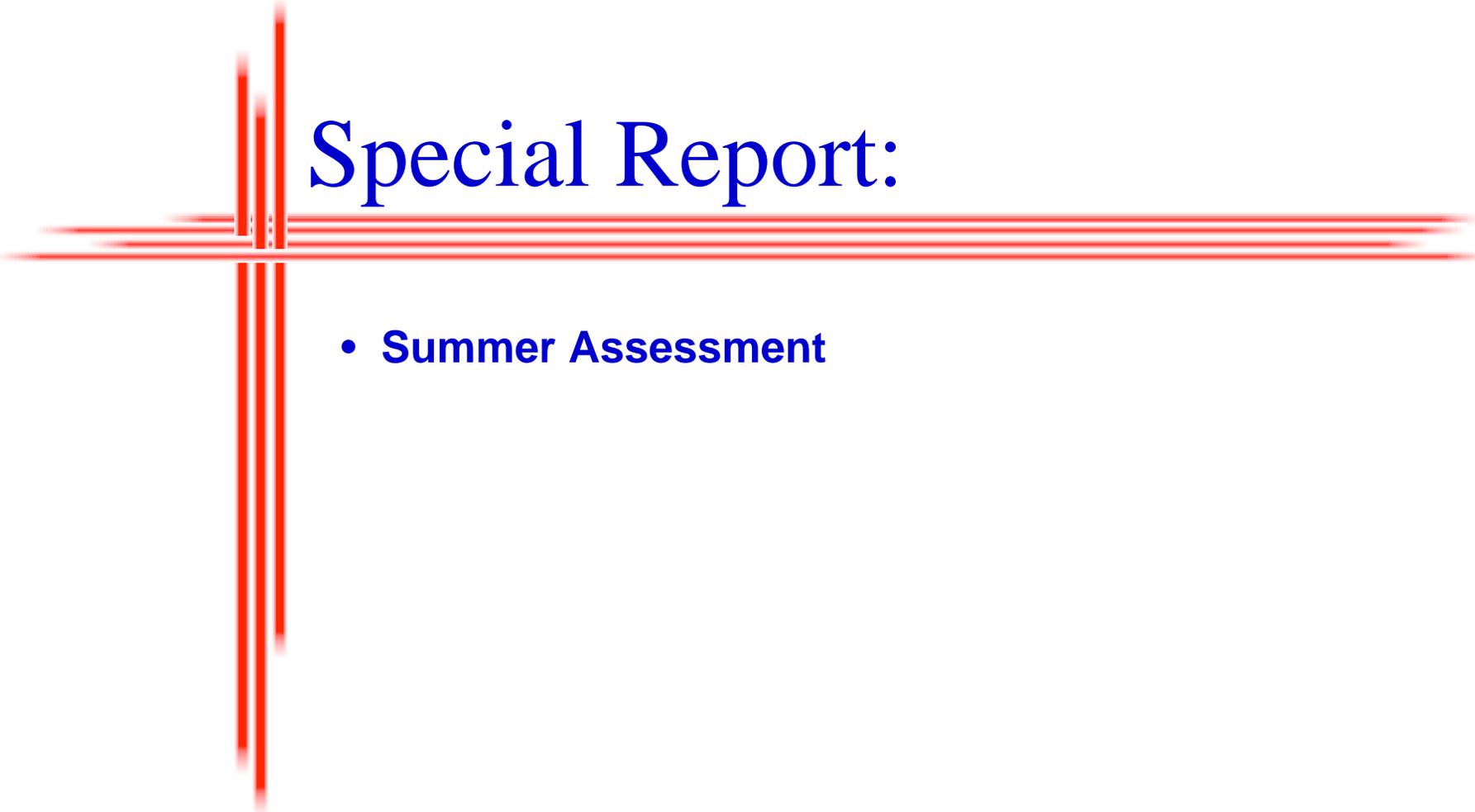


# OE ENERGY MARKET SNAPSHOT

## Western States Version – May 2010 Data

- **Special Report**
- **Electricity Markets**
- **Natural Gas and Fuel Markets**

Office of Enforcement  
Federal Energy Regulatory Commission  
June 2010



# Special Report:

- **Summer Assessment**

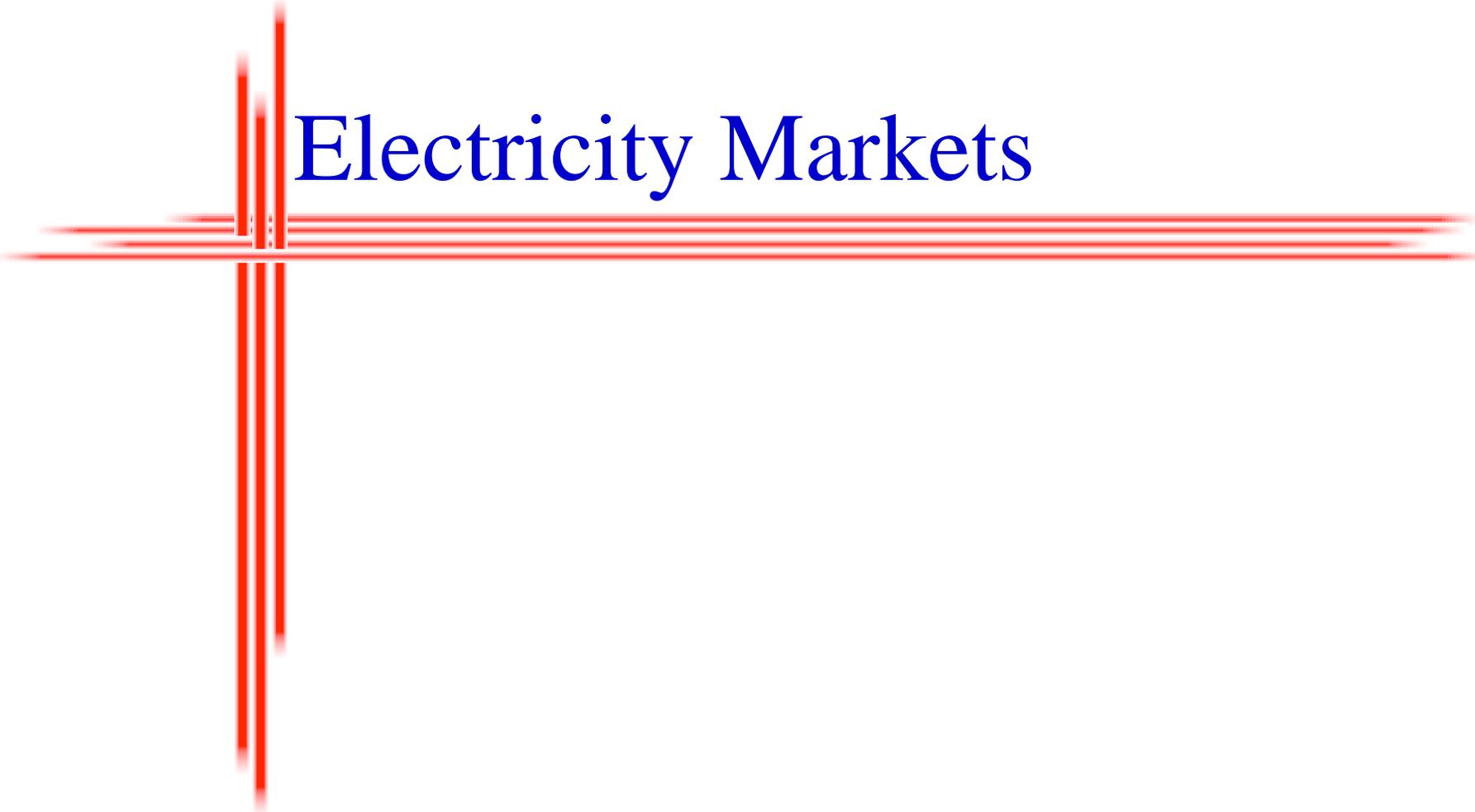


**FEDERAL ENERGY REGULATORY COMMISSION**

**Summer 2010  
Energy Market and  
Reliability Assessment**

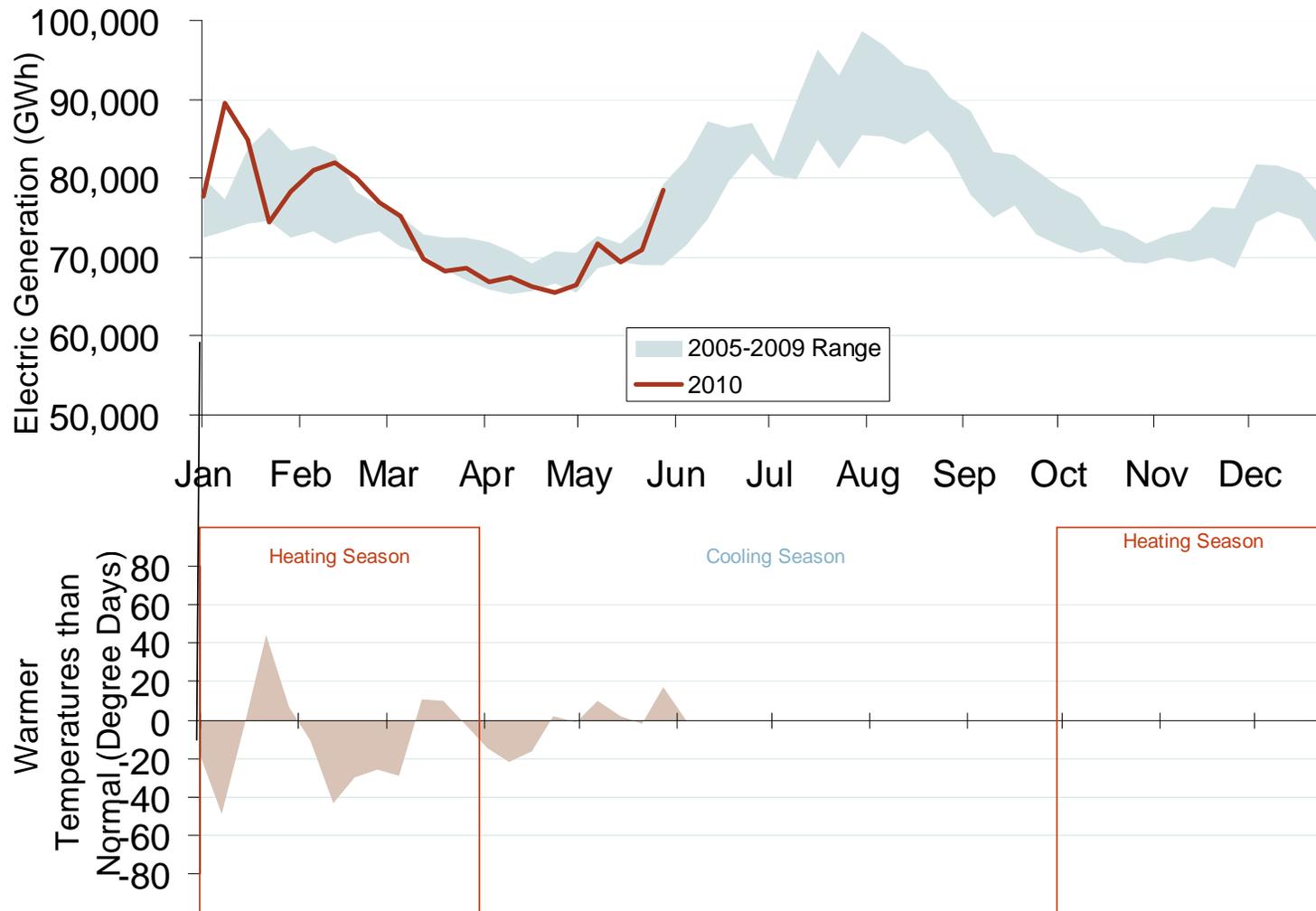
**Item No: A-3  
May 20, 2010**

**<http://www.ferc.gov/market-oversight/mkt-views/2010/05-20-10.pdf>**

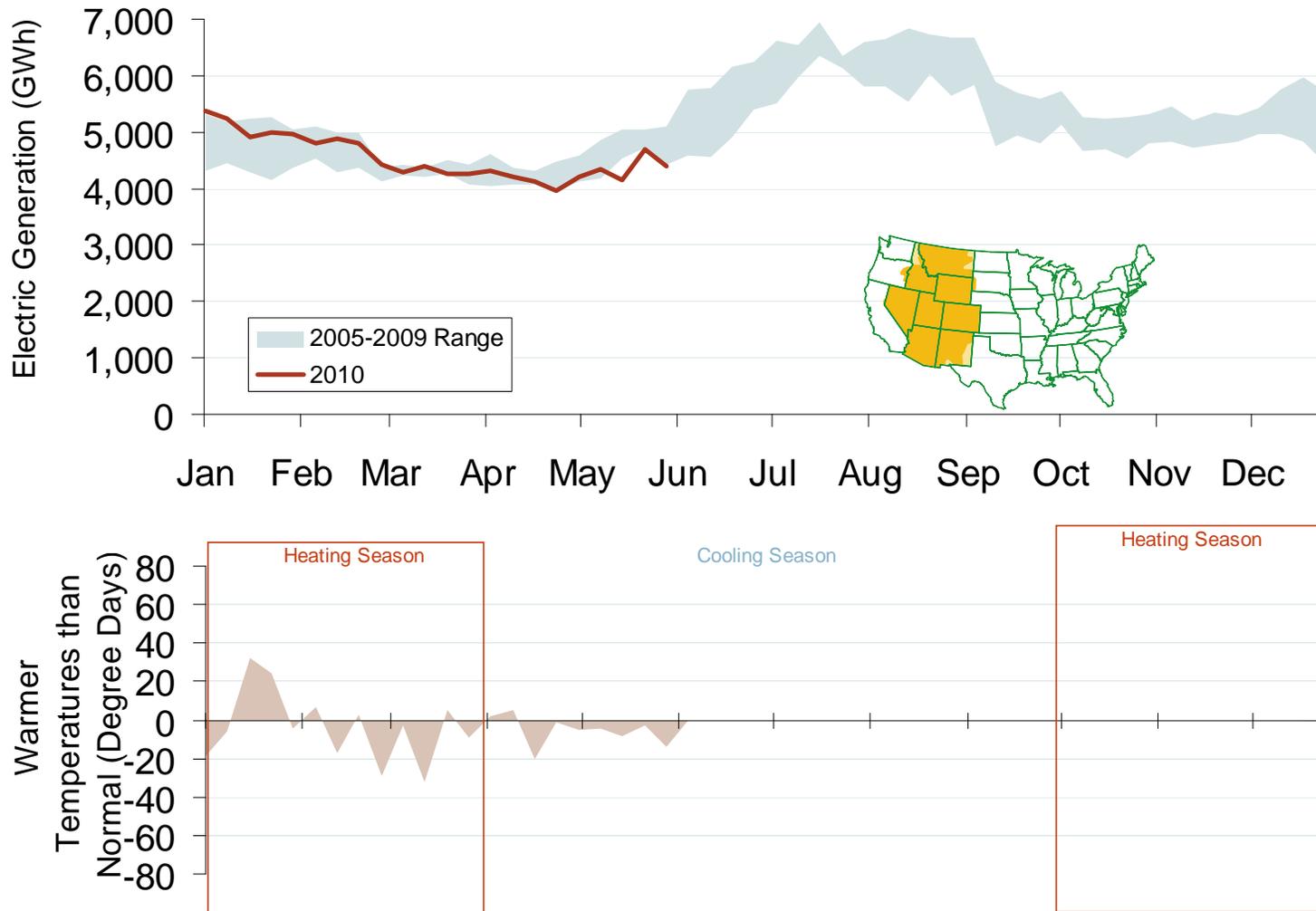


# Electricity Markets

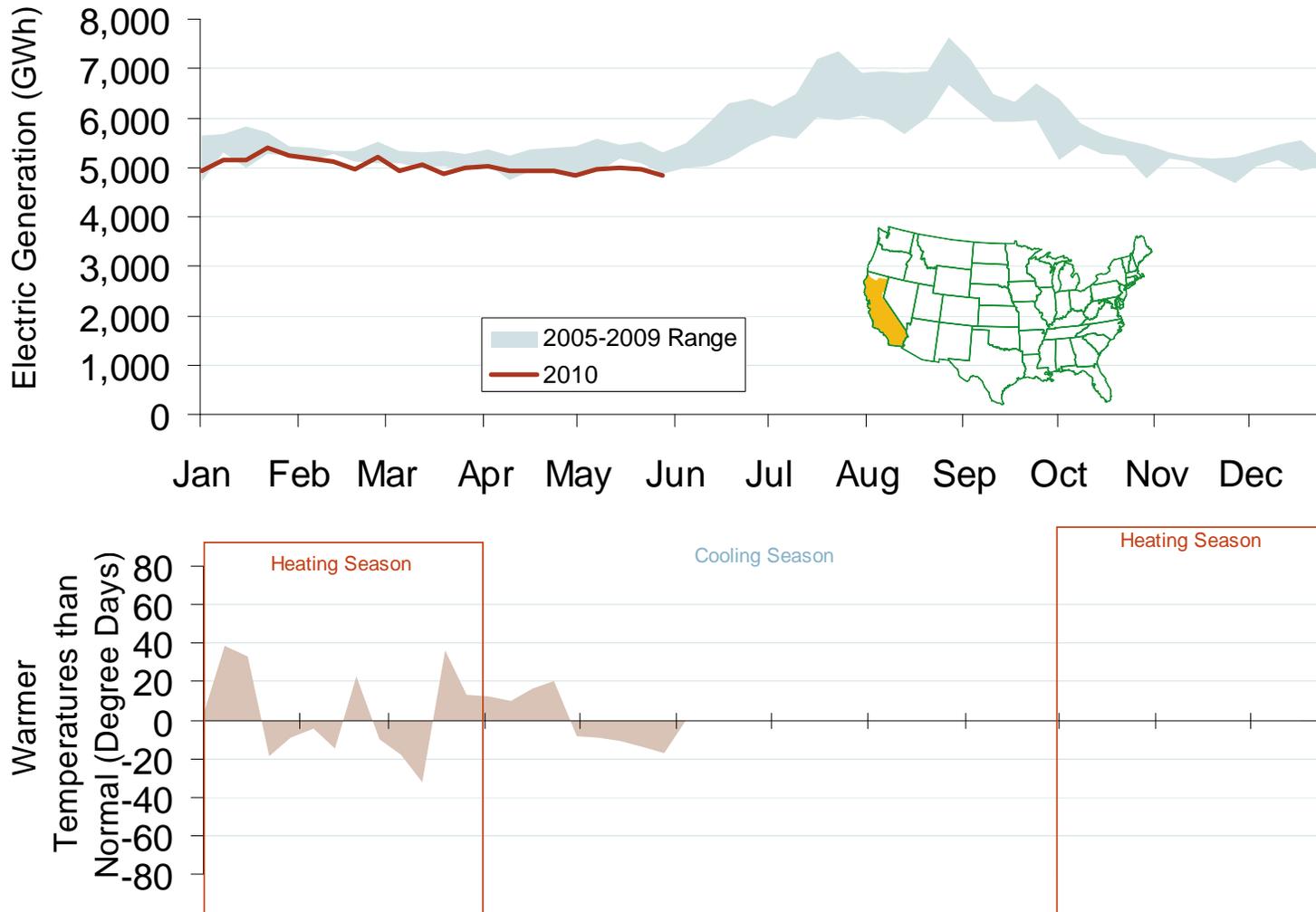
# Weekly U.S. Electric Generation Output and Temperatures



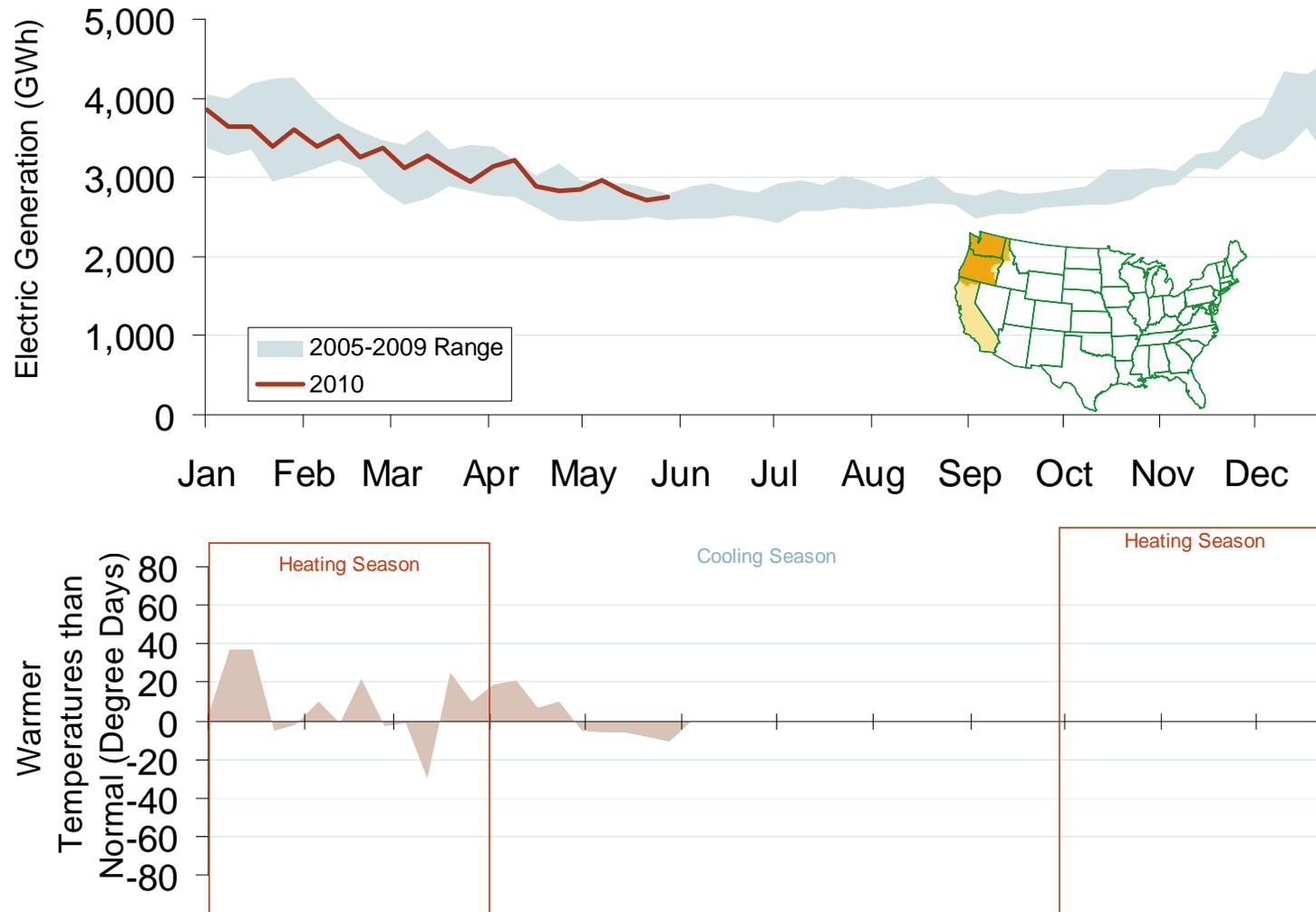
# Weekly Electric Generation Output and Temperatures Rocky Mountains Region



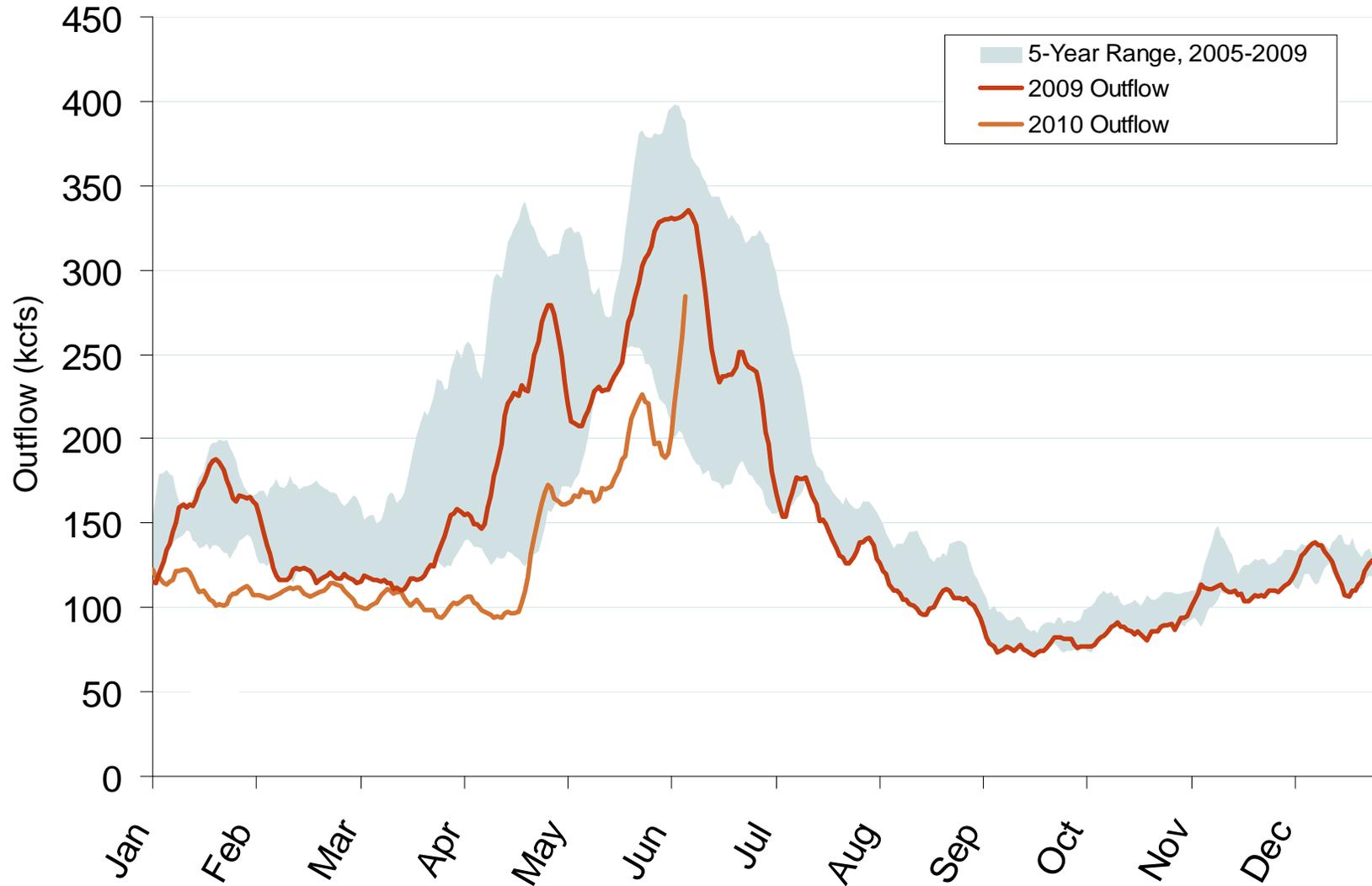
# Weekly Electric Generation Output and Temperatures California



# Weekly Electric Generation Output and Temperatures Pacific Northwest Region



## Stream Flow at The Dalles Dam



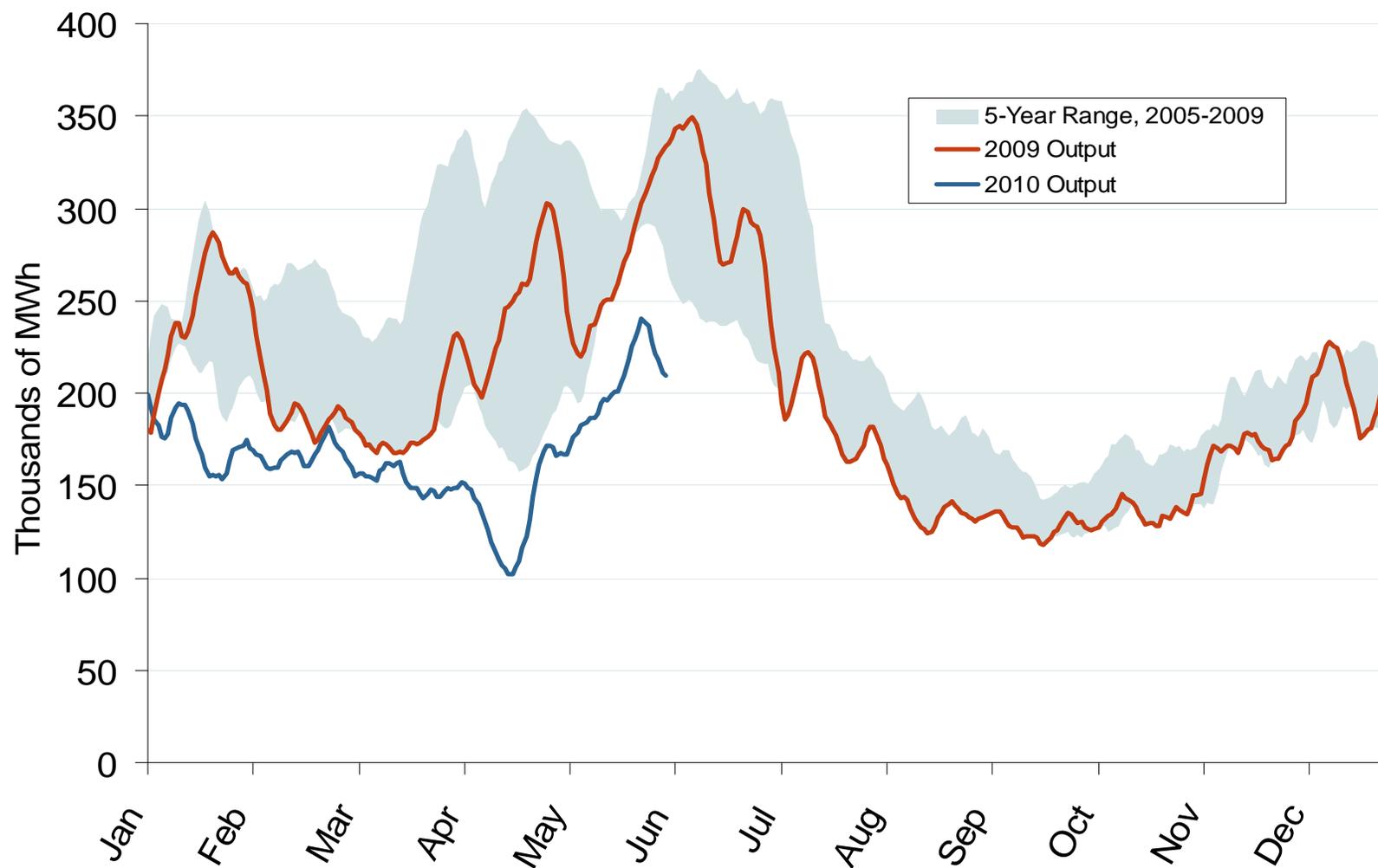
Source: Derived from USACE data.

Trend lines are 7-day moving averages.

June 2010 Western Snapshot Report

Updated June 9, 2010

## Pacific Northwest Hydroelectric Production



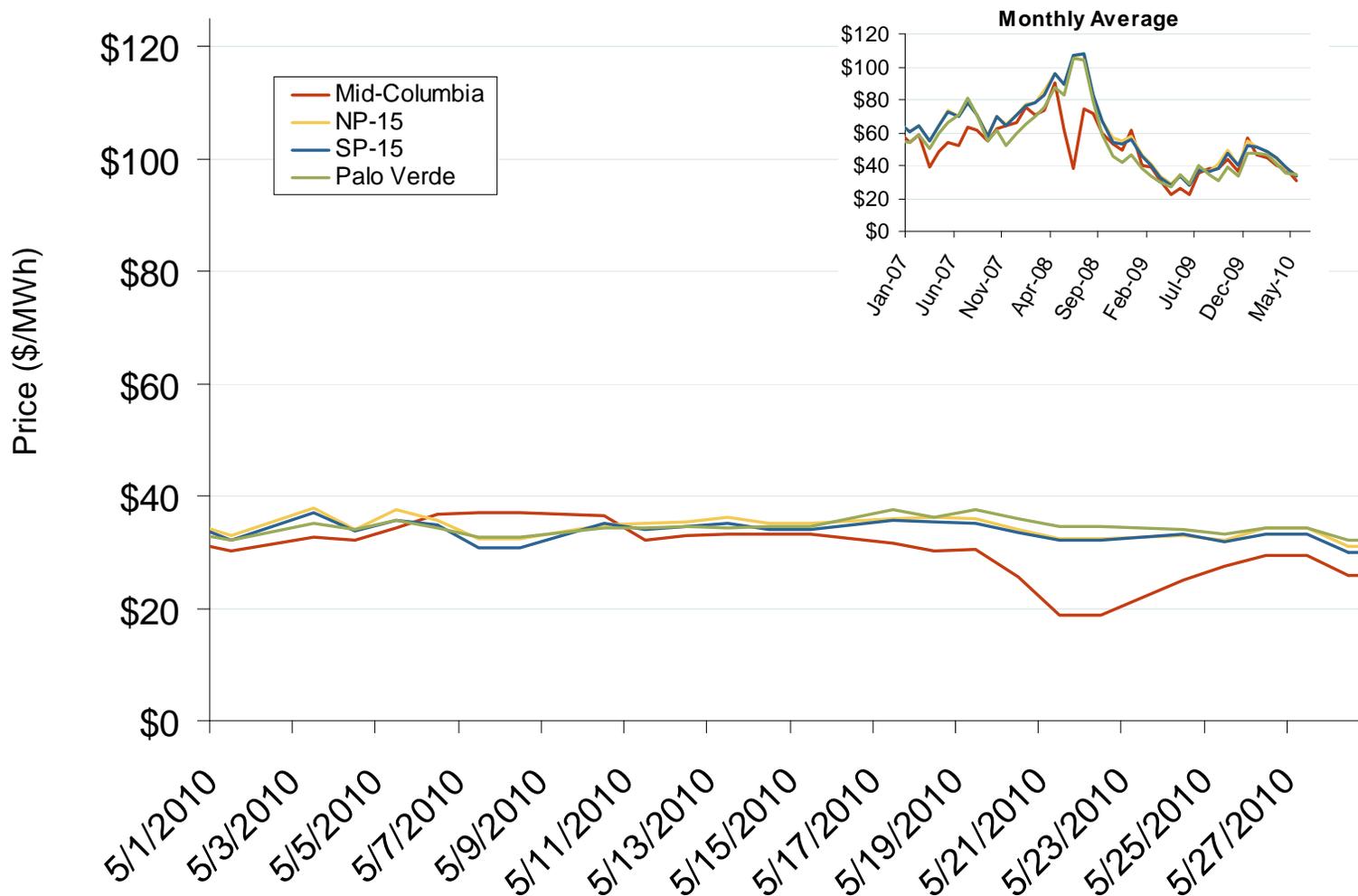
Source: Derived from USACE data reflecting the output of the 24 largest facilities.

Trend lines are 7-day moving averages.

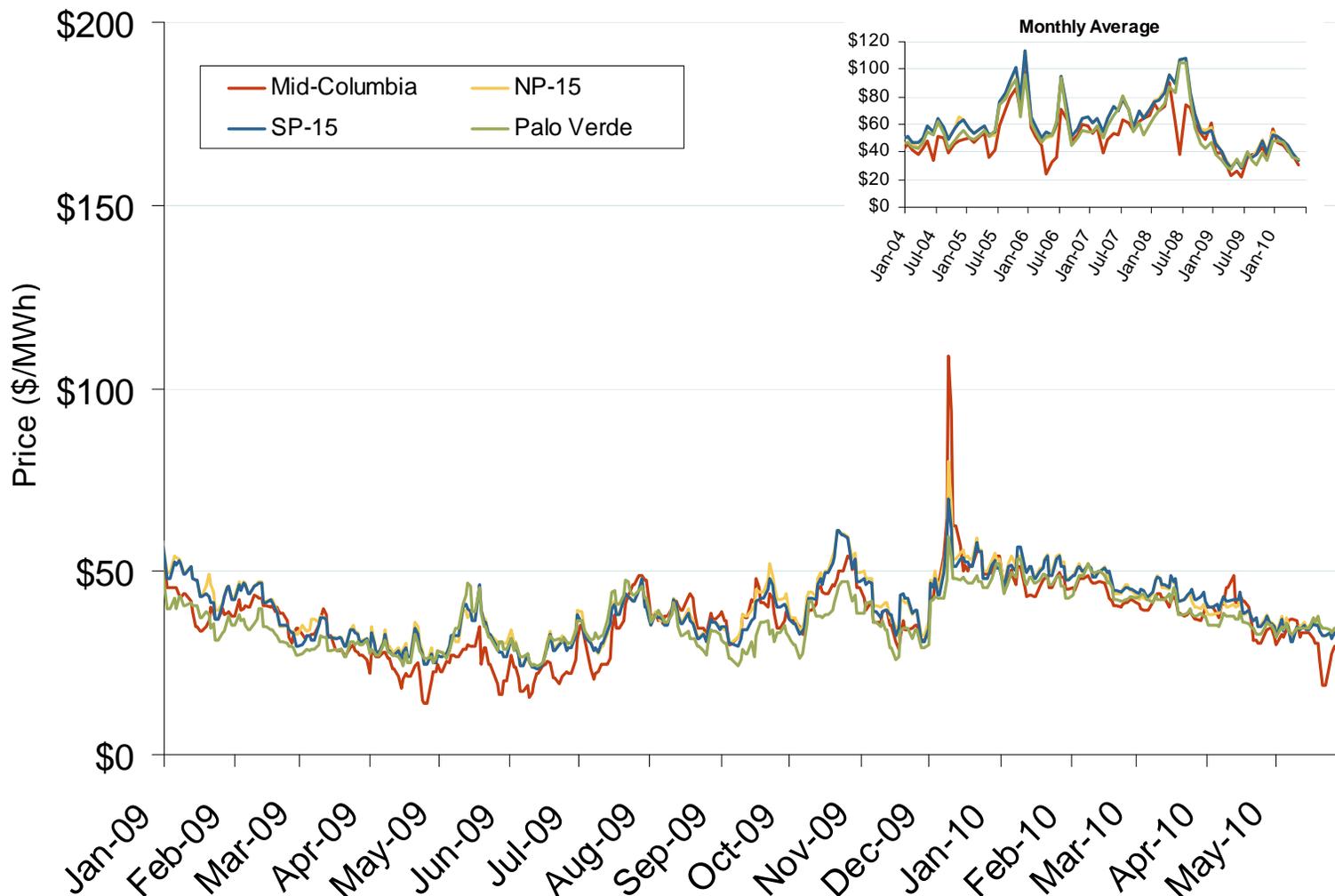
June 2010 Western Snapshot Report

Updated June 9, 2010

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



# Western Daily Bilateral Day-Ahead On-Peak Prices

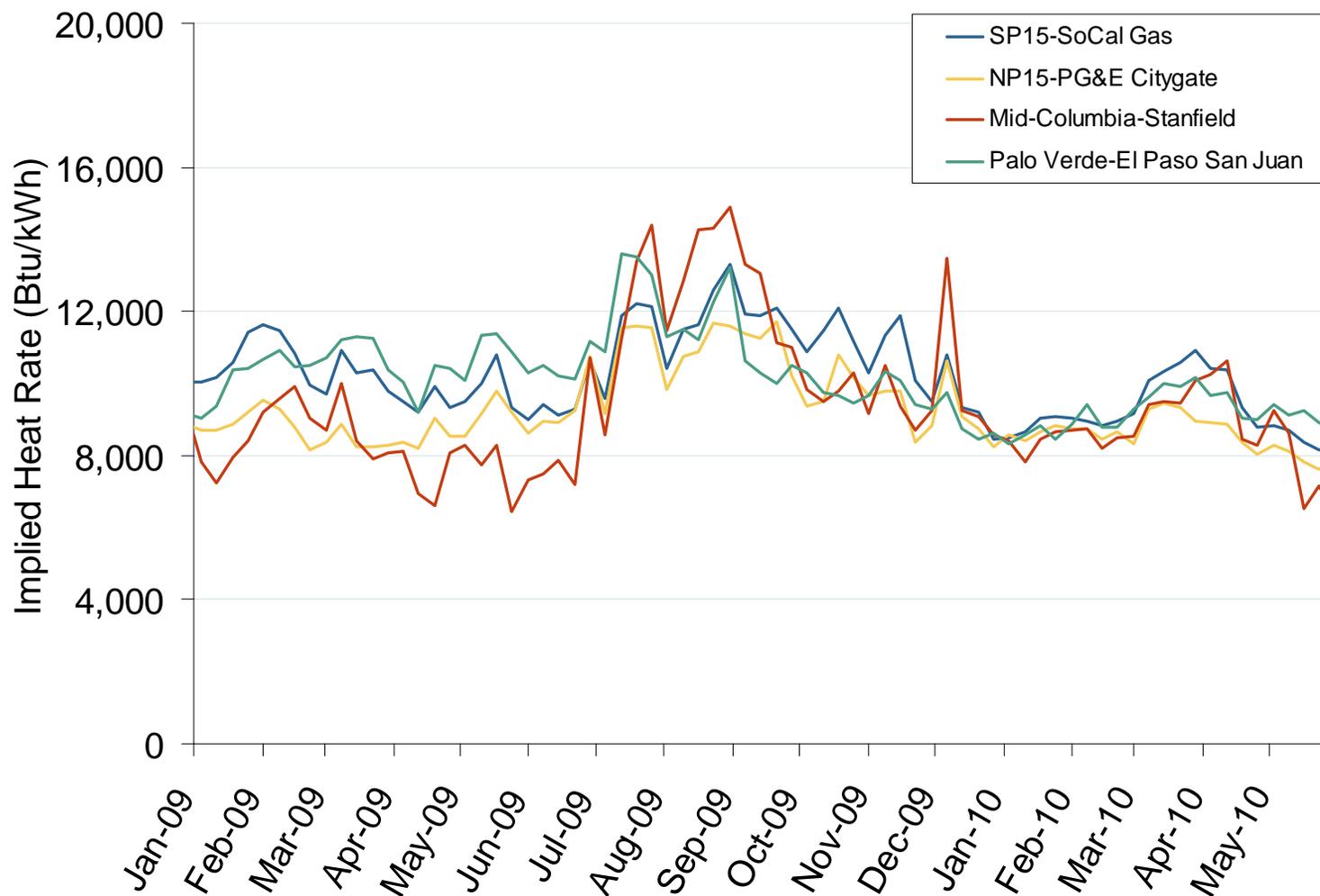


Source: Derived from *Platts* data.

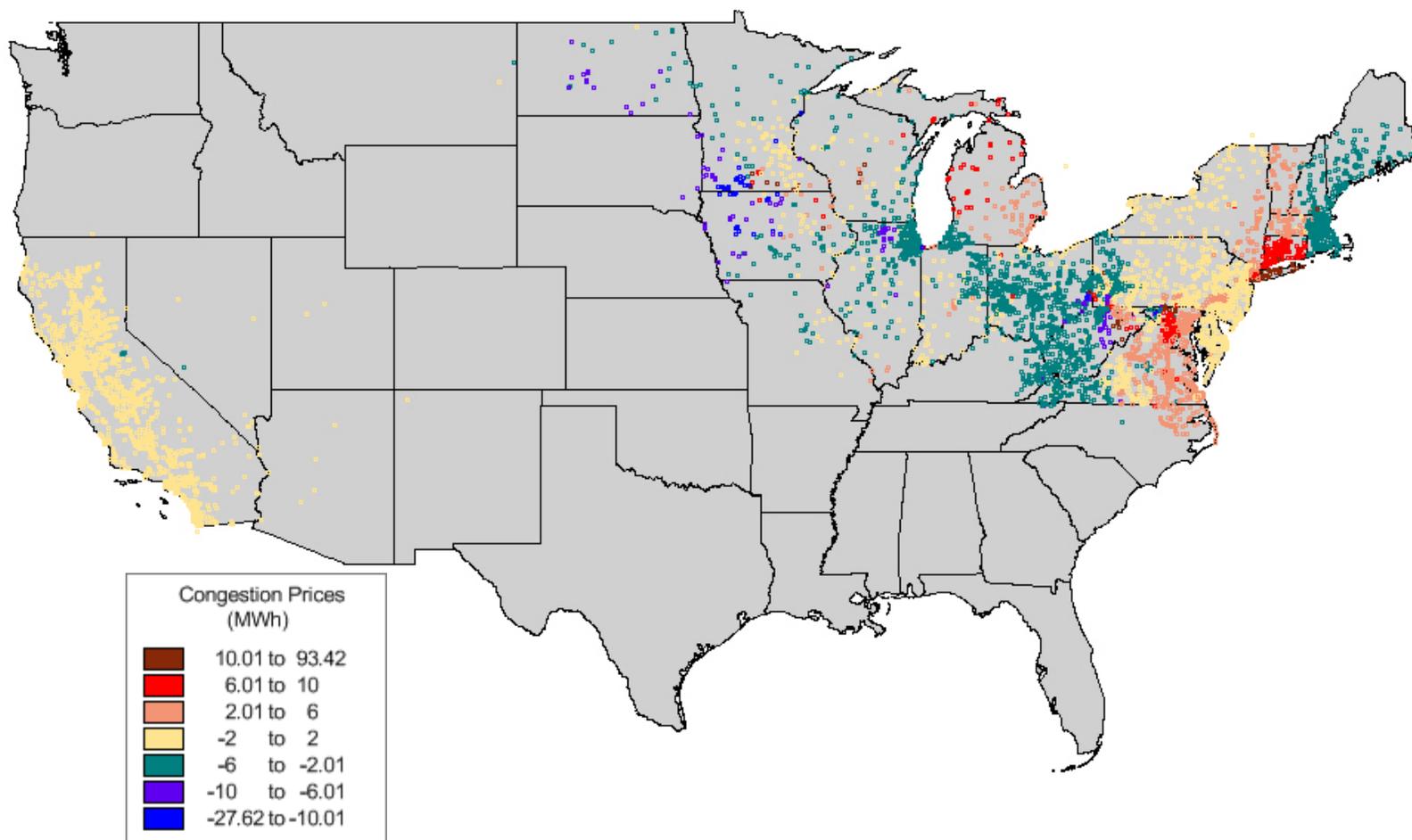
June 2010 Western Snapshot Report

Updated June 7, 2010

## Implied Heat Rates at Western Trading Points Weekly Averages



## Day Ahead On-Peak Congestion Average Monthly Prices May 2010



## WECC Wind and Solar Additions, 2008-2009

### Wind Capacity (MW)

WECC States	New			Total
	2008	2009	'08 - '09	
Arizona	0	63	63	63
California	78	277	355	2,723
Colorado	1	178	179	1,246
Idaho	0	71	71	147
Montana	125	104	229	375
Nevada	0	0	0	0
New Mexico	1	100	101	597
Oregon	185	754	939	1,920
Utah	19	204	223	223
Washington	212	542	754	1,908
Wyoming	388	425	813	1,101
<b>WECC Total</b>	<b>1,009</b>	<b>2,718</b>	<b>3,727</b>	<b>10,303</b>
U.S. Total	8,366	10,010	18,376	35,086
<b>WECC % of U.S</b>	<b>12%</b>	<b>27%</b>	<b>20%</b>	<b>29%</b>

### Grid-connected Solar PV in MW - DC

WECC States	New			Total
	2008	2009	'08 - '09	
Arizona	6.2	21.1	27	46
California	197.6	212.1	410	768
Colorado	21.7	23.4	45	59
Idaho	0	0.1	0	0
Montana	0.1	0	0	1
Nevada	14.9	2.5	17	36
New Mexico	0.6	1.4	2	2
Oregon	4.8	6.4	11	14
Utah	0	0.4	0	1
Washington	0.8	2.1	3	5
Wyoming	0	0	0	0
<b>WECC Total</b>	<b>247</b>	<b>270</b>	<b>516</b>	<b>933</b>
U.S. Total	311	435	746	1,257
<b>WECC % of U.S</b>	<b>79%</b>	<b>62%</b>	<b>69%</b>	<b>74%</b>

Sources: American Wind Energy Association, Wind Power database, and preliminary data to be published in: Larry Sherwood, *U.S. Solar Market Trends 2009*, Interstate Renewable Energy Council, July 2010

Updated June 3, 2010

## Renewable Portfolio Provisions for Solar and Distributed Generation

16 States and D.C. use Set-asides or Multipliers to Encourage these Technologies

**WA:** double-credit for DG

**OR:** 20 MW PV by 2020;  
\* 2 utility PV credit

**CA:** 3 GW, including 1,940 MW distributed solar by 2016

**NV:** 1.5% solar by 2025  
\* 2.4 central PV;  
\* 2.45 distributed PV

**UT:** \* 2.4 solar multiplier

**CO:** 3% DG by 2020  
1.5% customer cited

**AZ:** 4.5% DG by 2025;  
half residential

**NM:** 4% solar-electric,  
0.6% DG by 2020

**TX:** double-credit for non-wind;  
non-wind goal – 500 MW

**MO:** 0.3% solar-electric by 2021

**IL:** 1.5% solar PV by 2025

**MI:** triple credit for solar-electric

**OH:** 0.5% solar-electric by 2025

**NH:** 0.3% solar-electric by 2014

**NY:** customer-sited is 7% of RPS increments, 0.5% of 2015 sales

**MA:** 400 MW PV by 2020

**RI:** 3 MW solar by 2013

**NJ:** 5,316 GWh solar-electric by 2026

**PA:** 0.5% PV by 2020

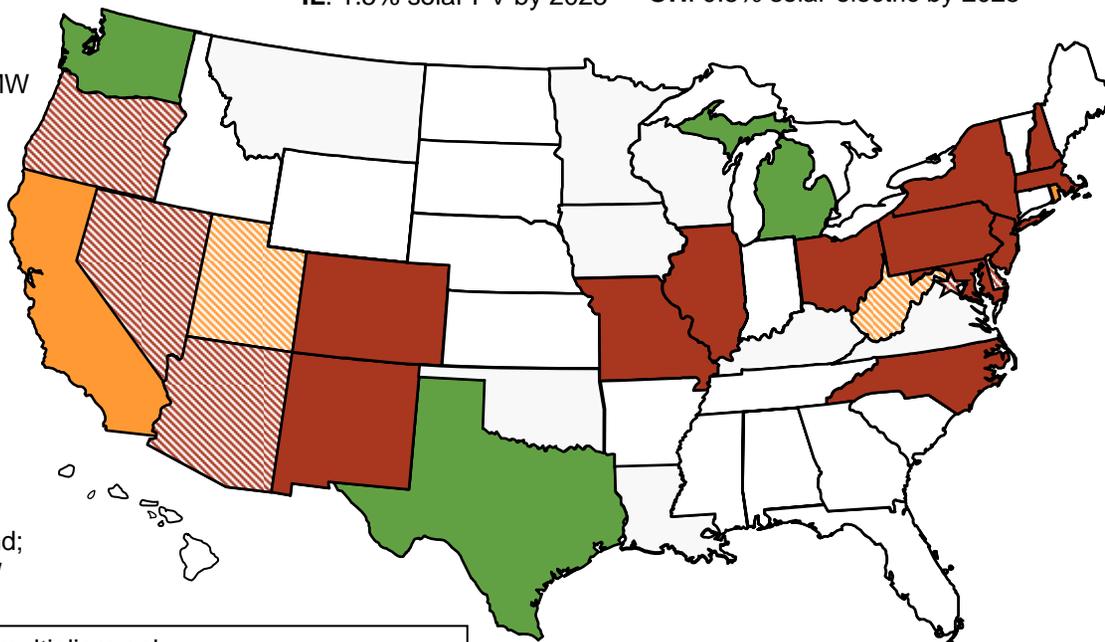
**WV:** various multipliers

**DE:** 2.005% PV by 2019;  
\* 3 PV credit

**DC:** 0.4% solar by 2021 ★

**MD:** 2% solar-electric in 2022

**NC:** 0.2% solar by 2018

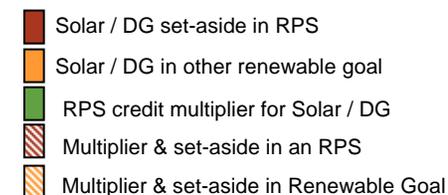


- MI, TX, and WA use RPS multipliers only
- AZ, DC, DE, NV, and OR have RPS set-asides and multipliers
- CA, RI, UT, and WV have solar targets outside an RPS

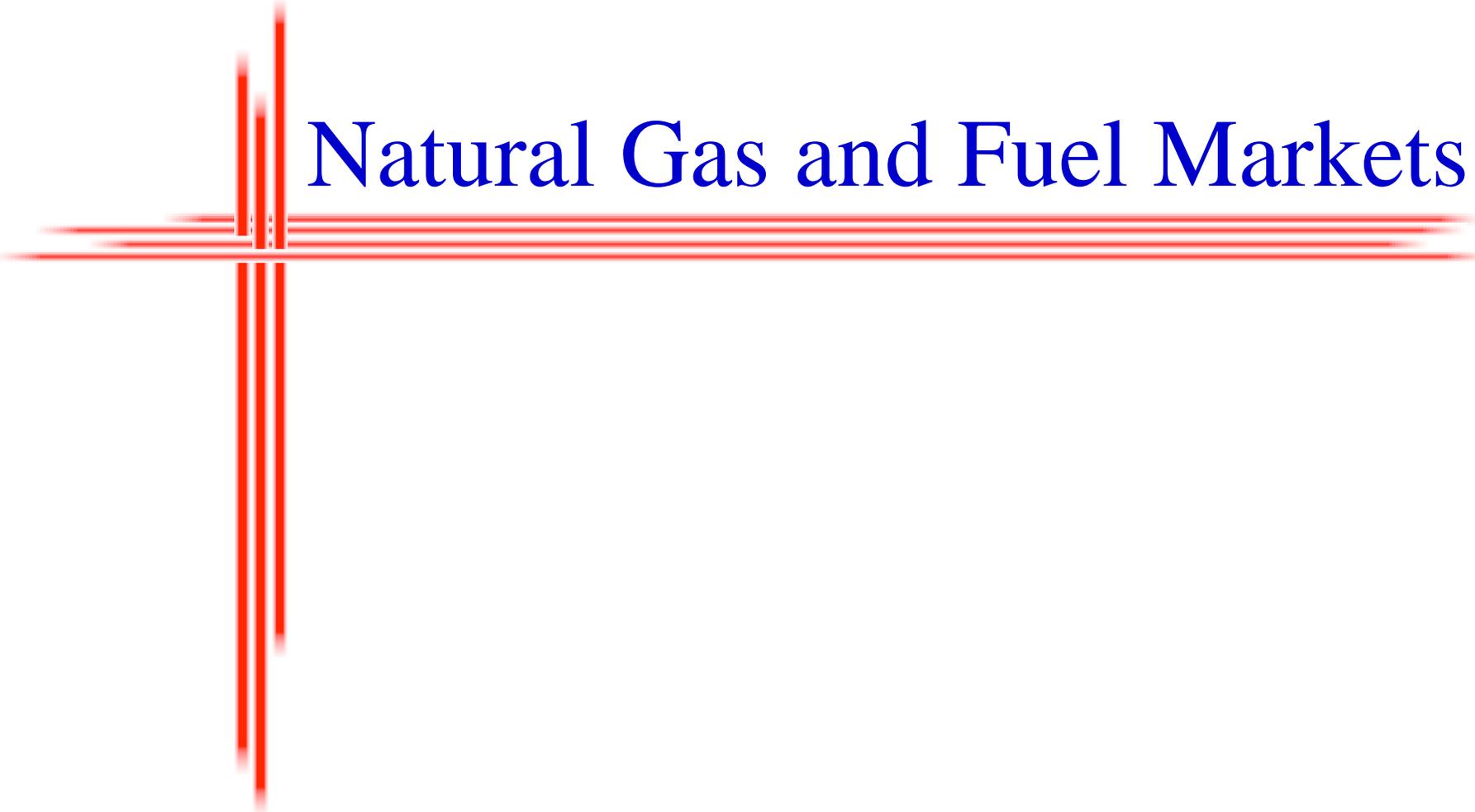
**Updates at:** <http://www.ferc.gov/market-oversight/othr-mkts/renew/othr-rnw-rps-solar-DG.pdf>

**Notes:** (\*) **Multipliers** receive extra credit towards RPS compliance. **Set-asides** are specific technology targets in an RPS, specified by percent, MW, or MWh. An RPS requires a percent of an electric provider's energy sales (MWh) or installed capacity (MW) to come from renewable resources. Alaska has no RPS.

**Abbreviations:** DG – distributed generation; PV – solar photo-voltaic; RPS – Renewable Portfolio Standard  
**Sources:** Derived from data in: LBNL, State Legislative and Public Utility web sites, and the Database of State Incentives for Renewables and Energy Efficiency: <http://www.dsireusa.org>



Updated June 3, 2010

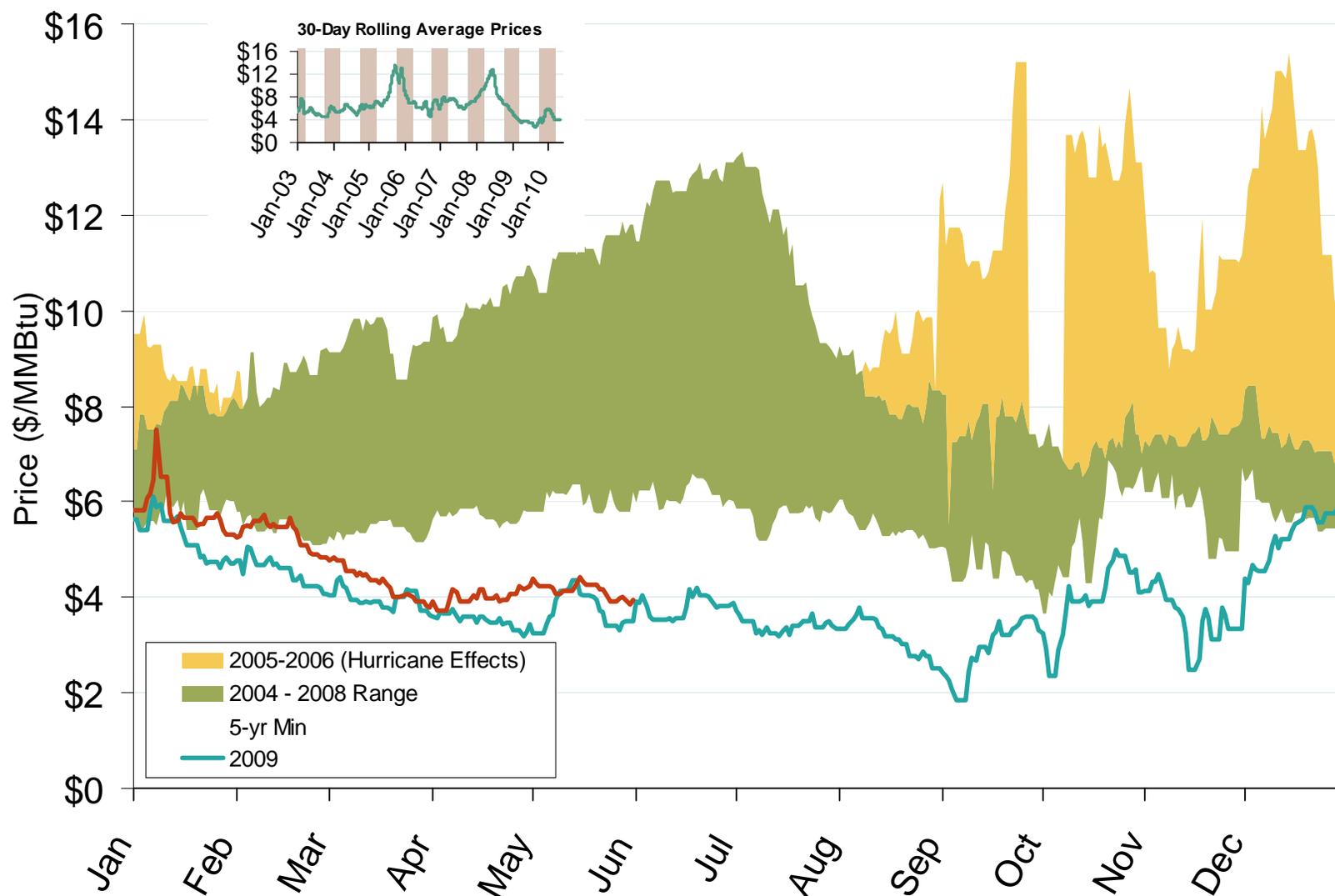


# Natural Gas and Fuel Markets

## Natural Gas Market Overview: 5 Year Range of Henry Hub Spot Prices

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

## Henry Hub Natural Gas Daily Spot Prices

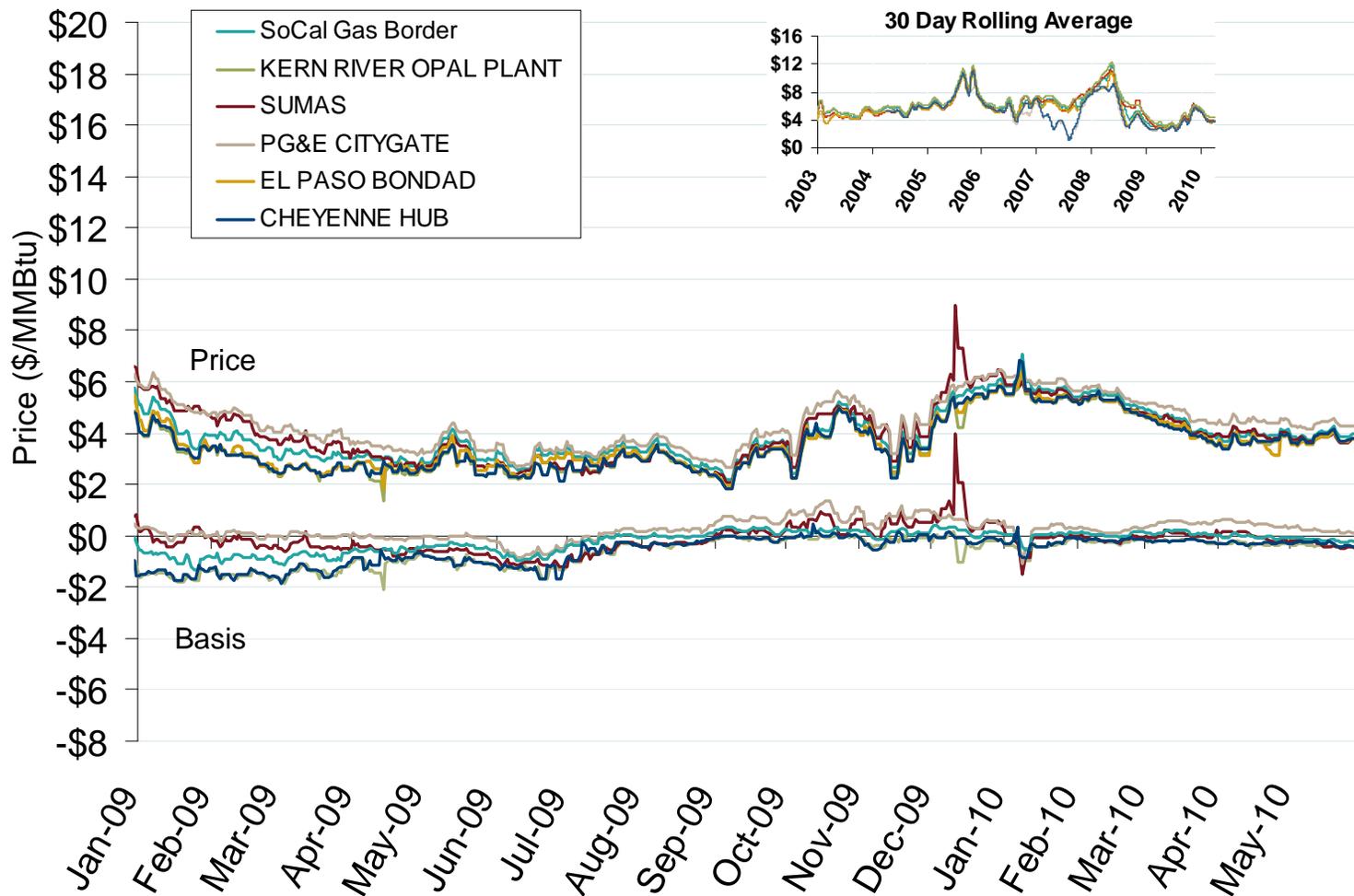


Source: Derived from *Platts* data.  
June 2010 Western Snapshot Report

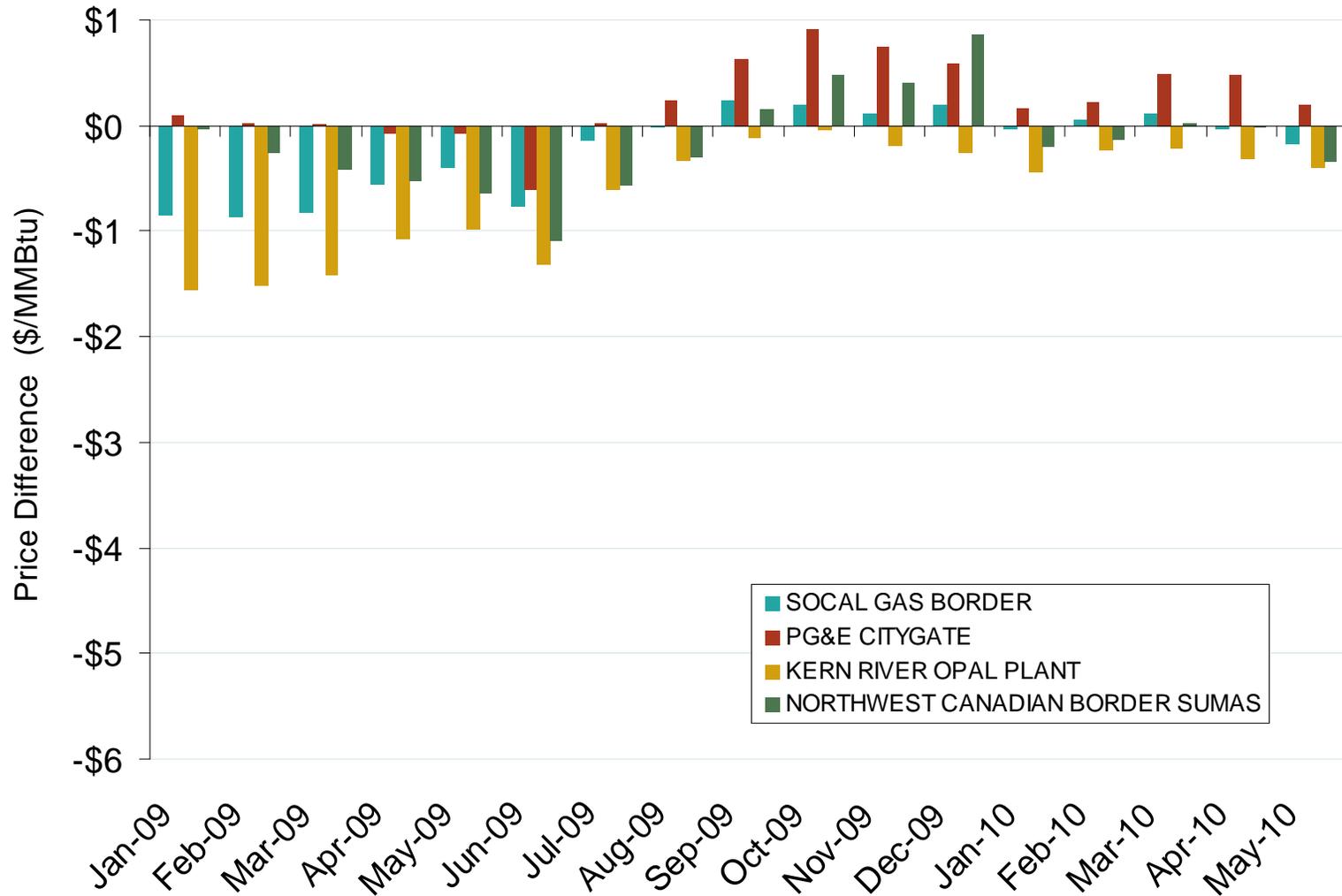
Updated June 7, 2010

2085

## Western Day-Ahead Hub Spot Prices and Basis

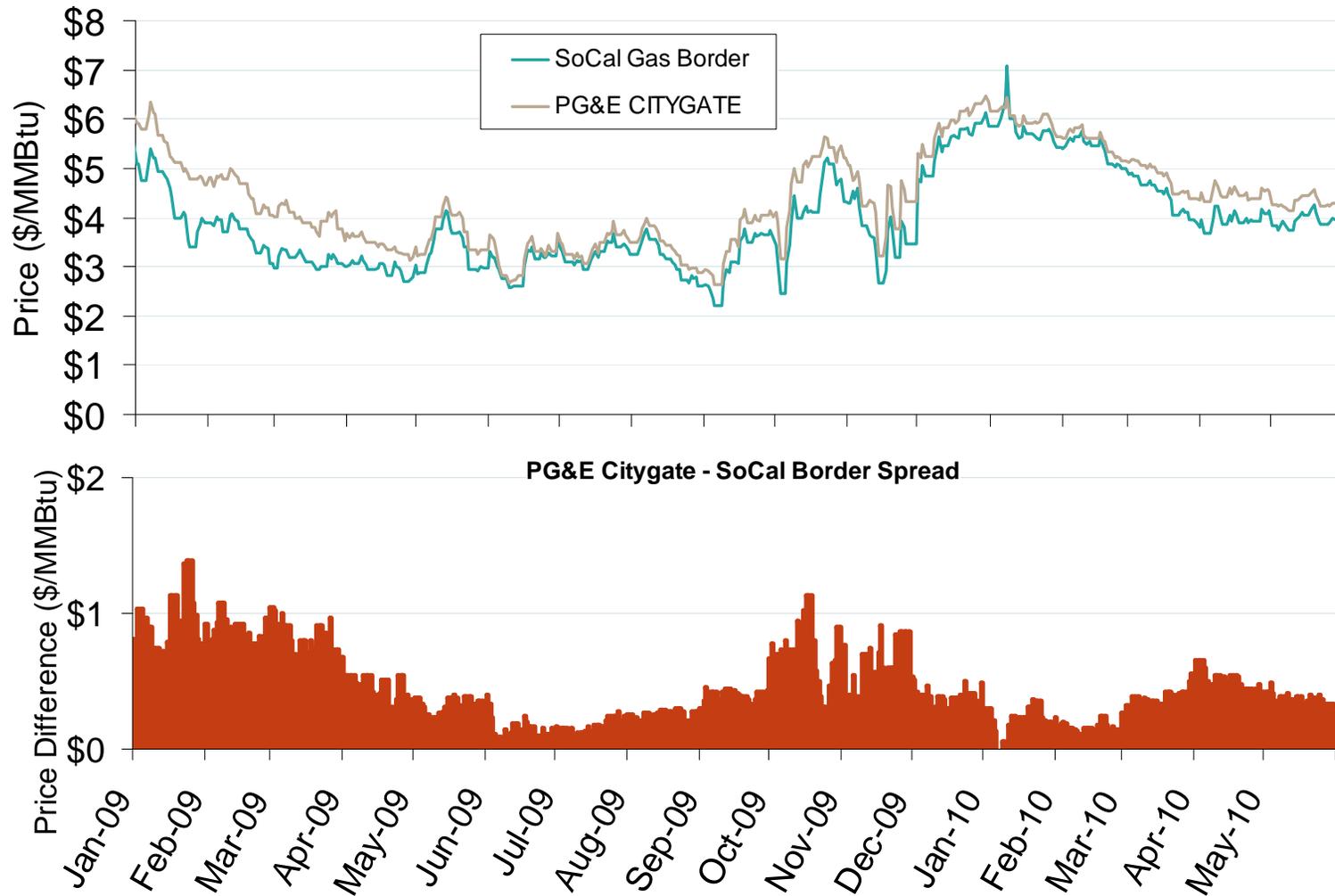


## Western Monthly Average Basis Value to Henry Hub



Source: Derived from *Platts* data.  
June 2010 Western Snapshot Report

# Difference in Northern and Southern California Daily Spot Prices

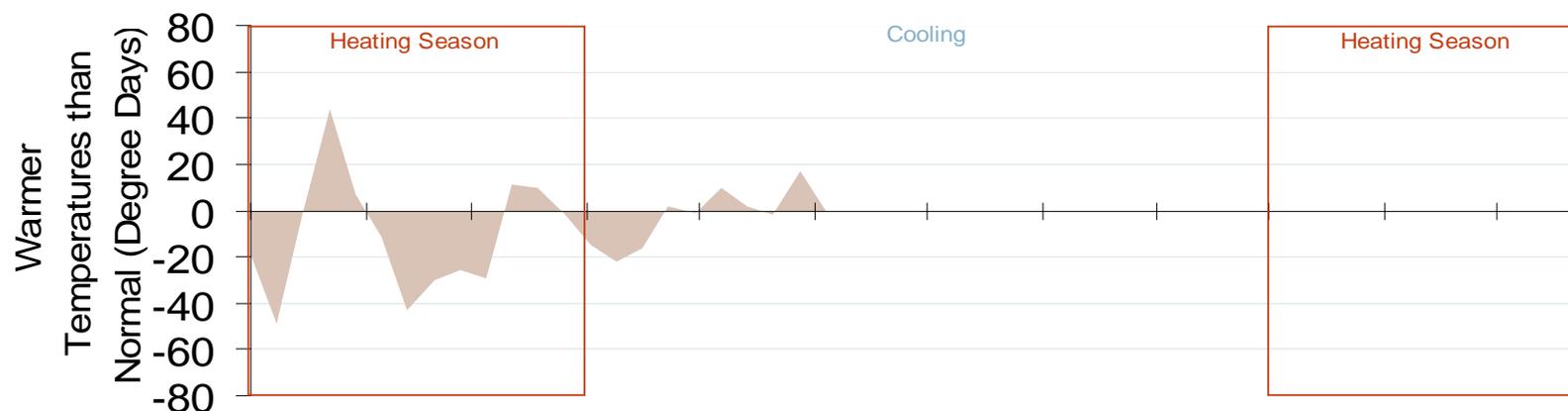
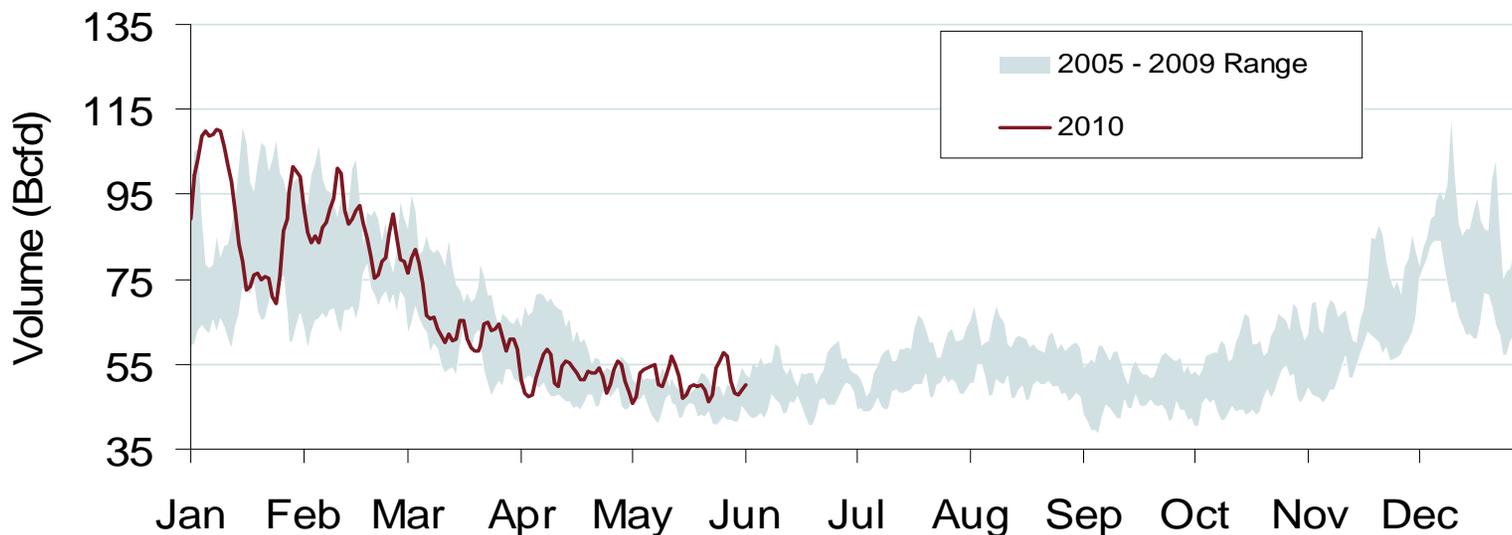


Source: Derived from *Platts* data.

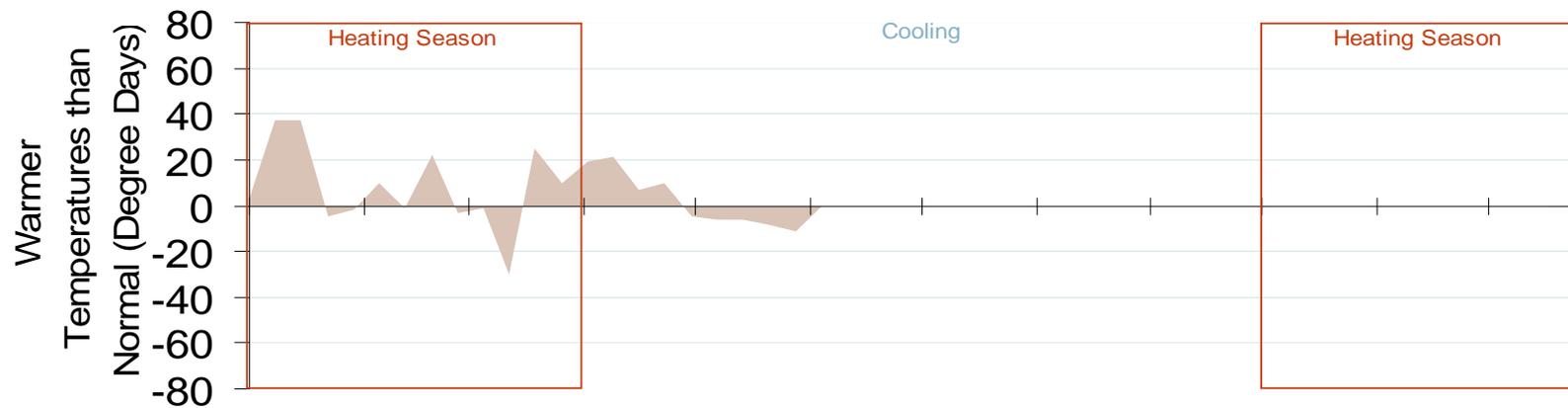
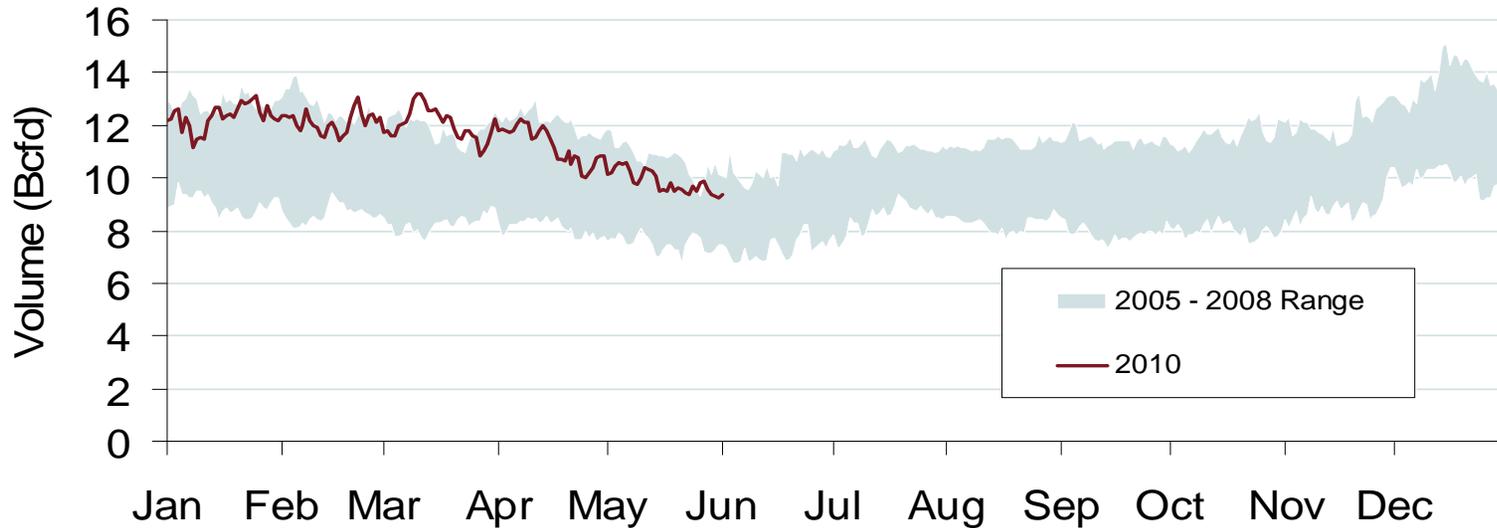
June 2010 Western Snapshot Report

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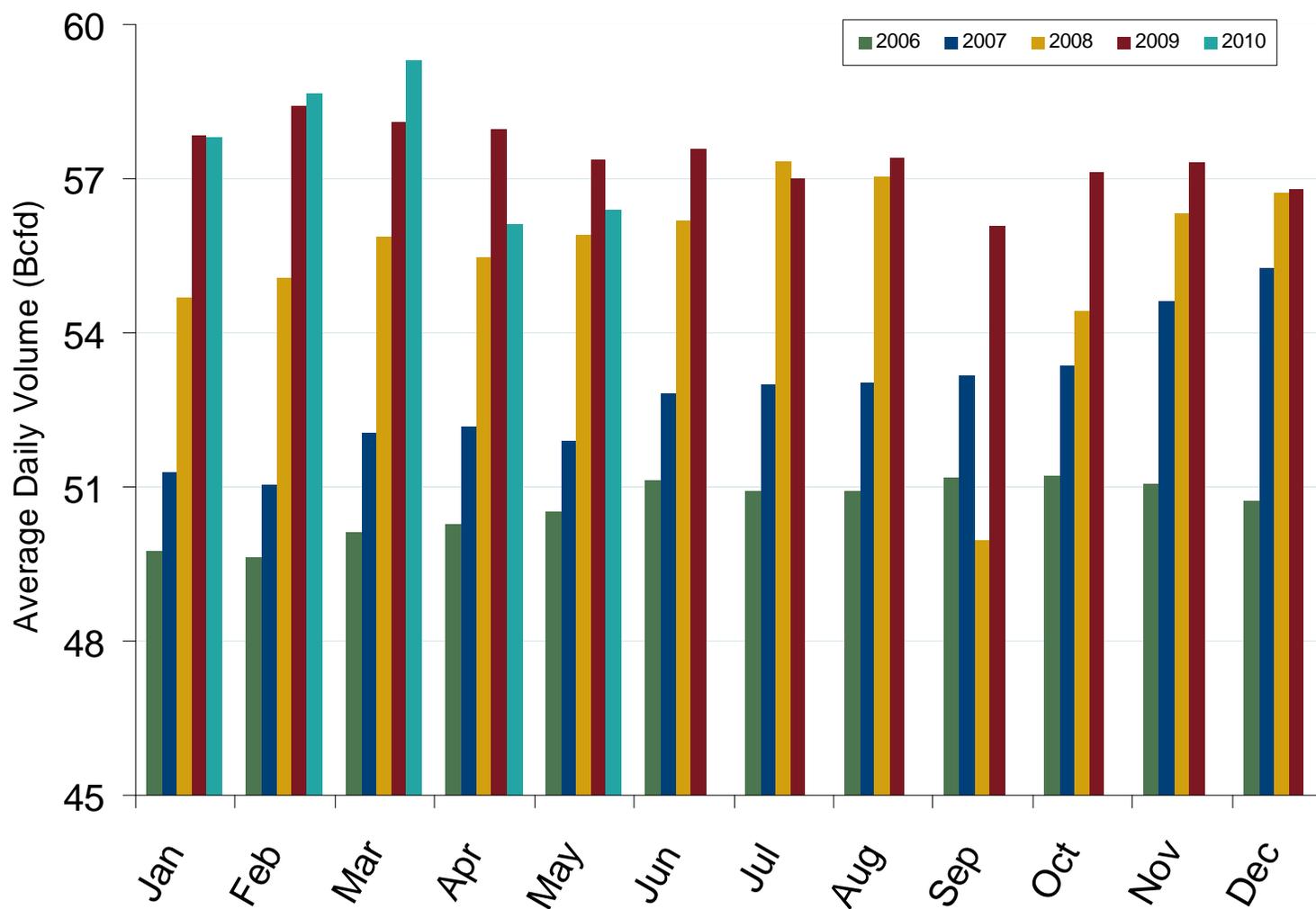
## Total U.S. Natural Gas Demand (All Sectors) and Temperatures



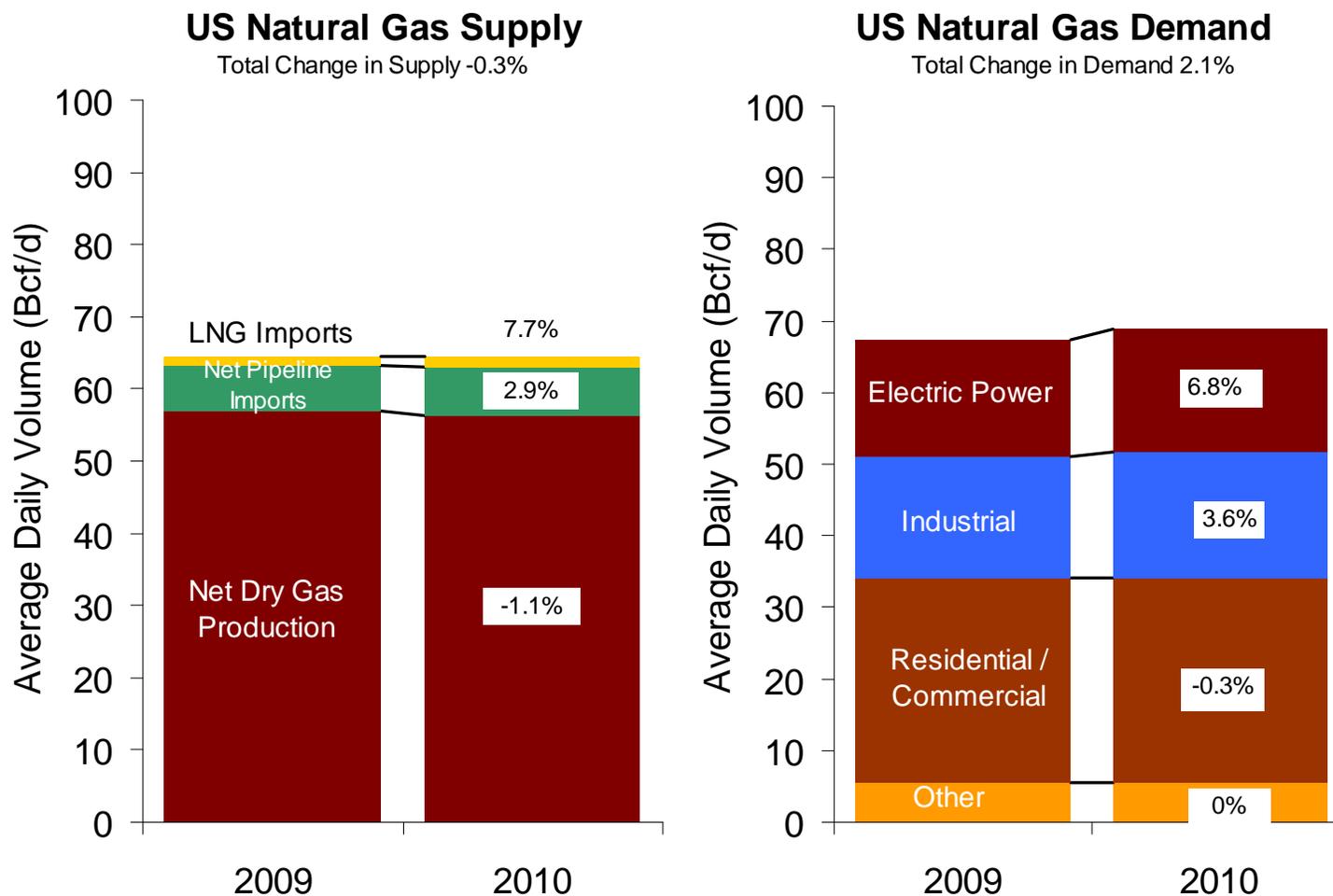
# Daily Western Natural Gas Demand All Sectors



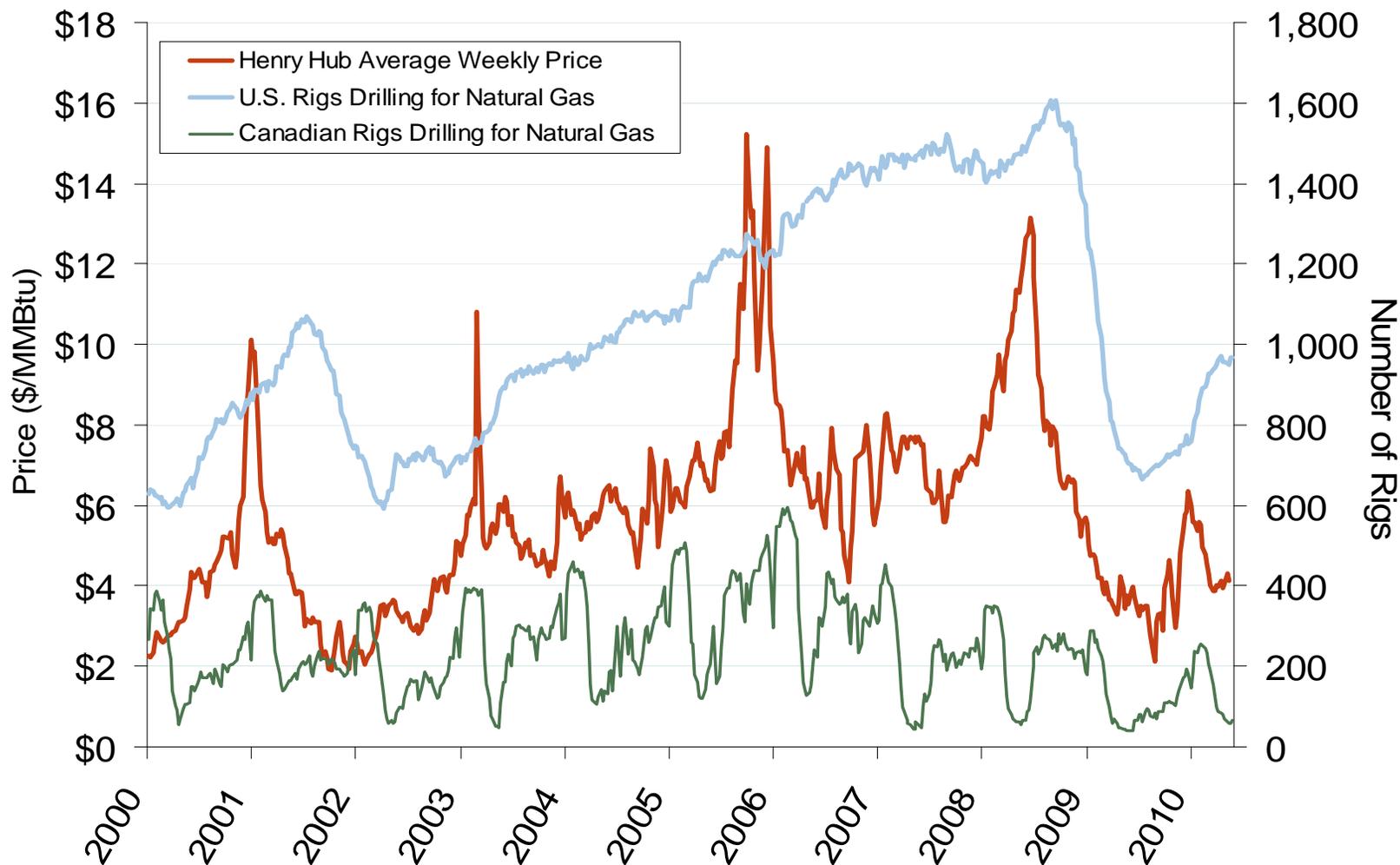
## U.S. Dry Gas Production



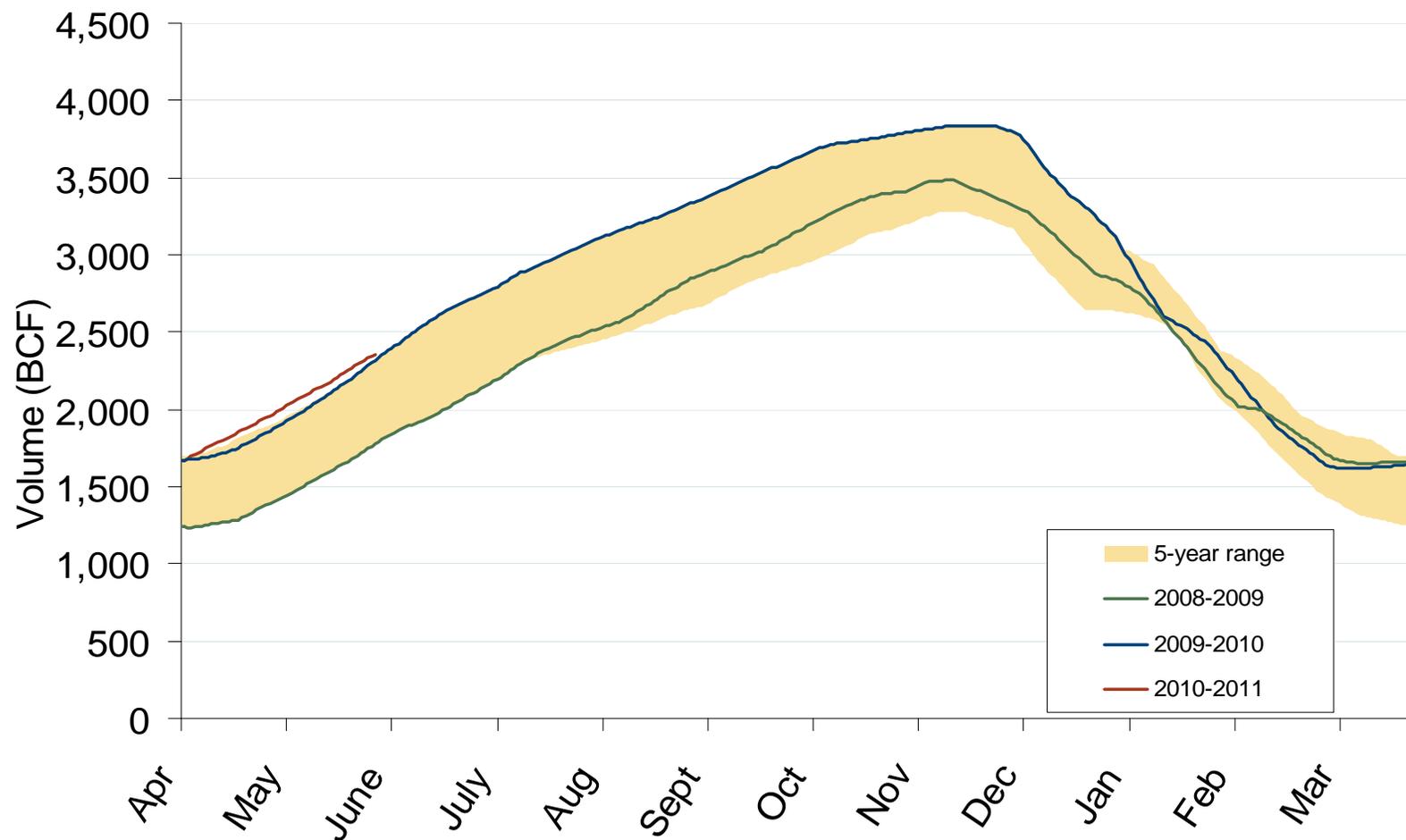
## U.S. Natural Gas Supply and Demand 2009 vs. 2010: January - May



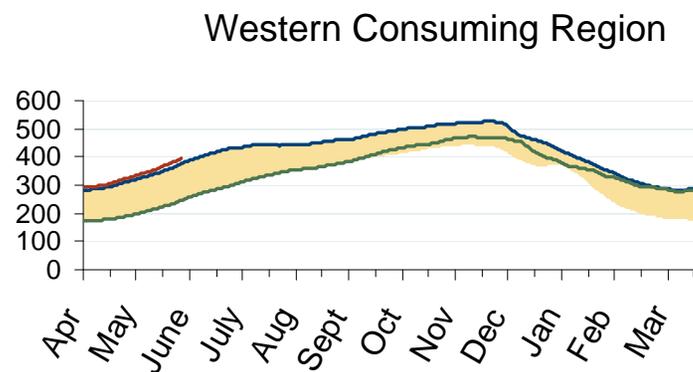
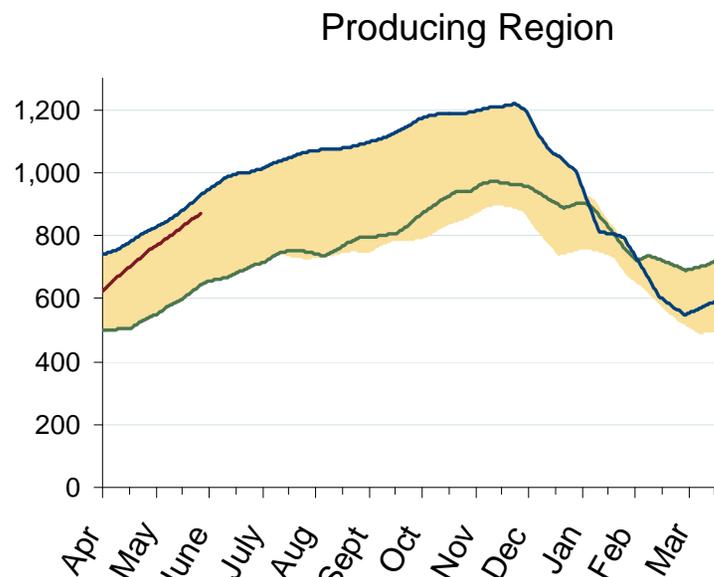
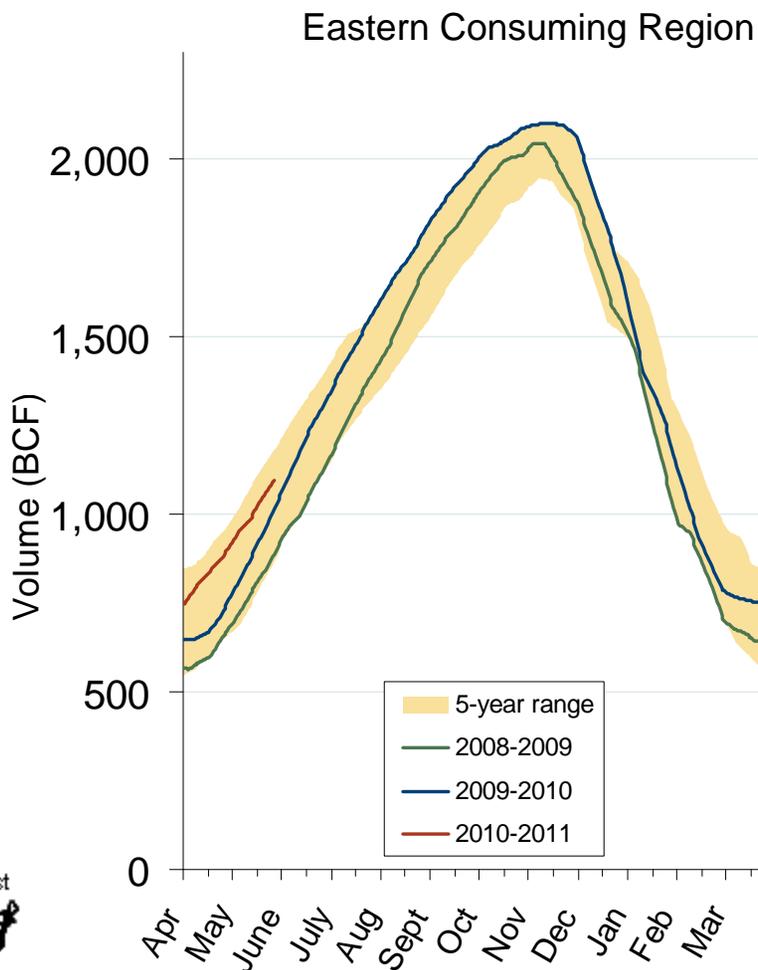
## U.S. and Canadian Natural Gas Drilling Rig Count and Daily Spot Prices



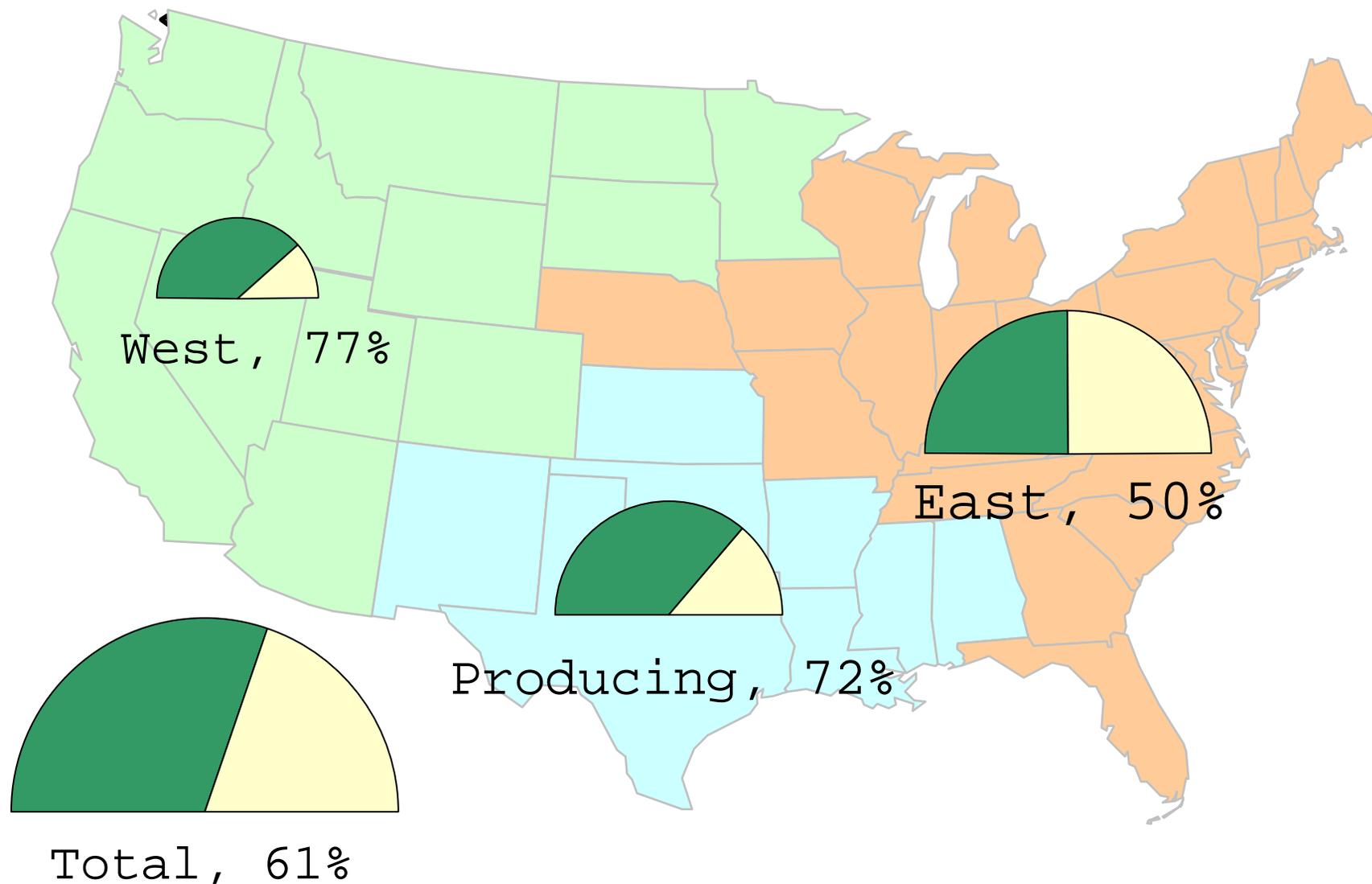
## Total U.S. Working Gas in Storage



## Regional Totals of Working Gas in Storage



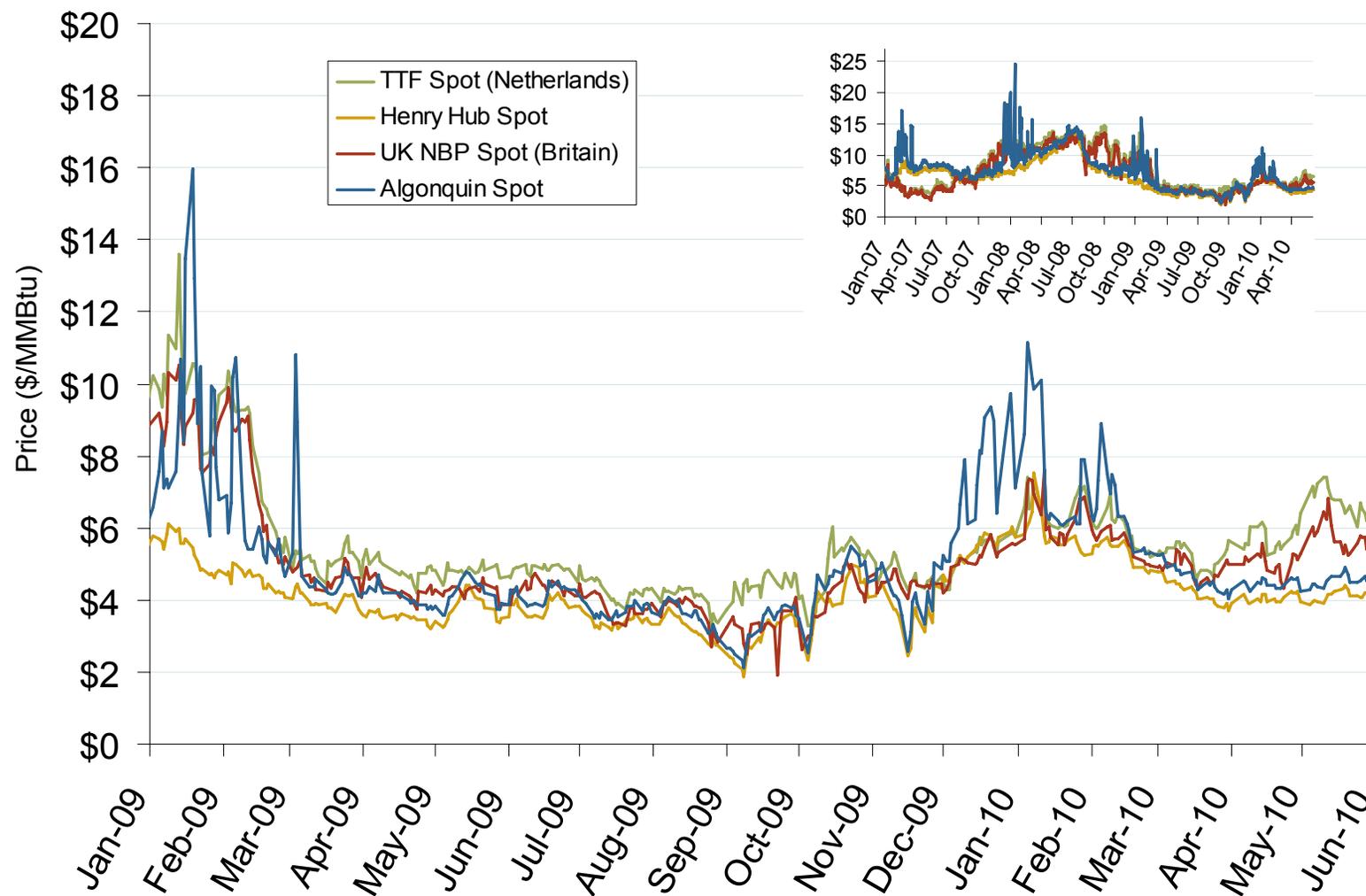
## Natural Gas Storage Inventories – % full on May 28, 2010



Source: Derived from EIA Storage and Estimated Working Gas Capacity data.  
June 2010 Western Snapshot Report

Updated June 7, 2010

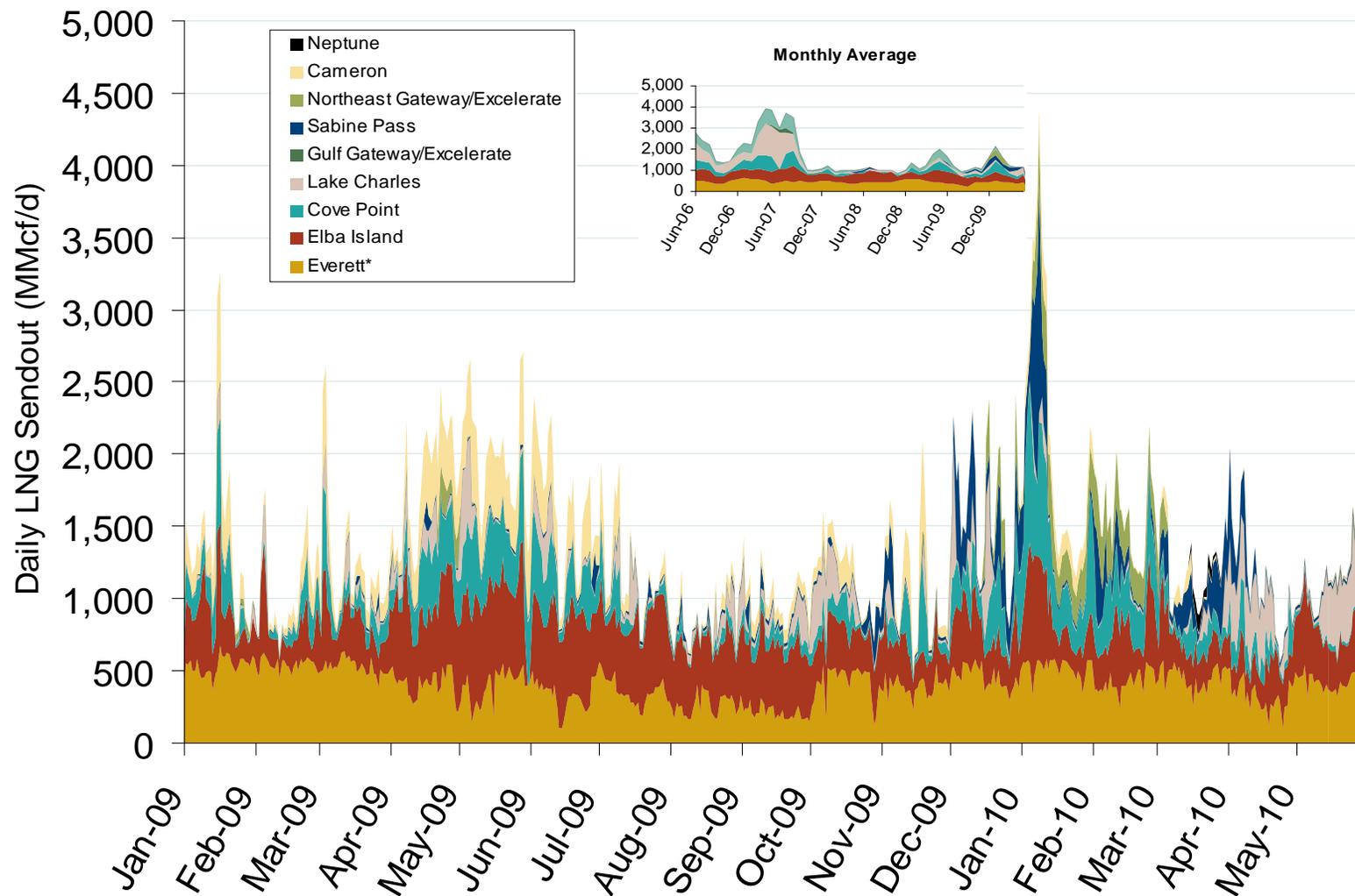
## Atlantic Basin European and US Spot Natural Gas Prices



## World LNG Estimated June 2010 Landed Prices



## Daily Gas Sendout from Existing U.S. LNG Facilities



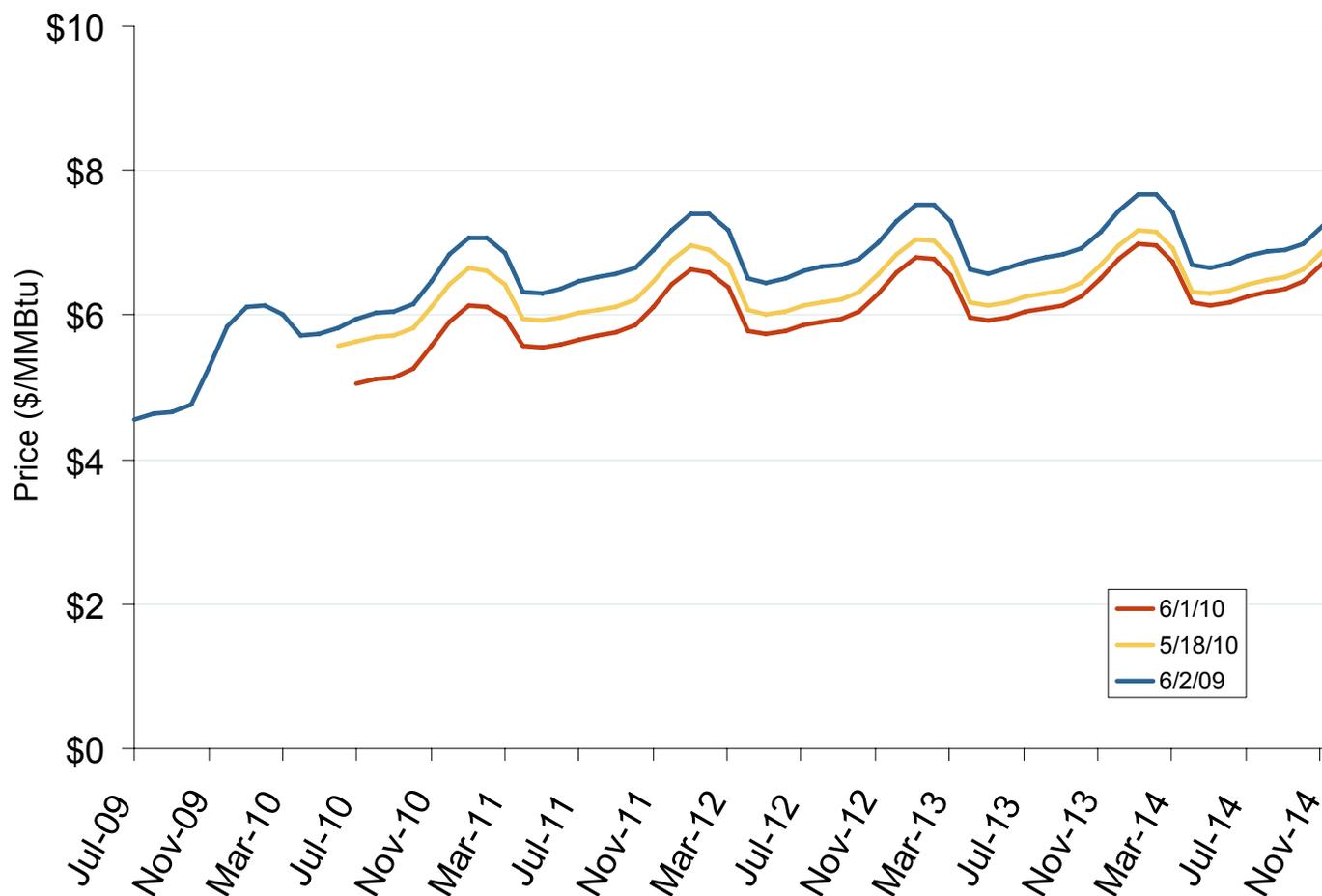
Source: Derived from *Bentek* data.

\* 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.

June 2010 Western Snapshot Report

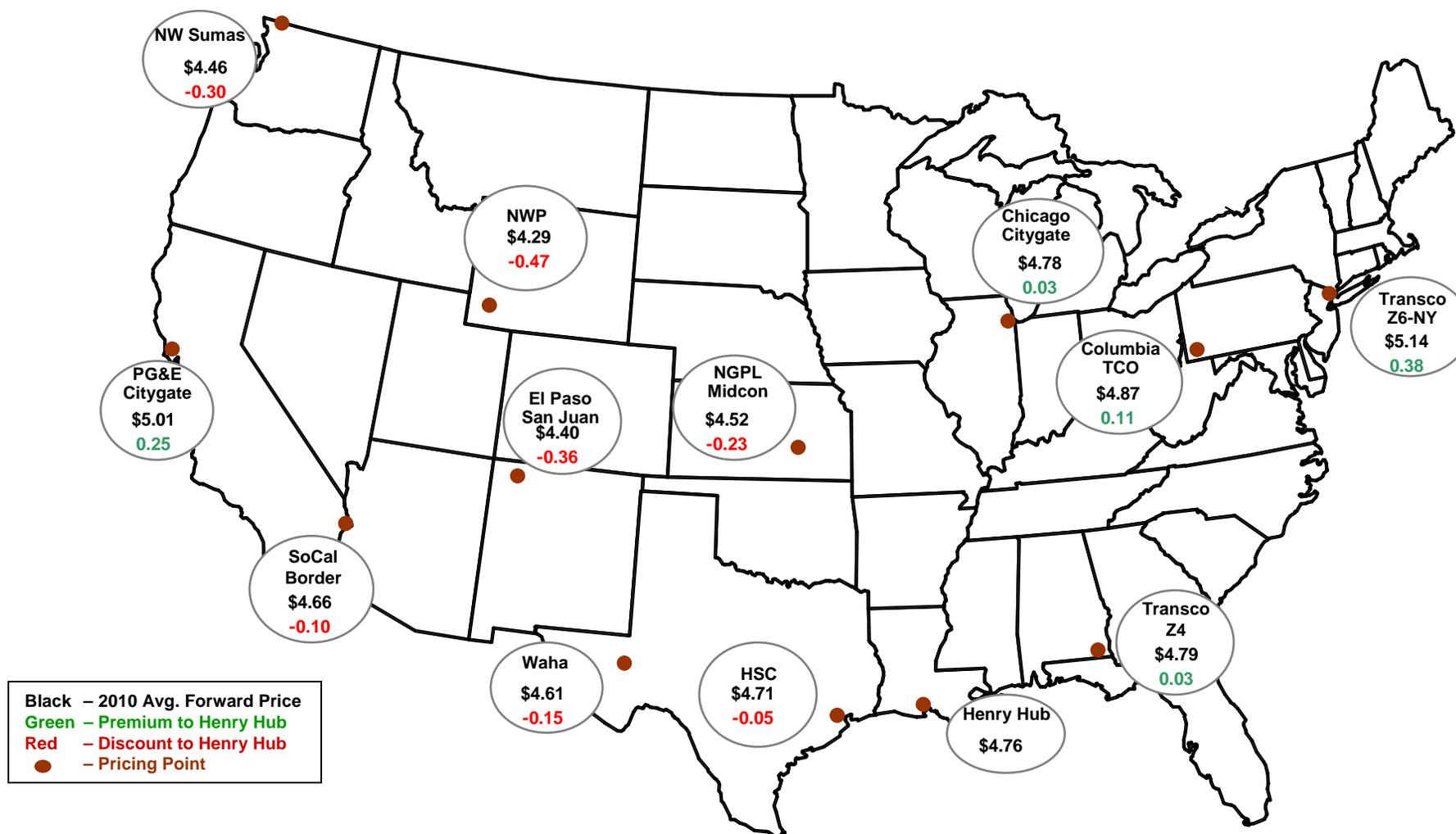
Updated June 7, 2010

## NYMEX Natural Gas Forward Price Curve

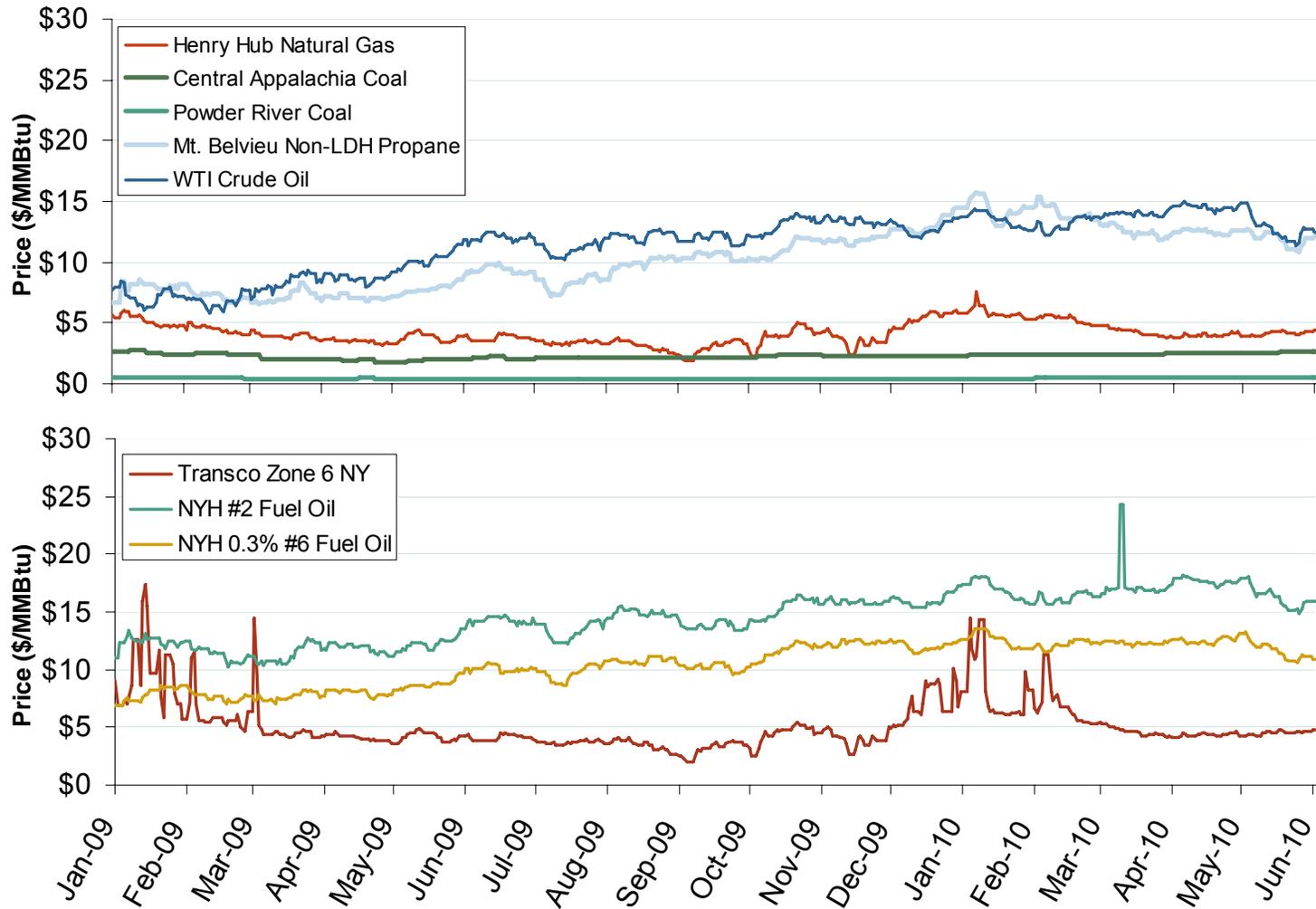


The NYMEX futures contract trades in 10,000 million Btu units. The blue series shows the forward price curve for these contracts 1-year ago. The red and yellow curves show prices for contracts traded on the current and previous months.

## Average Summer Forward Gas Prices (\$MMBtu) July – October 2010



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

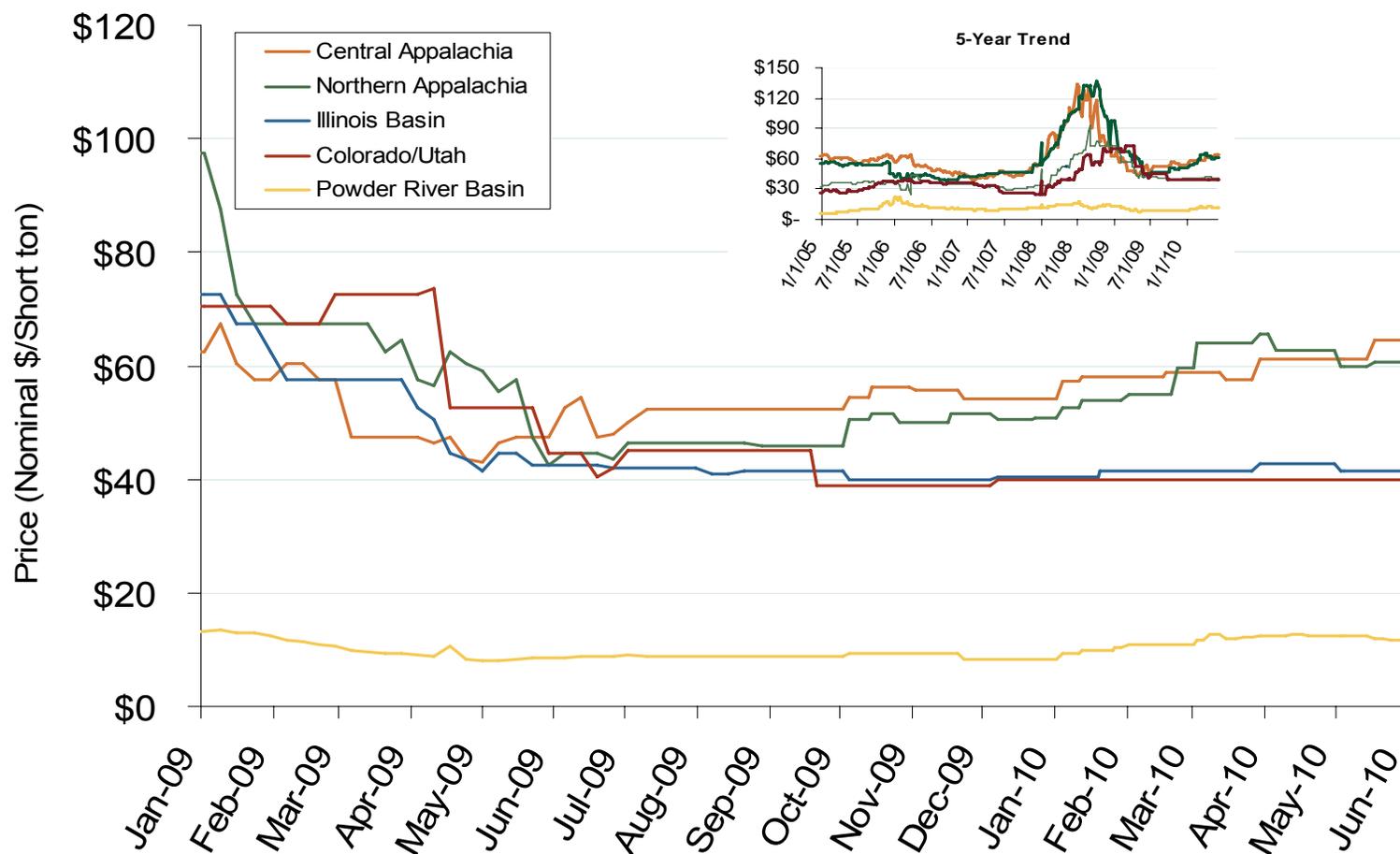


Source: Derived from ICE and Bloomberg data.

Note: 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.

Updated June 7, 2010

## Regional Coal Spot Prices



Note: 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.  
June 2010 Western Snapshot Report

Updated June 7, 2010

## Western Coal Stockpiles at Electric Power Generating Facilities

