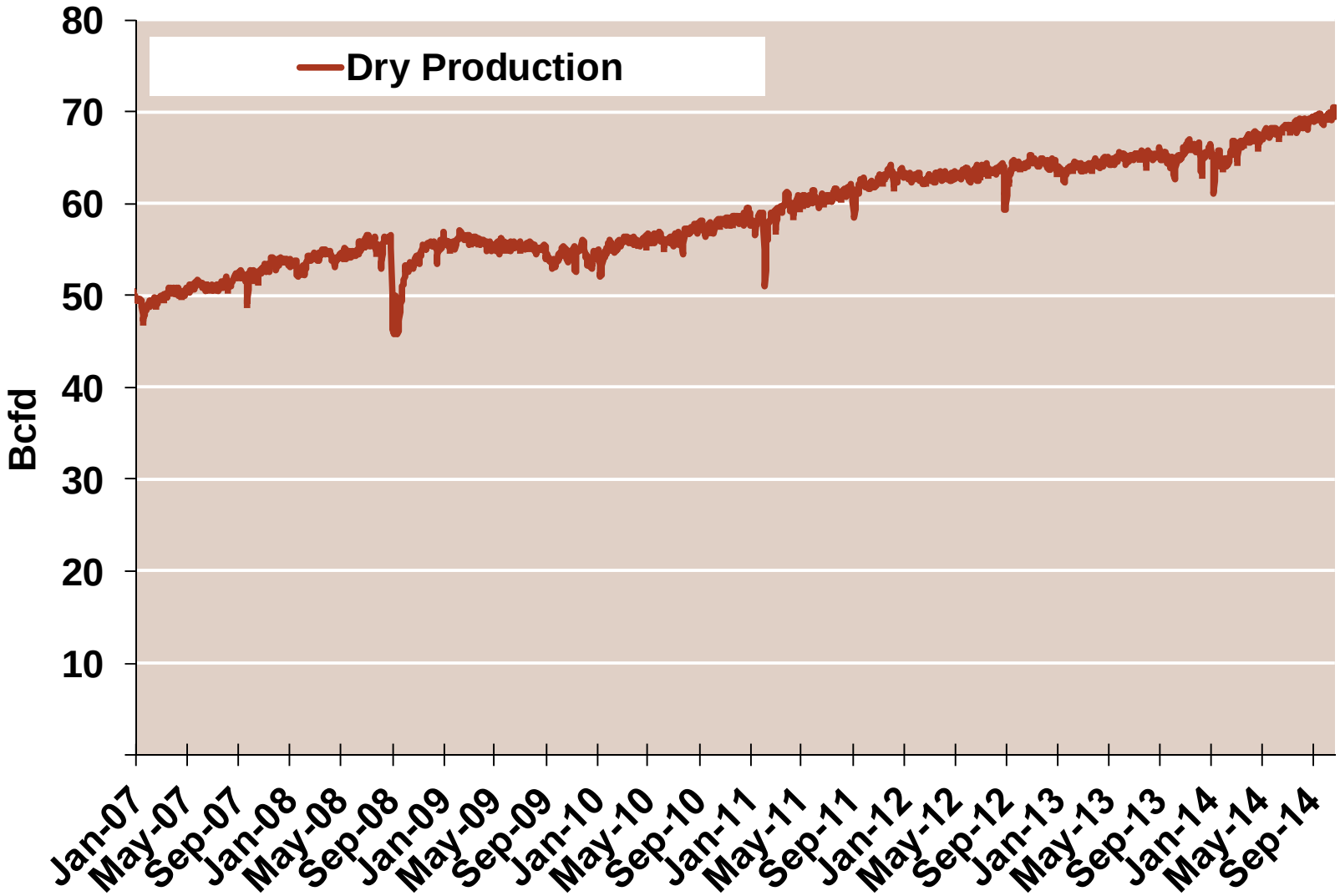


Not

Source: Derived from Bloomberg Data

Update 10/28/2014

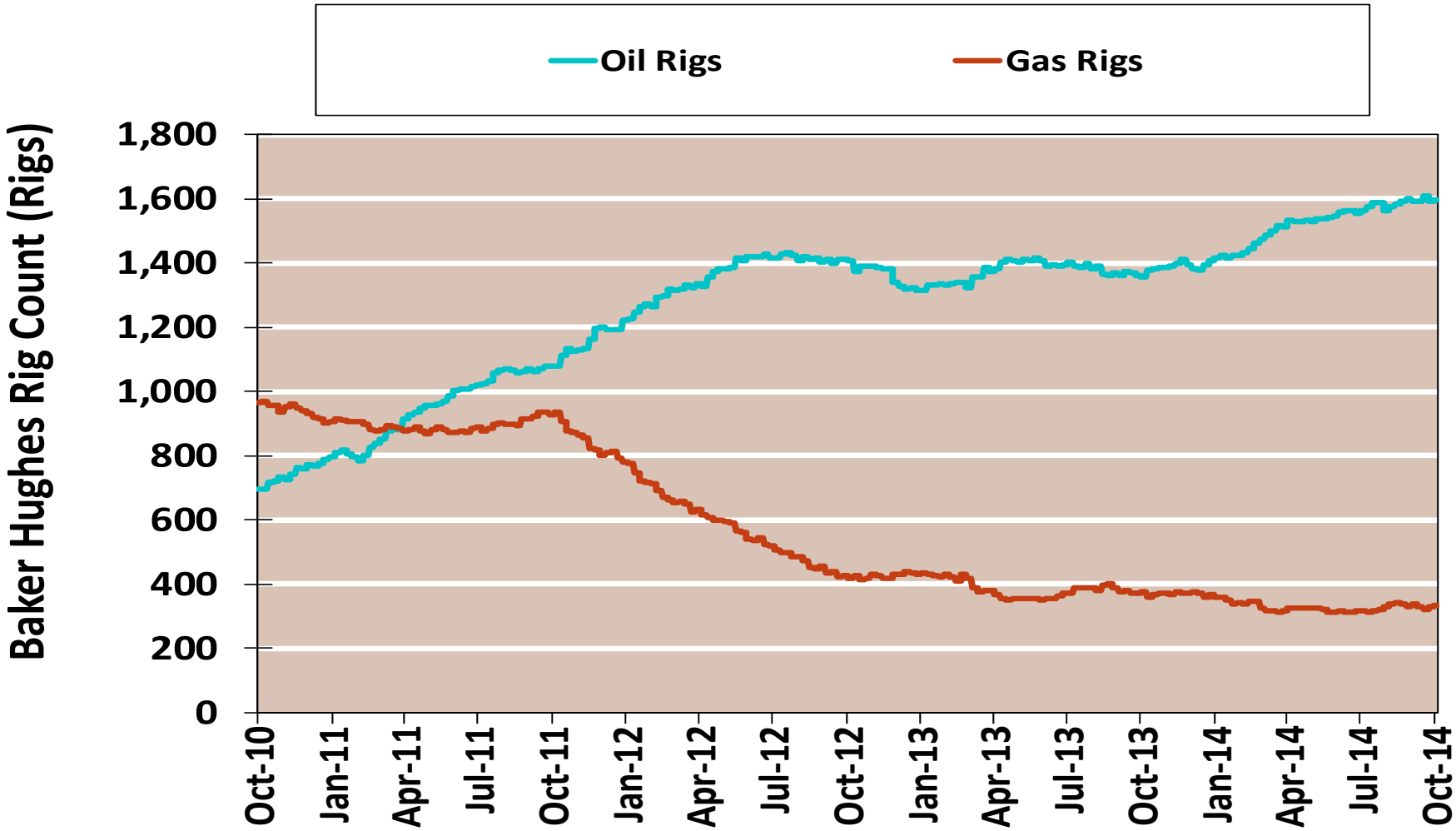
Monthly U.S. Dry Gas Production – Lower 48 States



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

Updated: October 2014

Rigs by Type



Notes:

Source: Derived from Bloomberg data

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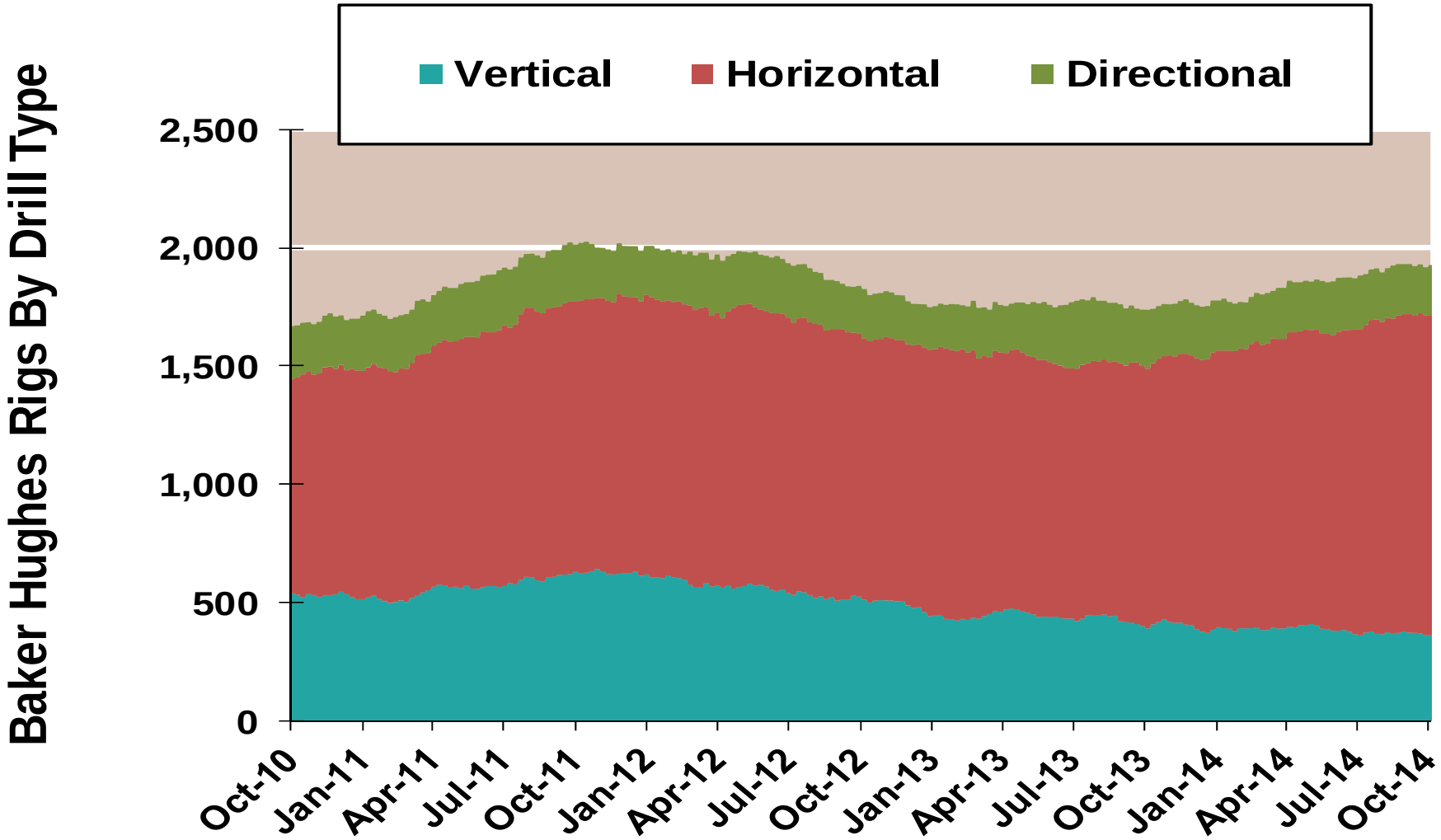
Total US Rig Count



Notes:

Source: Derived from Bloomberg data

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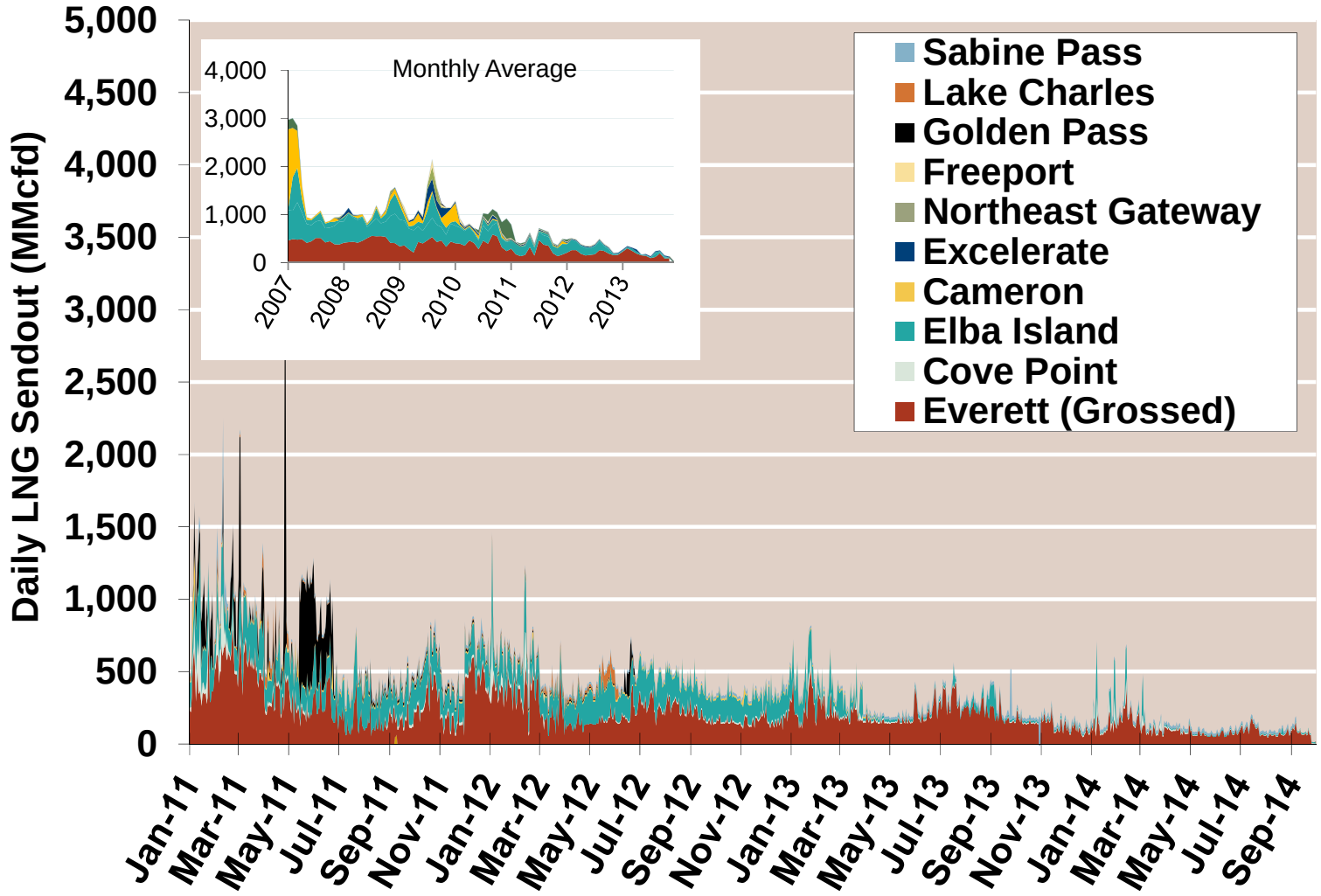
Daily Gas Sendout from Existing U.S. LNG Facilities



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

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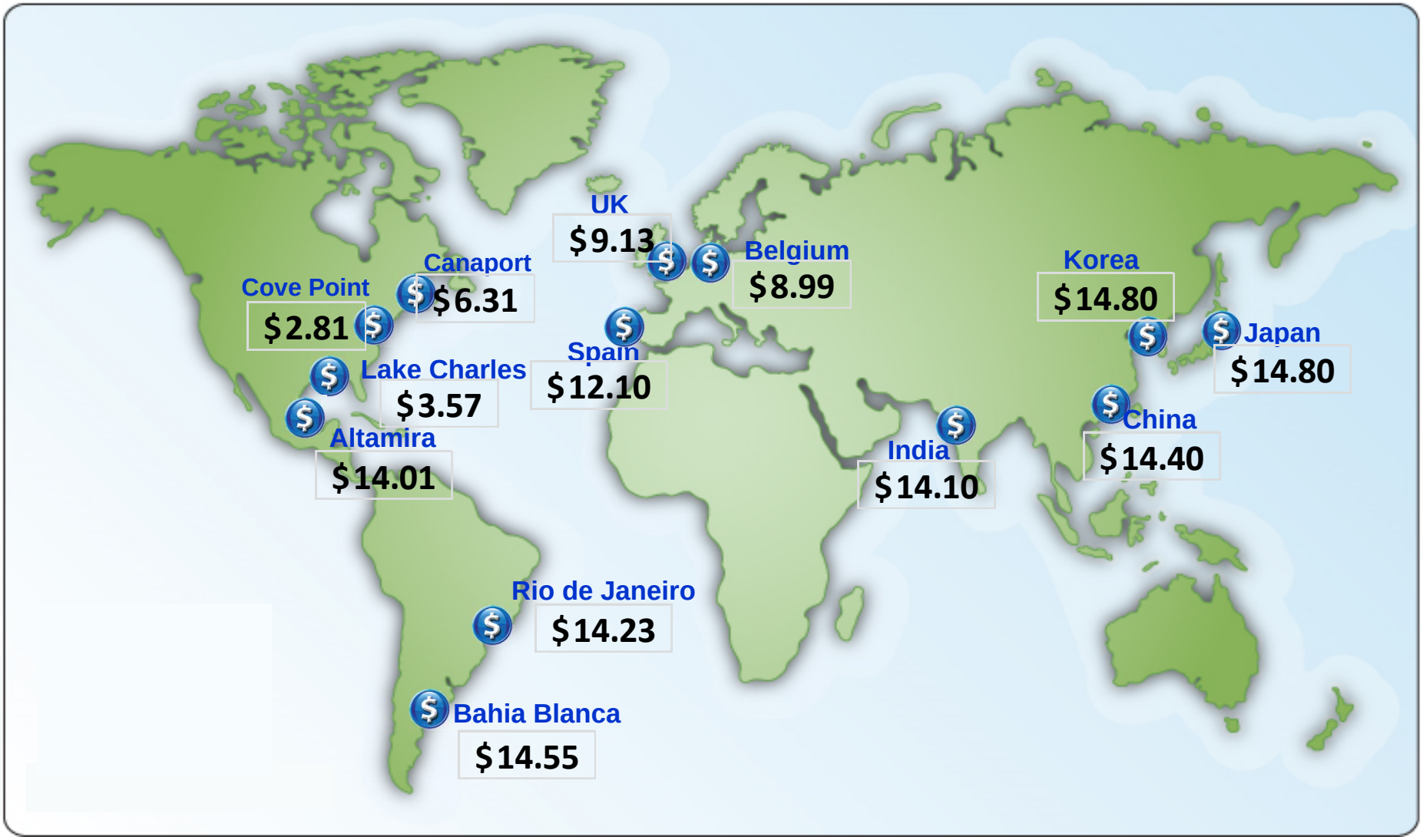
World LNG Estimated October 2014 Landed Prices

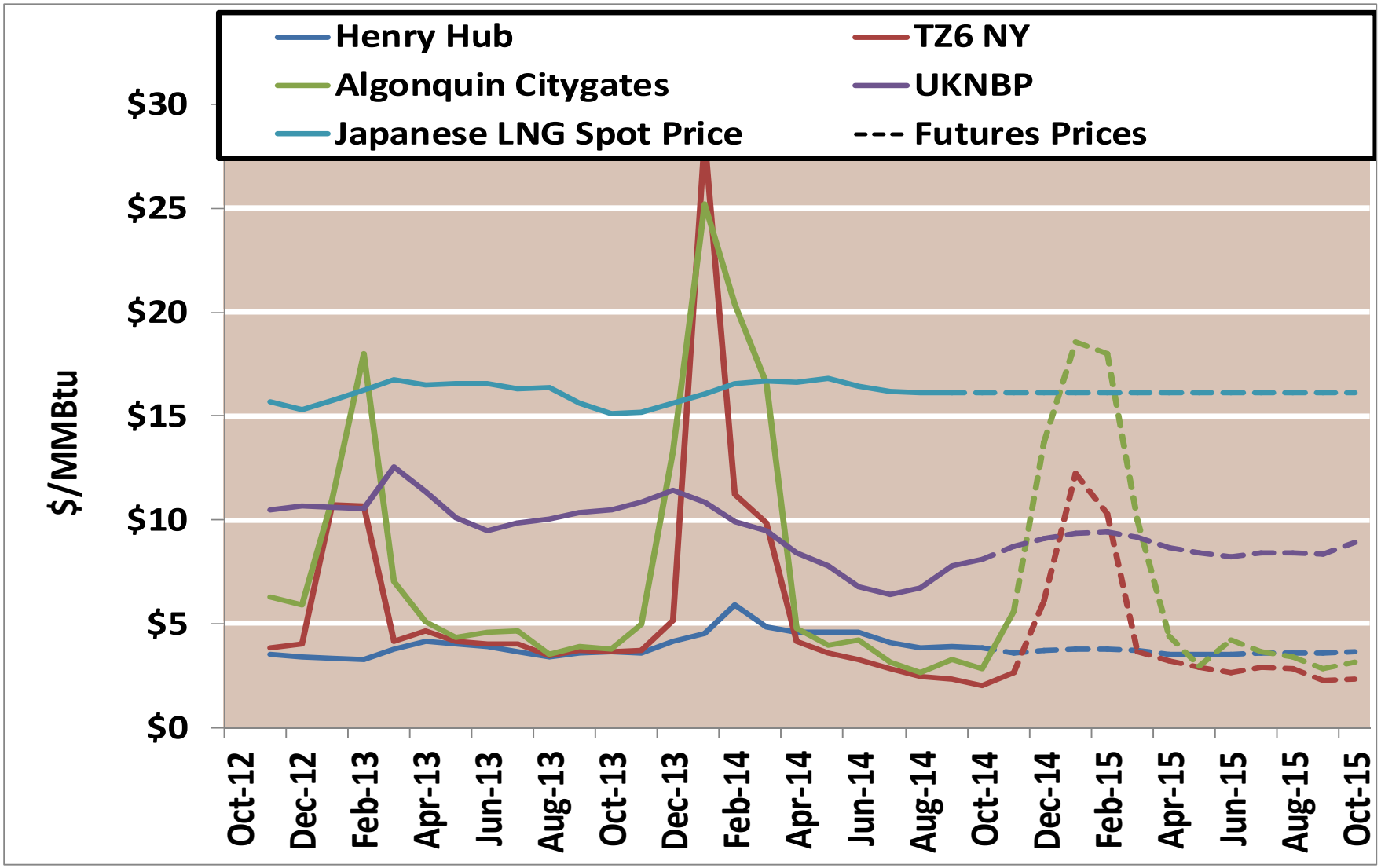


Source: *Waterborne Energy, Inc*. Data in $US/MMBtu

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

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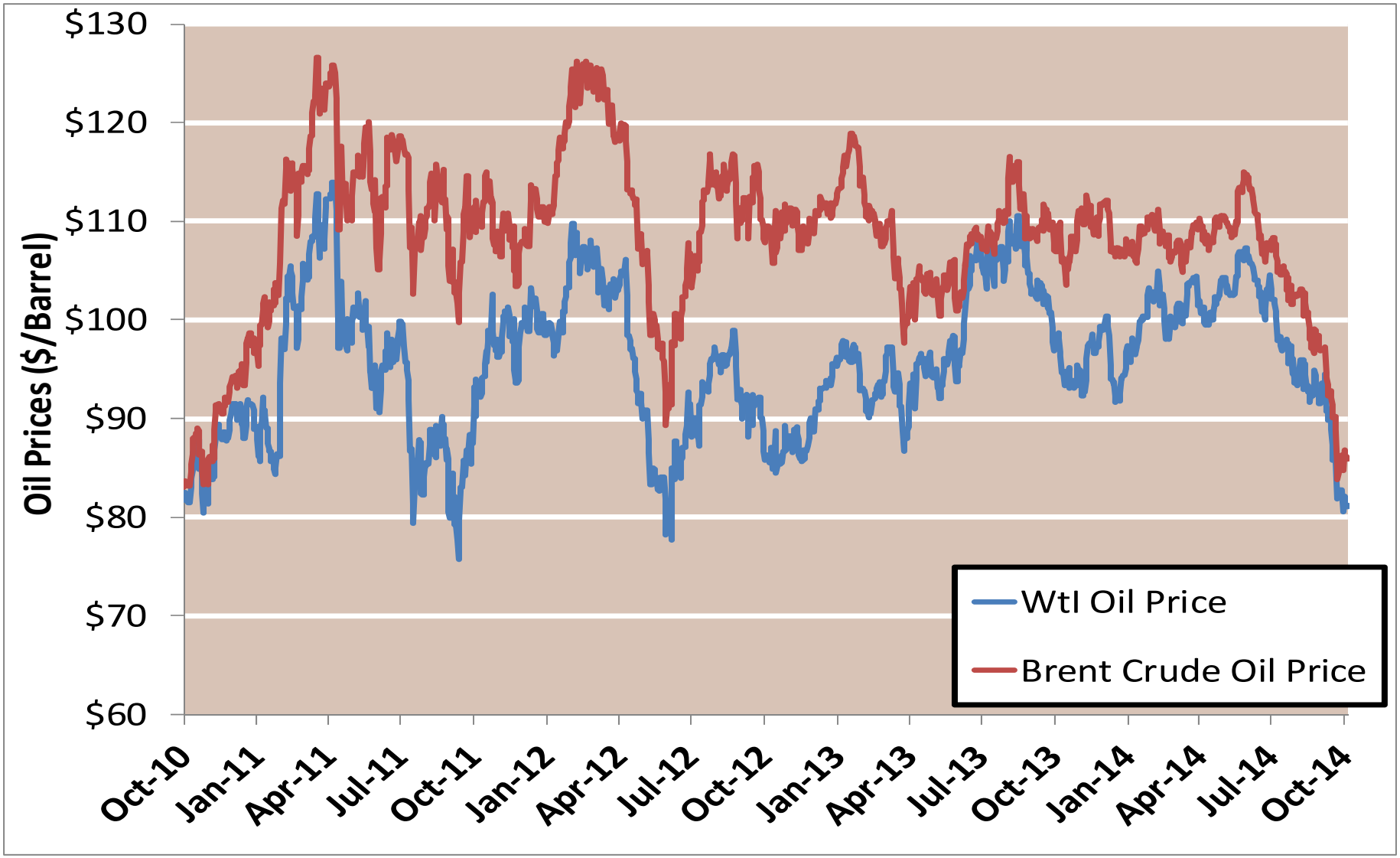
WTI vs Brent Crude Oil Price



Source: Derived from Bloomberg data

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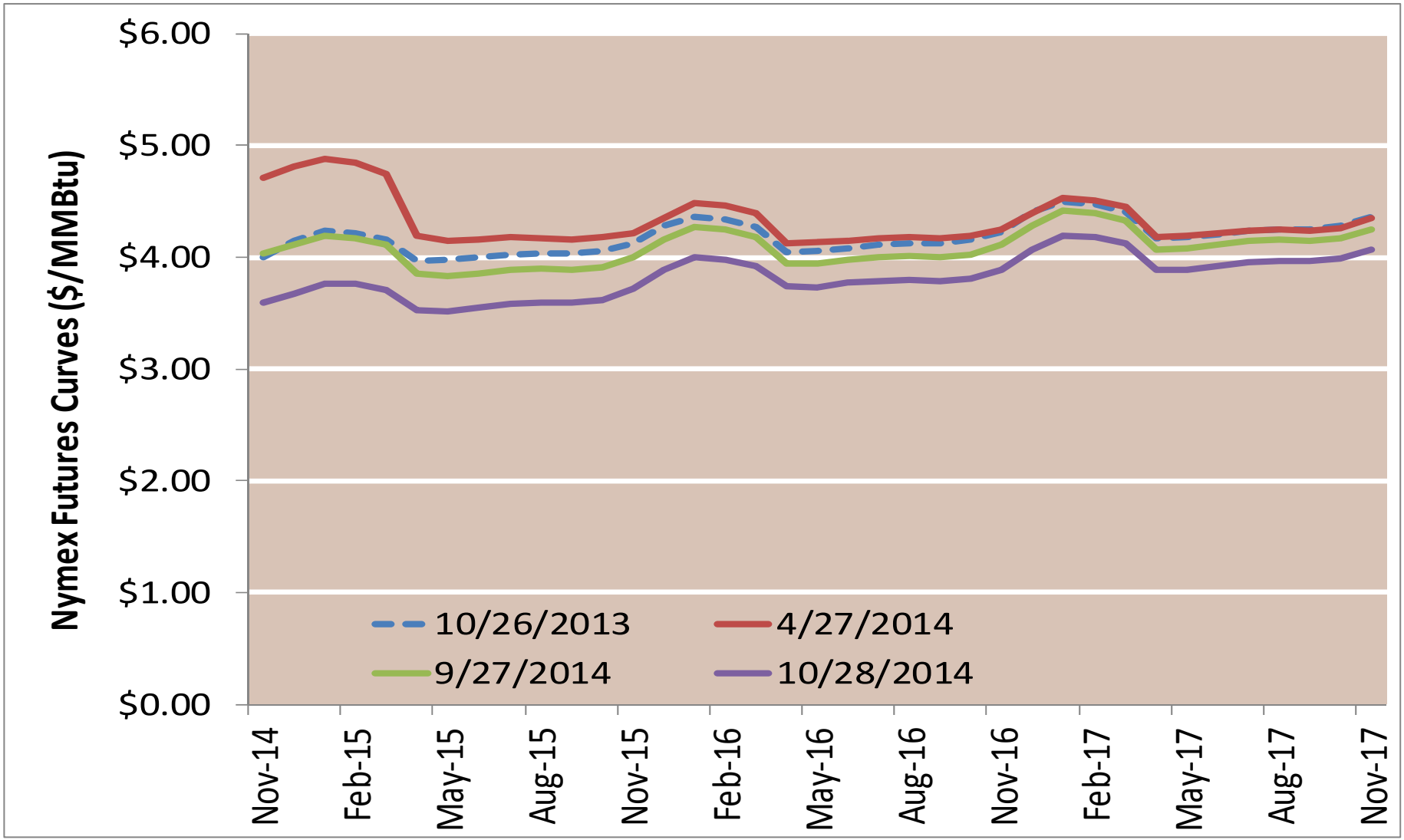
Nymex Futures Curves



Source: Derived from Bloomberg data

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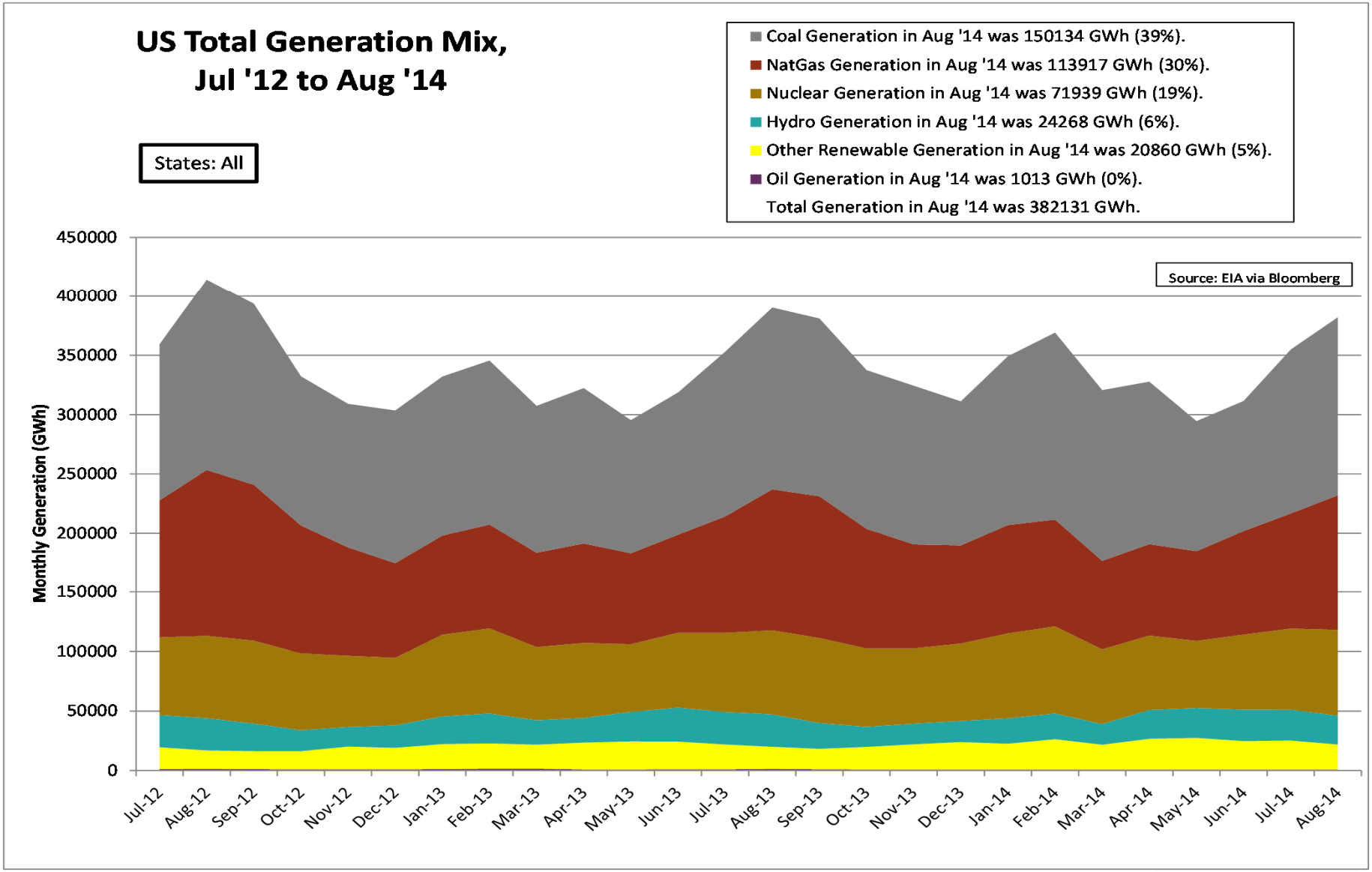
US Total Generation Mix



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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

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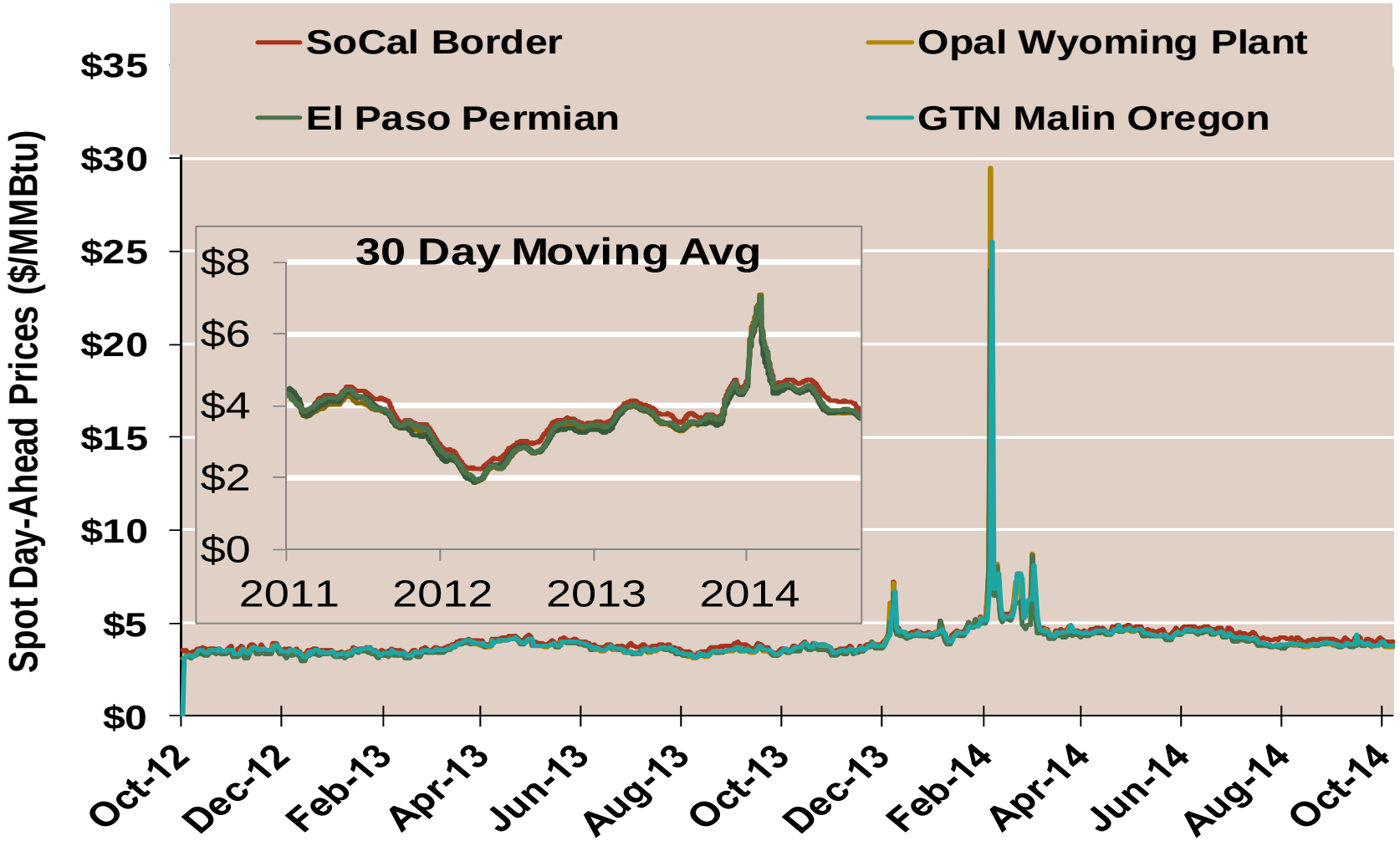
West Daily Day-Ahead Prices



Notes:

Source: ICE

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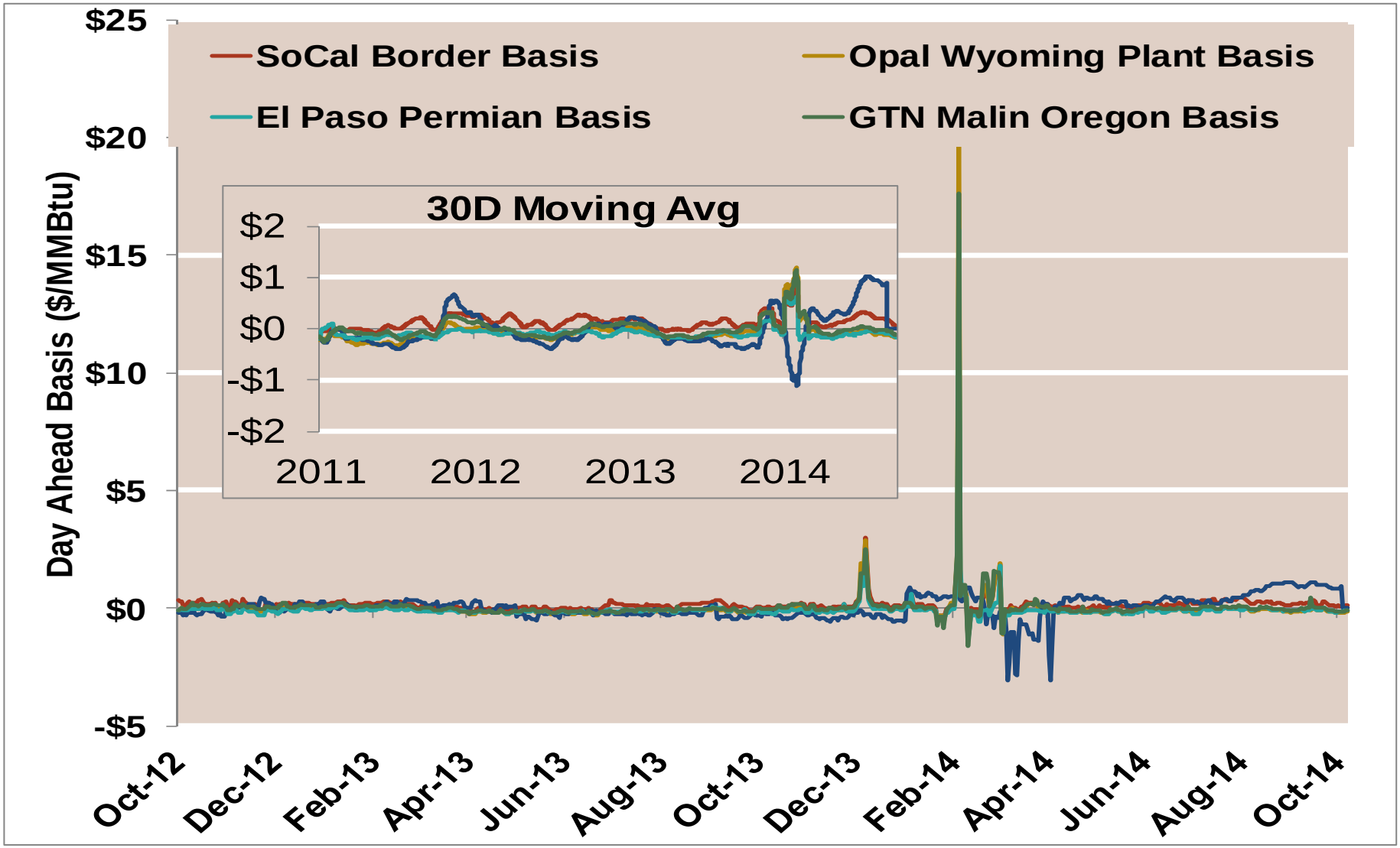
West Daily Day-Ahead Basis



Notes:

Source: ICE

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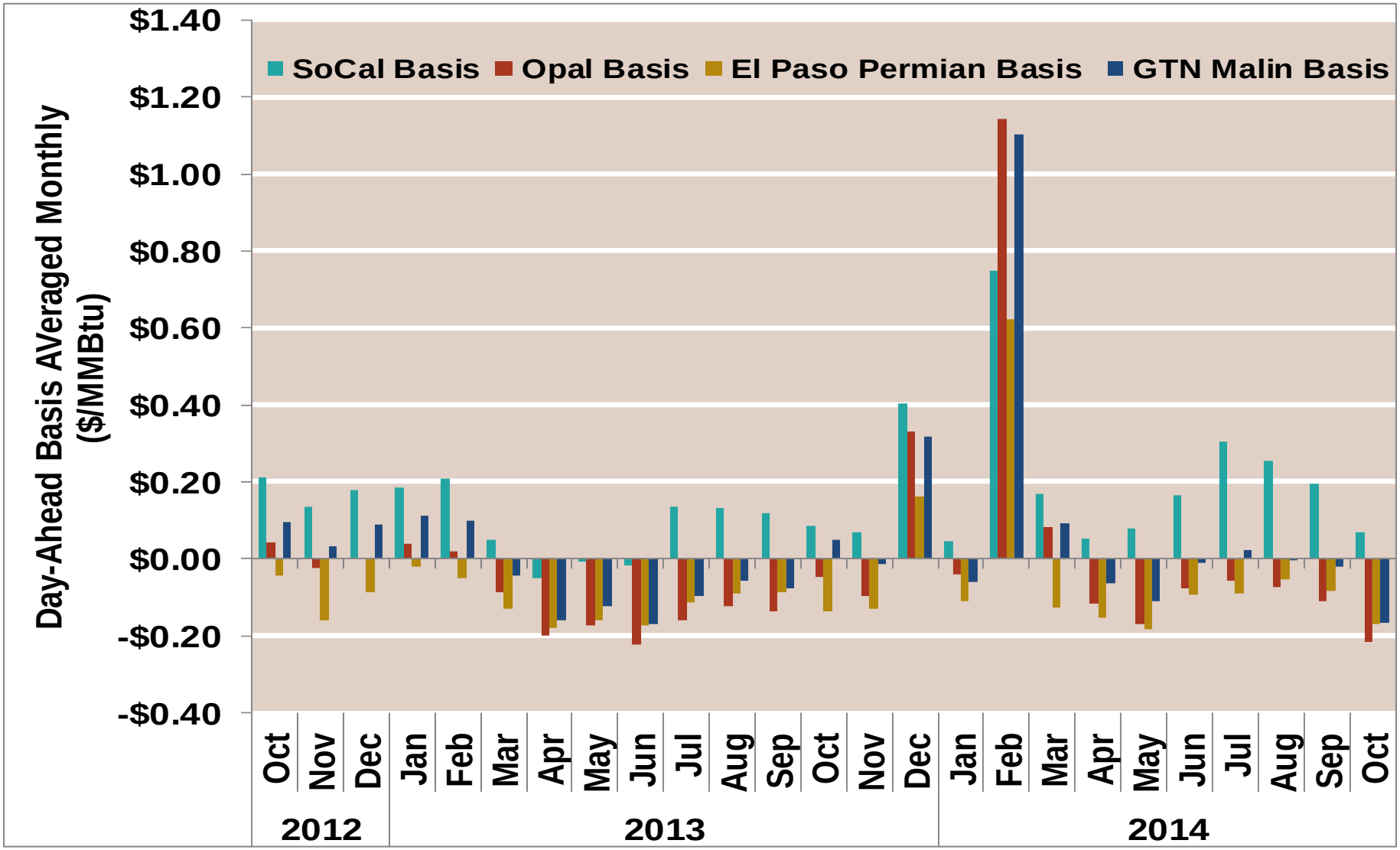
West Average Monthly Basis



Notes:

Source: ICE

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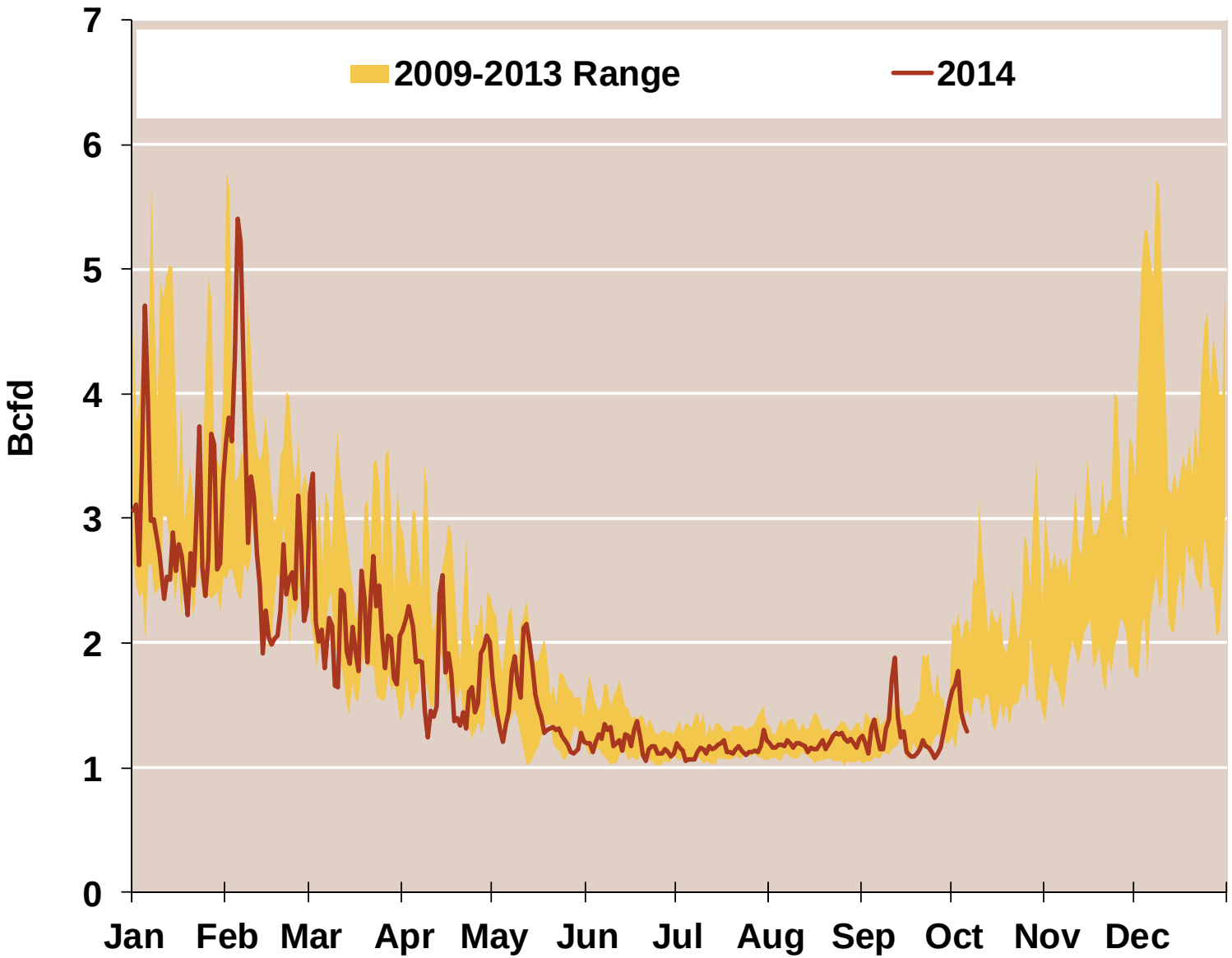
Daily Rockies Natural Gas Demand All Sectors



Source: Derived from *Bentek Energy* data

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

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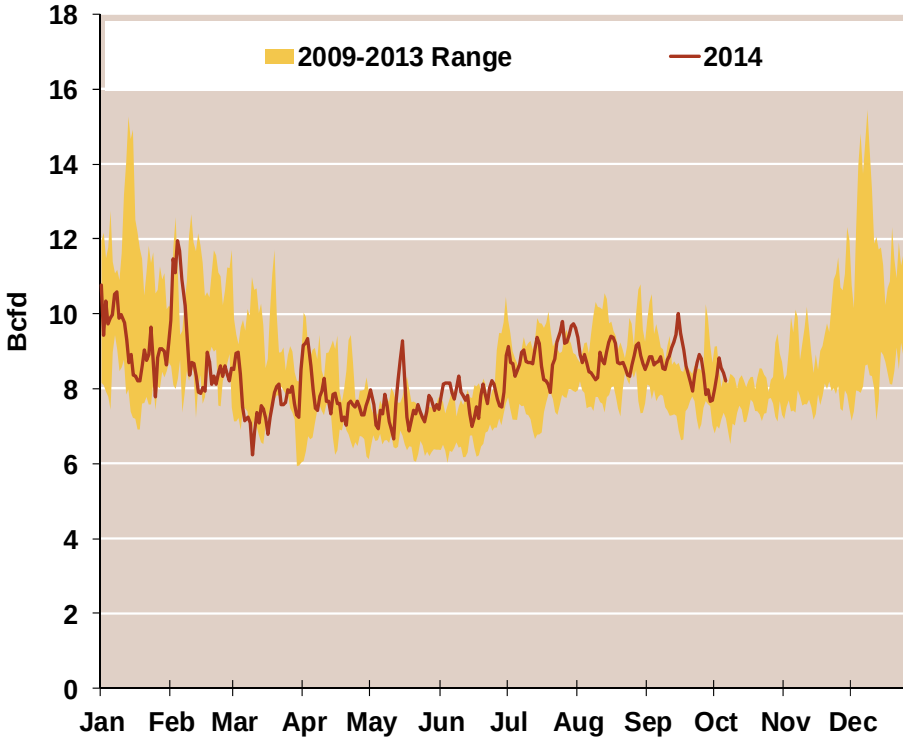
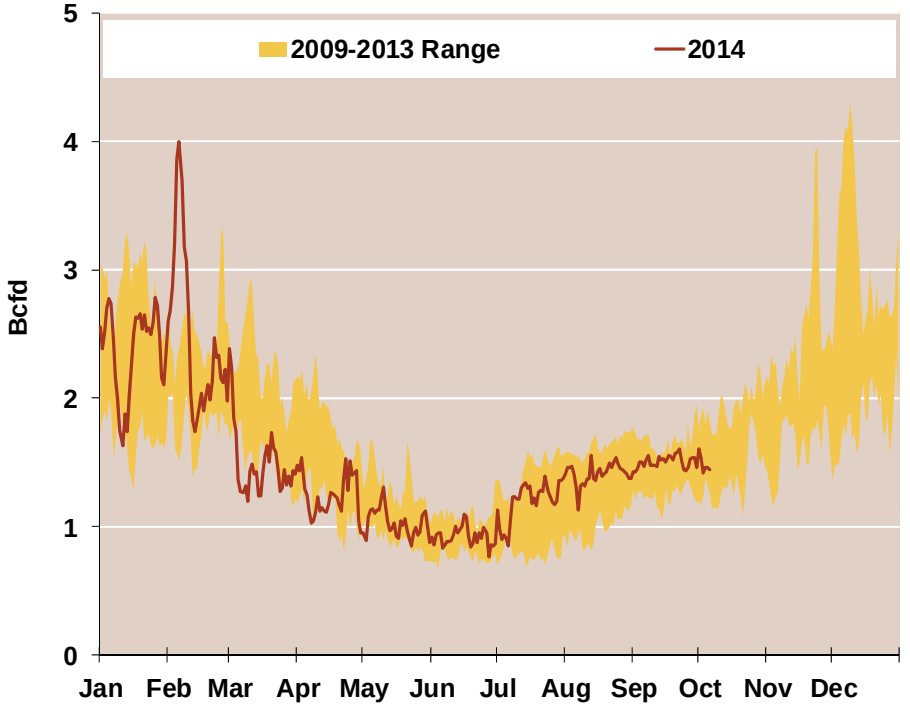
Daily Southwest and Northwest Natural Gas Demand All Sectors

Southwest



Northwest



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

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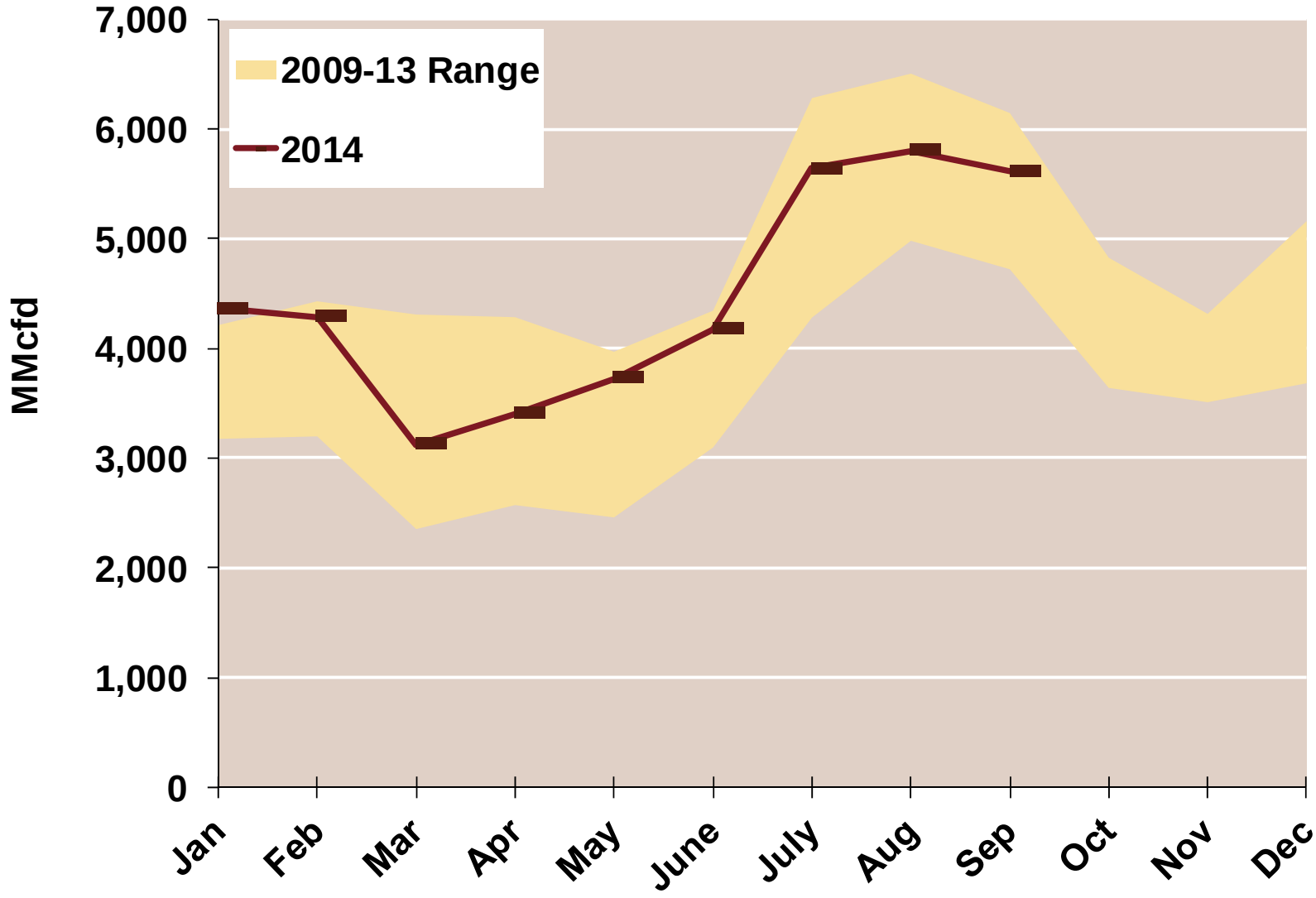
West Natural Gas Consumption for Power Generation



Source: Derived from *Bentek Energy* data

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

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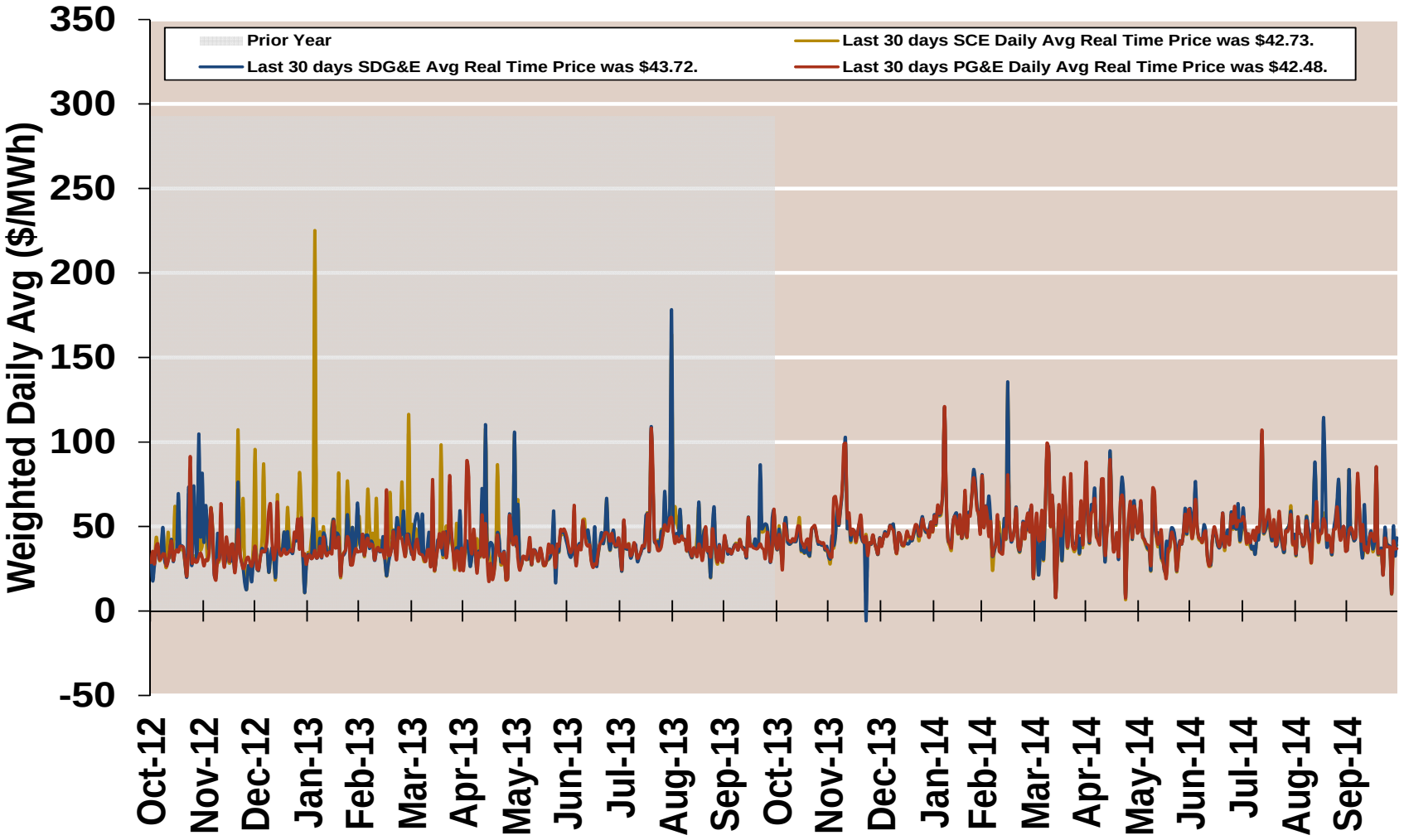
Electricity Markets

West

CAISO Real Time Prices—Two Year History



Source: Genscape via Bloomberg

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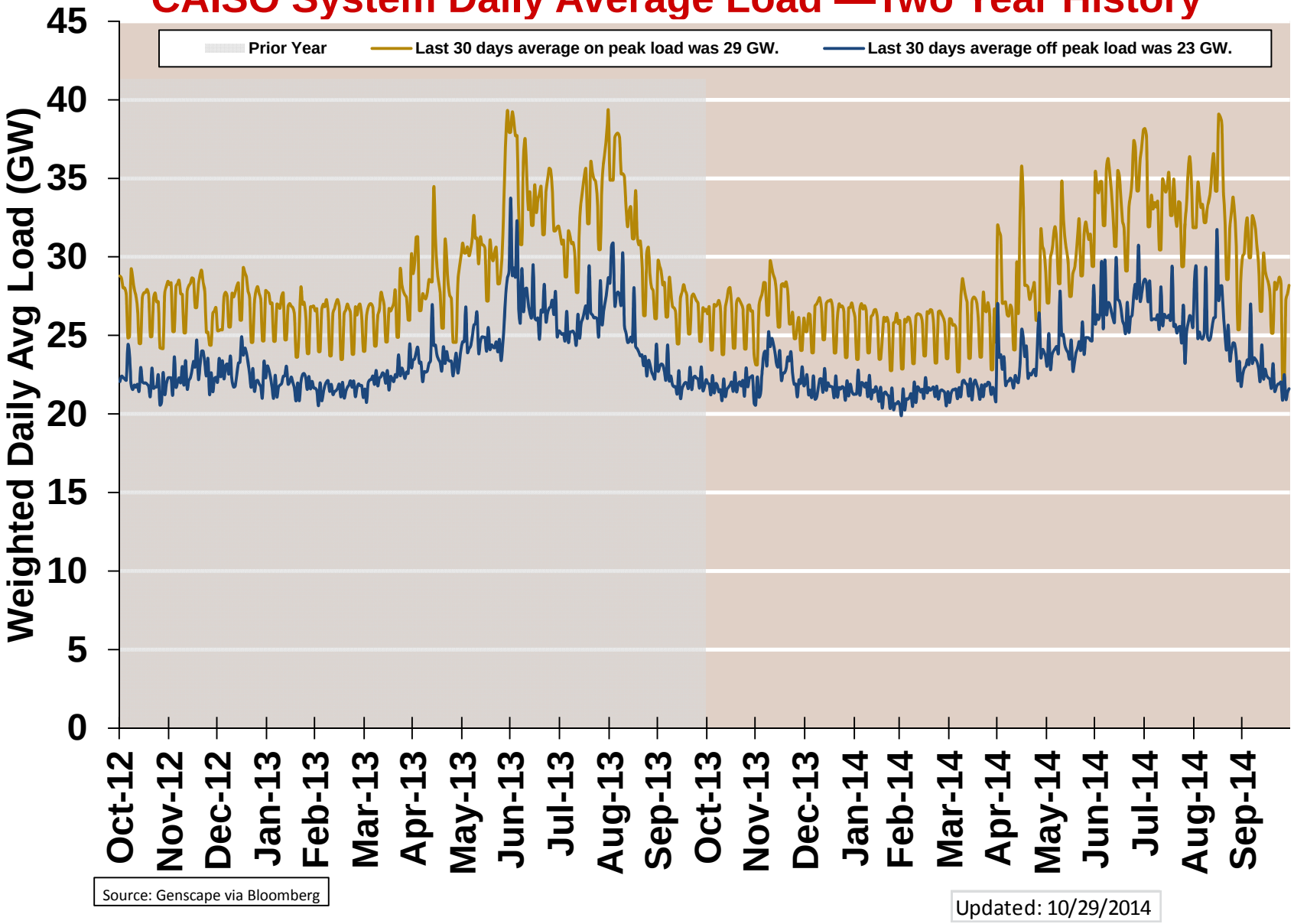
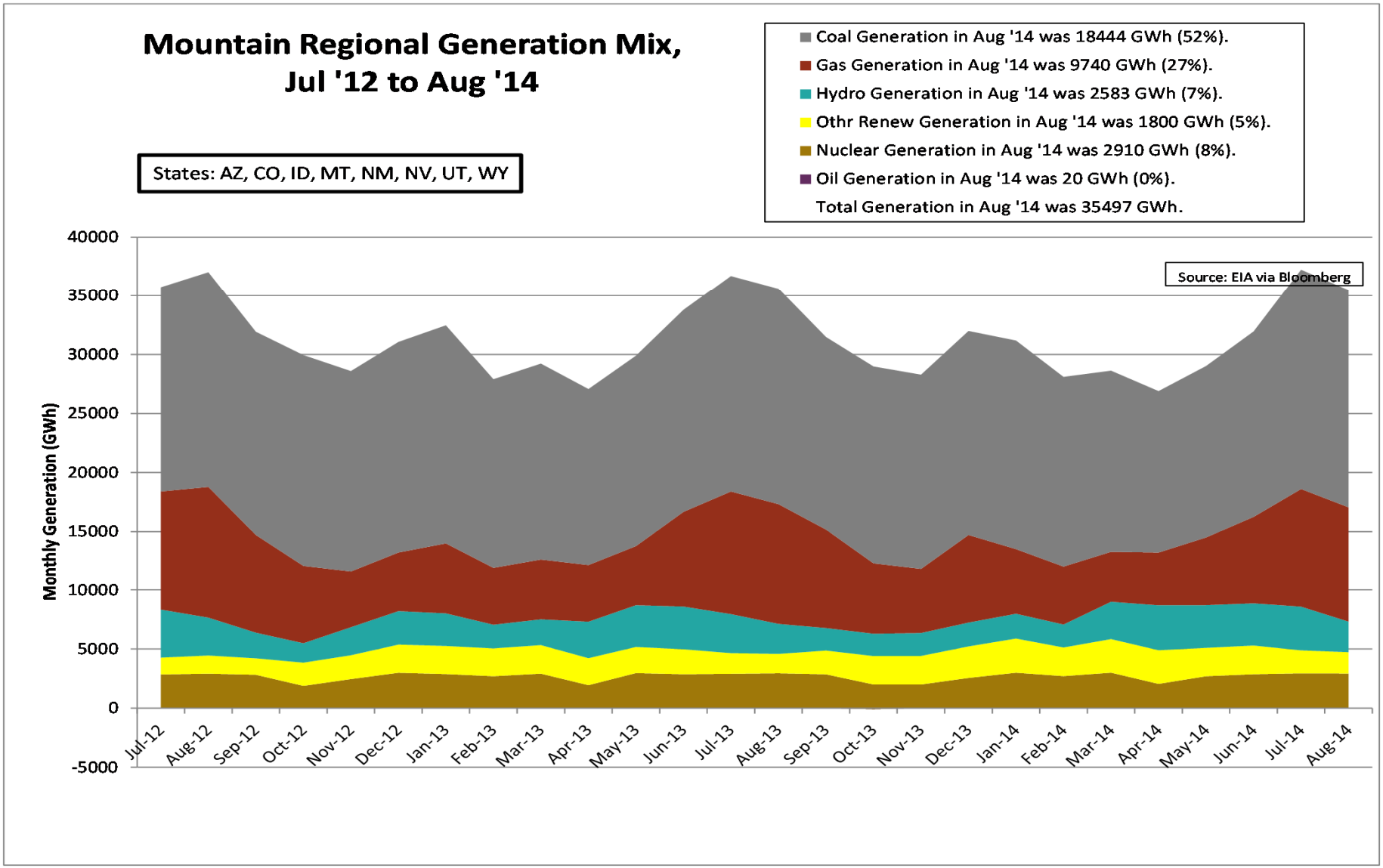
CAISO System Daily Average Load —Two Year History



Source: Genscape via Bloomberg

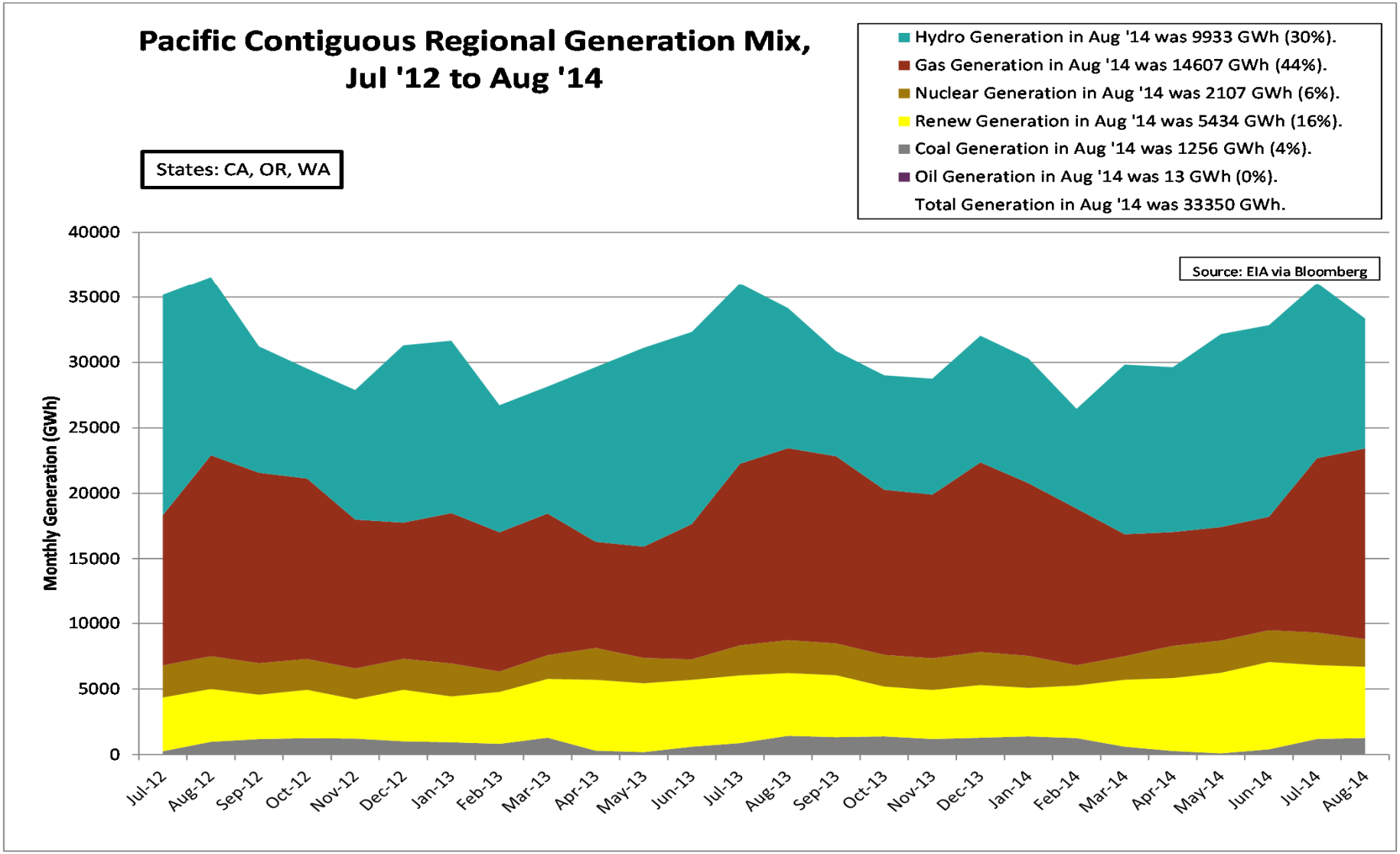
Updated: 10/29/2014

Mountain Regional Generation Mix



Updated: 10/29/2014

Pacific Contiguous Generation Mix



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