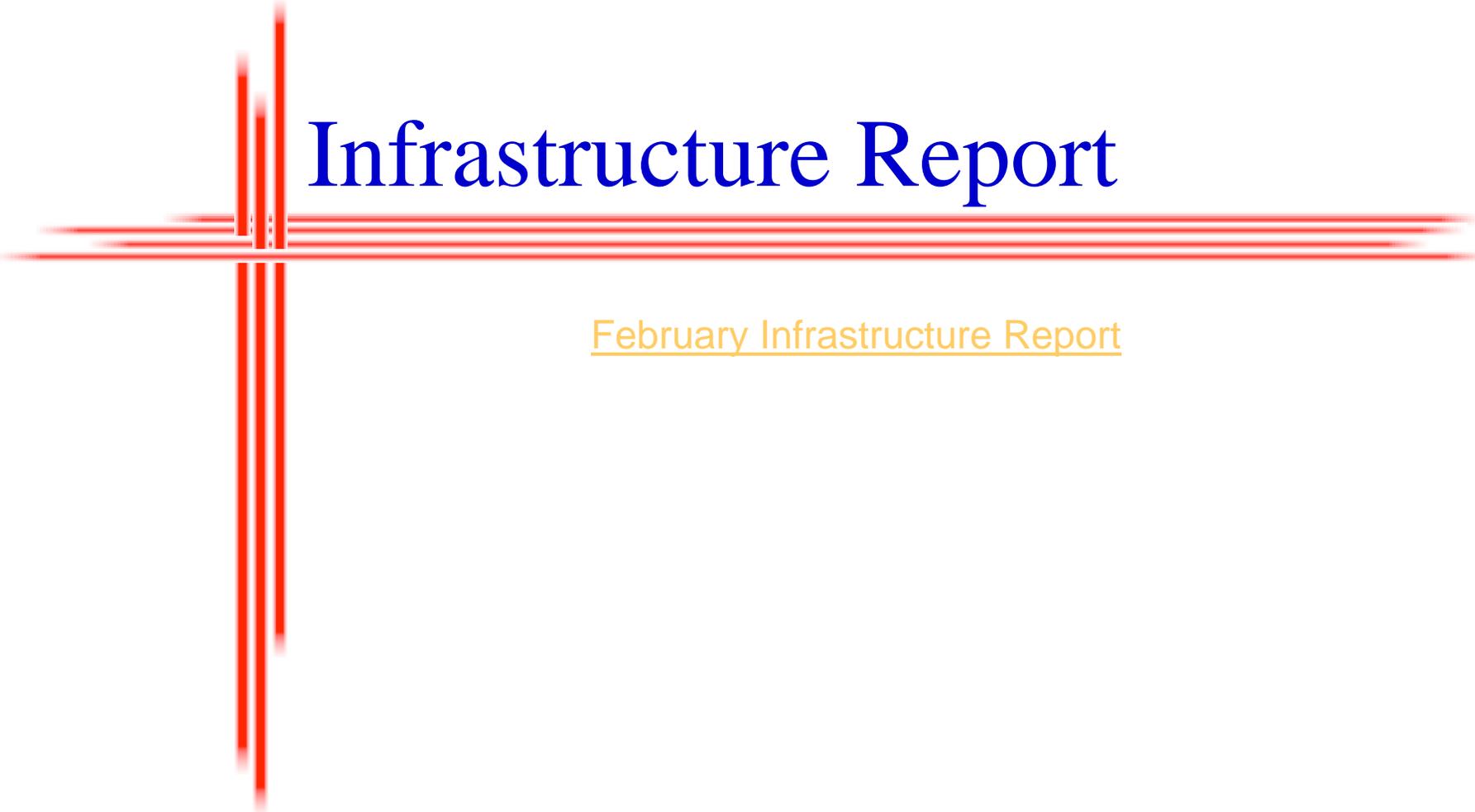


# **OE ENERGY MARKET SNAPSHOT**

## **Western States Version – February 2012 Data**

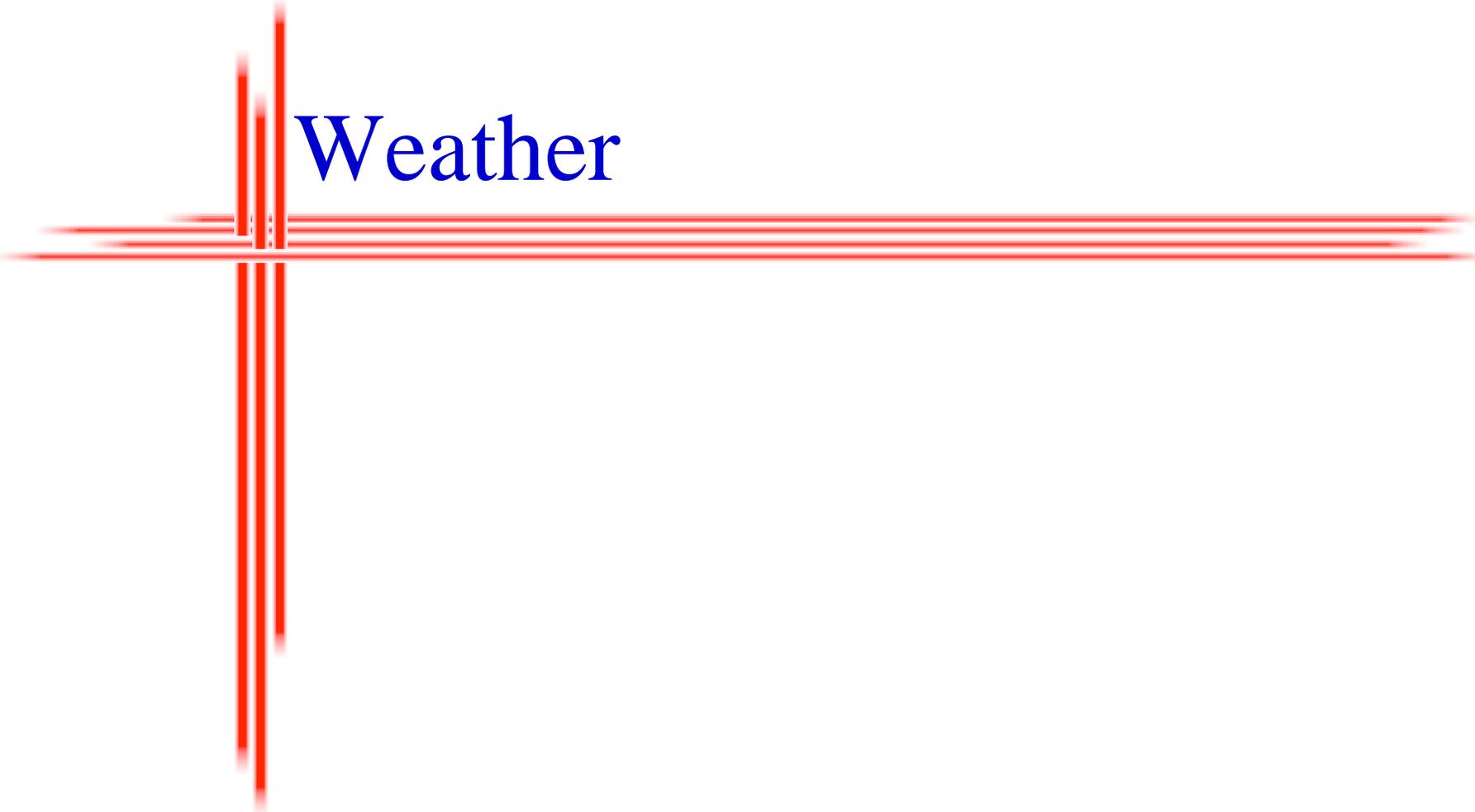
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Office of Enforcement  
Federal Energy Regulatory Commission  
March 2012



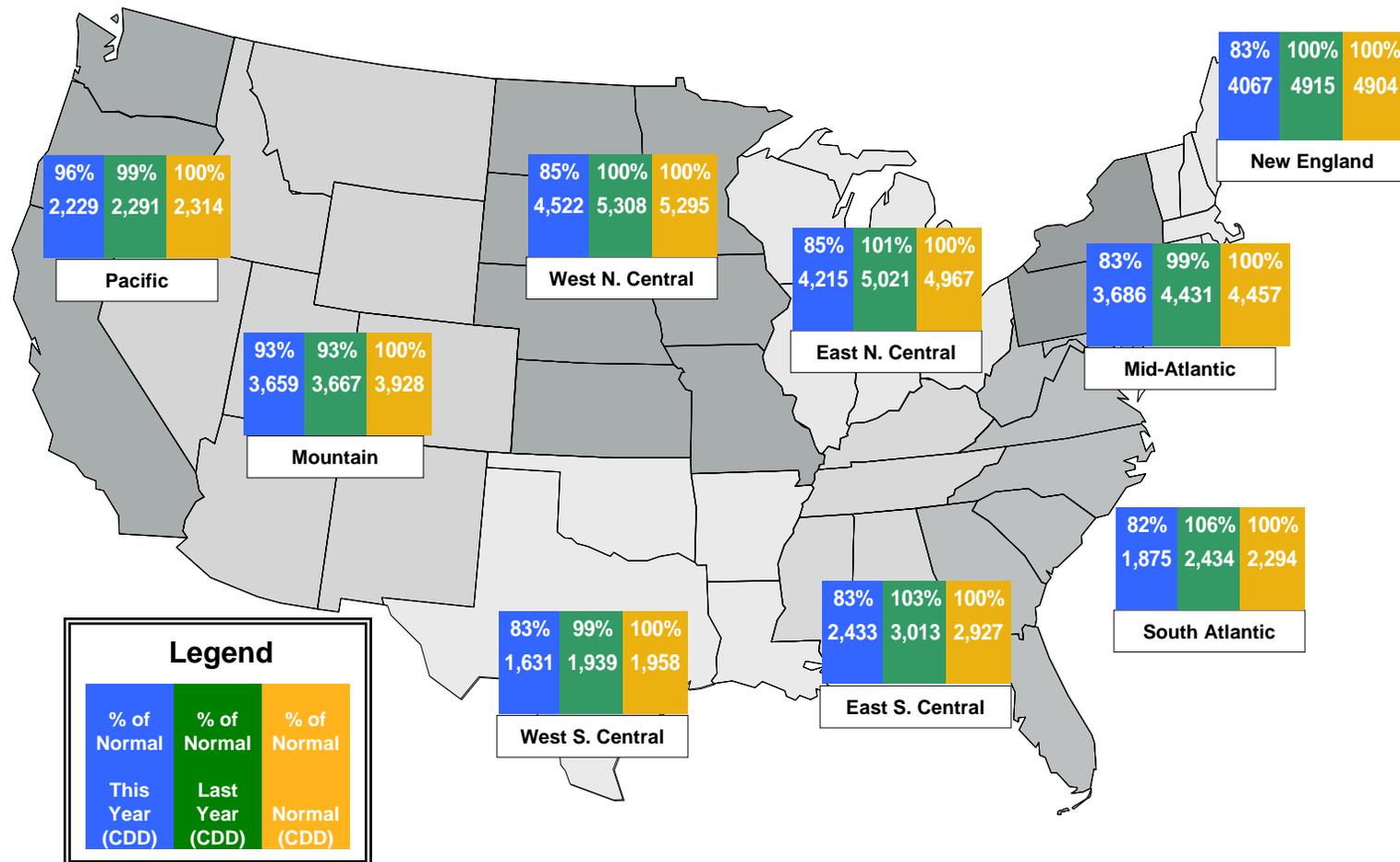
# Infrastructure Report

February Infrastructure Report



# Weather

## Regional Heating Degree Days – July 2011 to February 2012

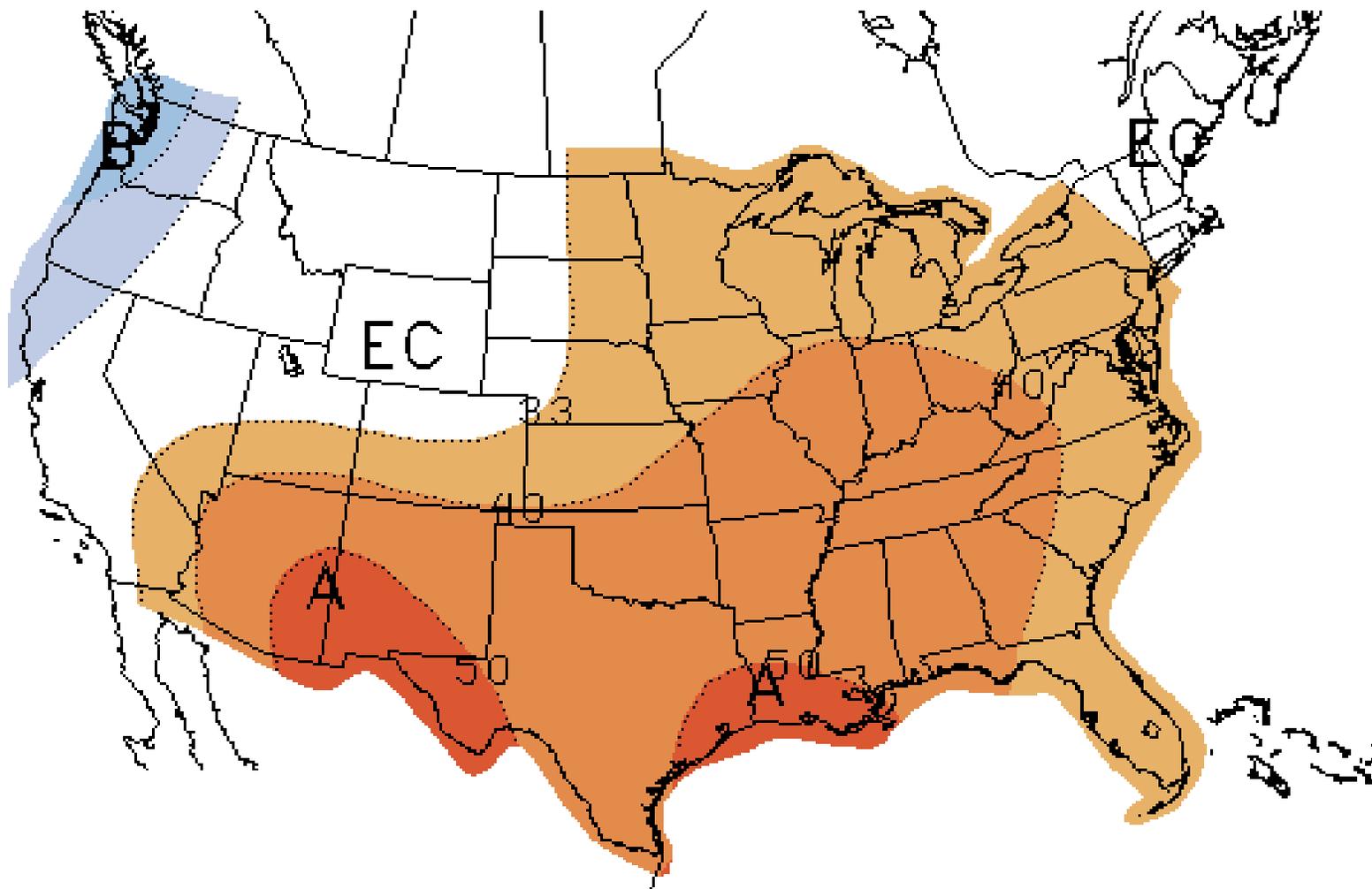


**Legend**

% of Normal	% of Normal	% of Normal
This Year (CDD)	Last Year (CDD)	Normal (CDD)

Source: Derived from NOAA data. Normal is based on a 30-year average of heating degree day data.  
 March 2012 Western Snapshot

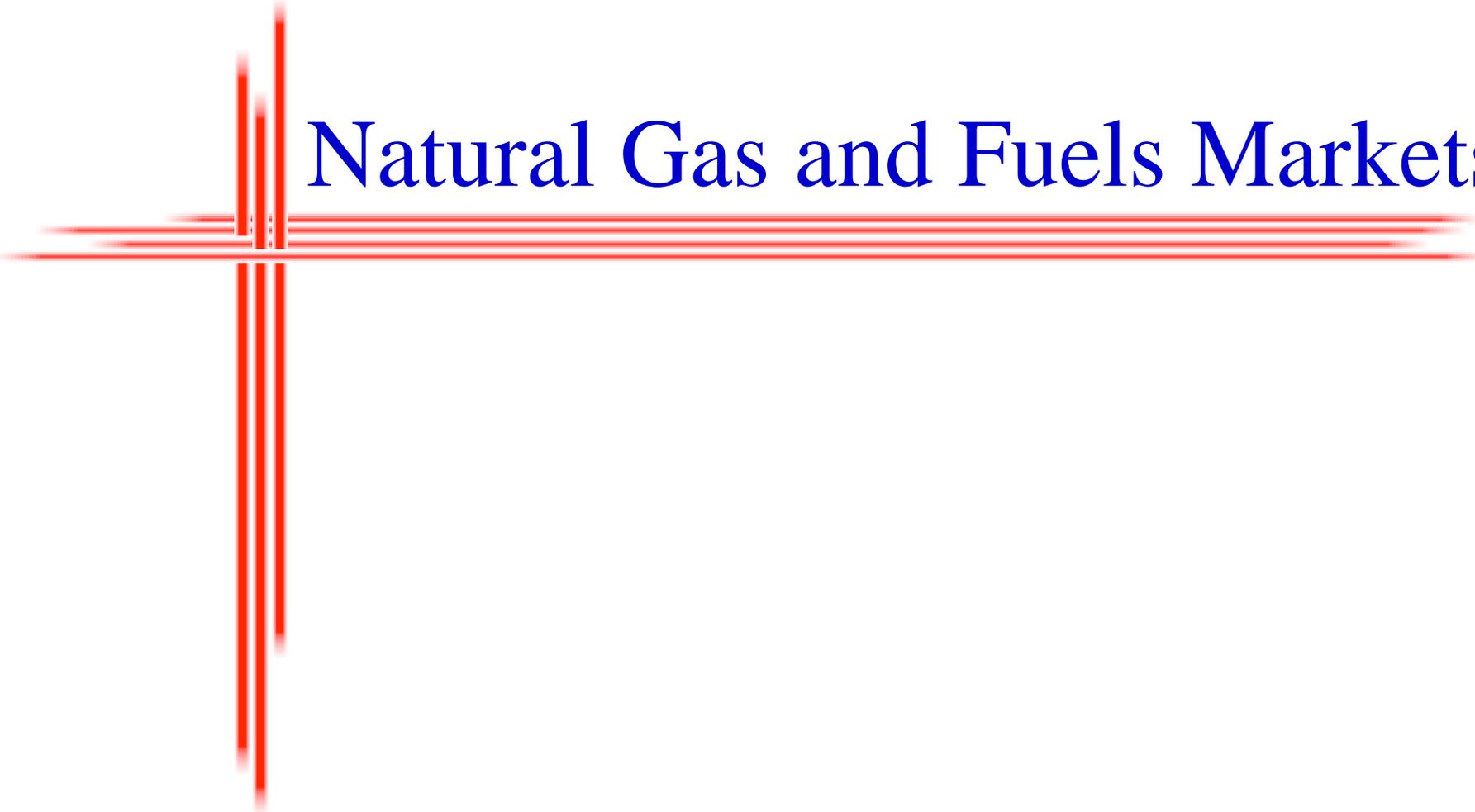
## NOAA's 3 Month Temperature Forecast Made February 16, 2012, Valid for March 2012 – May 2012



Note: "A" areas are above normal, "B" areas are below normal and "EC" means equal chance. Normal is based on the last 30 years of data.

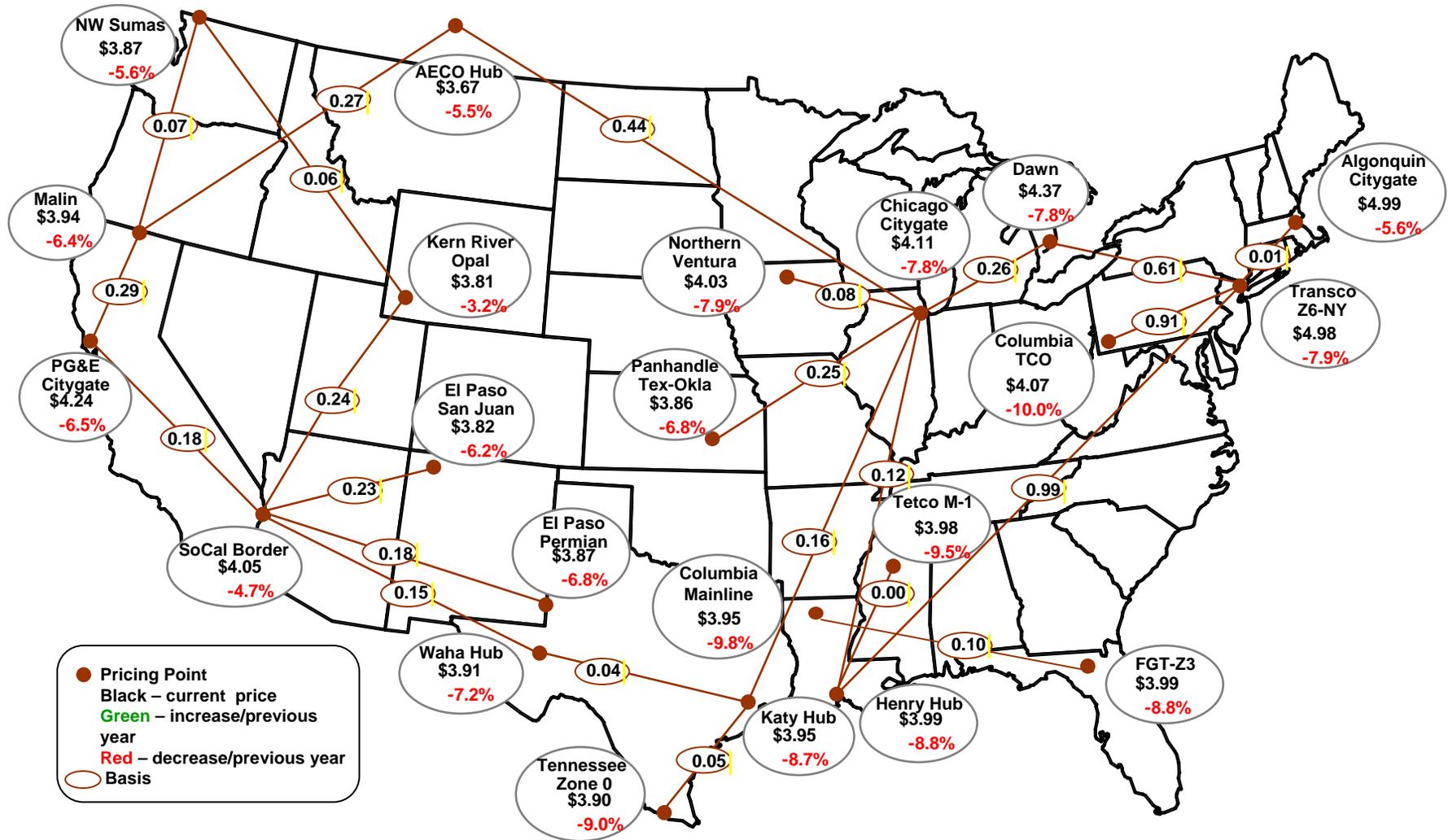
Source: Derived from NOAA data.

Updated: March 6, 2012

A decorative graphic consisting of several thick, parallel red lines. One vertical line runs down the left side of the page, and several horizontal lines cross it, creating a grid-like structure. The lines are slightly blurred and have a glowing effect.

# Natural Gas and Fuels Markets

## Average Spot Gas Prices, 2011 (\$MMBtu)



Source: Derived from *Platts* data.  
 March 2012 Western Snapshot

## Western Annual Average Spot Hub Prices

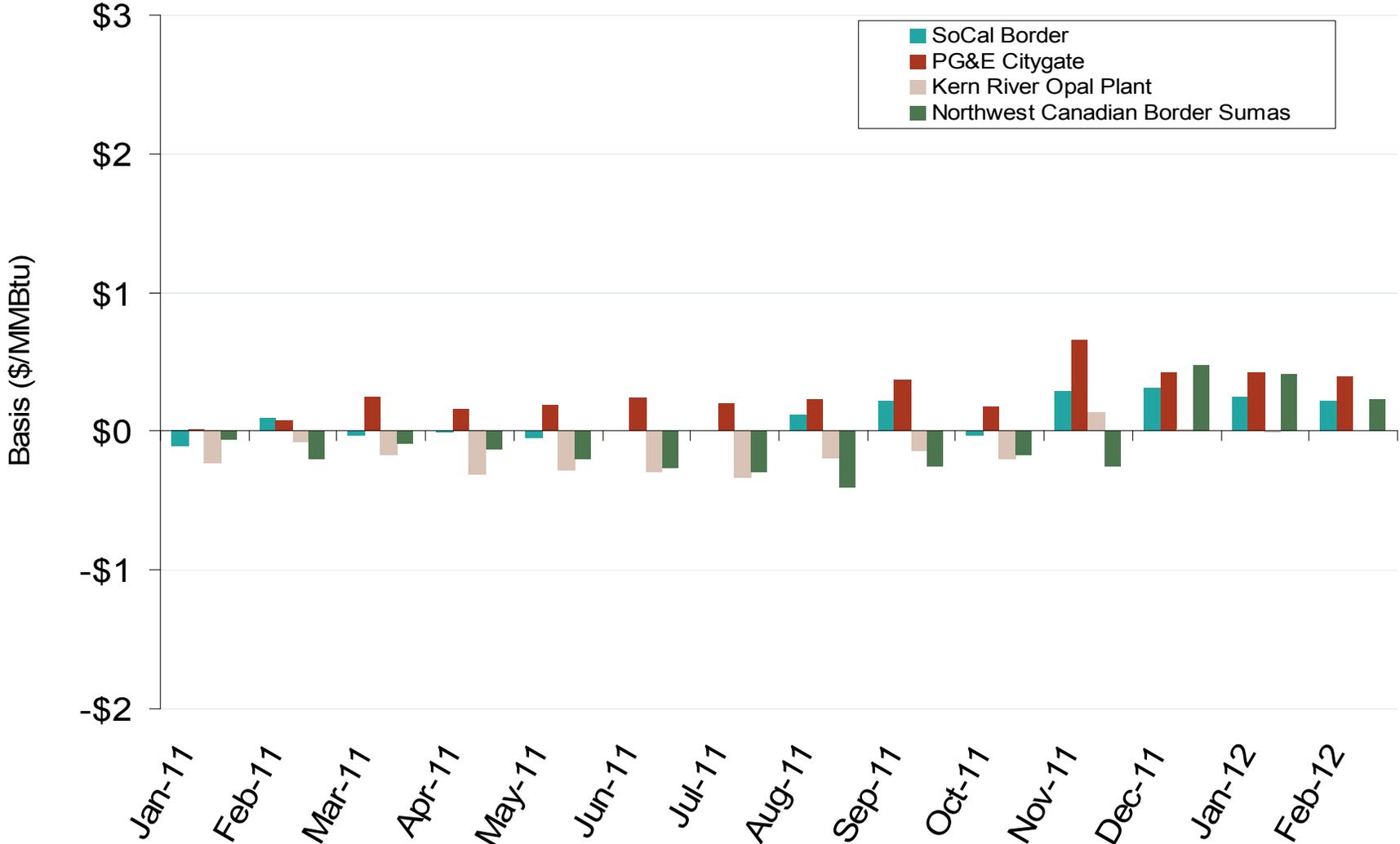
Annual Average Day Ahead Prices (\$/MMBtu)						
	2007	2008	2009	2010	2011	5-Year Avg
Socal Border	\$6.41	\$7.80	\$3.61	\$4.25	\$4.05	\$5.23
PG&E Citygate	\$6.89	\$8.59	\$4.13	\$4.53	\$4.24	\$5.67
Opal	\$4.07	\$6.48	\$3.13	\$3.94	\$3.81	\$4.29
Sumas (Huntington)	\$6.49	\$8.14	\$3.76	\$4.10	\$3.87	\$5.27
El Paso Bondad	\$6.02	\$6.99	\$3.28	\$4.02	\$3.80	\$4.82
El Paso San Juan	\$6.06	\$7.16	\$3.33	\$4.07	\$3.82	\$4.89
Malin	\$6.48	\$8.17	\$3.76	\$4.21	\$3.94	\$5.31

## Western Day-Ahead Hub Spot Prices and Basis



Federal Energy Regulatory Commission • Market Oversight • [www.ferc.gov/oversight](http://www.ferc.gov/oversight)

### Western Monthly Average Basis Value to Henry Hub

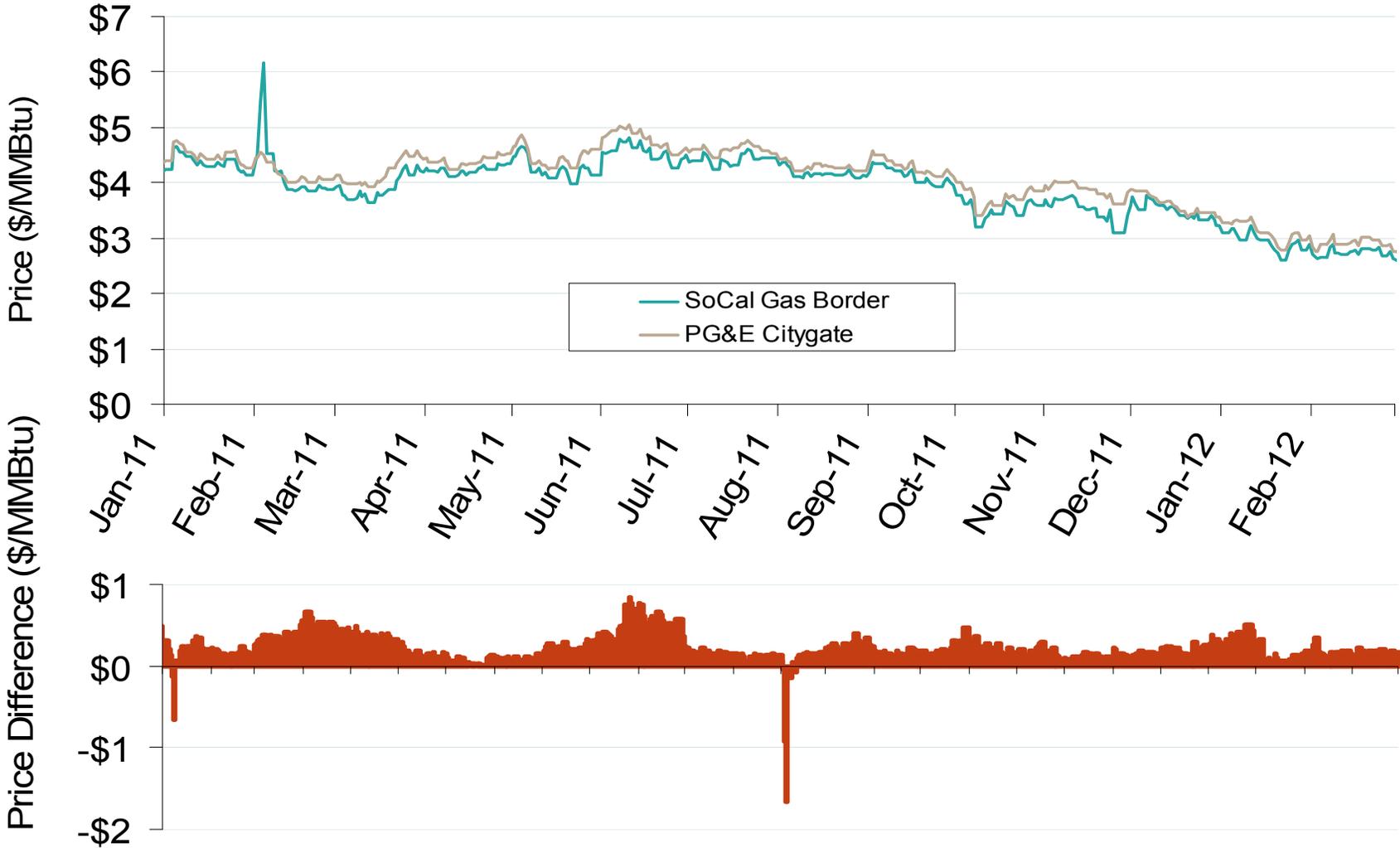


Source: Derived from Platts data  
March 2012 Western Snapshot

Updated: March 05, 2012

Federal Energy Regulatory Commission • Market Oversight • [www.ferc.gov/oversight](http://www.ferc.gov/oversight)

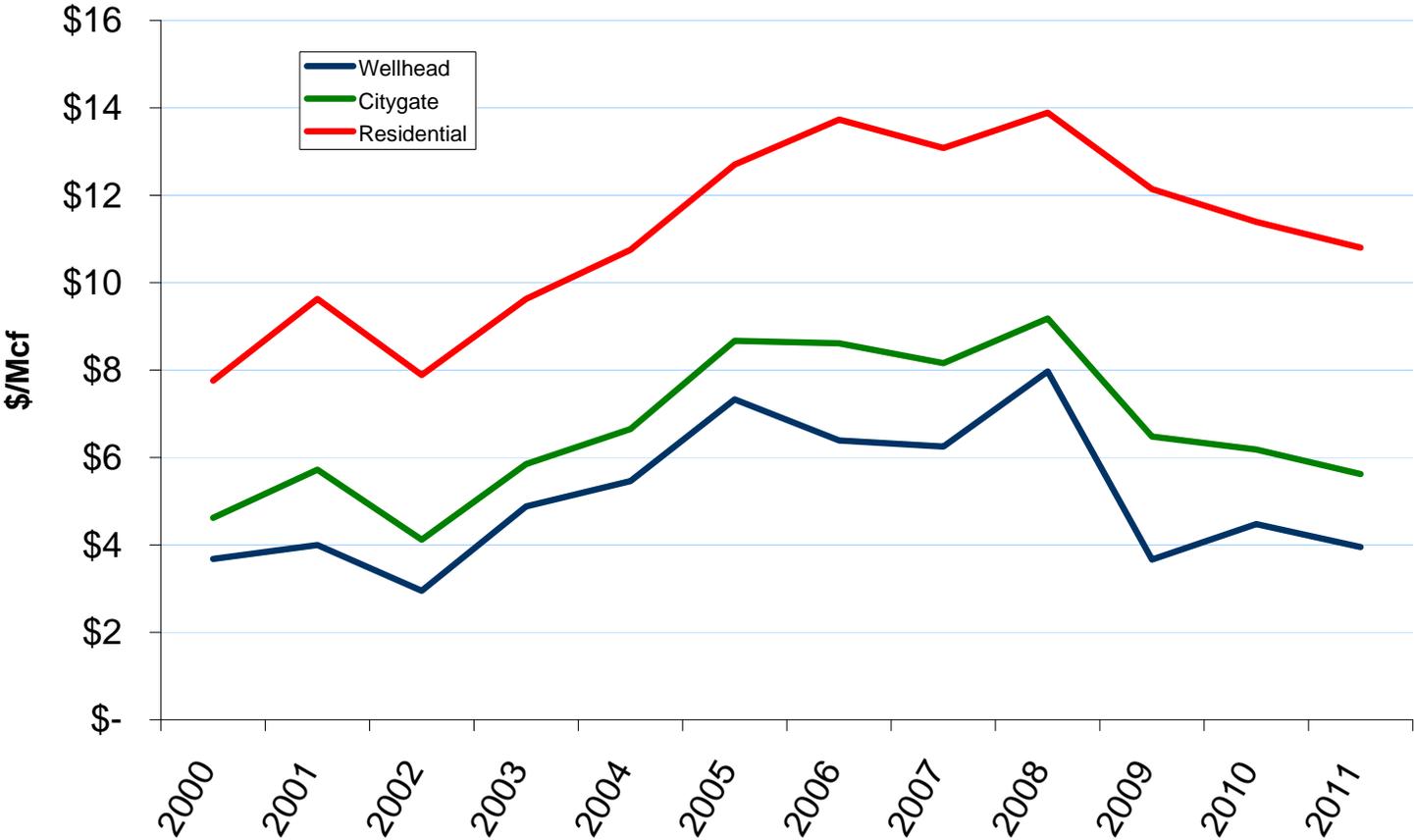
### Difference in Northern and Southern California Daily Spot Prices



Source: Derived from *Platts* data  
March 2012 Western Snapshot

Updated: March 05, 2012

# Residential Gas Price Trends Lag Behind Wholesale Prices



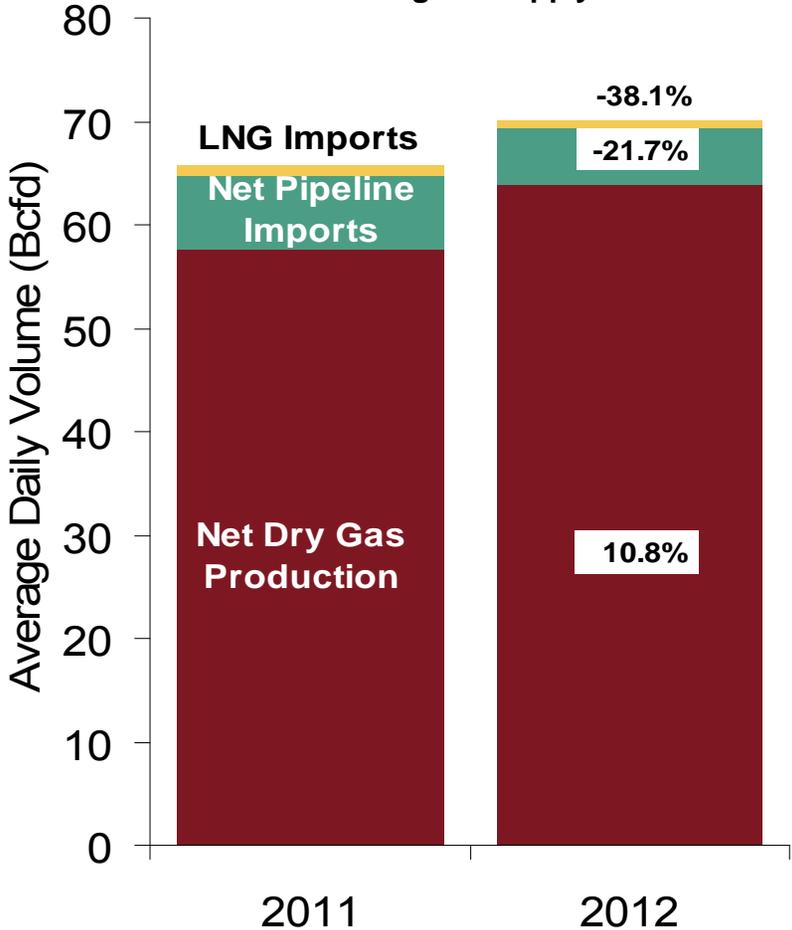
Source: Baker Derived from EIA

Updated March 2, 2012

# U.S. NG Supply and Demand 2011 vs. 2012: January - February

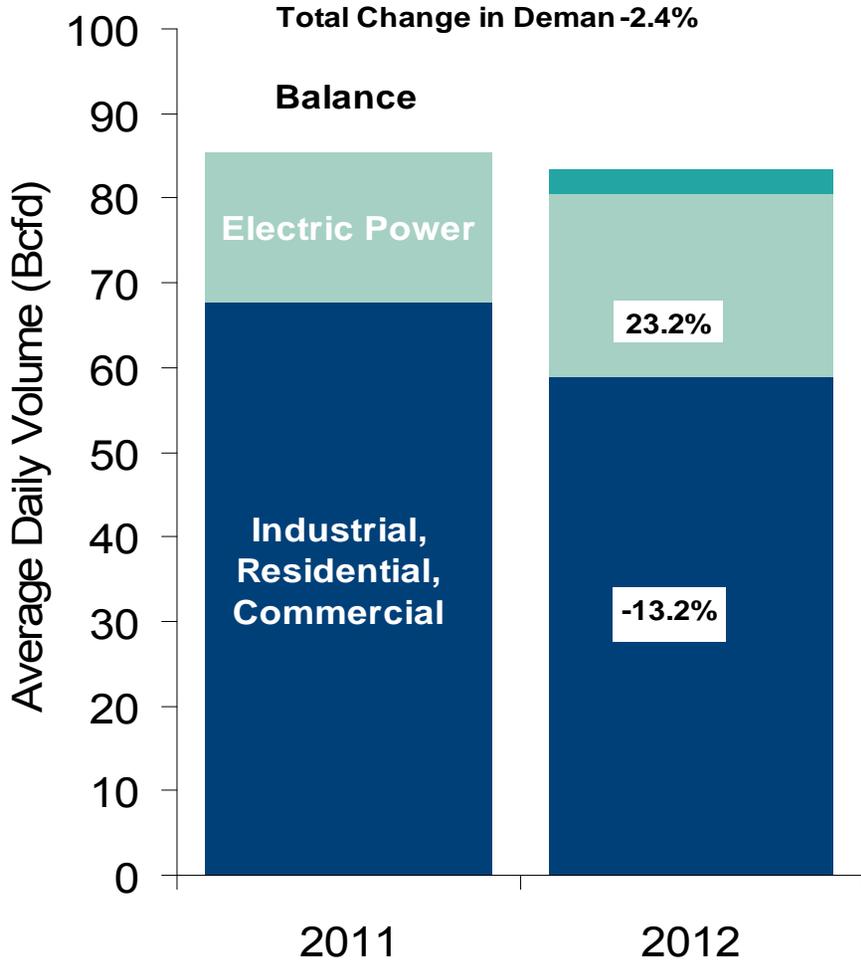
## US Natural Gas Supply

Total Change in Supply 6.5%



## US Natural Gas Demand

Total Change in Deman -2.4%



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

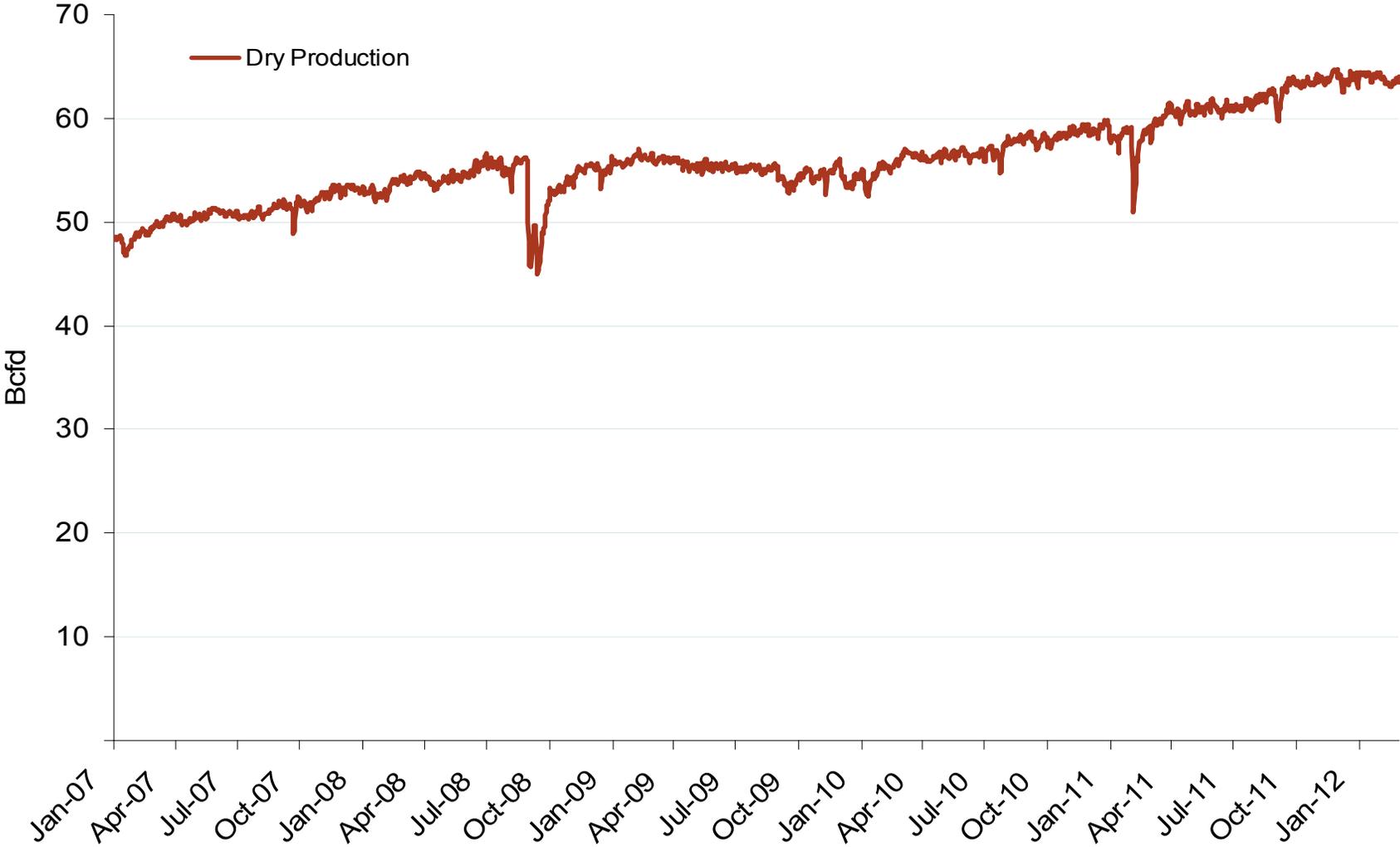
Source: Derived from Bentek Energy data

March 2012 Western Snapshot

Updated: March 09, 2012

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



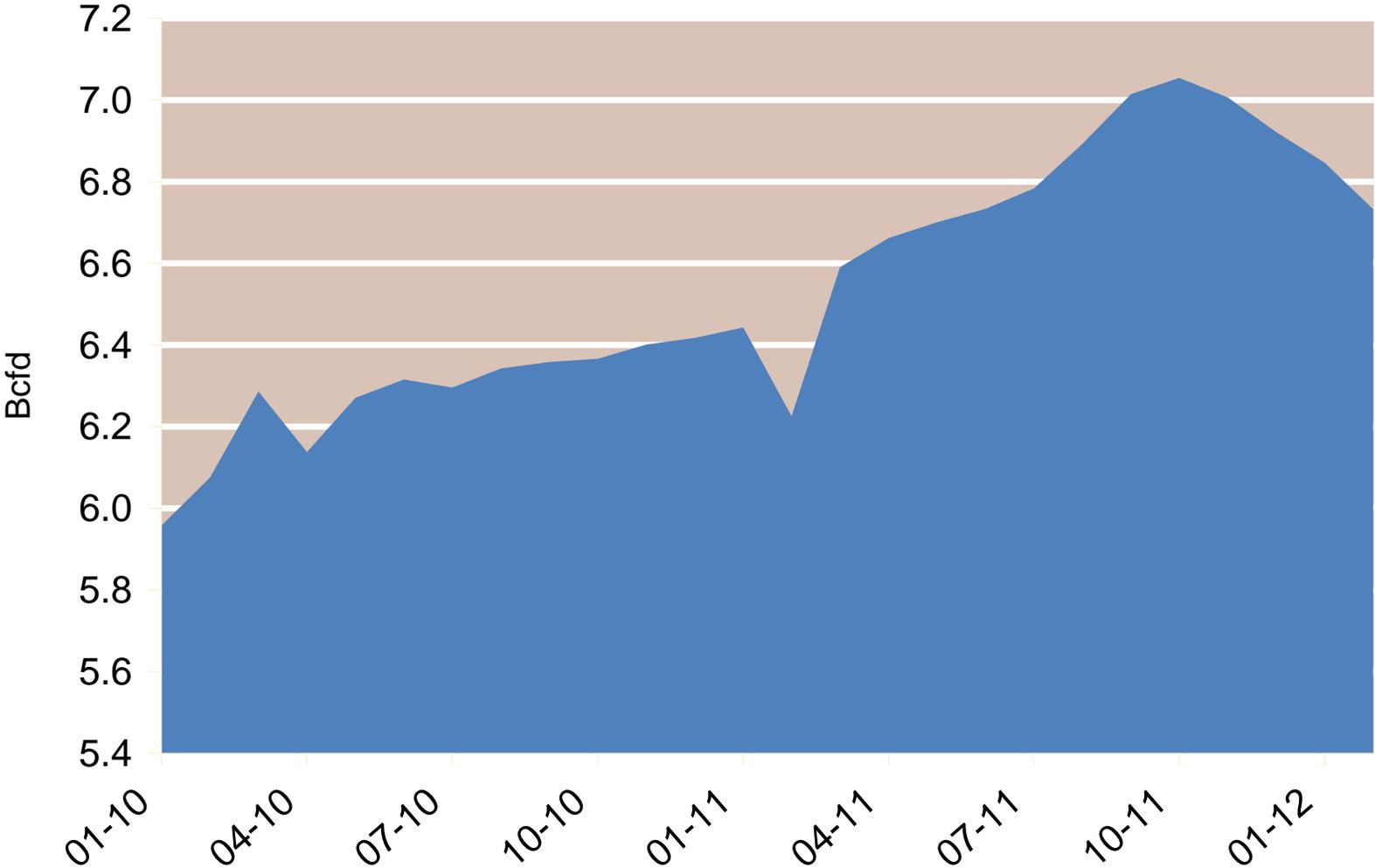
Note: Prior to July 2010, chart was derived from a combination of EIA and Bentek Energy data

Source: Derived from Bentek Energy data

March 2012 Western Snapshot

Updated: March 09, 2012

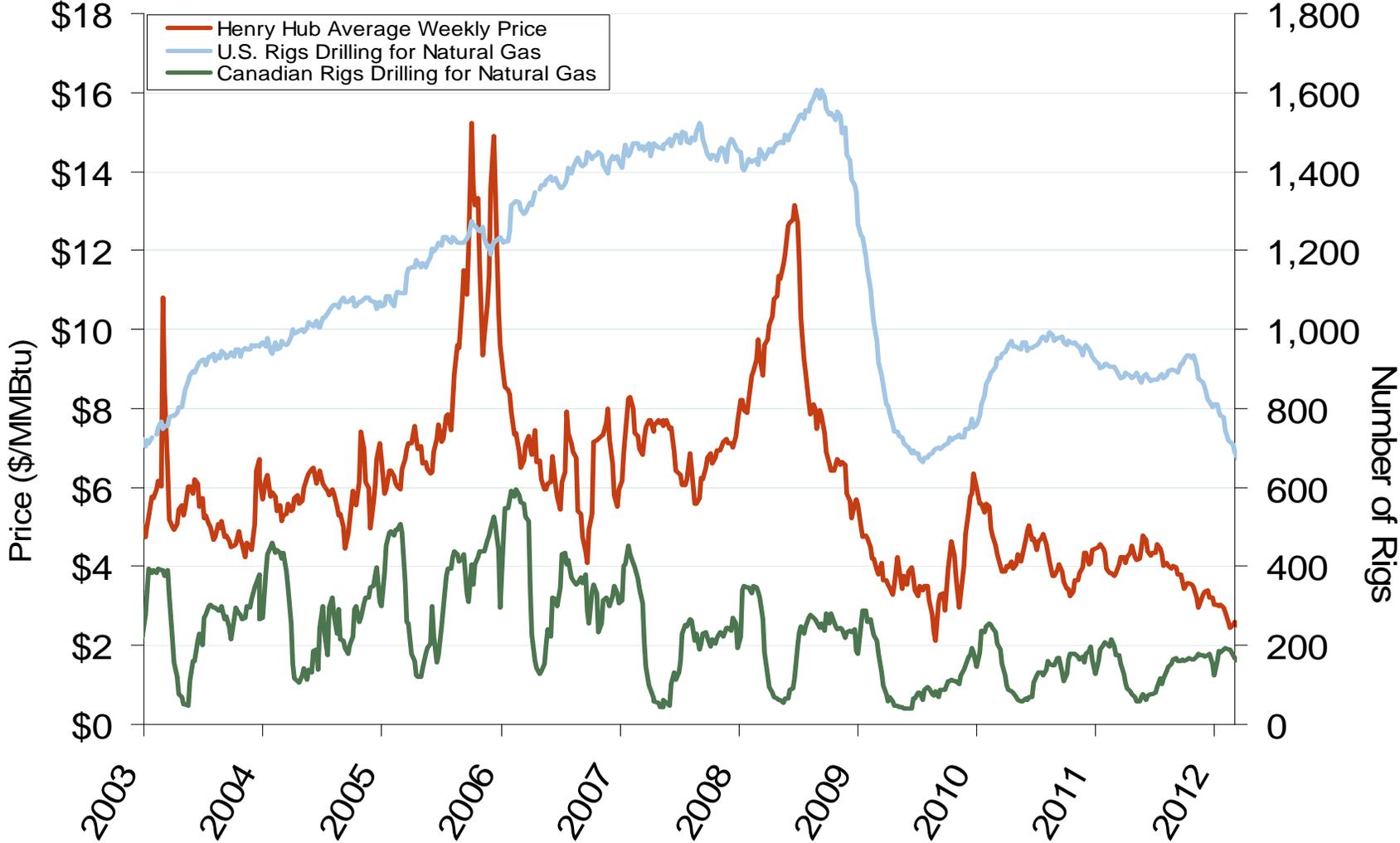
# Midcontinent Production Rises Sharply



Source: Baker Derived from Bentek Energy data

Updated February 24, 2012

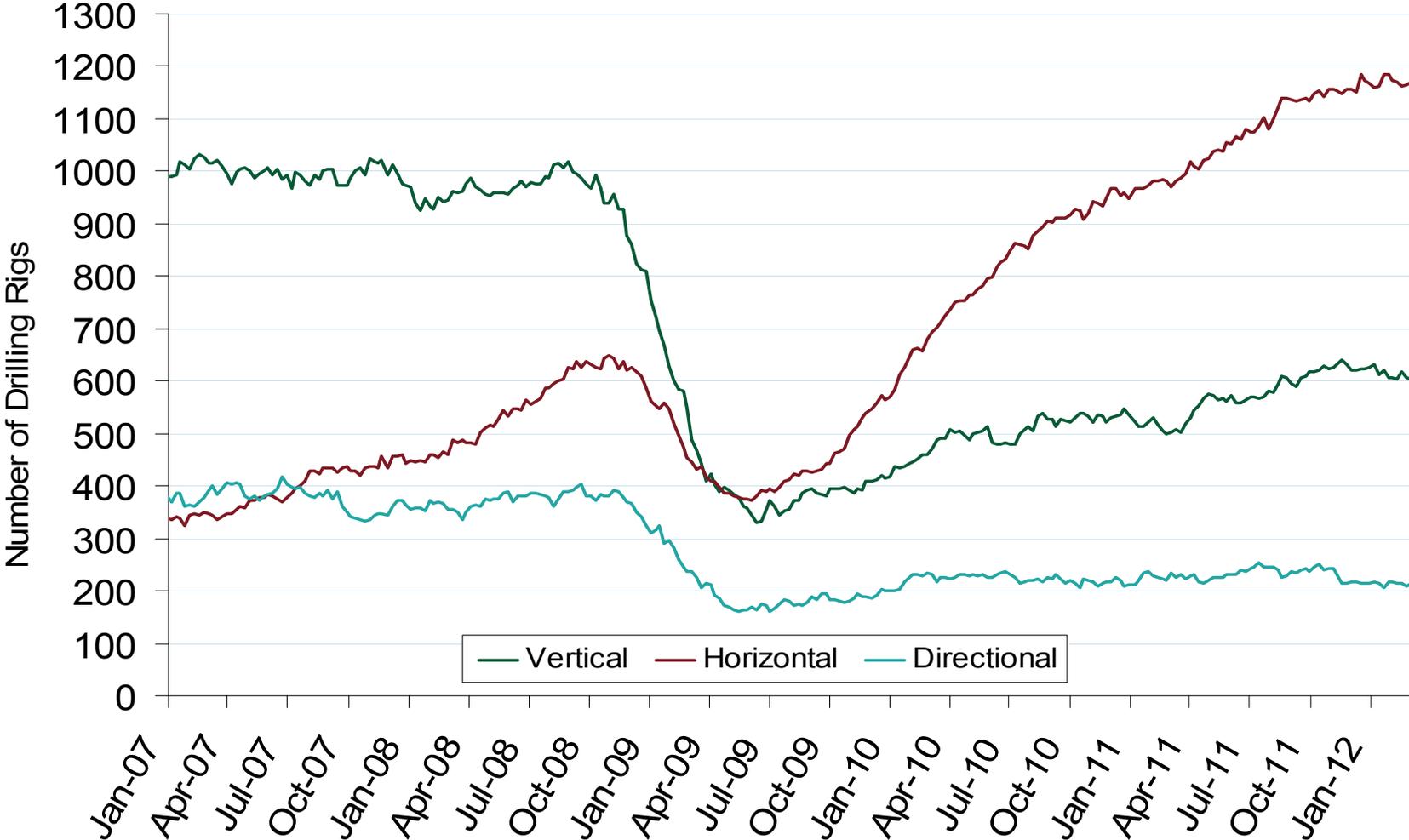
# U.S. and Canadian NG Drilling Rig Count and Daily Spot Prices



Source: Derived from *Platts* and *Baker Hughes* data  
March 2012 Western Snapshot

Updated: March 8, 2012

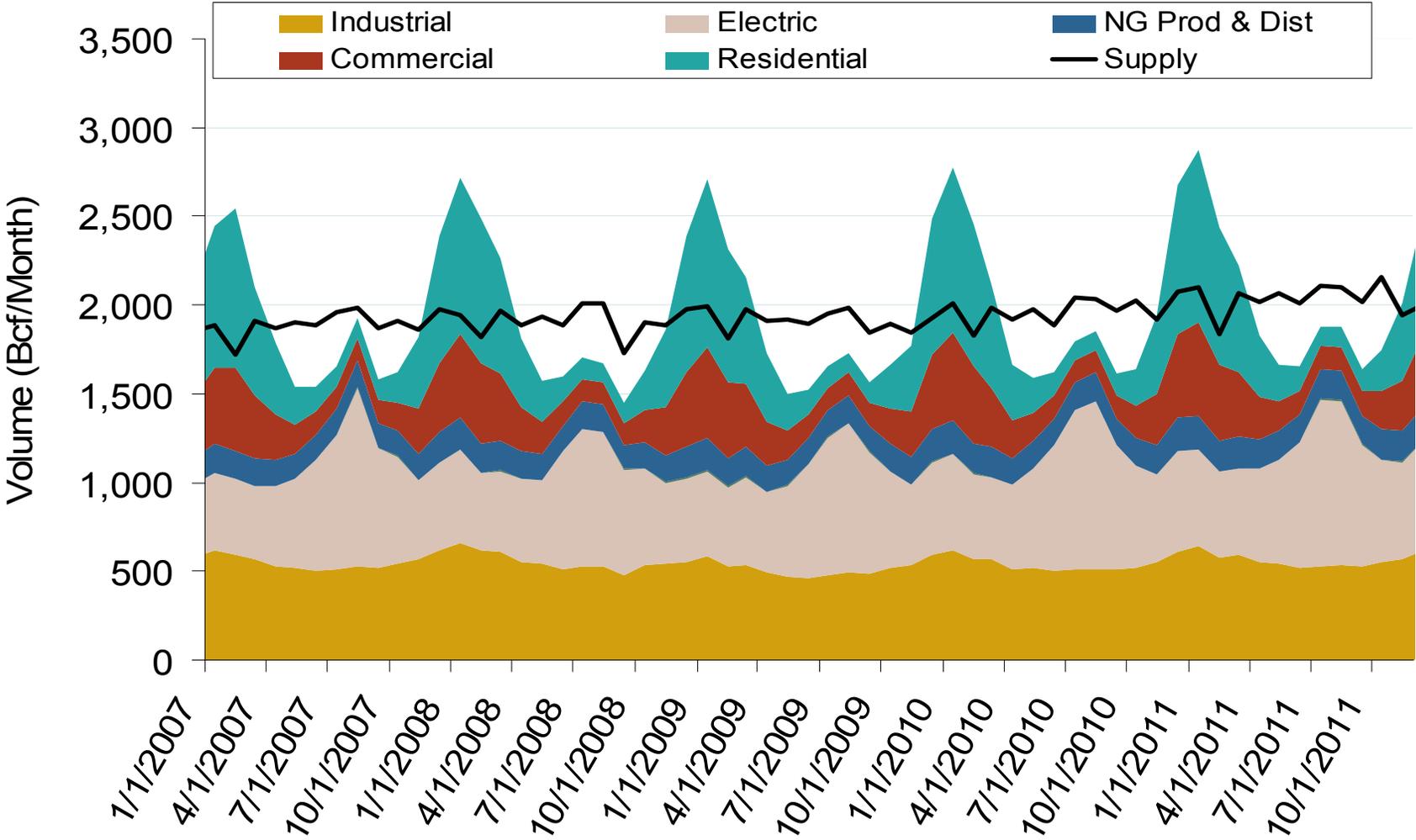
# U.S. Oil and Natural Gas Drilling Rig Count by Type



Source: Derived from *Platts* and *Baker Hughes* data  
March 2012 Western Snapshot

Updated: March 06, 2012

### Annual U.S. Natural Gas Consumption by Sector



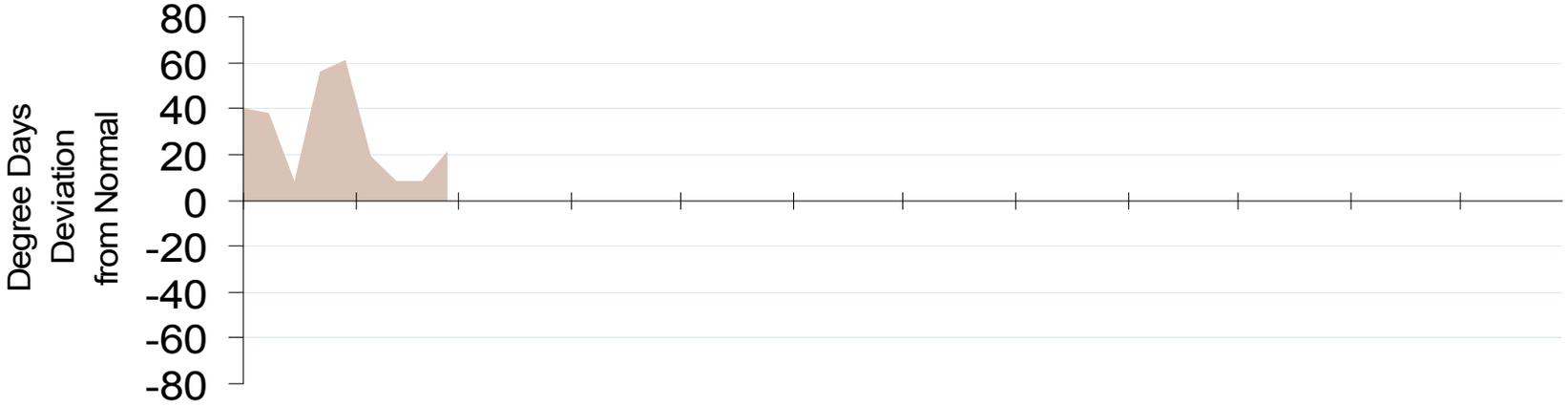
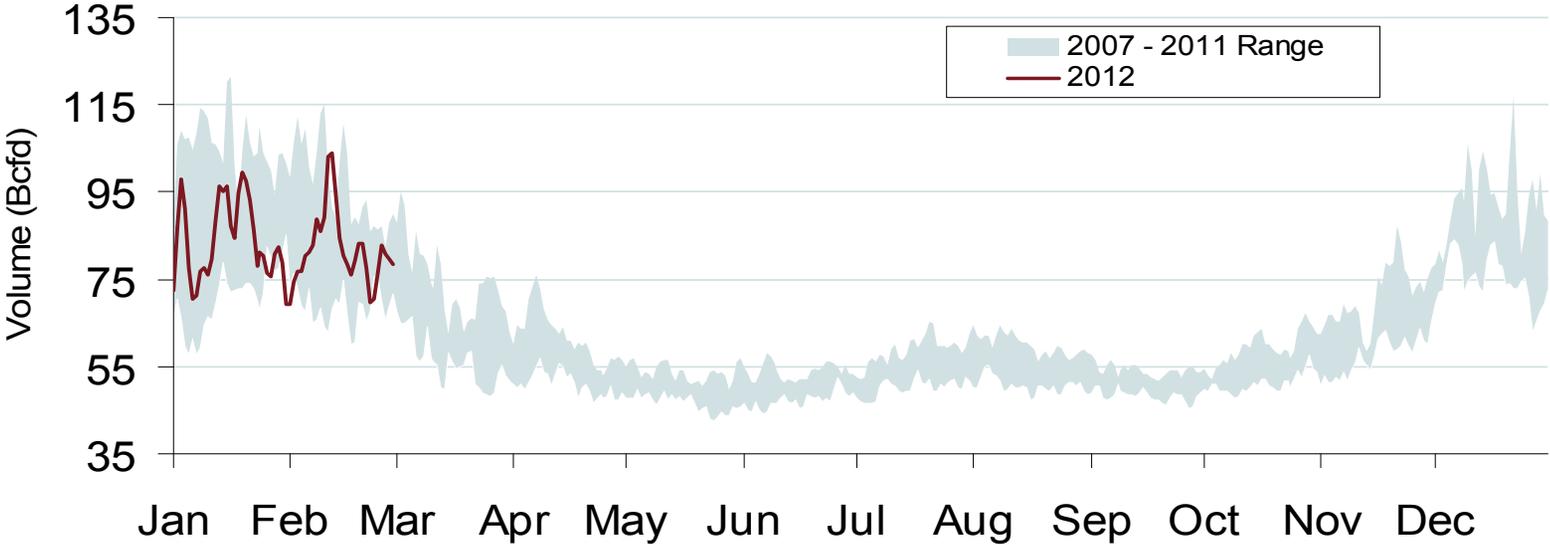
Notes: Supply includes lower 48 state production, net pipeline imports, and LNG imports

Source: Derived from EIA data

March 2012 Western Snapshot

Updated: March 06, 2012

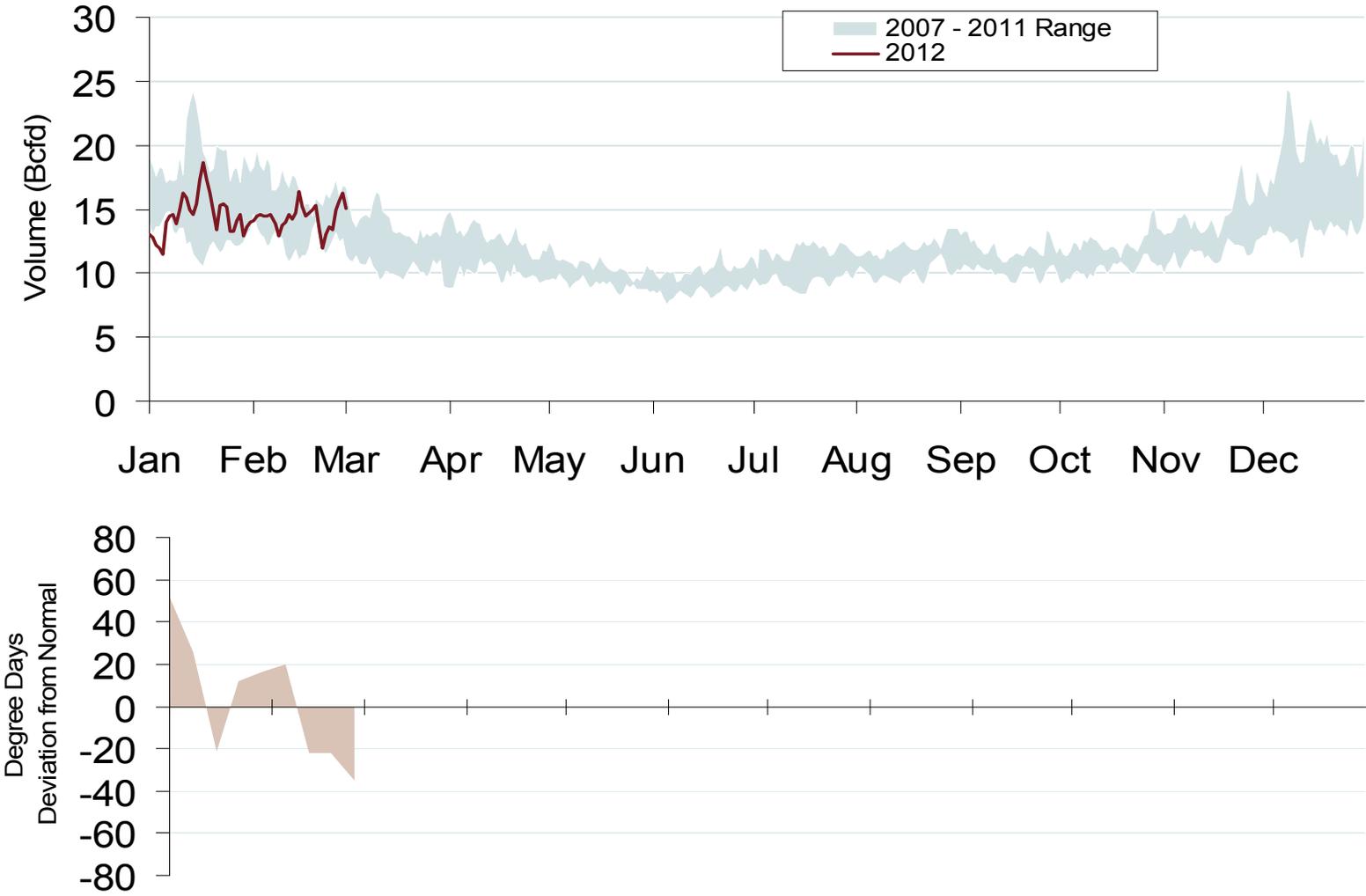
# Total U.S. Natural Gas Demand (All Sectors) and Temperatures



Source: Derived from *Bentek Energy* and *Weekly NOAA* data  
March 2012 Western Snapshot

Updated: March 09, 2012

### Daily Western Natural Gas Demand - All Sectors

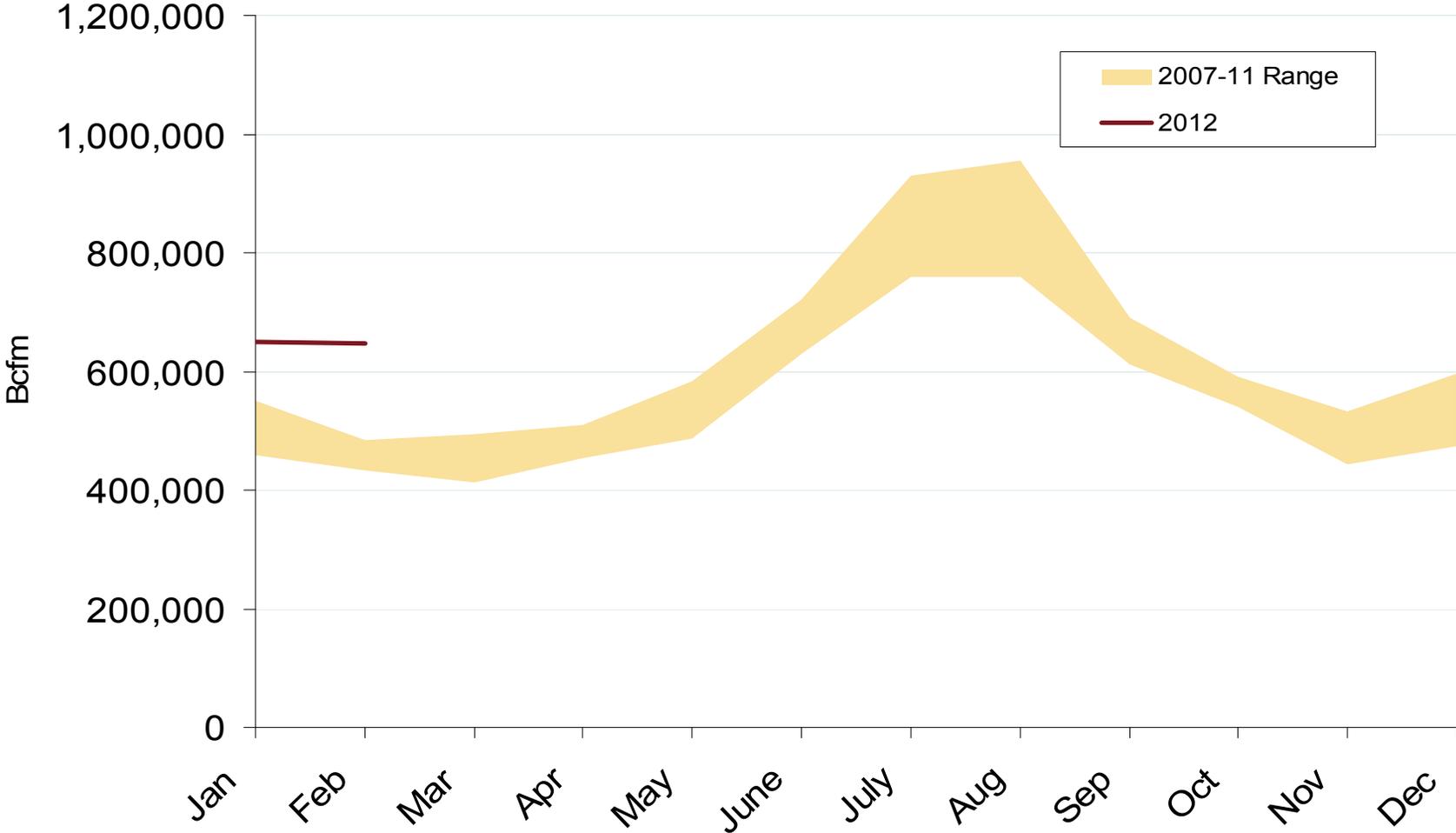


Source: Derived from *Bentek Energy* and Weekly NOAA data  
March 2012 Western Snapshot

Updated: March 09, 2012

Federal Energy Regulatory Commission • Market Oversight • [www.ferc.gov/oversight](http://www.ferc.gov/oversight)

# U.S. Natural Gas Consumption for Power Generation

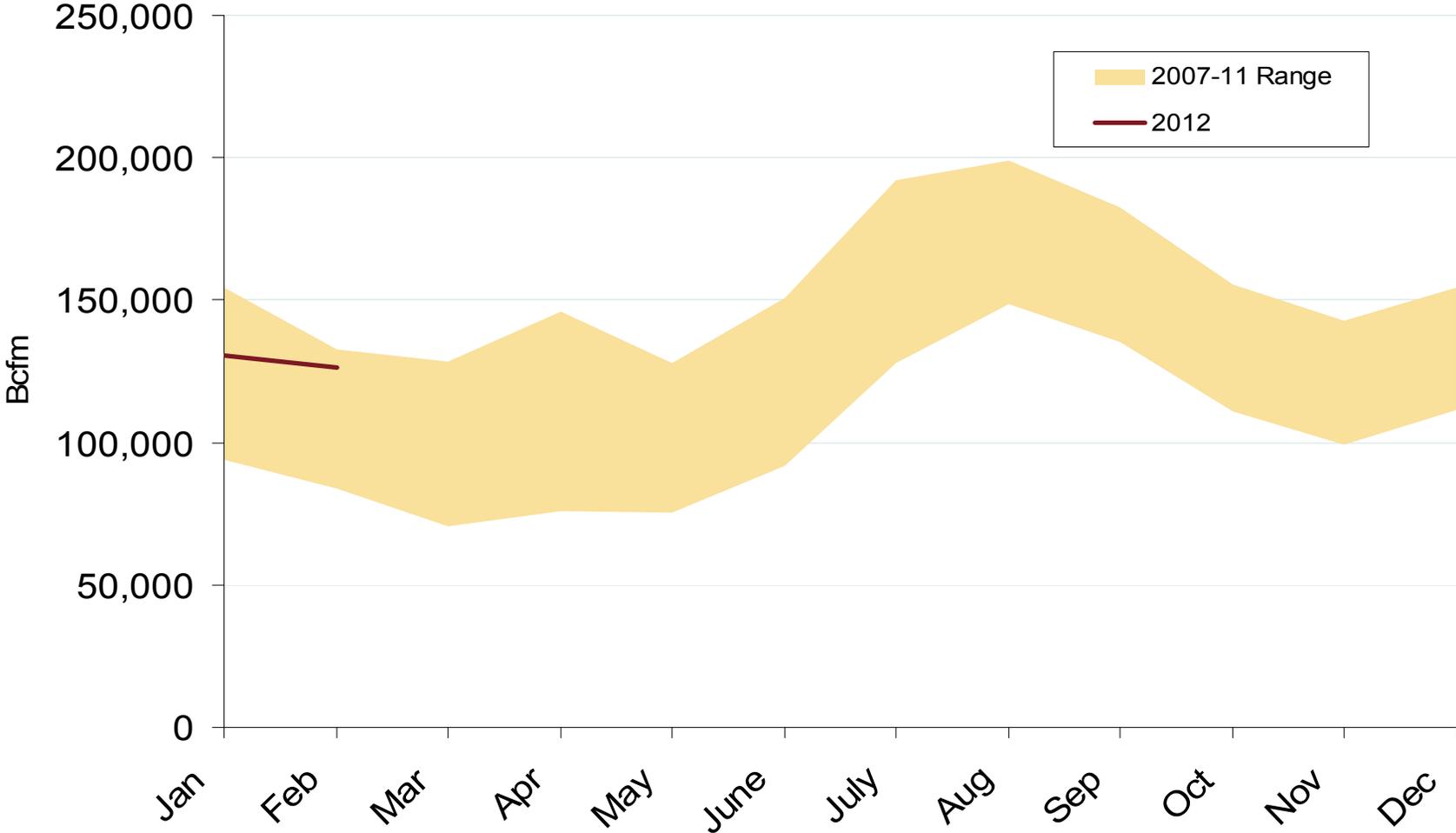


Source: Derived from *Bentek Energy* data  
March 2012 Western Snapshot

Updated: March 12, 2012

Federal Energy Regulatory Commission • Market Oversight • [www.ferc.gov/oversight](http://www.ferc.gov/oversight)

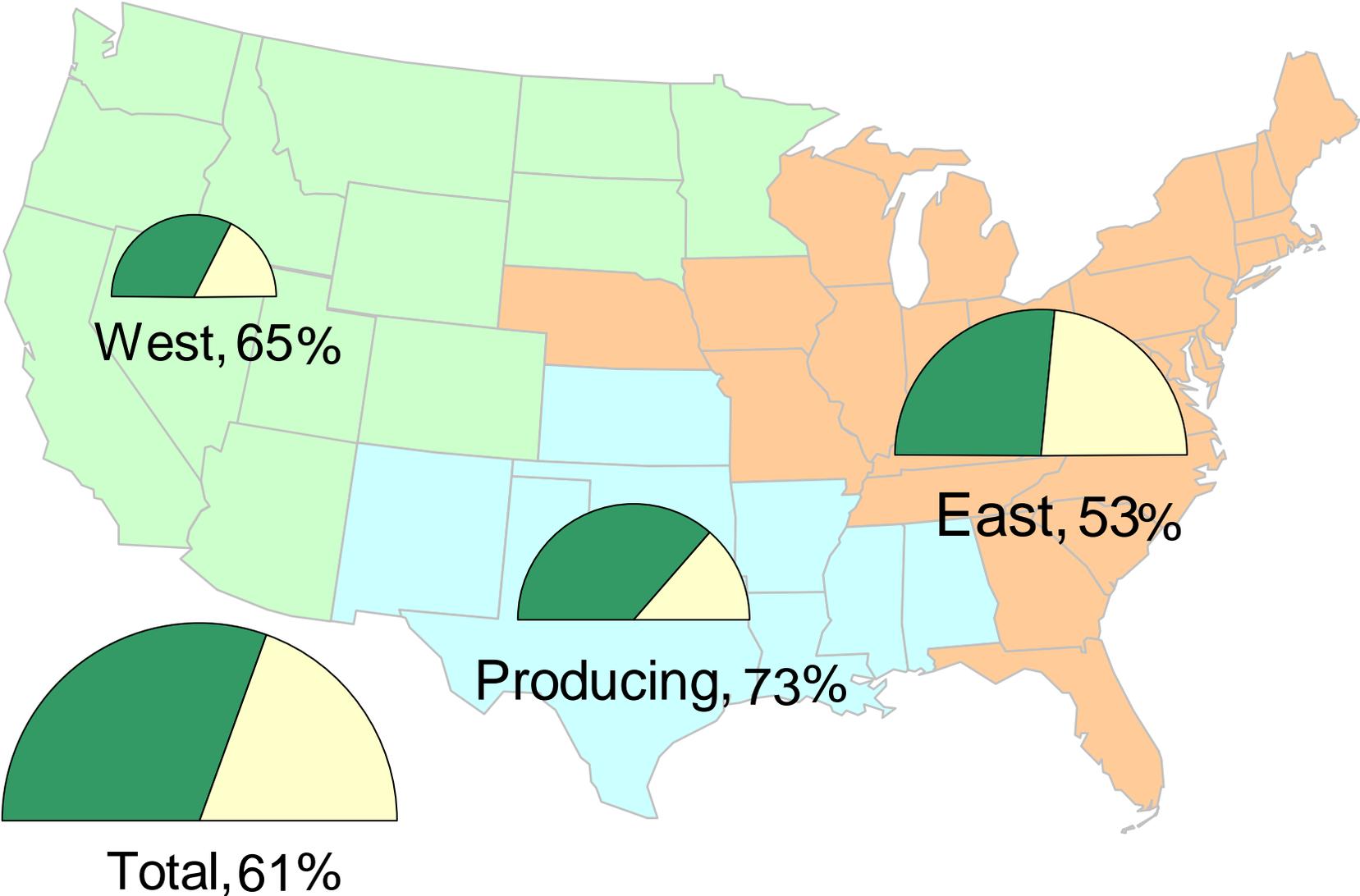
# Western Natural Gas Consumption for Power Generation



Source: Derived from *Bentek Energy* data  
March 2012 Western Snapshot

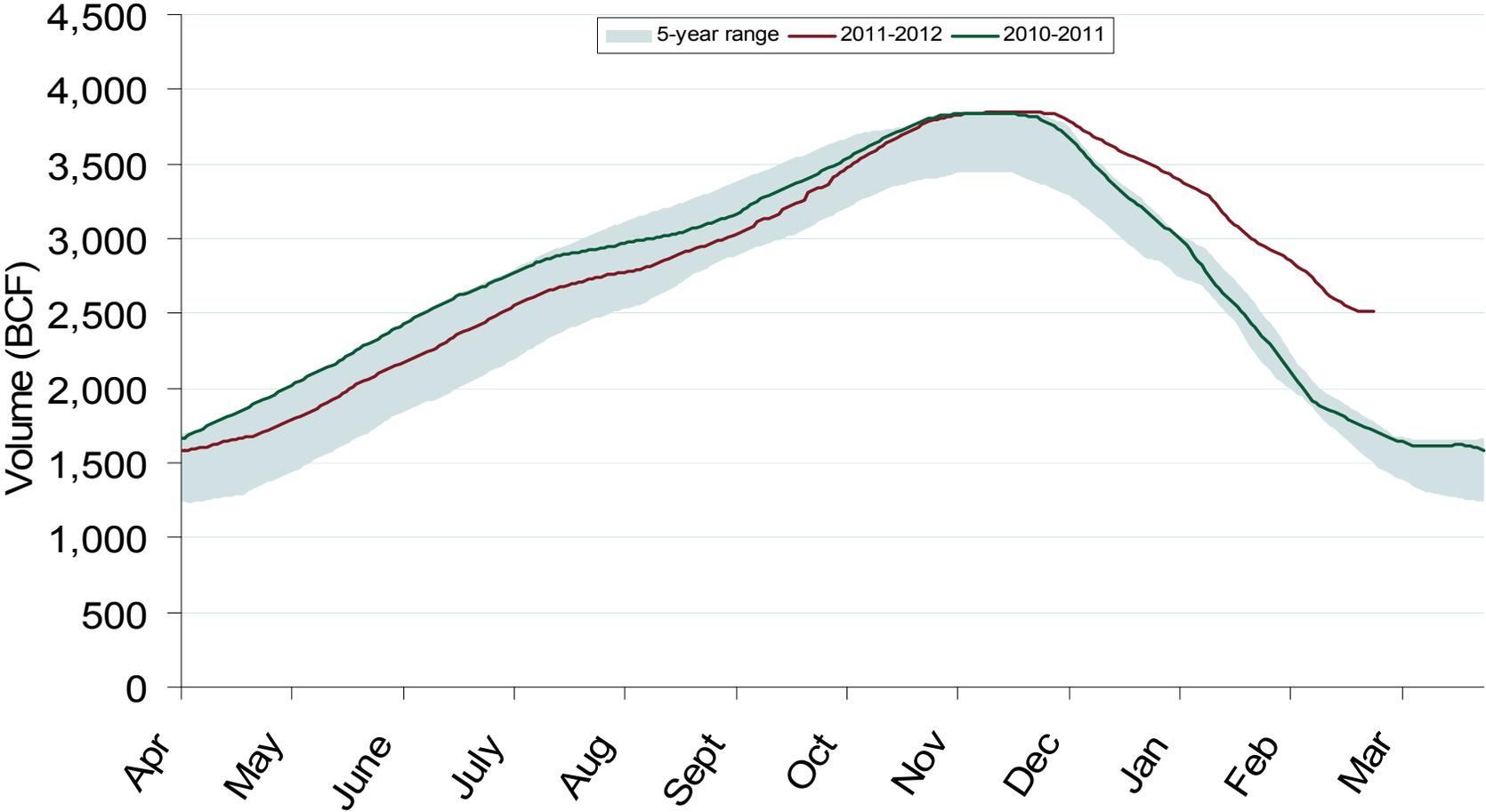
Updated: March 12, 2012

# Natural Gas Storage Inventories – March 2, 2012



Source: Derived from EIA Storage and Estimated Working Gas Capacity data  
March 2012 Western Snapshot

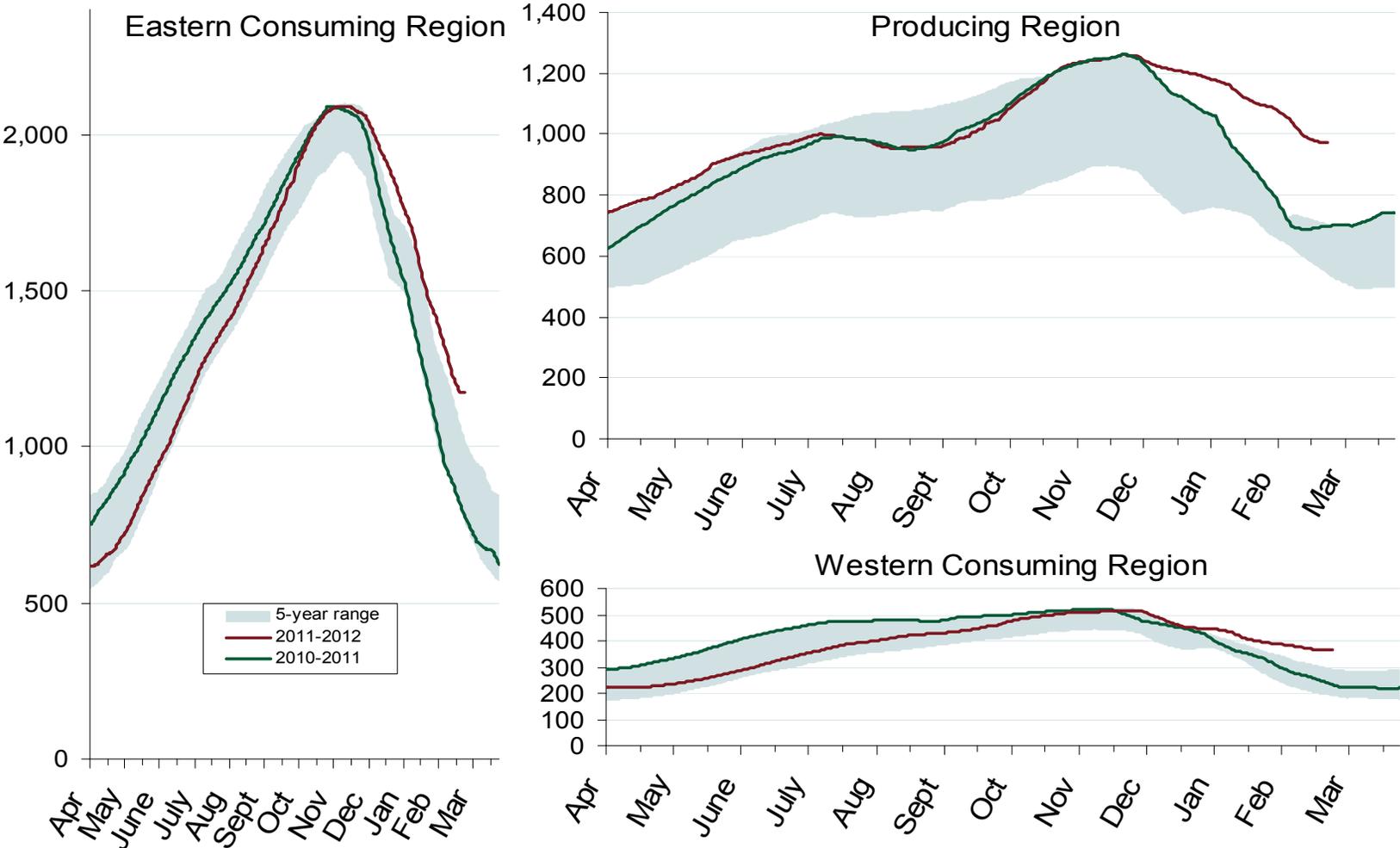
### Total U.S. Working Gas in Storage



Source: Derived from EIA data  
March 2012 Western Snapshot

Updated: March 08, 2012

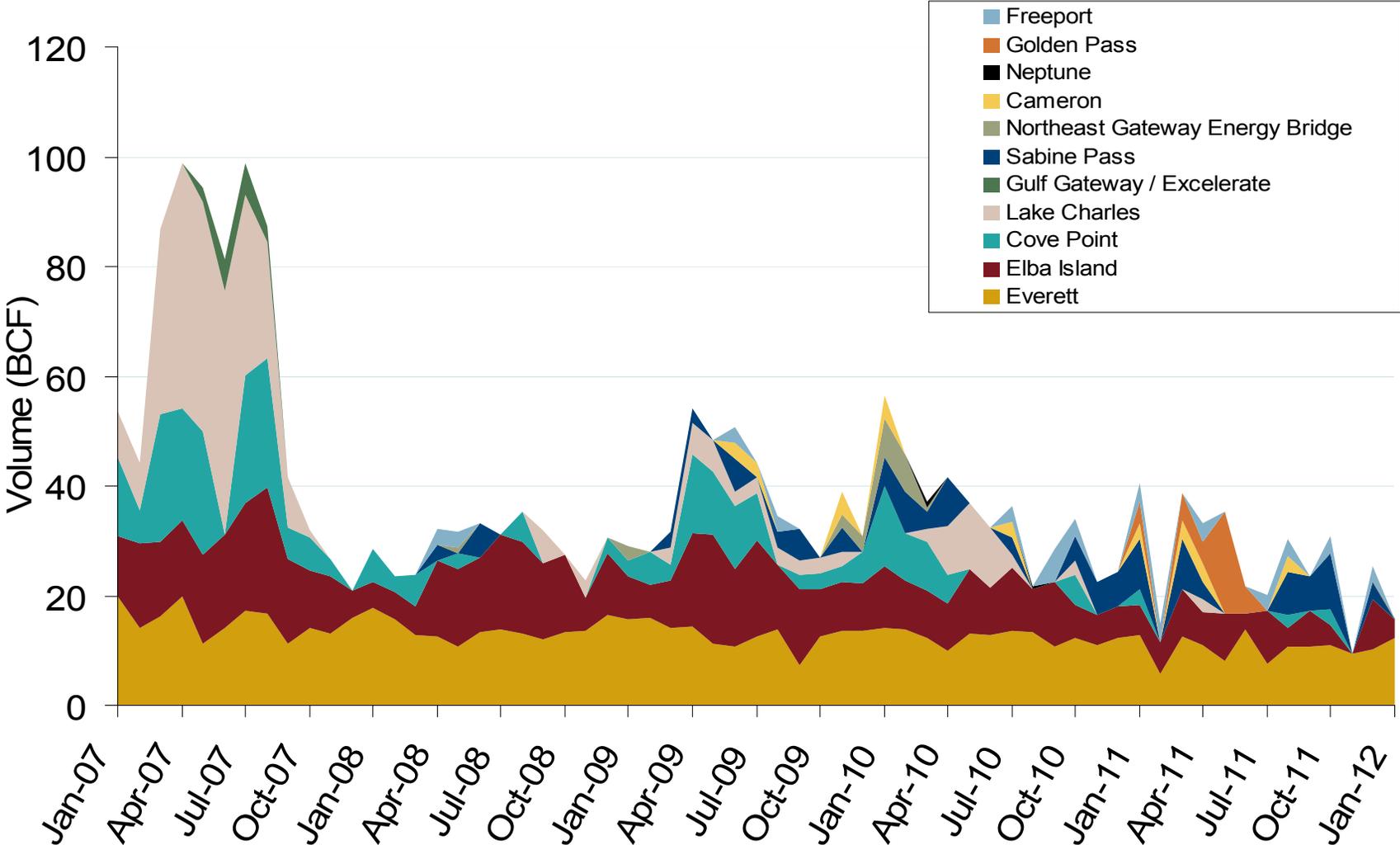
# Regional Totals of Working Gas in Storage



Source: Derived from EIA data  
March 2012 Western Snapshot

Updated: March 08, 2012

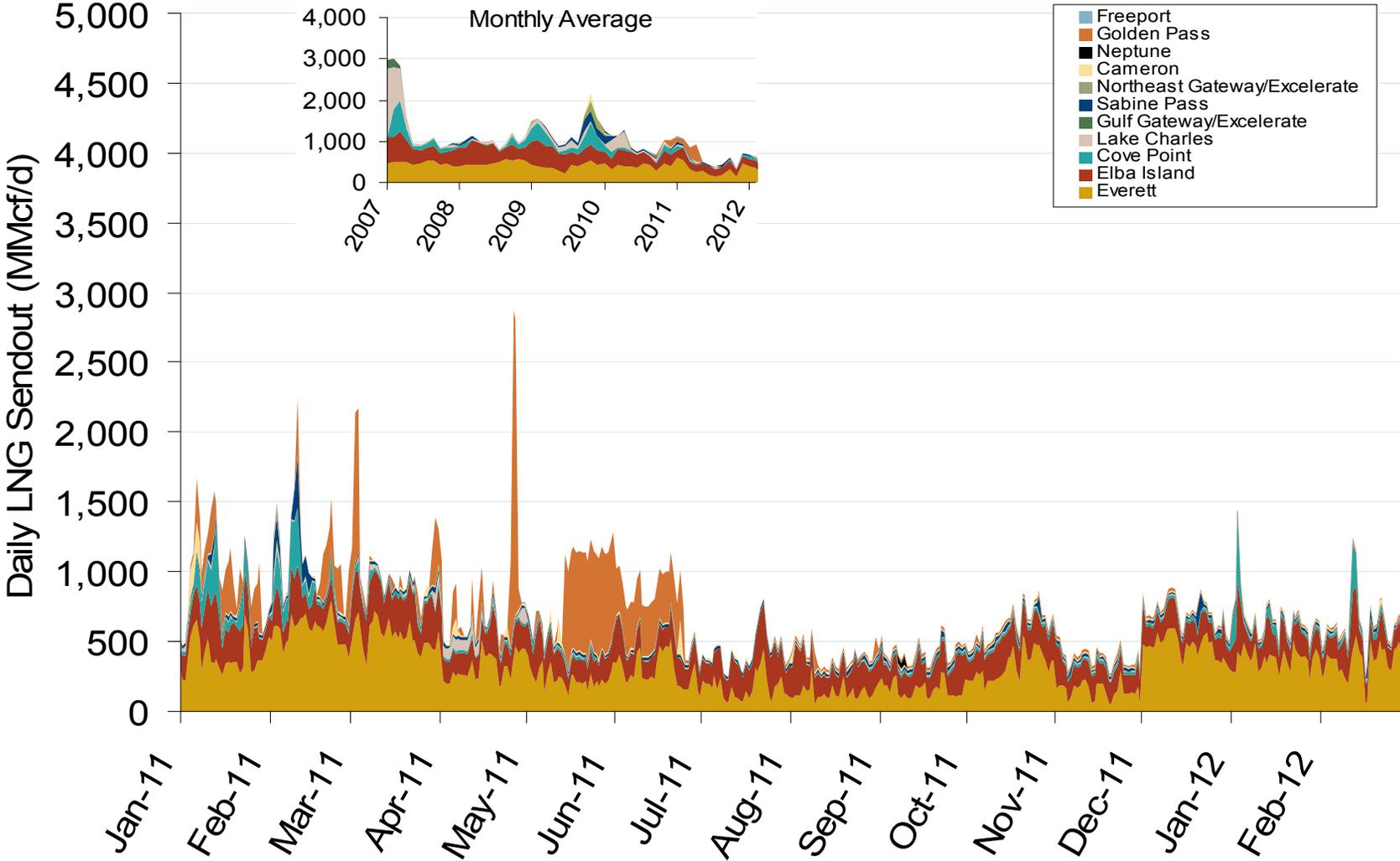
# Monthly Gas Imports at Existing U.S. LNG Facilities



Source: Derived from DOE Office of Fossil Energy data  
March 2012 Western Snapshot

Updated: March 06, 2012

# 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 Freeport LNG which flows via intrastate pipelines

Source: Derived from Bentek Energy data

March 2012 Western Snapshot

Updated: March 09, 2012

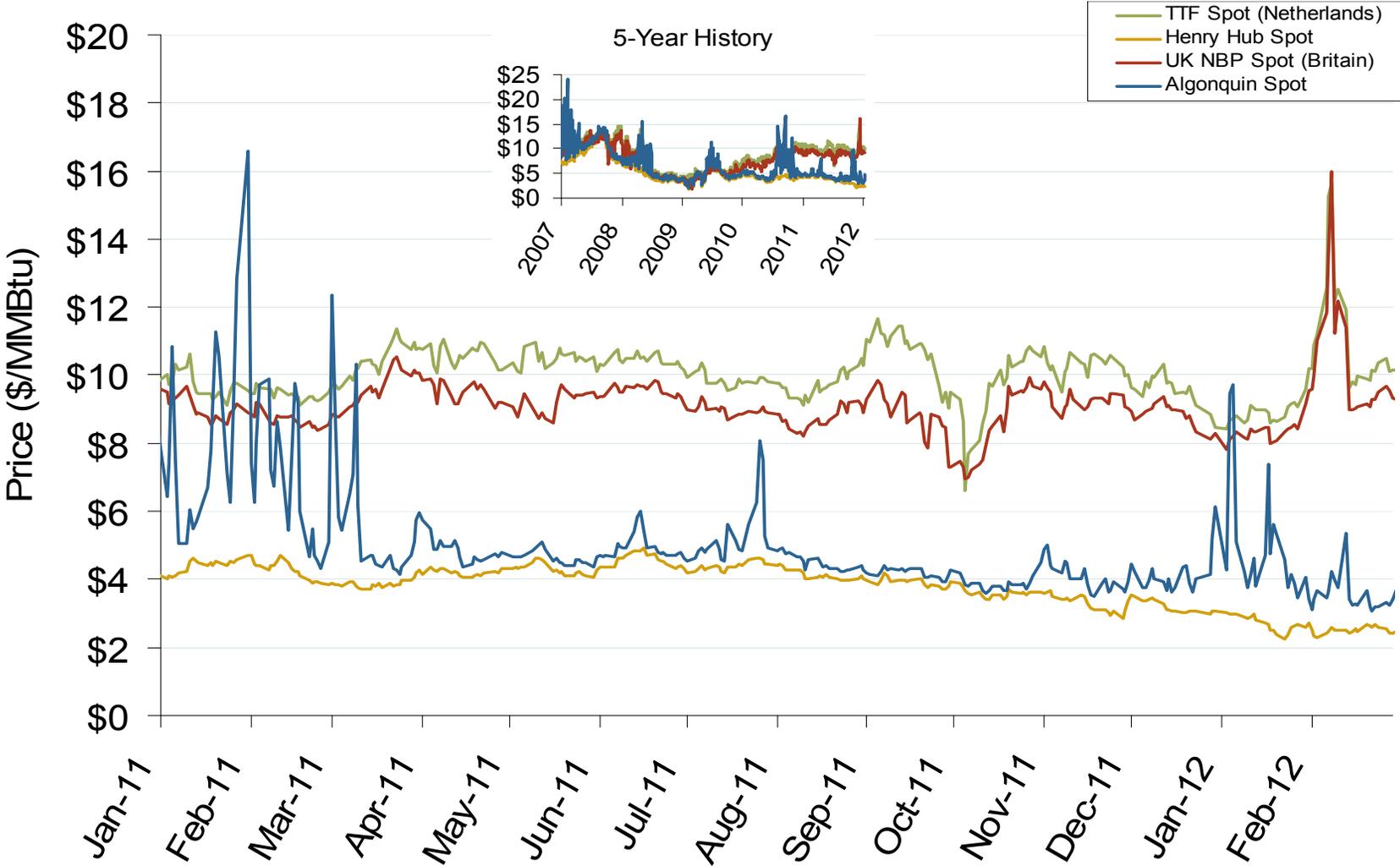
Federal Energy Regulatory Commission • Market Oversight • [www.ferc.gov/oversight](http://www.ferc.gov/oversight)

# World LNG Estimated April 2012 Landed Prices



Source: Waterborne Energy, Inc. Data in \$US/MMBtu  
March 2012 Western Snapshot

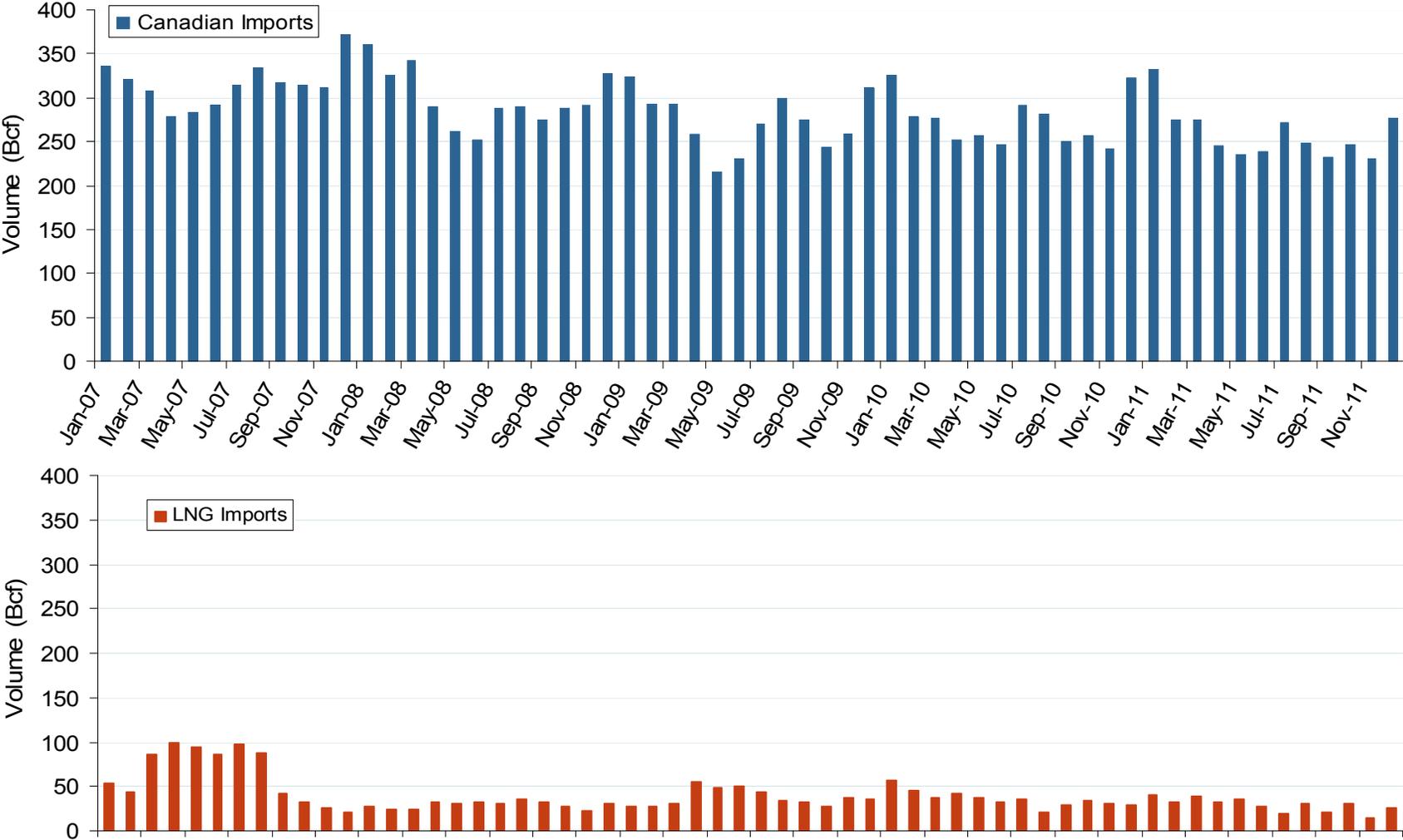
# Atlantic Basin European and US Spot Natural Gas Prices



Source: Derived from *Bloomberg* and *ICE* data  
March 2012 Western Snapshot

Updated: March 06, 2012

### Canadian and LNG Natural Gas Imports Into the U.S.

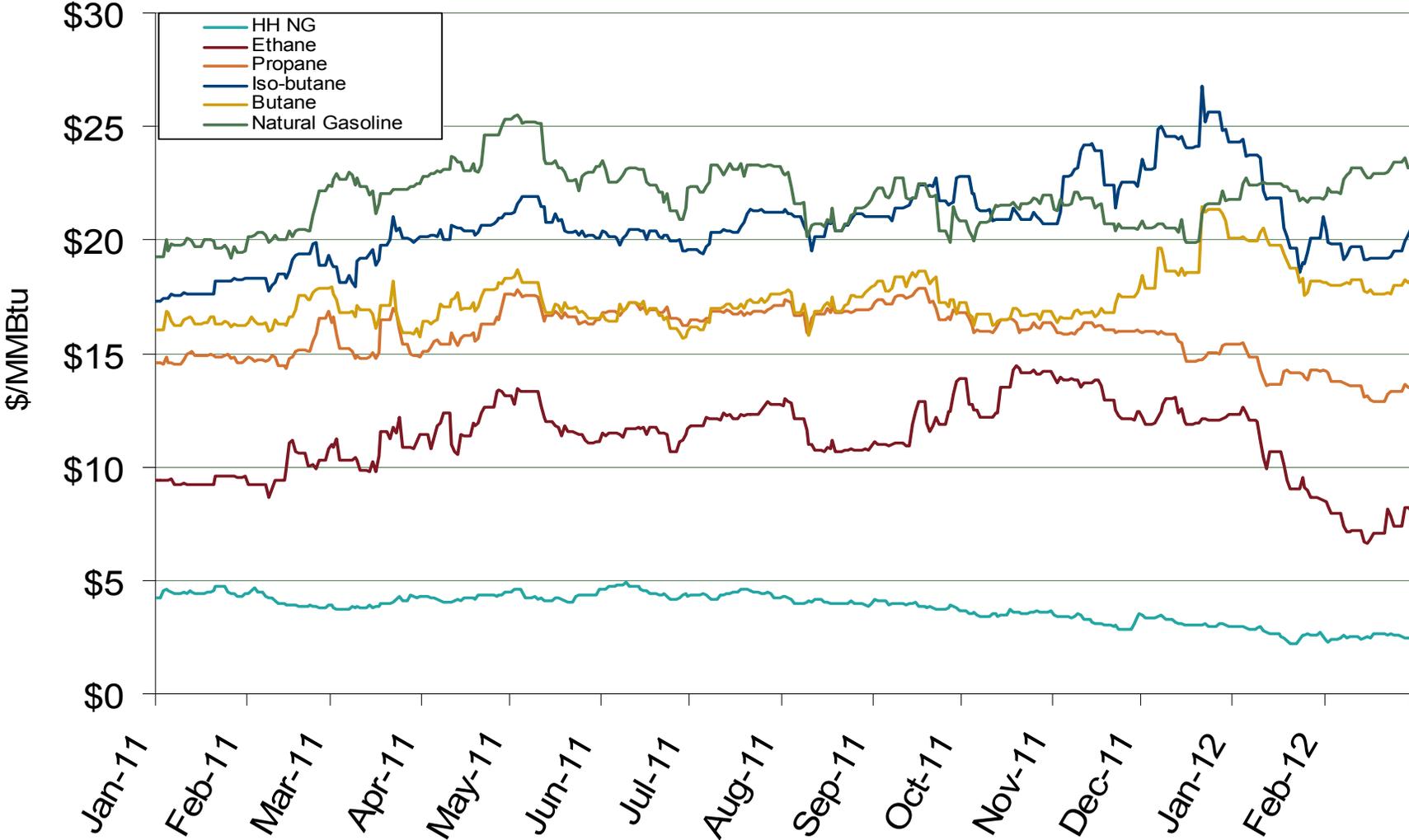


Source: EIA Natural Gas Monthly  
March 2012 Western Snapshot

Updated: March 06, 2012

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# U.S. Natural Gas vs. Natural Gas Liquids (NGL) Prices



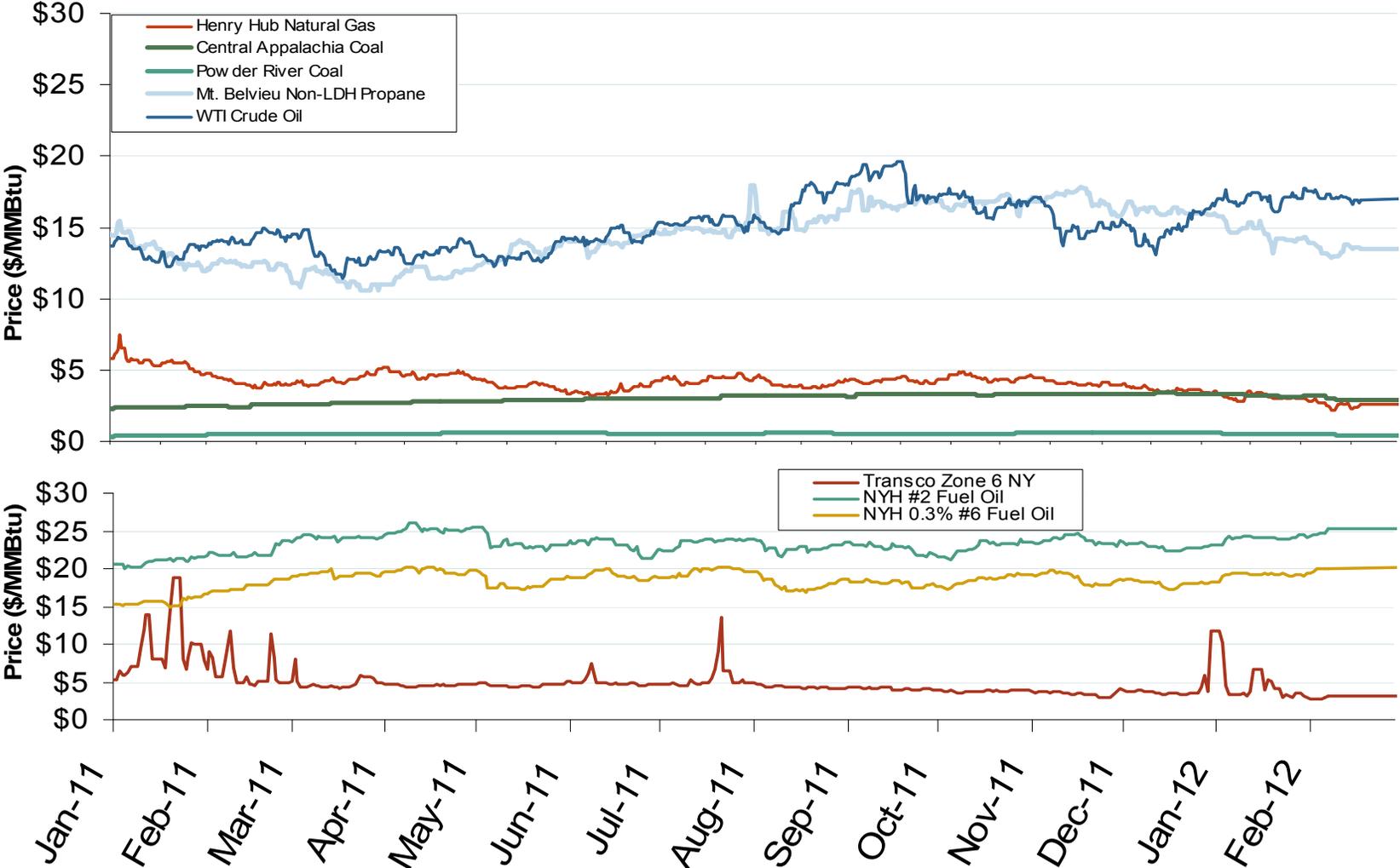
Source: Derived from Bloomberg Data  
March 2012 Western Snapshot

Updated: March 06, 2012

Other Fuels Market: Fossil Fuel Prices

Federal Energy Regulatory Commission • Market Oversight • [www.ferc.gov/oversight](http://www.ferc.gov/oversight)

# Oil, Coal, Natural Gas and Propane Daily Spot Prices



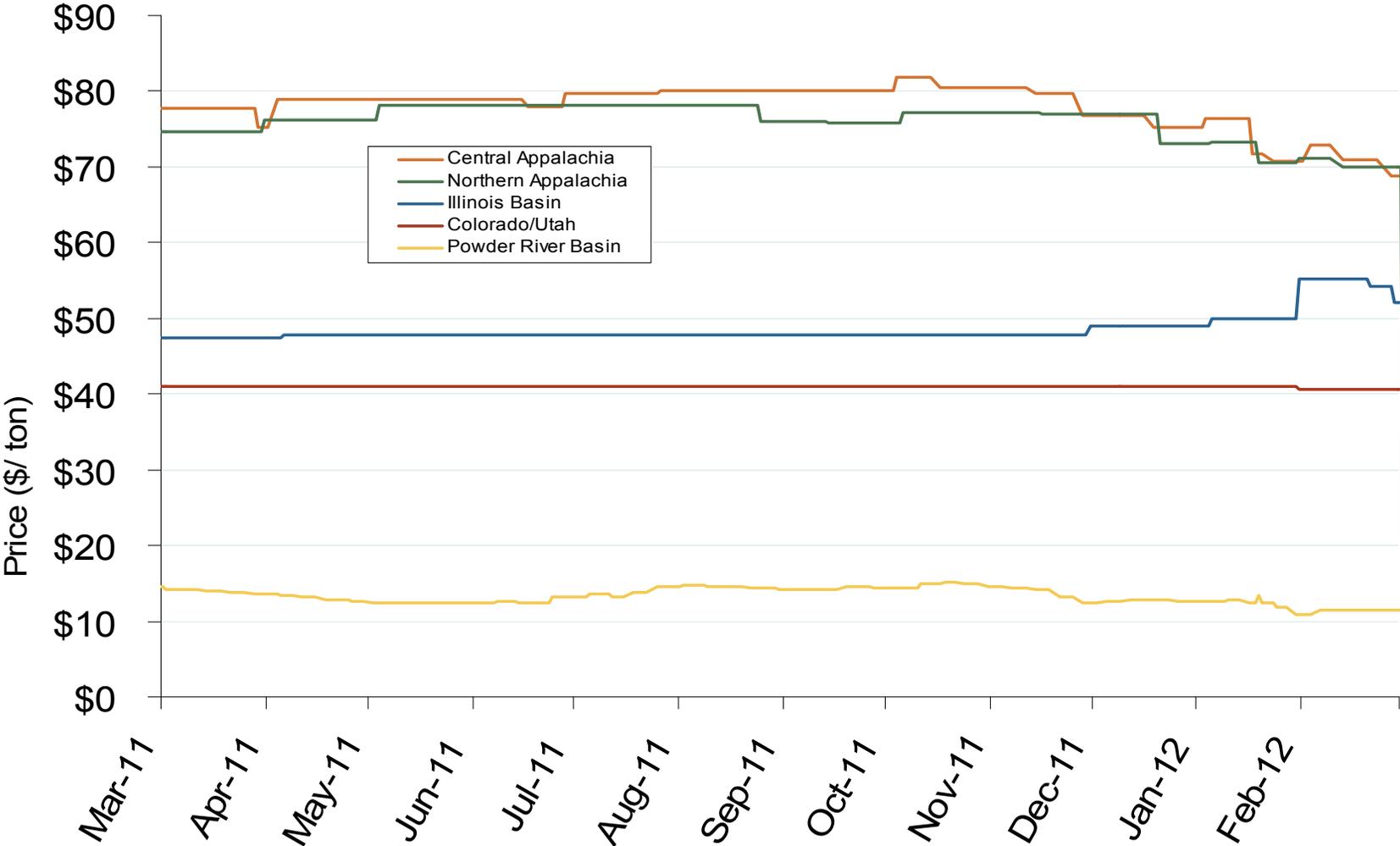
Notes: Coal prices are quoted in \$/ton. Conversion factors to \$/MMBtu are based on contract specifications of 12,000 btus/pound for Central Appalachian coal and 8800 btus/pound for Powder River Basin coal

Source: Derived from ICE and Bloomberg data

March 2012 Western Snapshot

Updated: March 06, 2012

# Central Appalachian and Powder River Basin Coal Prices



Notes: The Central Appalachian (CAPP) coal is priced at Big Sandy. All others are mine mouth prices. Prices do not include transportation costs to a plant, as those can vary widely by contract specifications. Prices exclude incremental cost of emissions allowances

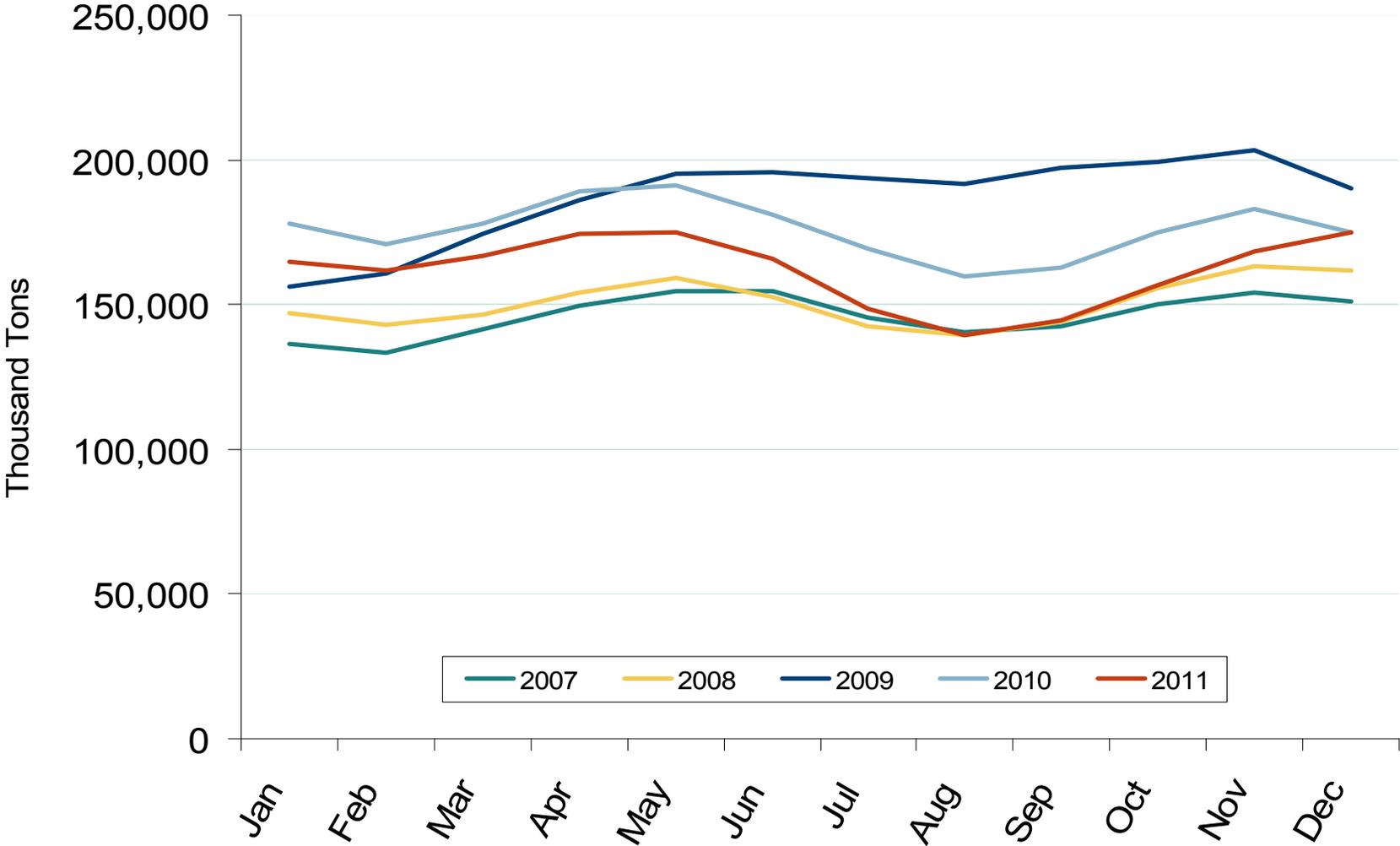
Source: Derived from Bloomberg data

March 2012 Western Snapshot

Updated: March 06, 2012

Federal Energy Regulatory Commission • Market Oversight • [www.ferc.gov/oversight](http://www.ferc.gov/oversight)

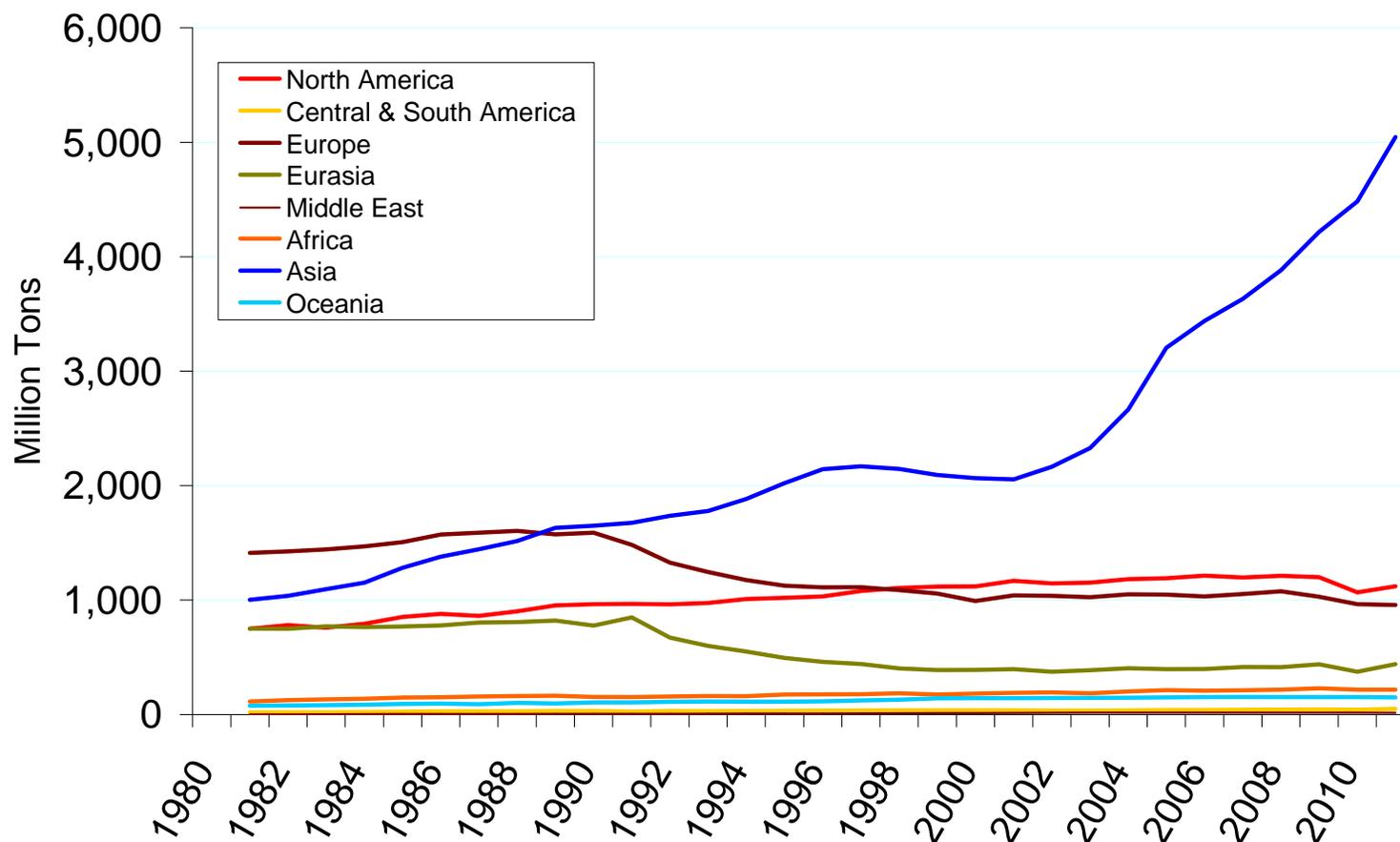
# U.S. Coal Stockpiles at Electric Power Generating Facilities



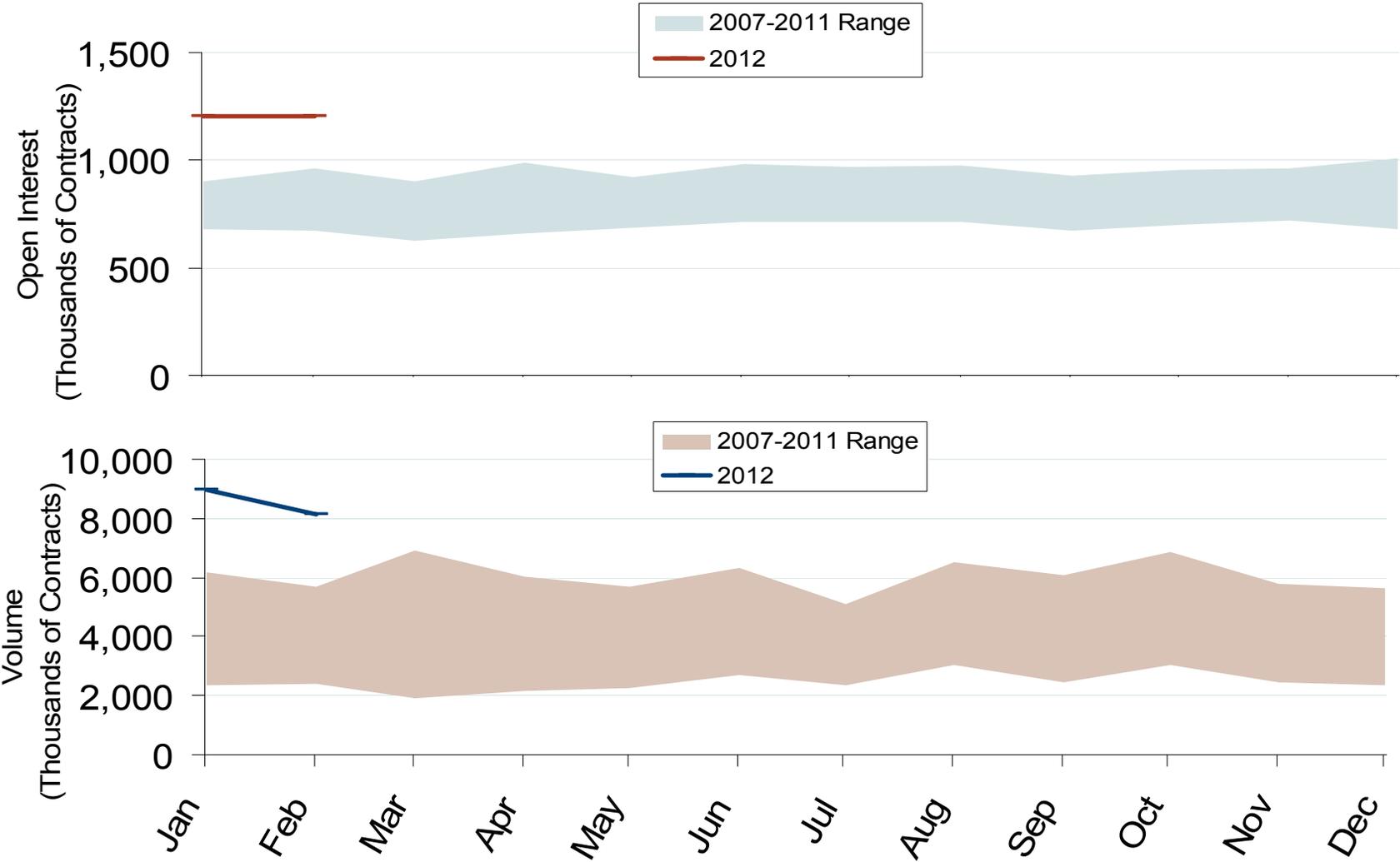
Source: Derived from EIA data. Excludes Industrial and Commercial Plants  
March 2012 Western Snapshot

Updated: March 06, 2012

# U.S. Coal Producers Find Markets Abroad



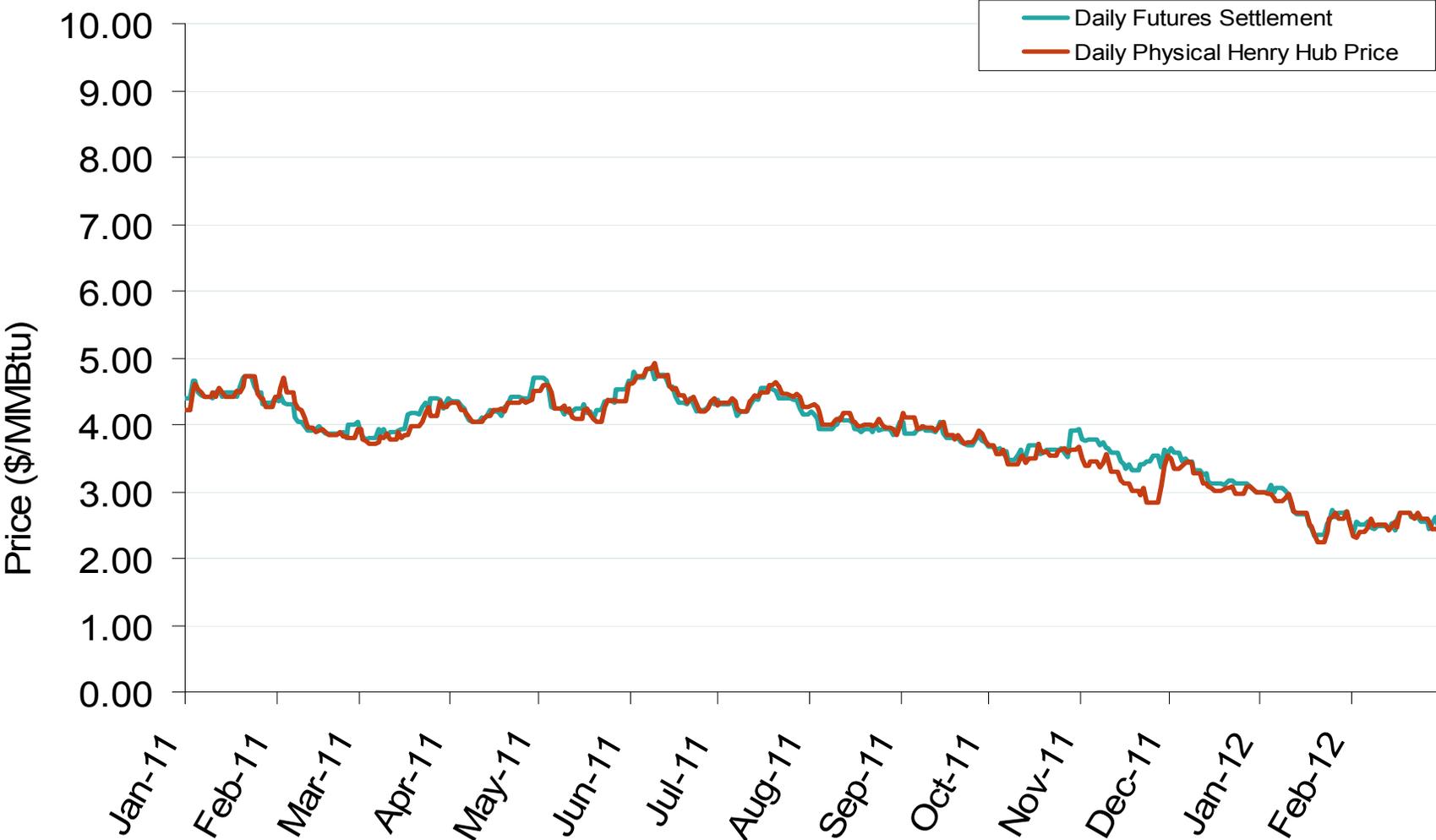
# Nymex NG Futures Month-End Open Interest and Monthly Volume



Source: Derived from Nymex data  
March 2012 Western Snapshot

Updated: March 08, 2012

# Daily Physical Index Price & Daily Futures Settlement Price

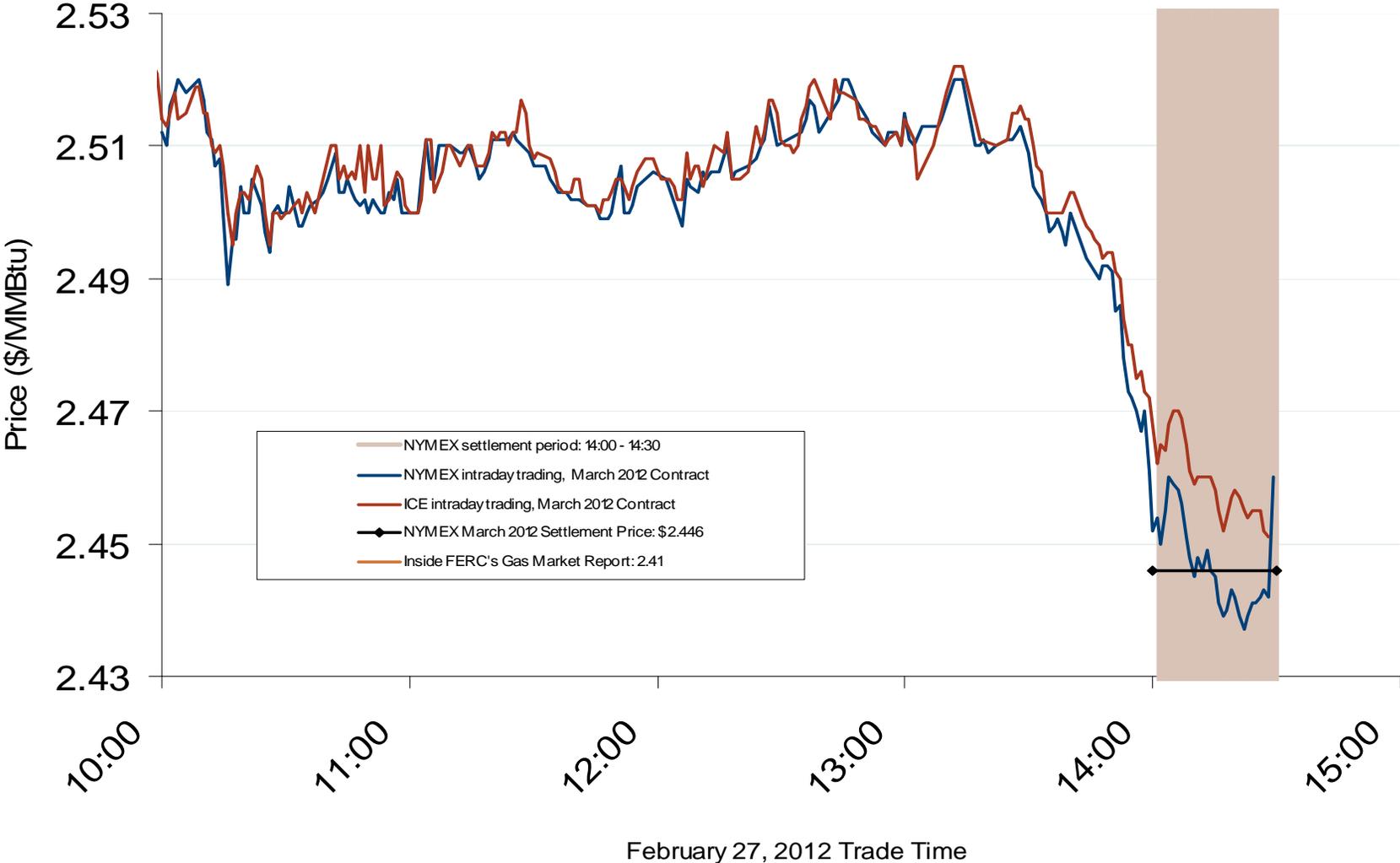


Source: Derived from *Bloomberg* data  
March 2012 Western Snapshot

Updated: March 06, 2012

Federal Energy Regulatory Commission • Market Oversight • [www.ferc.gov/oversight](http://www.ferc.gov/oversight)

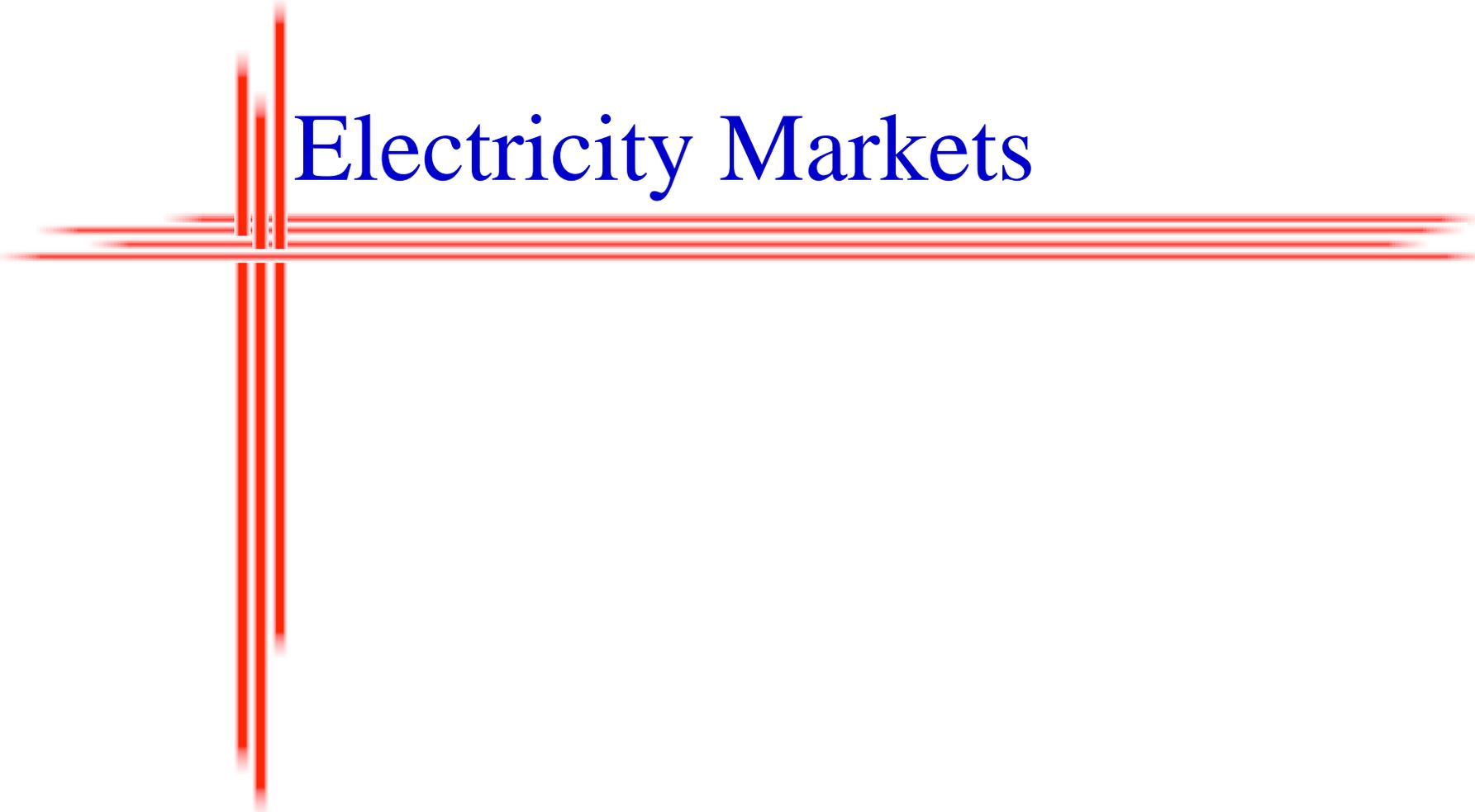
# Nymex and ICE Contract Final Settlement - March 2012



Notes: The final settlement day for this Nymex contract is three business days before the start of the contract term (which is the 1st day of the month)

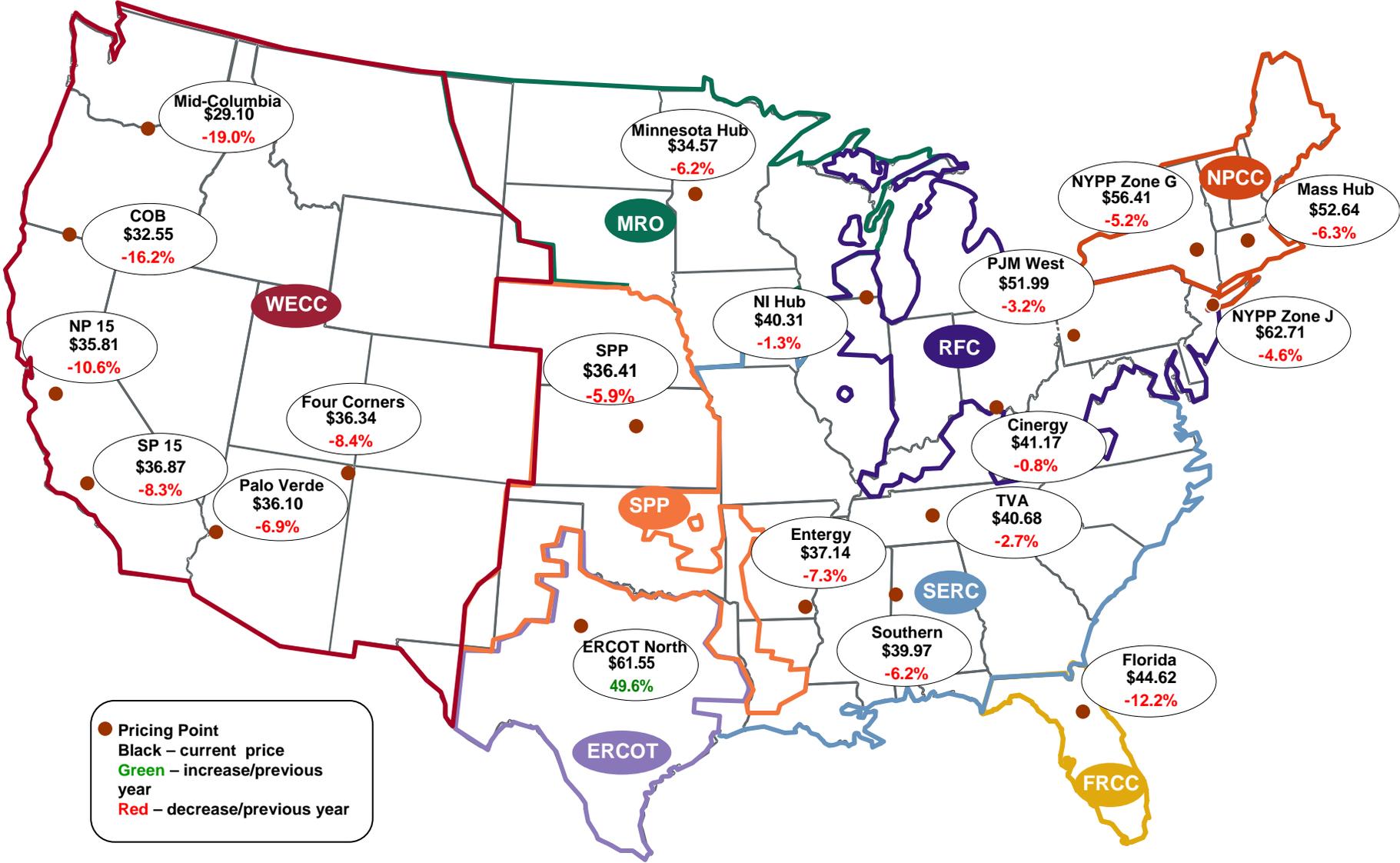
Source: Derived from *Nymex* and *ICE* data  
March 2012 Western Snapshot

Updated: March 3, 2012



# Electricity Markets

# Average On-Peak Spot Electric Prices 2011 (\$/MWh)



Source: Derived from *Platts* data.  
March 2012 Western Snapshot

Updated: March 2, 2012

## Electric Market Overview: Regional Spot Prices

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

## Regional Spot Prices: 2009-2011

	On-peak Spot Prices (\$/MWh)					Off-peak Spot Prices (\$/MWh)				
	2009	2010	2011	% Change 09-10	% Change 10-11	2009	2010	2011	% Change 09-10	% Change 10-11
<b>Northeast</b>										
Mass Hub	46.24	56.18	52.64	21.5%	-6.3%	34.57	38.84	37.95	12.4%	-2.3%
Ny Zone G	49.80	59.48	56.41	19.4%	-5.2%	34.14	39.47	38.26	15.6%	-3.1%
NY Zone J	55.77	65.76	62.71	17.9%	-4.6%	35.25	40.37	39.19	14.5%	-2.9%
NY Zone A	35.54	43.89	41.52	23.5%	-5.4%	27.98	34.05	32.65	21.7%	-4.1%
PJM West	44.60	53.68	51.99	20.4%	-3.2%	31.68	35.81	33.94	13.0%	-5.2%
<b>Southeast</b>										
VACAR	36.42	43.24	44.44	18.7%	2.8%	25.68	29.18	30.23	13.6%	3.6%
Southern	36.58	42.61	39.97	16.5%	-6.2%	25.82	29.51	27.98	14.3%	-5.2%
TVA	34.91	41.79	40.68	19.7%	-2.7%	24.69	27.43	27.55	11.1%	0.4%
Florida	40.75	50.81	44.62	24.7%	-12.2%	28.00	31.59	31.27	12.8%	-1.0%
Entergy	33.57	40.07	37.14	19.3%	-7.3%	21.89	24.87	24.52	13.7%	-1.4%
<b>Midwest</b>										
Cinergy*	34.65	41.51	41.17	19.8%	-0.8%	22.15	24.34	25.86	9.9%	6.2%
Michigan Hub	36.56	43.68	42.73	19.5%	-2.2%	22.97	26.84	27.52	16.9%	2.5%
Minnesota Hub	32.09	36.86	34.57	14.9%	-6.2%	14.19	17.61	16.39	24.1%	-6.9%
NI Hub	34.47	40.85	40.31	18.5%	-1.3%	19.49	21.70	22.78	11.3%	5.0%
Illinois Hub	31.36	38.22	38.12	21.9%	-0.2%	17.44	20.44	22.20	17.2%	8.6%
MA PP South	33.31	37.60	35.48	12.9%	-5.6%	20.78	21.76	19.90	4.7%	-8.5%
<b>South Central</b>										
SPP North	32.94	38.71	36.41	17.5%	-5.9%	20.36	21.51	20.42	5.7%	-5.1%
ERCOT North	34.89	41.15	61.55	17.9%	49.6%	22.37	26.97	25.74	20.6%	-4.6%
<b>Southwest</b>										
Four Corners	35.38	39.68	36.34	12.2%	-8.4%	23.76	27.02	20.45	13.7%	-24.3%
Palo Verde	34.77	38.76	36.10	11.5%	-6.9%	24.26	27.72	21.57	14.3%	-22.2%
Mead	36.58	40.11	36.92	9.7%	-8.0%	26.34	29.37	22.34	11.5%	-23.9%
<b>Northwest</b>										
Mid-C	35.66	35.90	29.10	0.7%	-19.0%	28.24	29.19	19.98	3.4%	-31.6%
COB	38.02	38.84	32.55	2.2%	-16.2%	29.22	29.86	19.92	2.2%	-33.3%
<b>California</b>										
NP15	39.29	40.08	35.81	2.0%	-10.6%	28.66	29.89	21.26	4.3%	-28.9%
SP15	38.31	40.21	36.87	5.0%	-8.3%	26.64	29.14	21.78	9.4%	-25.3%

Note: Effective January 1, 2012, Platts will replace the Cinergy Hub with the Indiana Hub.

## Southwest Annual Average Bilateral Prices

Annual Average Day Ahead On Peak Prices (\$/MWh)						
	2007	2008	2009	2010	2011	5-Year Avg
Four Corners	\$63.21	\$71.84	\$35.38	\$39.68	\$36.36	\$53.74
Palo Verde	\$61.74	\$71.87	\$34.77	\$38.76	\$36.12	\$52.96
Mead	\$64.49	\$75.63	\$36.58	\$40.11	\$36.94	\$55.36

## California Annual Average Bilateral Prices

Annual Average Day Ahead On Peak Prices (\$/MWh)						
	2007	2008	2009	2010	2011	5-Year Avg
NP15	\$66.59	\$80.14	\$39.29	\$40.08	\$35.83	\$57.45
SP15	\$66.48	\$79.36	\$38.31	\$40.21	\$36.90	\$57.28

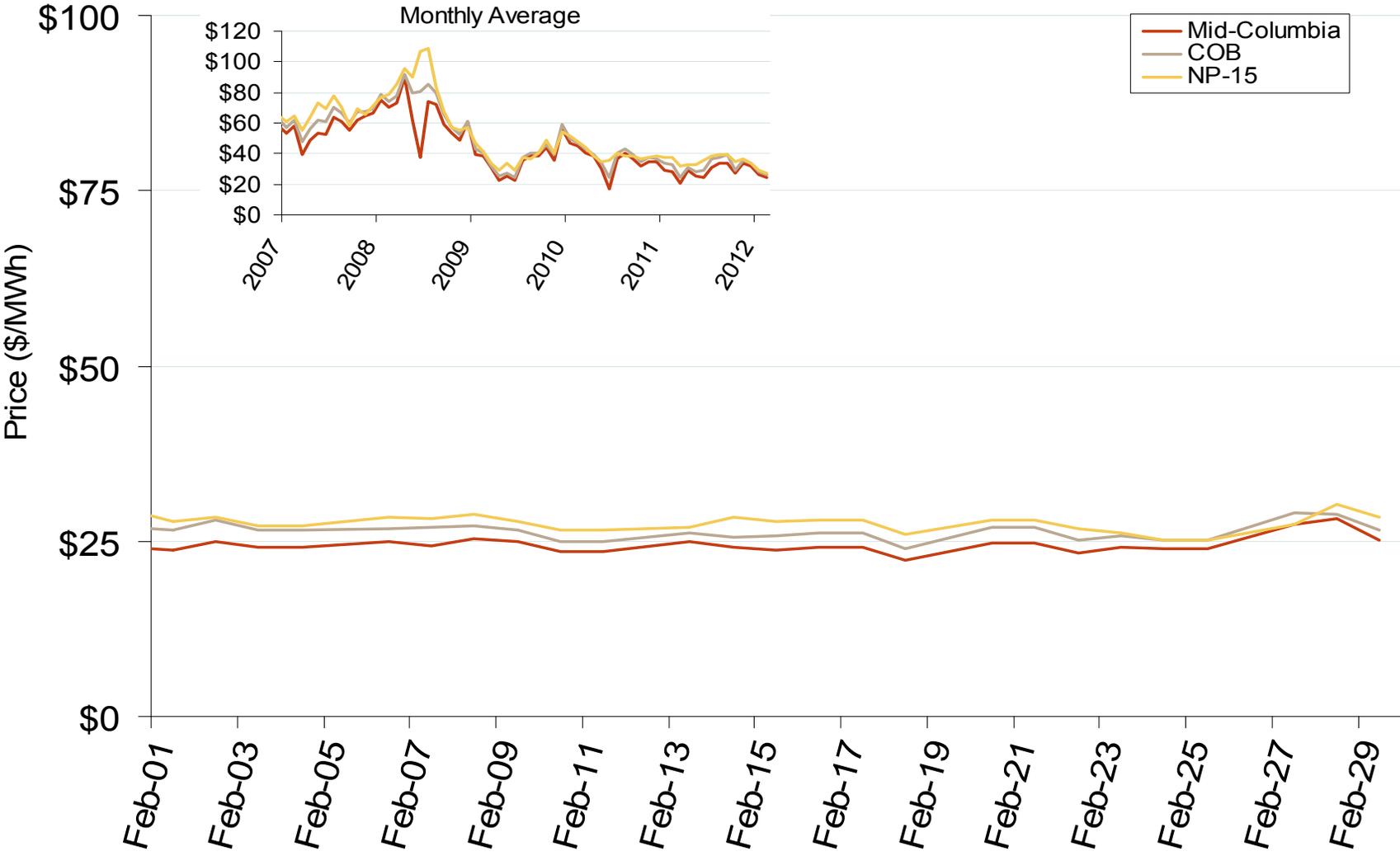
## Northwest Annual Average Bilateral Prices

Annual Average Day Ahead On Peak Prices (\$/MWh)						
	2007	2008	2009	2010	2011	5-Year Avg
Mid-Columbia (Mid-C)	\$56.57	\$65.00	\$35.66	\$35.90	\$29.11	\$48.67
California-Oregon Border (COB)	\$62.14	\$73.86	\$38.02	\$38.84	\$32.57	\$53.70

Northwest Electric Market: Last Month's Northwestern Index Prices

Federal Energy Regulatory Commission • Market Oversight • [www.ferc.gov/oversight](http://www.ferc.gov/oversight)

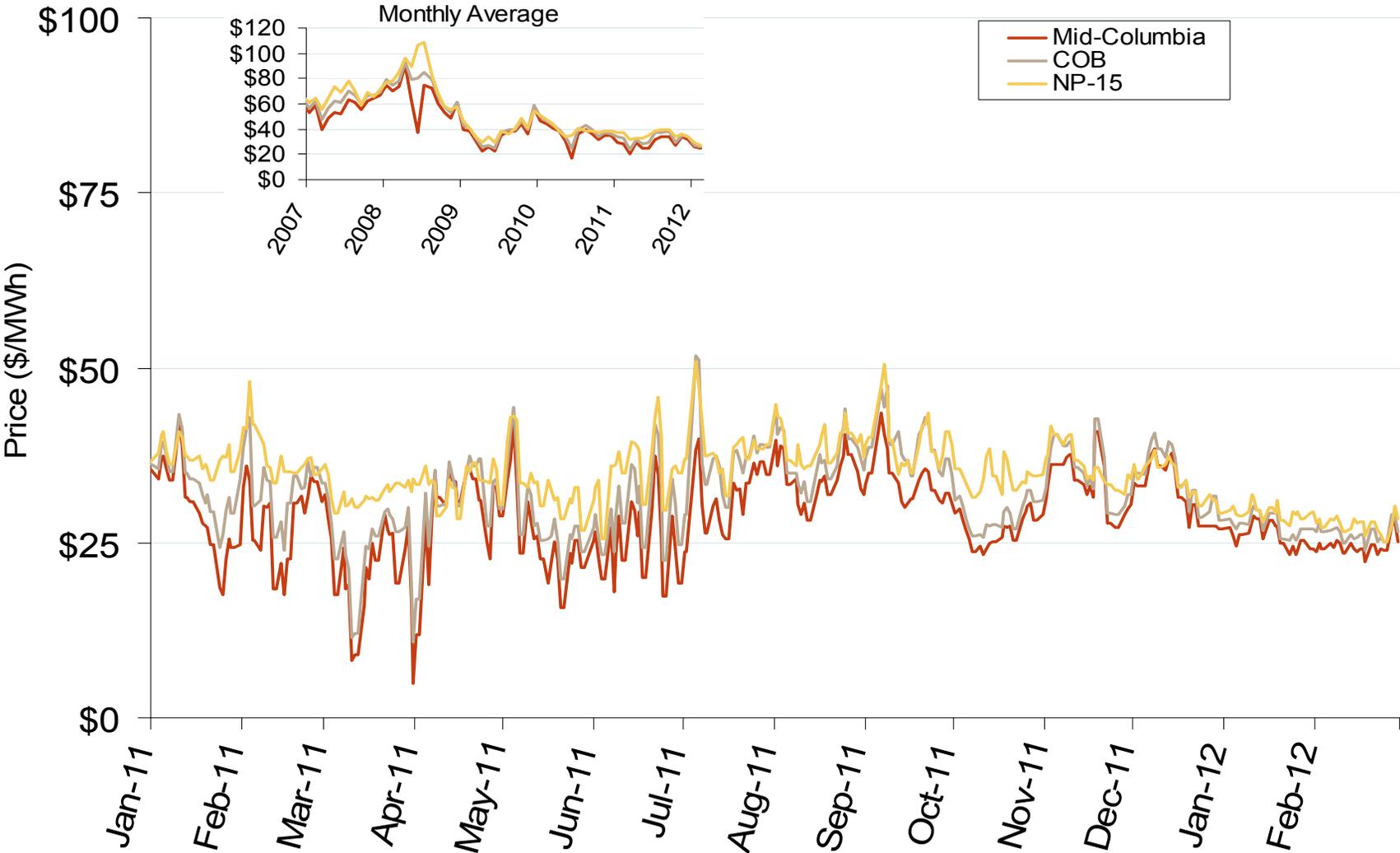
# Northwestern Daily Index Day-Ahead On-Peak Prices



Source: Derived from Platts data  
March 2012 Western Snapshot

Updated: March 12, 2012

# Northwestern Daily Index Day-Ahead On-Peak Prices

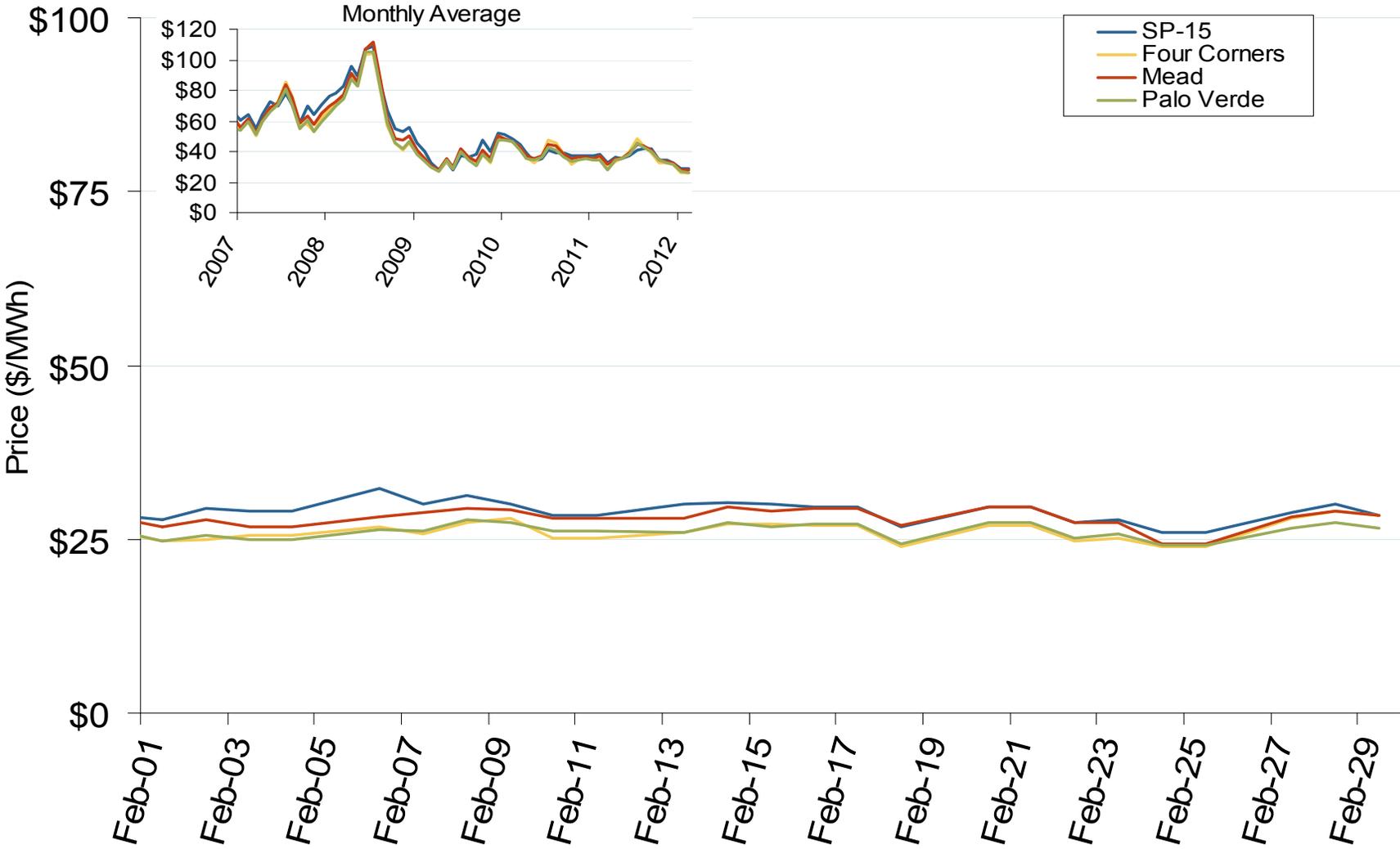


Source: Derived from Platts data  
March 2012 Western Snapshot

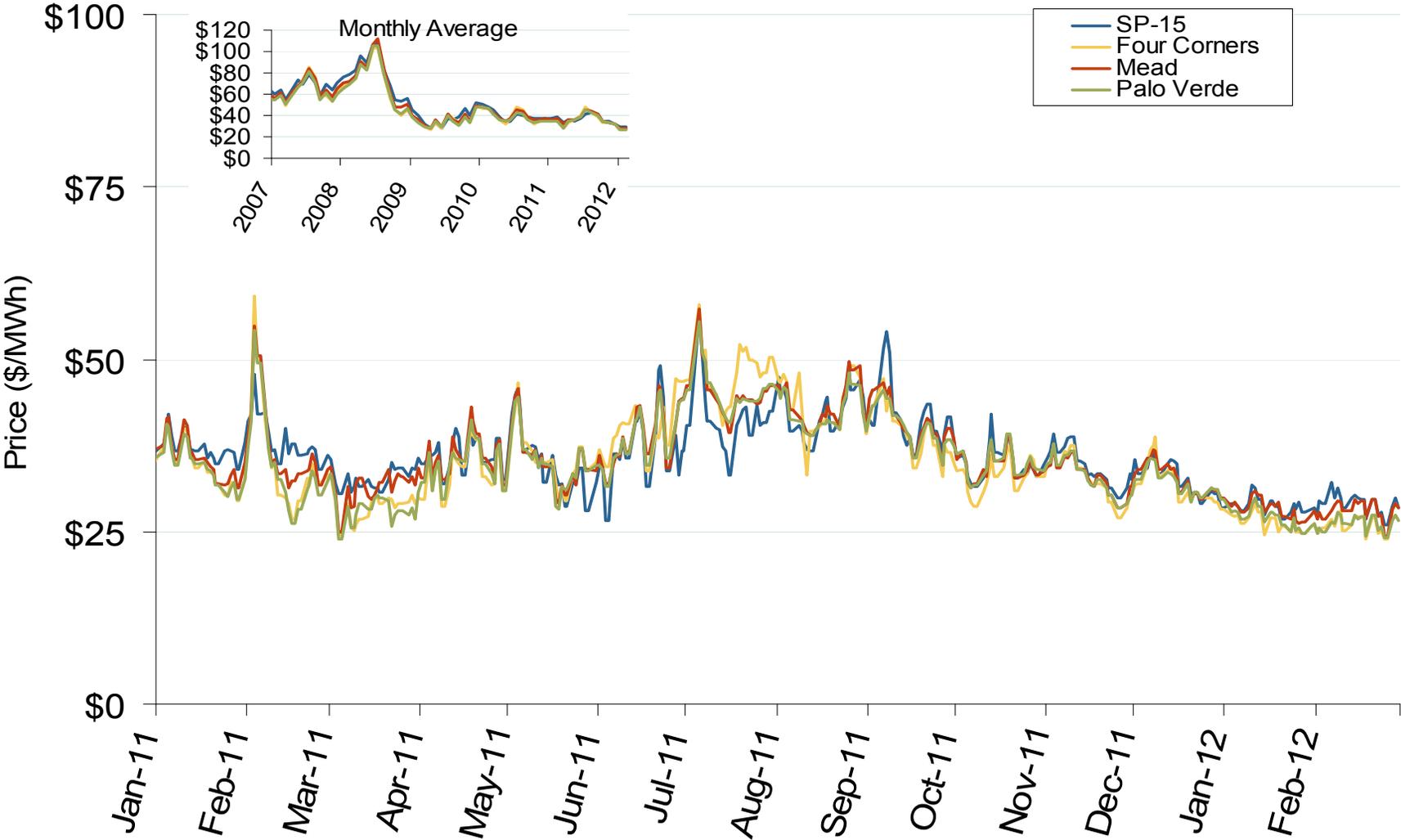
Updated: March 12, 2012

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### Southwestern Daily Index Day-Ahead On-Peak Prices



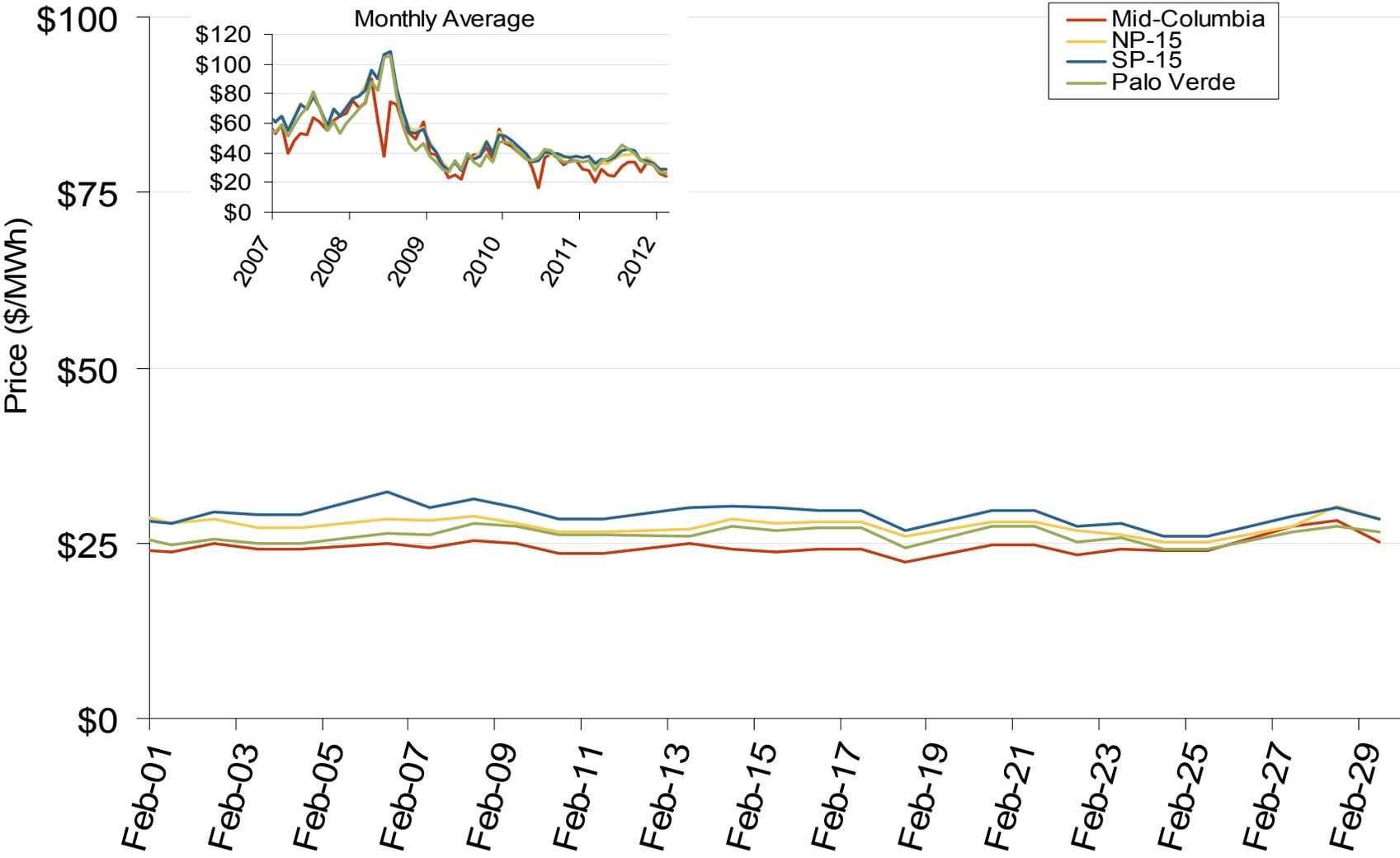
# Southwestern Daily Index Day-Ahead On-Peak Prices



Source: Derived from *Platts* data  
March 2012 Western Snapshot

Updated: March 12, 2012

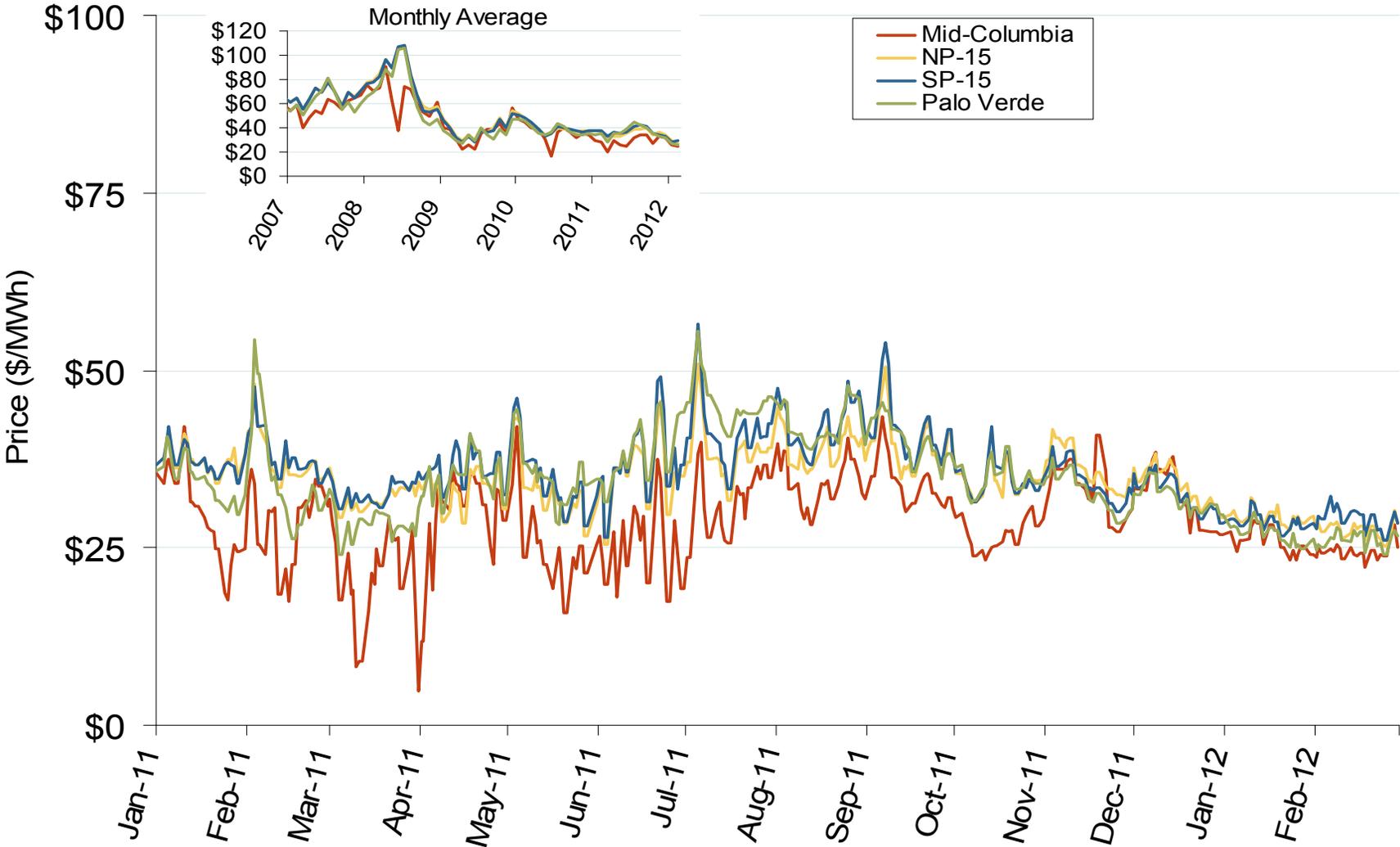
### Western Daily Index Day-Ahead On-Peak Prices



Source: Derived from Platts data  
March 2012 Western Snapshot

Updated: March 12, 2012

### Western Daily Index Day-Ahead On-Peak Prices

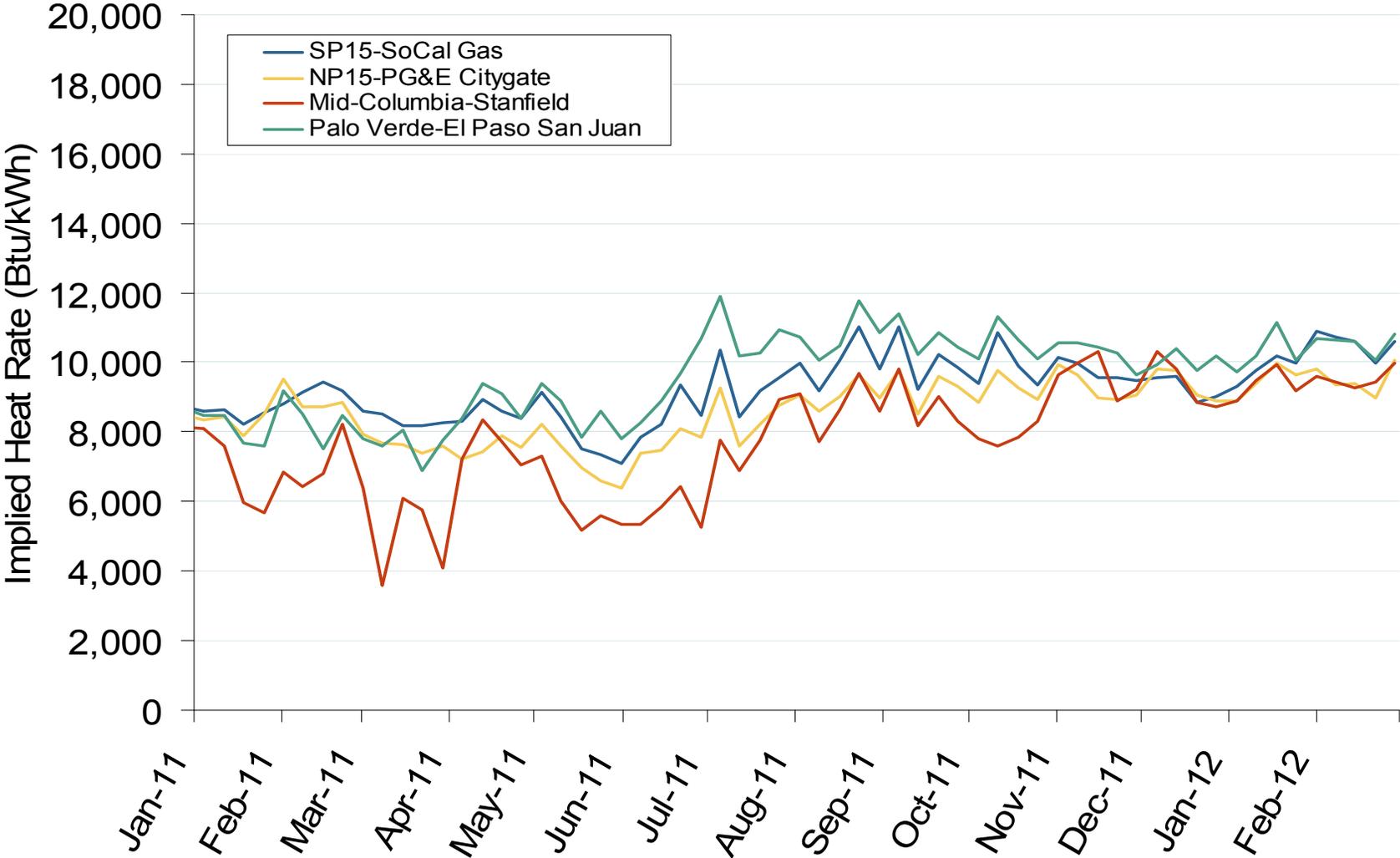


Source: Derived from *Platts* data  
March 2012 Western Snapshot

Updated: March 12, 2012

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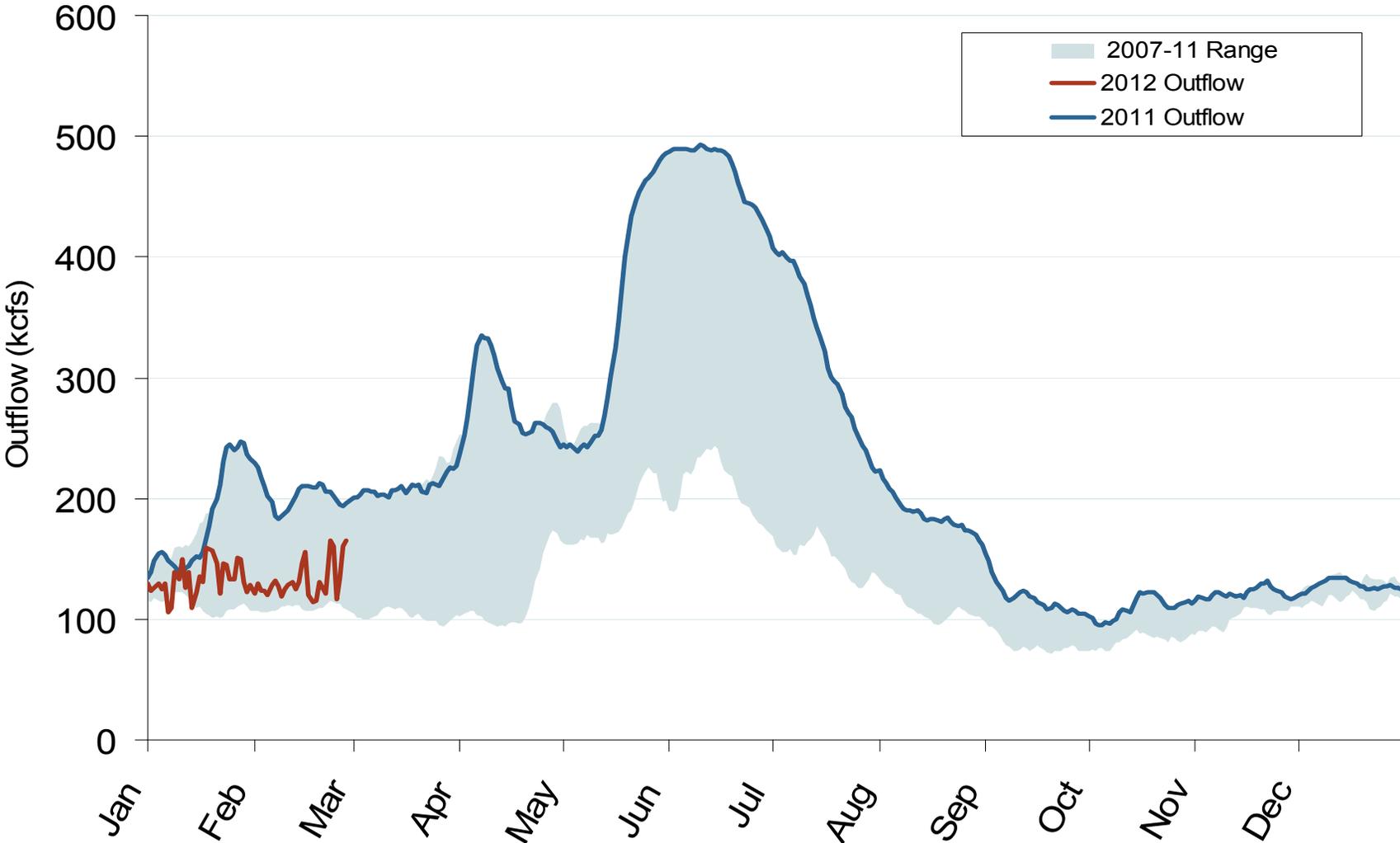
### Implied Heat Rates at Western Trading Points - Weekly Avgs.



Source: Derived from Platts on-peak electric and natural gas price data  
March 2012 Western Snapshot

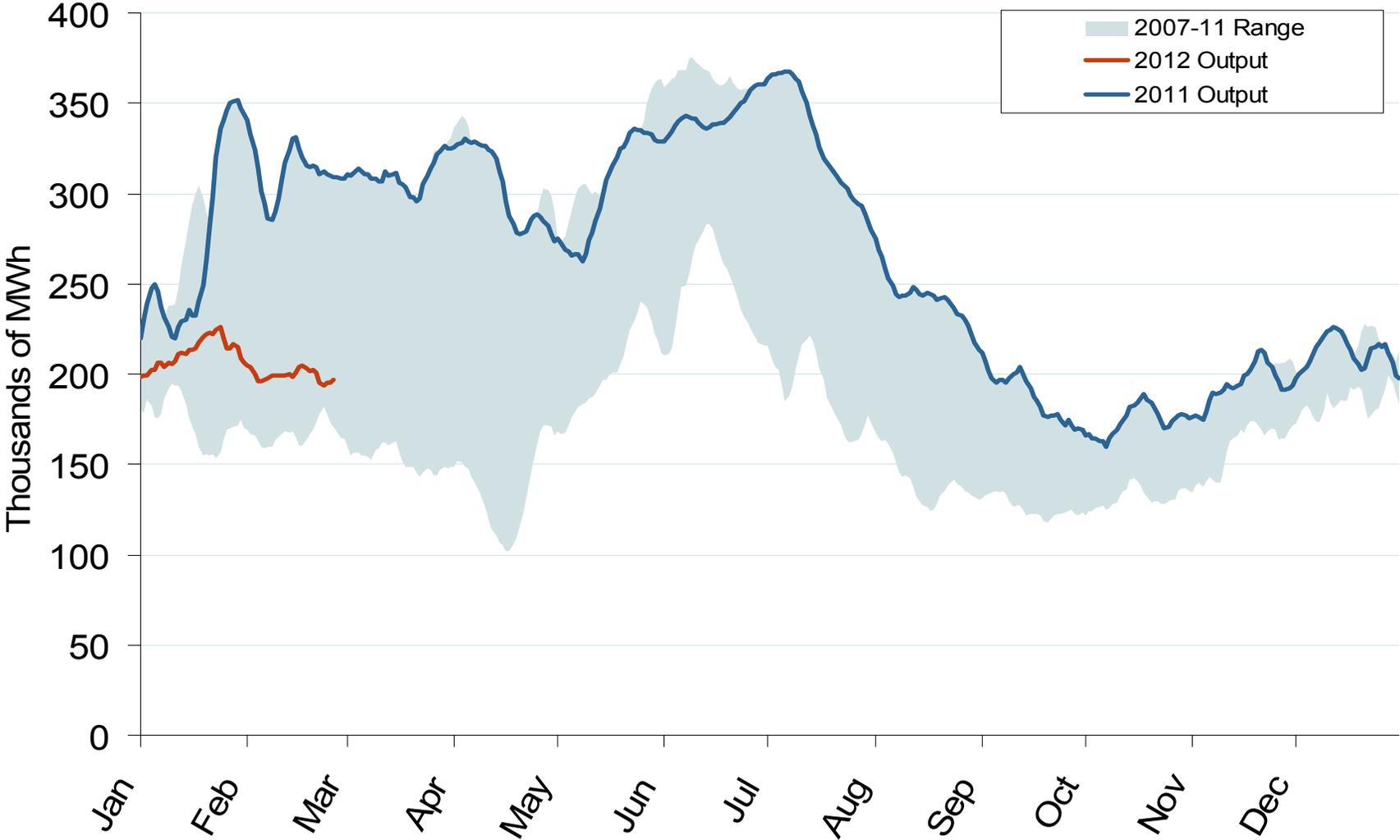
Updated: March 05, 2012

### Stream Flows at the Dalles Dam



Notes: Trend lines are 7-day moving averages  
Source: Derived from USACE data  
March 2012 Western Snapshot

### Pacific Northwest Hydroelectric Production



Notes: Trend lines are 7-day moving averages

Source: Derived from USACE data reflecting the output of the 24 largest facilities

March 2012 Western Snapshot

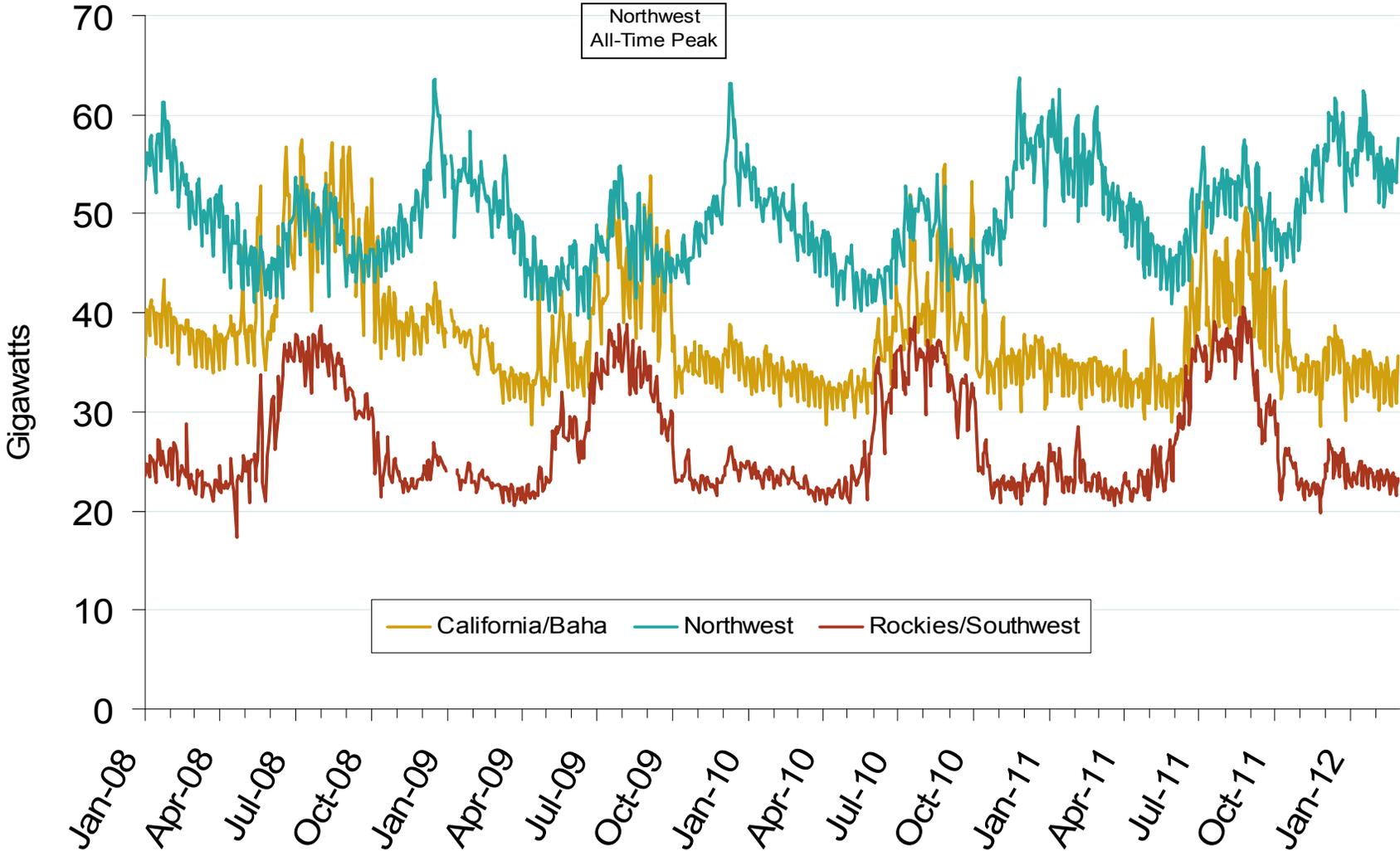
Updated: March 12, 2012

## Pacific/Northwest Hydro and Snowpack Levels

	Hydro Generation		Snow Water Equivalent <sup>3</sup>		
	In-State Capacity (MW) <sup>1</sup>	Additional Capacity Created Downstream (MW) <sup>2</sup>	One Year Ago (3/1/10) (% of historical average)	Current (3/7/11) (% of historical average)	% Change from One Year Ago
<b>Washington</b>	<b>21,500</b>	<b>0</b>	<b>94%</b>	<b>102%</b>	<b>+8%</b>
<b>Oregon</b>	<b>9,100</b>	<b>0</b>	<b>94%</b>	<b>71%</b>	<b>-23%</b>
<b>California</b>	<b>10,400</b>	<b>0</b>	<b>136%</b>	<b>36%</b>	<b>-100%</b>
<b>Idaho</b>	<b>2,700</b>	<b>19,700</b>	<b>98%</b>	<b>80%</b>	<b>-18%</b>
<b>Montana</b>	<b>2,700</b>	<b>16,200</b>	<b>115%</b>	<b>102%</b>	<b>-100%</b>
<b>British Columbia</b>	<b>10,000</b>	<b>16,200</b>	<b>105%</b>	<b>115%</b>	<b>+10%</b>

- <sup>1</sup> Net summer capacity in megawatts by state (EIA).
- <sup>2</sup> Approximate electric capacity created by water flow through the downstream states (EIA and BPA). The capacity estimates reflect the water flow pattern of the series of hydro facilities on the Snake and Columbia Rivers.
- <sup>3</sup> Snow Water Equivalent, in percent of the historical average for the same date, is the ratio of current snow water daily data (collected by the Natural Resources Conservation Services' Snowtel Telemetry sites) compared to the average snow water for the same day between 1961-1990. Total Hydro Capacity figures by state do not tie precisely to Snow Water Equivalent data due to such factors as snow basin terrain and complex distribution of run-off to neighboring state hydroelectric dams or shared facilities (e.g., Columbia River hydroelectric dams on the border of Washington and Oregon) (Bloomberg, California Dept. of Water Resource and Government of British Columbia Ministry of Environment).

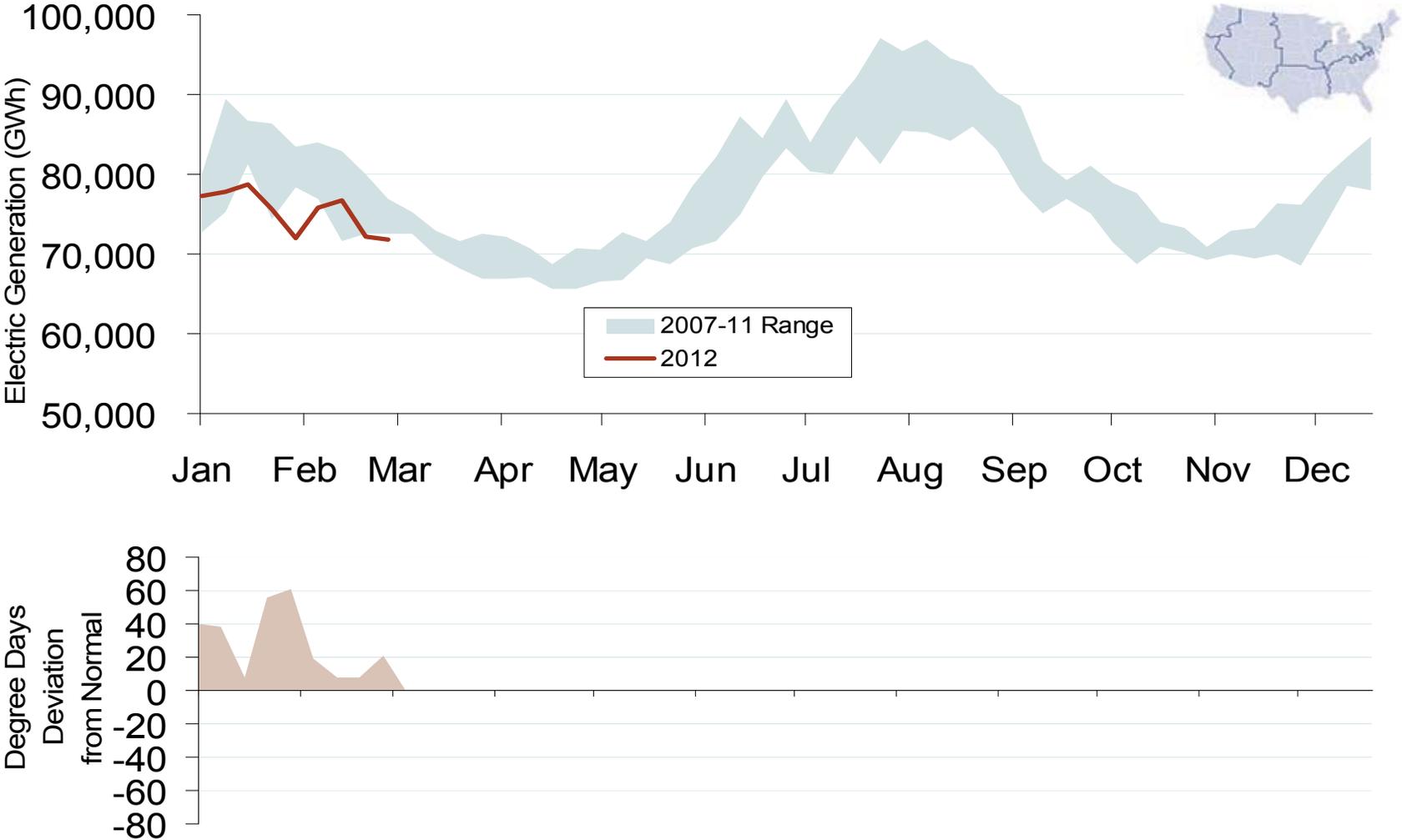
# Western Daily Actual Peak Demand



Notes: Data prior to 9/14/2010 does not include weekends and holidays. Some data for 12/31/2008 – 1/9/2009 are not available from WECC

Source: Derived from WECC Daily Report data available at <http://wecc.biz>

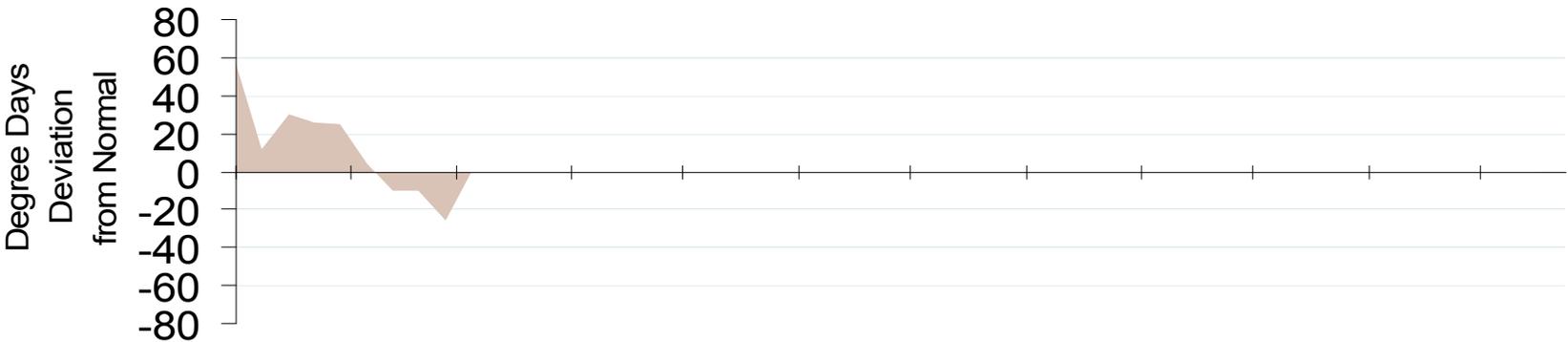
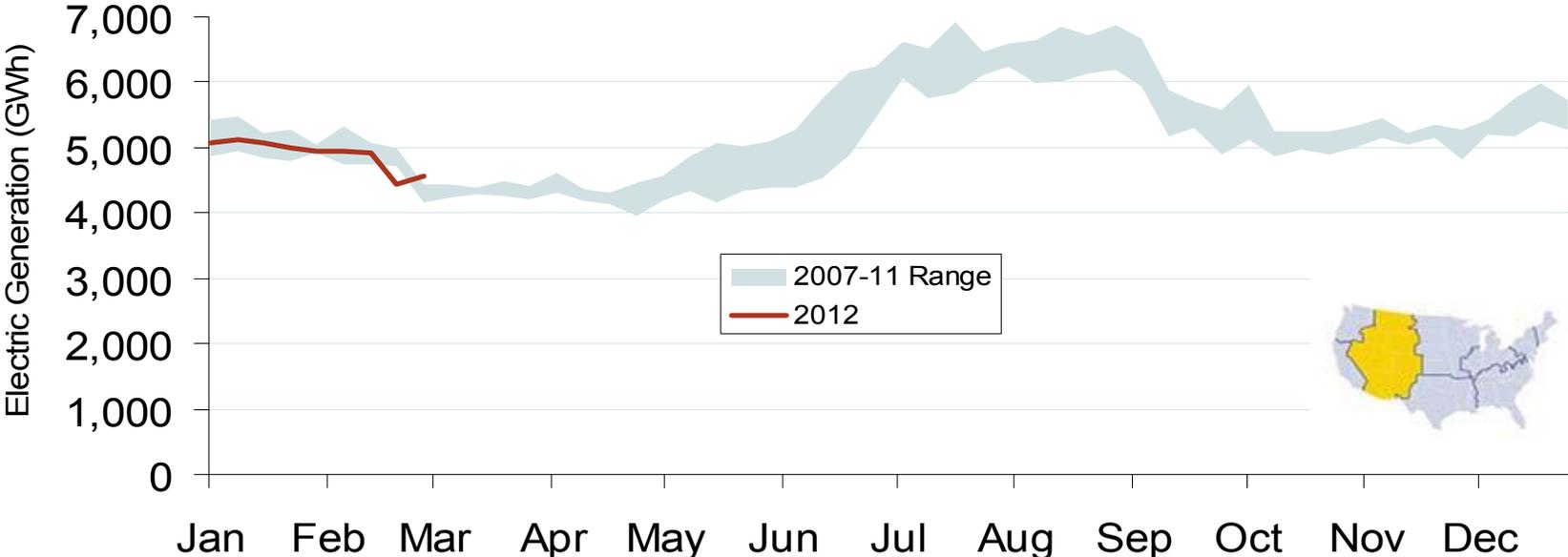
# Weekly U.S. Electric Generation Output and Temperatures



Source: Derived from *EEI* and *NOAA* data  
March 2012 Western Snapshot

Updated: March 08, 2012

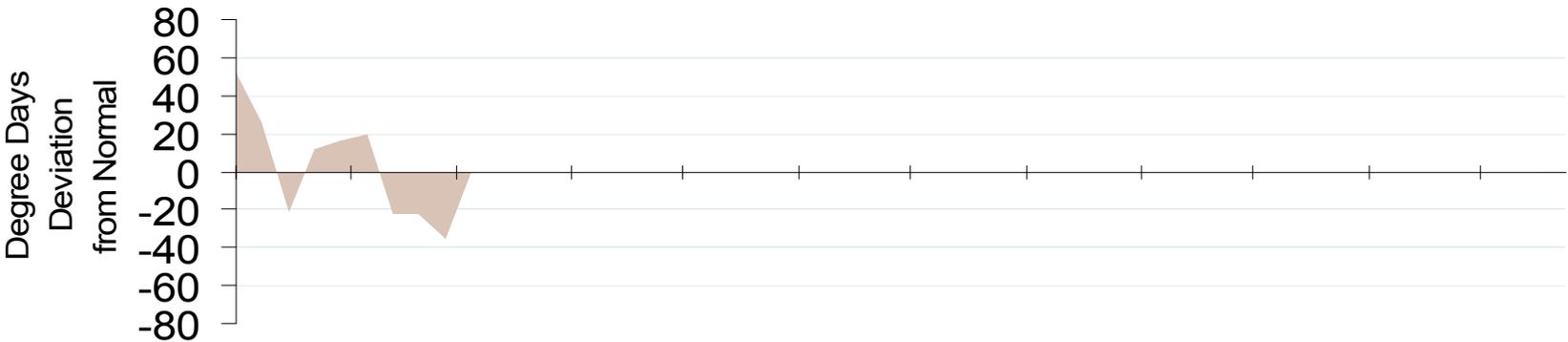
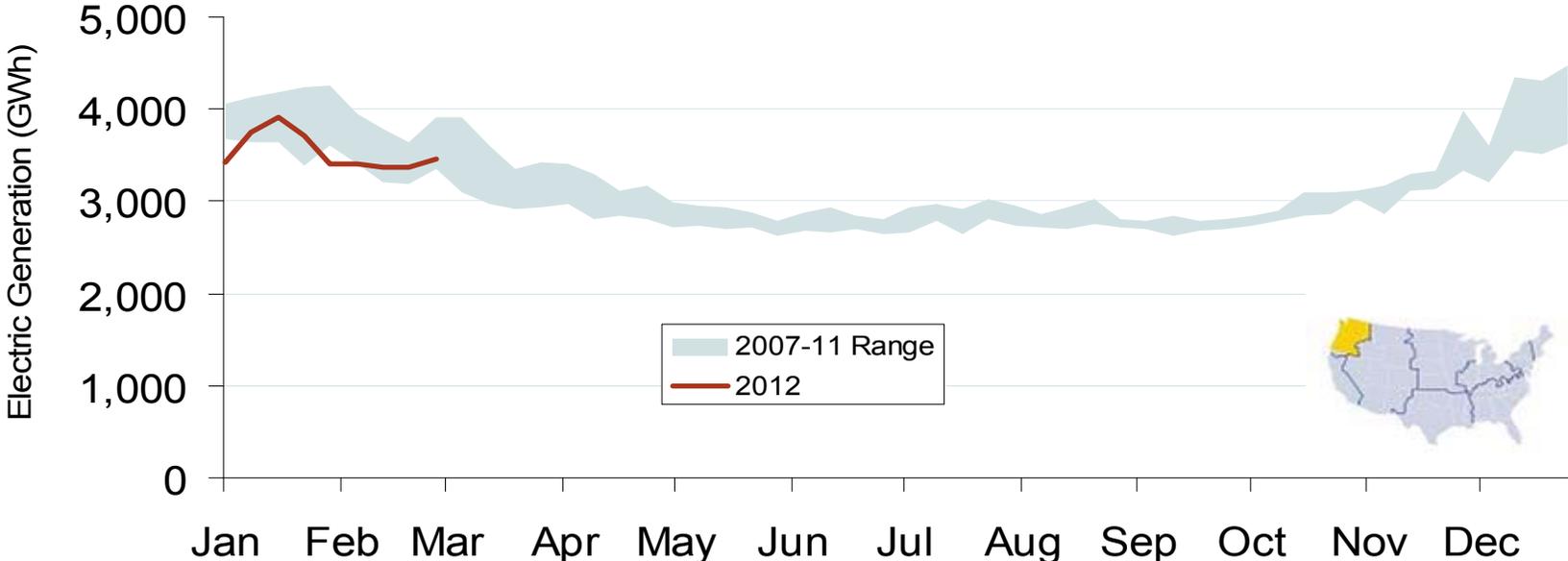
# Weekly Power Generation & Temps. - Rocky Mountains



Source: Derived from *EEI* and *NOAA* data  
March 2012 Western Snapshot

Updated: March 08, 2012

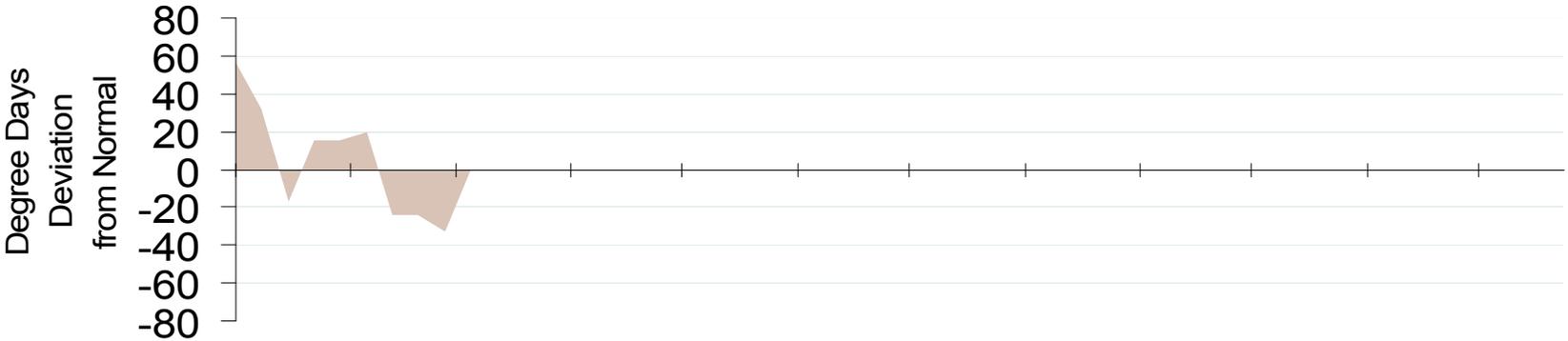
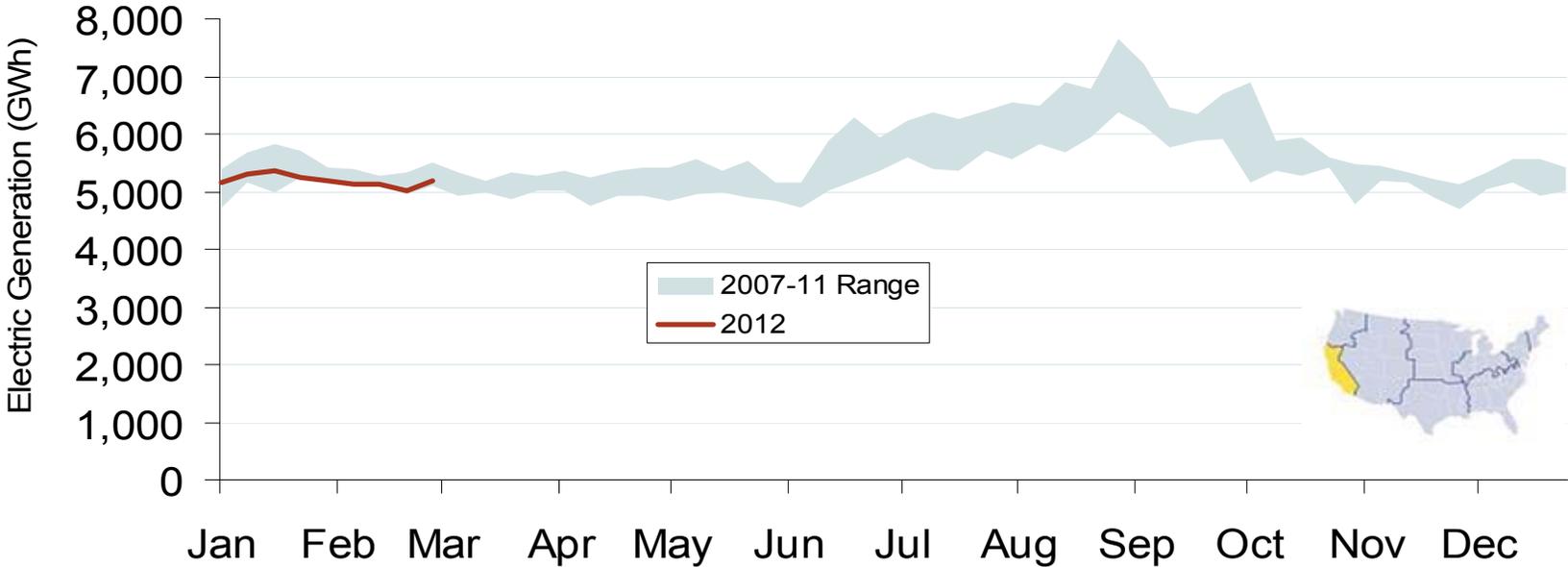
# Weekly Power Generation & Temps. - Pacific Northwest



Source: Derived from EEI and NOAA data  
March 2012 Western Snapshot

Updated: March 08, 2012

# Weekly Power Generation & Temps. - California



Source: Derived from *EEI* and *NOAA* data  
March 2012 Western Snapshot

Updated: March 08, 2012