

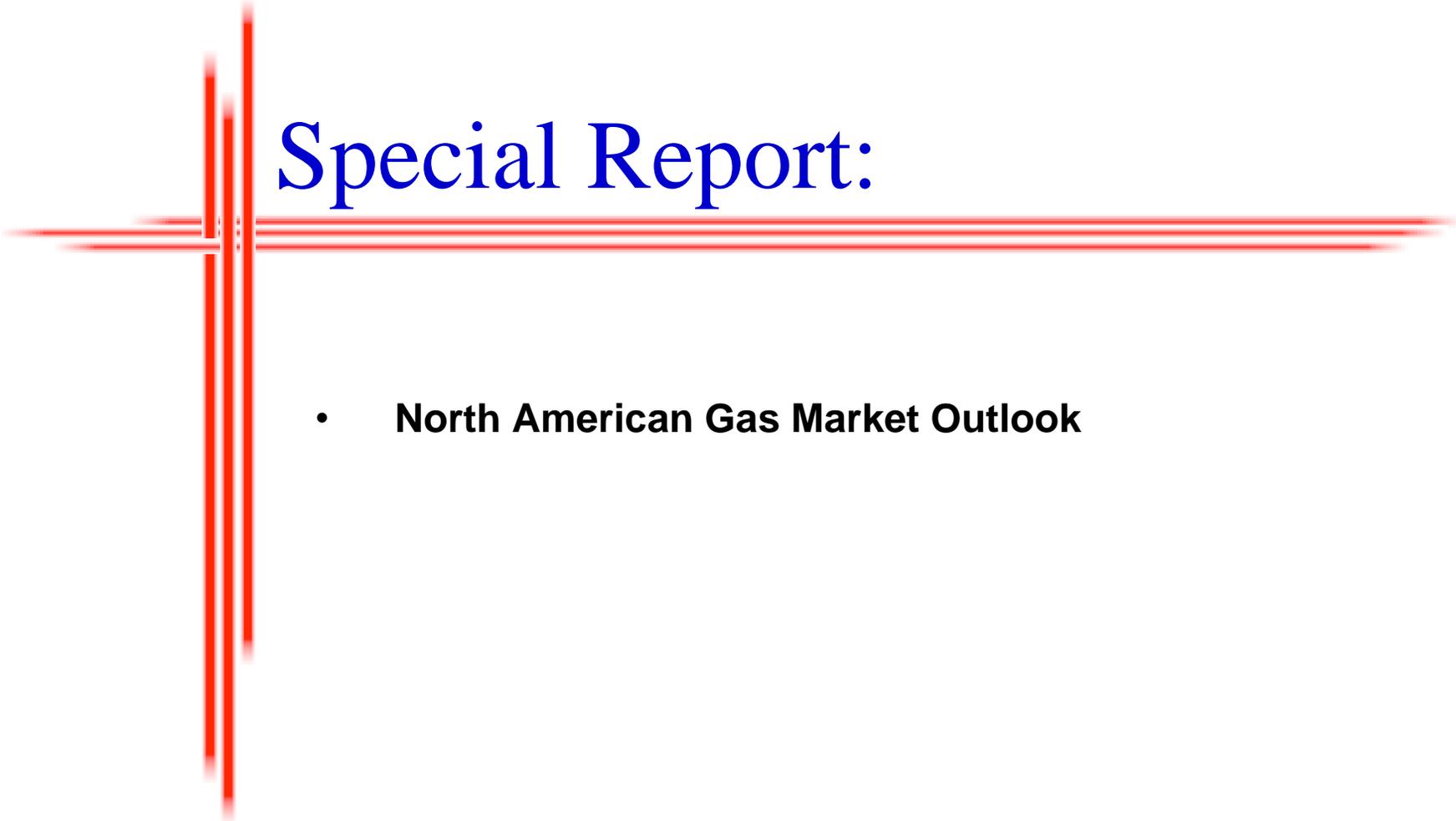
# OE ENERGY MARKET SNAPSHOT

## Western States Version – February 2009 Data

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

Office of Enforcement  
Federal Energy Regulatory Commission  
March 2009



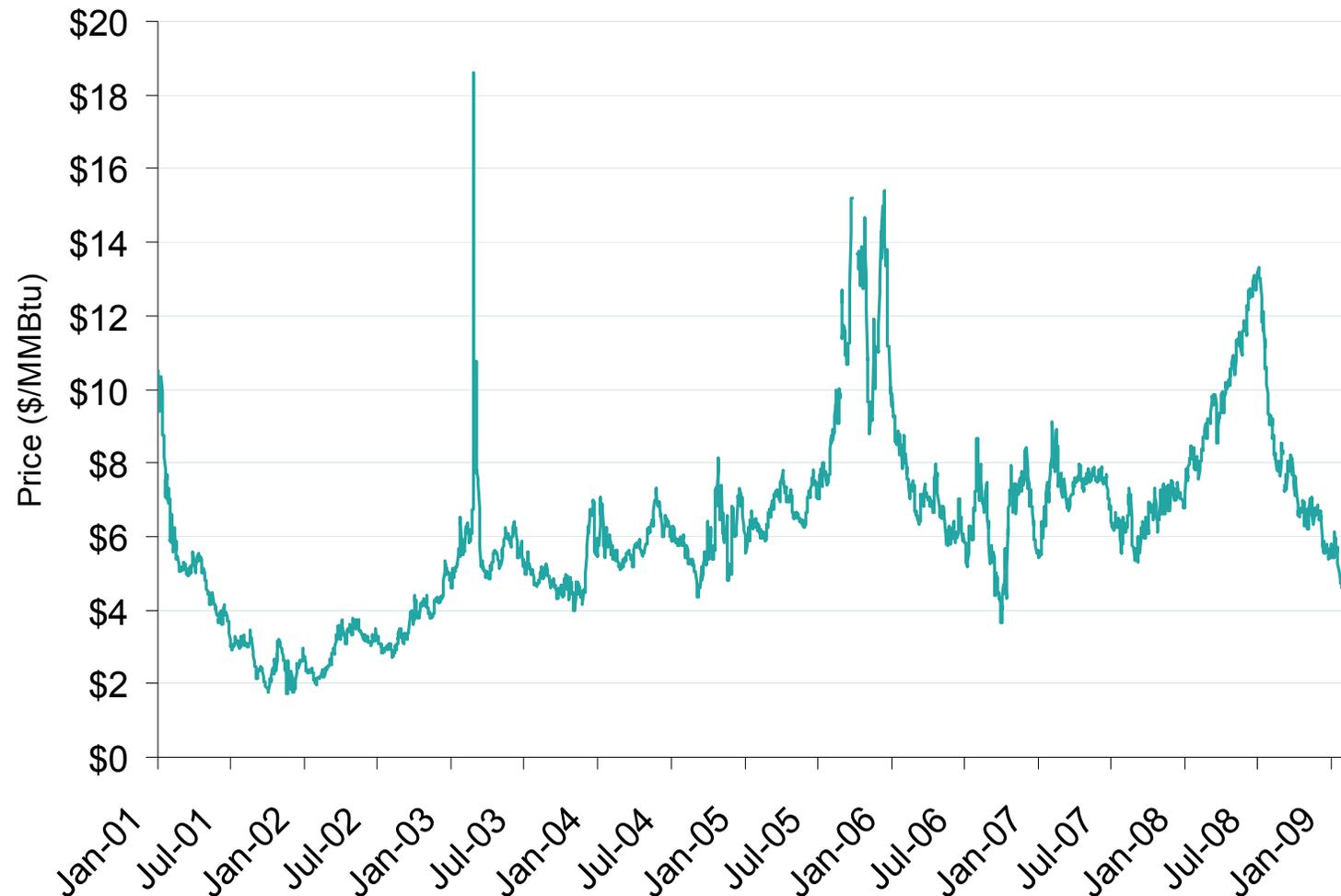
# Special Report:

- **North American Gas Market Outlook**

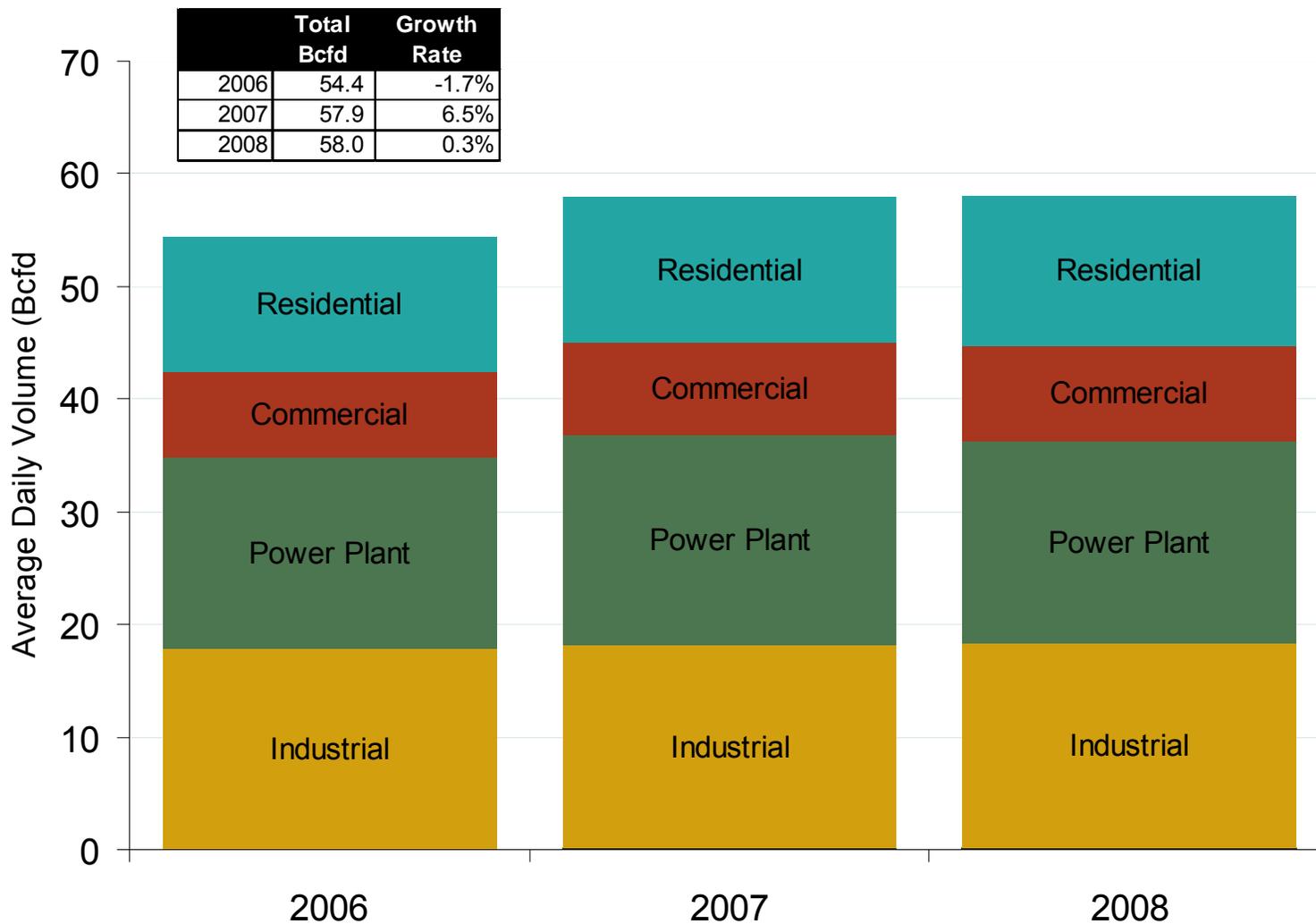
## Gas Market Outlook

- Gas prices are the lowest they have been since fall 2002 and it's winter!
- Gas demand has dropped due to the financial crisis, right? Not really.
- Gas production up and still growing due to unconventional sources.
  - Infrastructure builds have enhanced deliverability.
  - Some analysts expect LNG imports to rise.
- Supply has to match demand – so something has got to give.
  - Gas storage levels may set records this year.
  - Production has got to come down. Drilling rig counts are in free fall.
    - Horizontal & directional rigs coming down more slowly than vertical rigs.
    - Average production per well is up.
  - Will gas prices go lower?
    - Futures prices for the fall at SoCal Border have collapsed.

## Henry Hub Natural Gas Daily Spot Prices 2001-2009

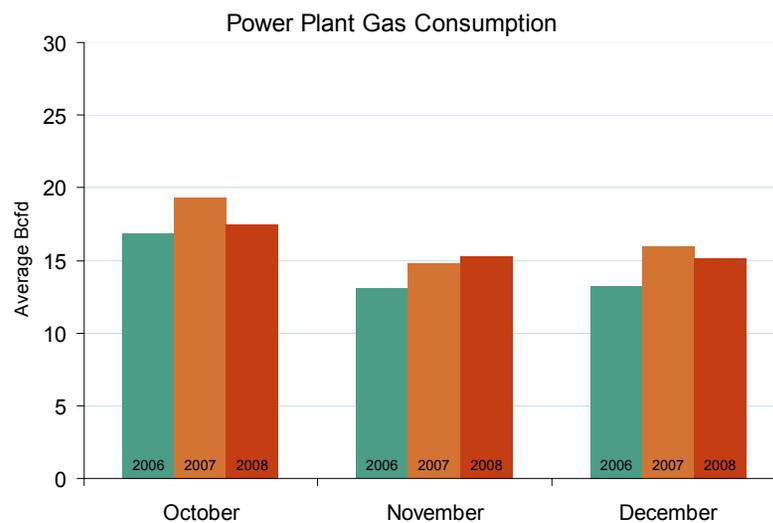
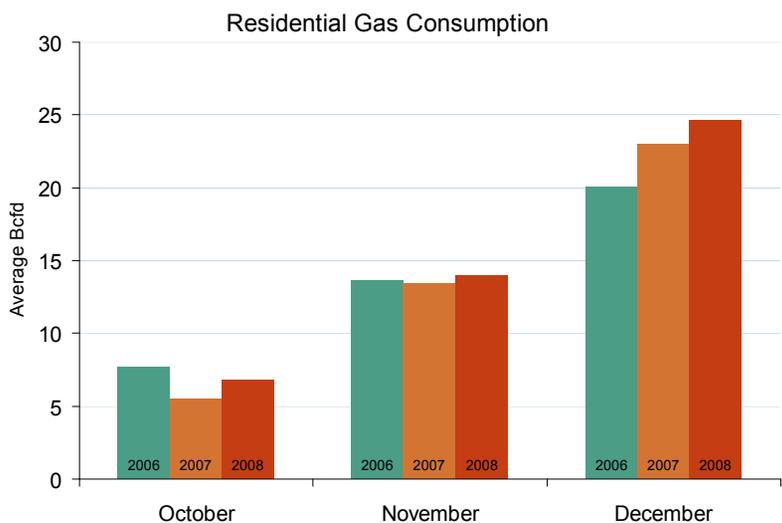
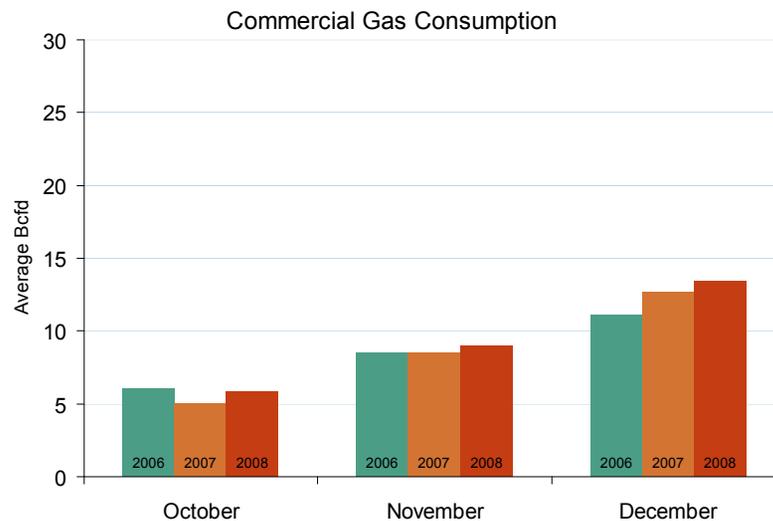
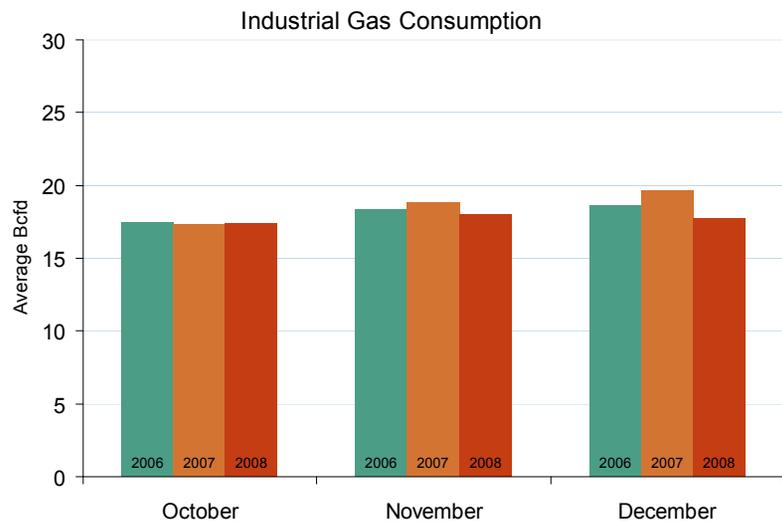


## U.S. Natural Gas Consumption – Lower 48 States



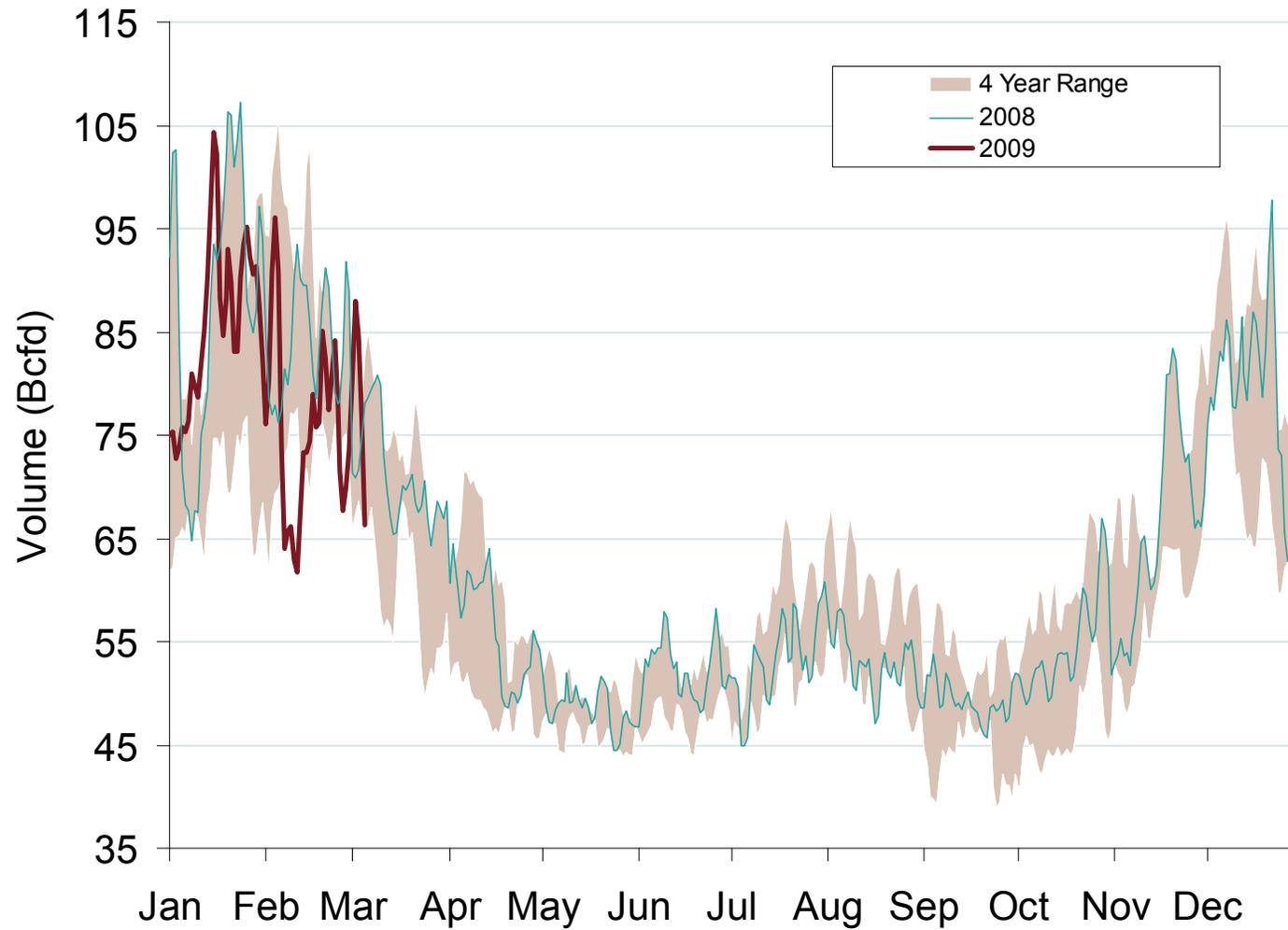
Source: Derived from EIA data.  
 March 2009 Western Snapshot Report

# U.S. Natural Gas Consumption

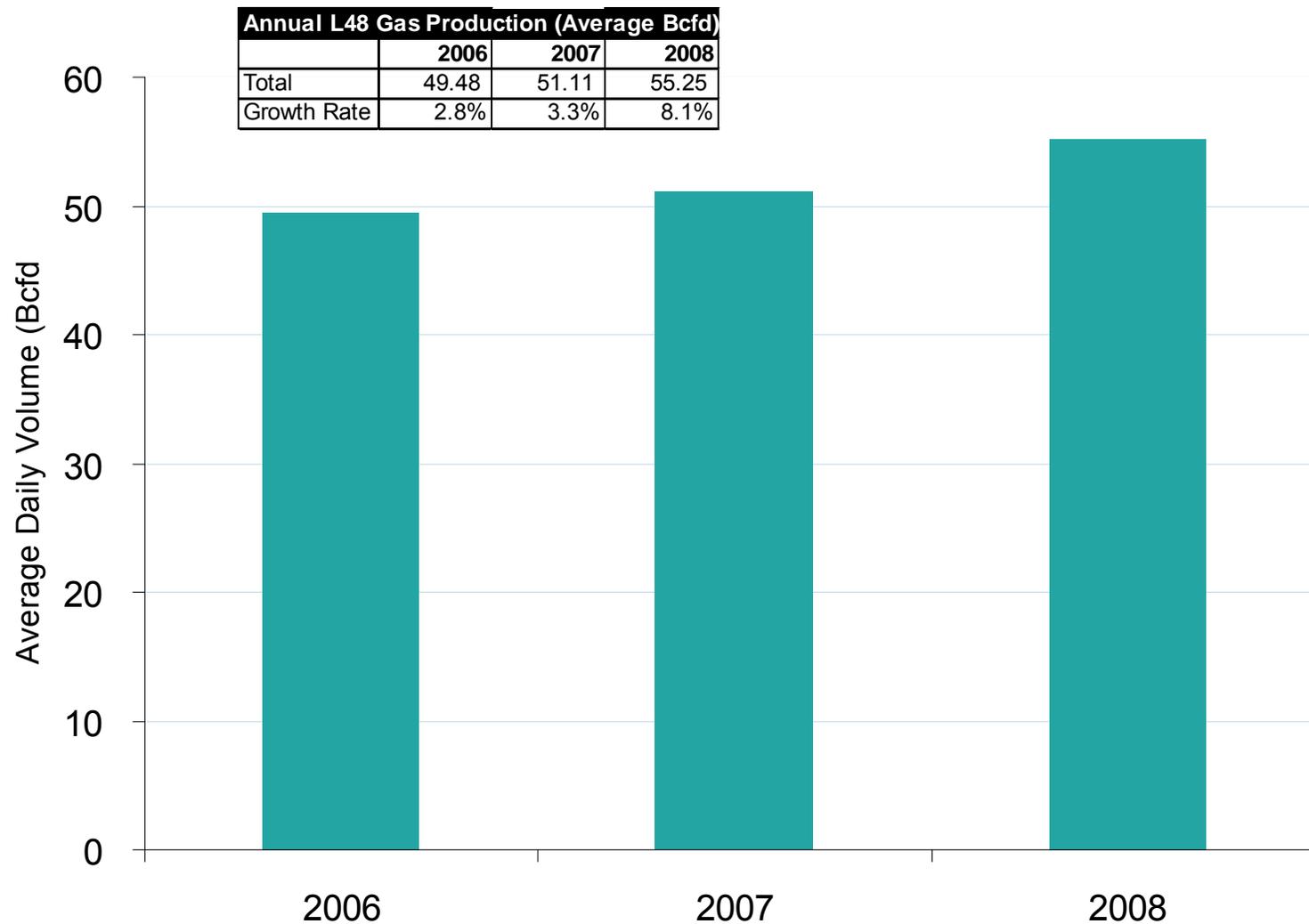


Source: Derived from EIA data. Lower 48 Only.  
 March 2009 Western Snapshot Report

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

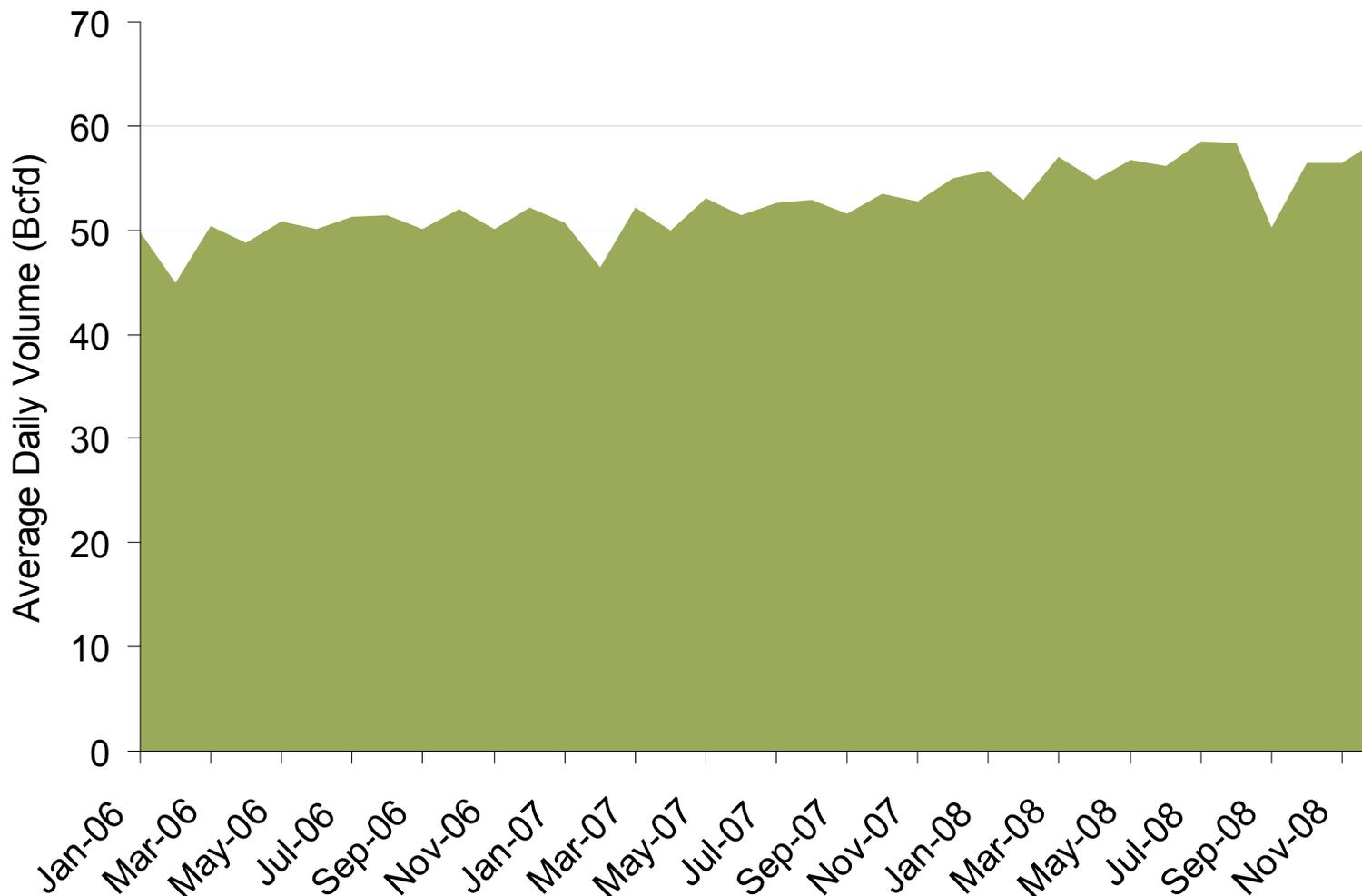


## U.S. Dry Gas Production – Lower 48 States



Source: Derived from EIA data.  
March 2009 Western Snapshot Report

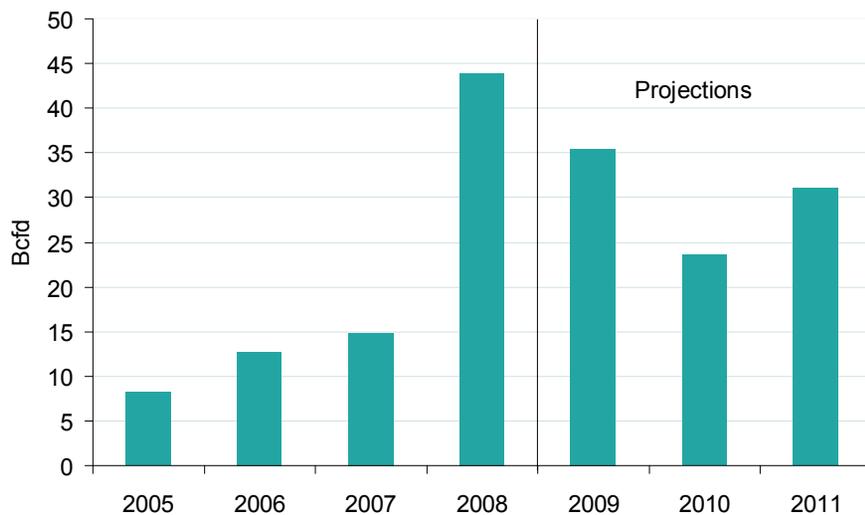
## US Gas Production Shows Robust Growth



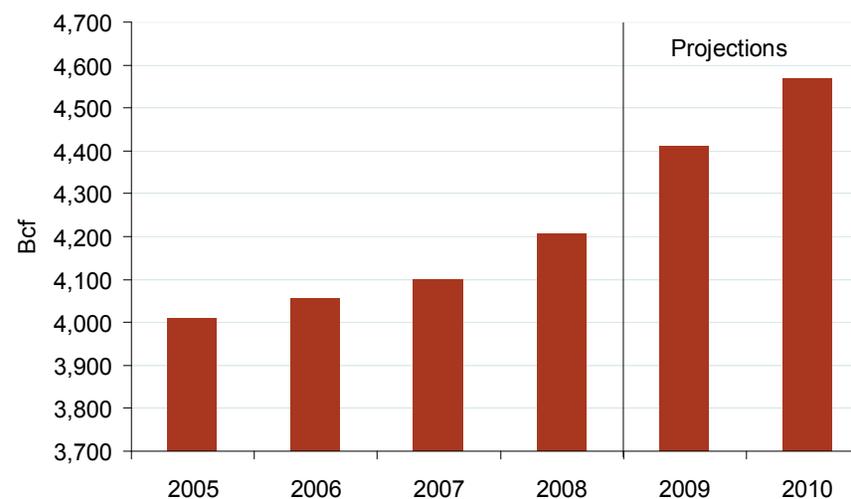
Source: Derived from EIA, *Monthly Energy Review*. Lower 48 Only.  
 March 2009 Western Snapshot Report

## U.S. Natural Gas Infrastructure Additions Pipeline and Storage Capacity Expected to Rise

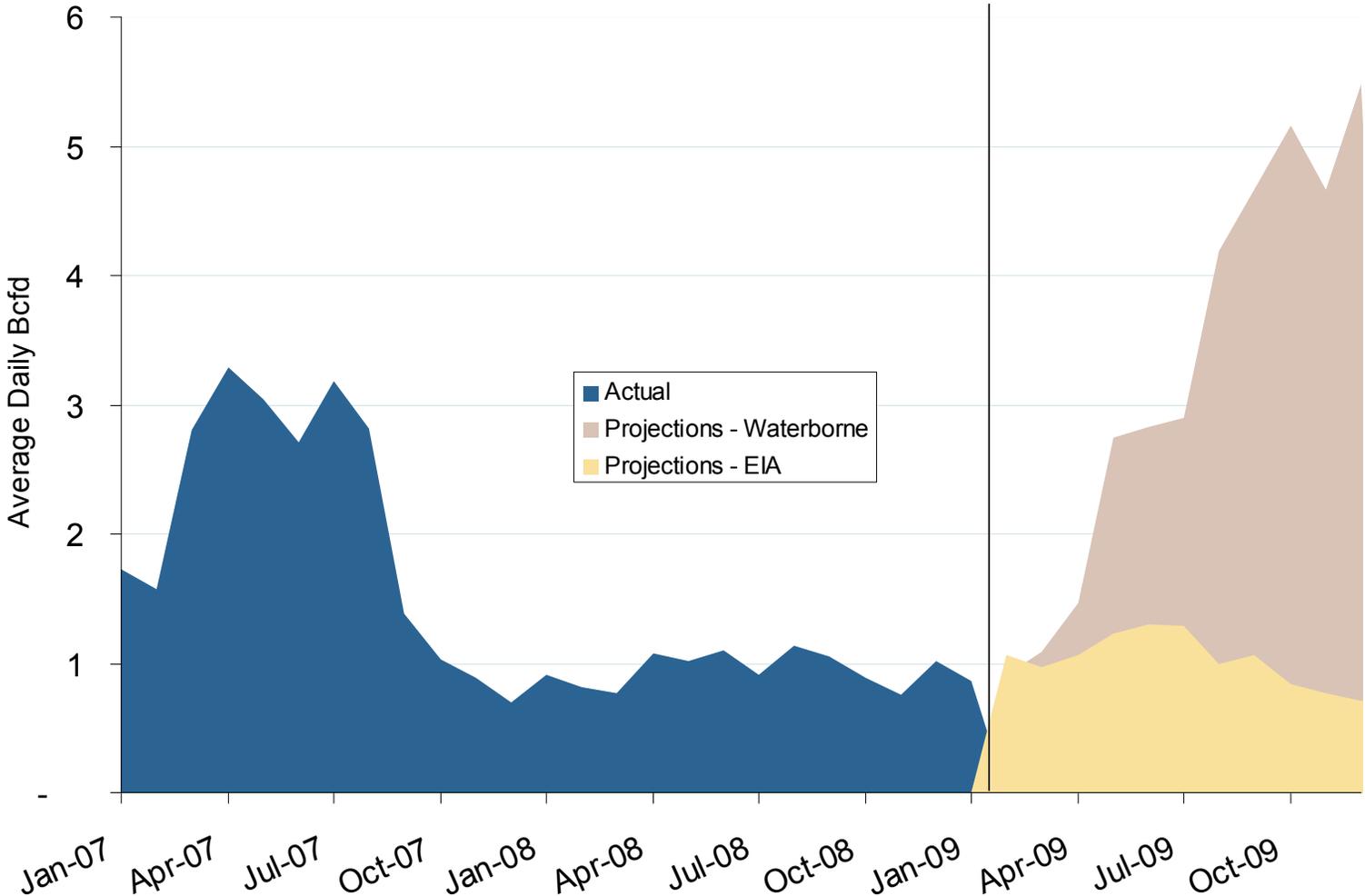
Additions to Interstate Pipeline



Additions to Working Gas Storage

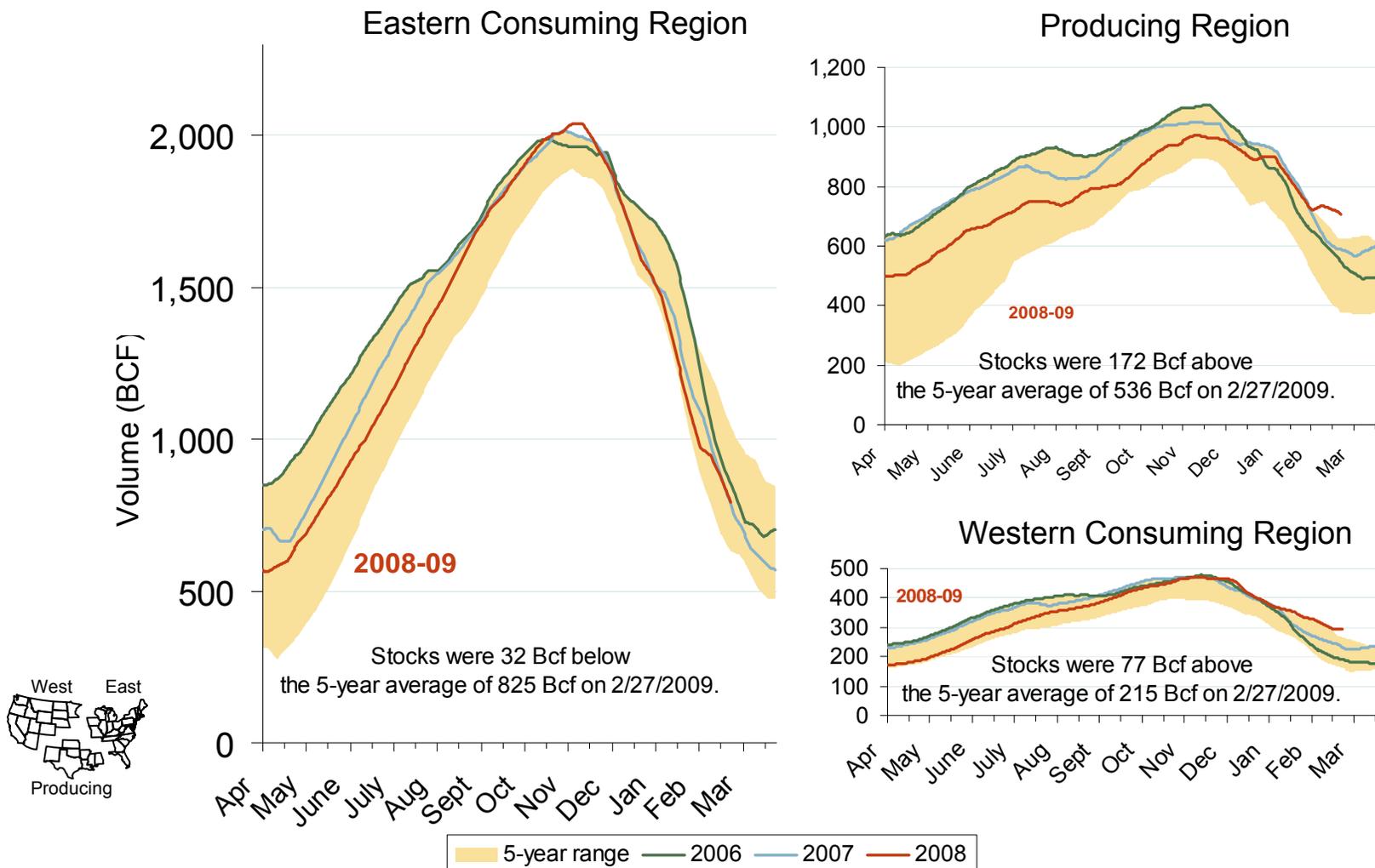


# Analyst Projections for Increased LNG Imports



Source: Derived from EIA STEO and *Waterborne LNG* data.  
March 2009 Western Snapshot Report

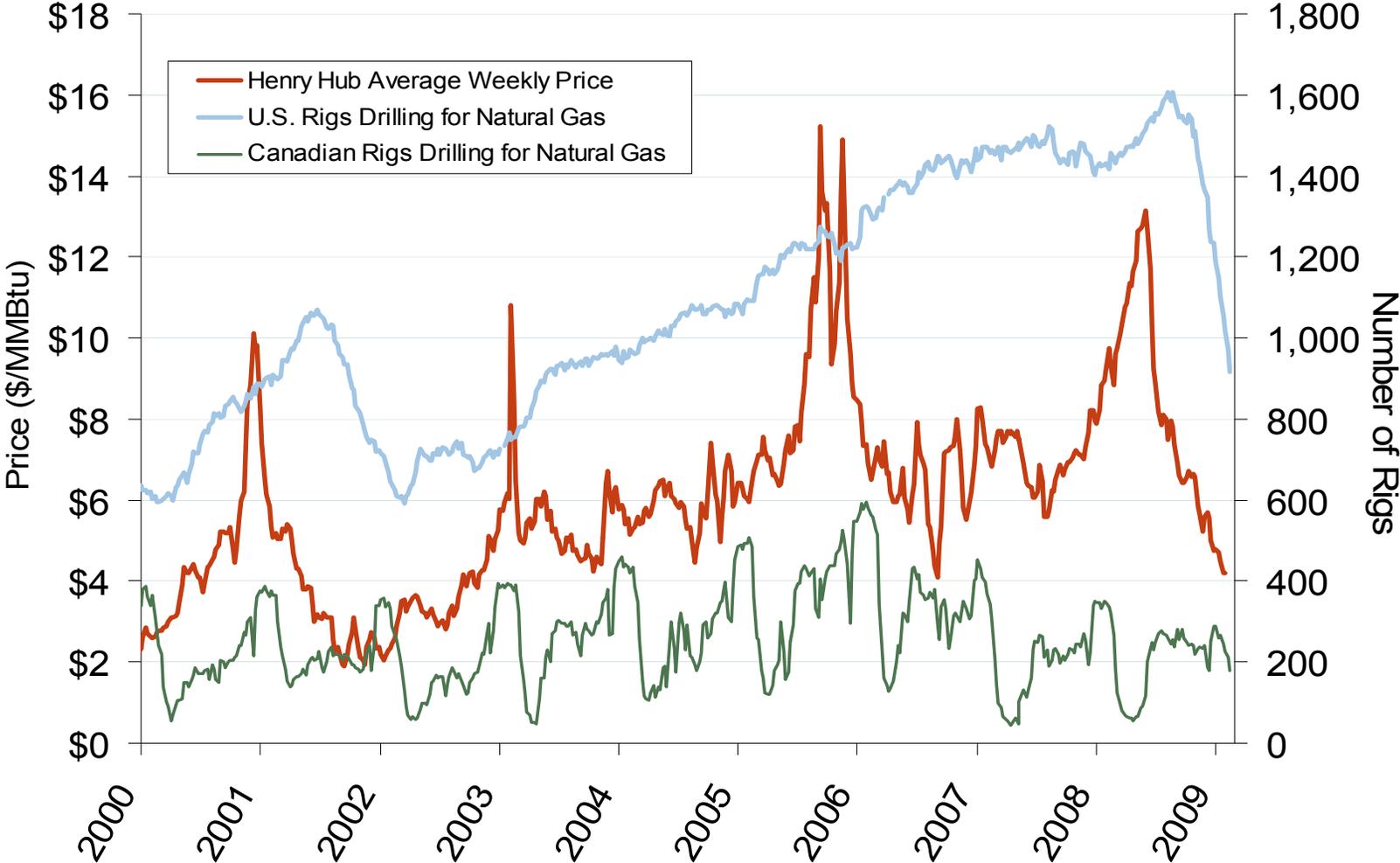
# Regional Totals of Working Gas in Storage



Source: Derived from EIA data.  
March 2009 Western Snapshot Report

Updated March 9, 2009

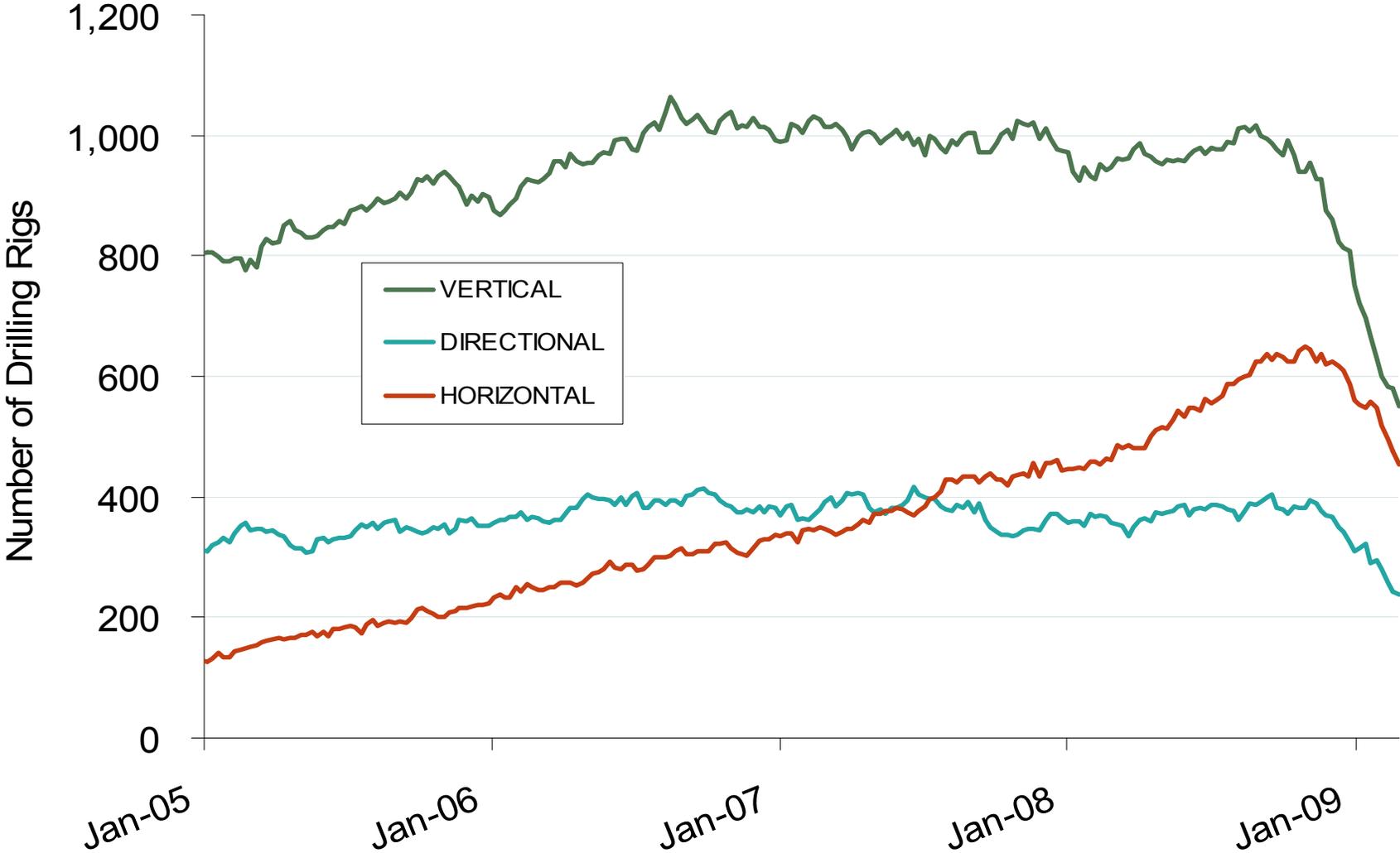
# U.S. and Canadian Natural Gas Drilling Rig Count and Daily Spot Prices



Source: Derived from *Platts* and *Baker Hughes* data.  
March 2009 Western Snapshot Report

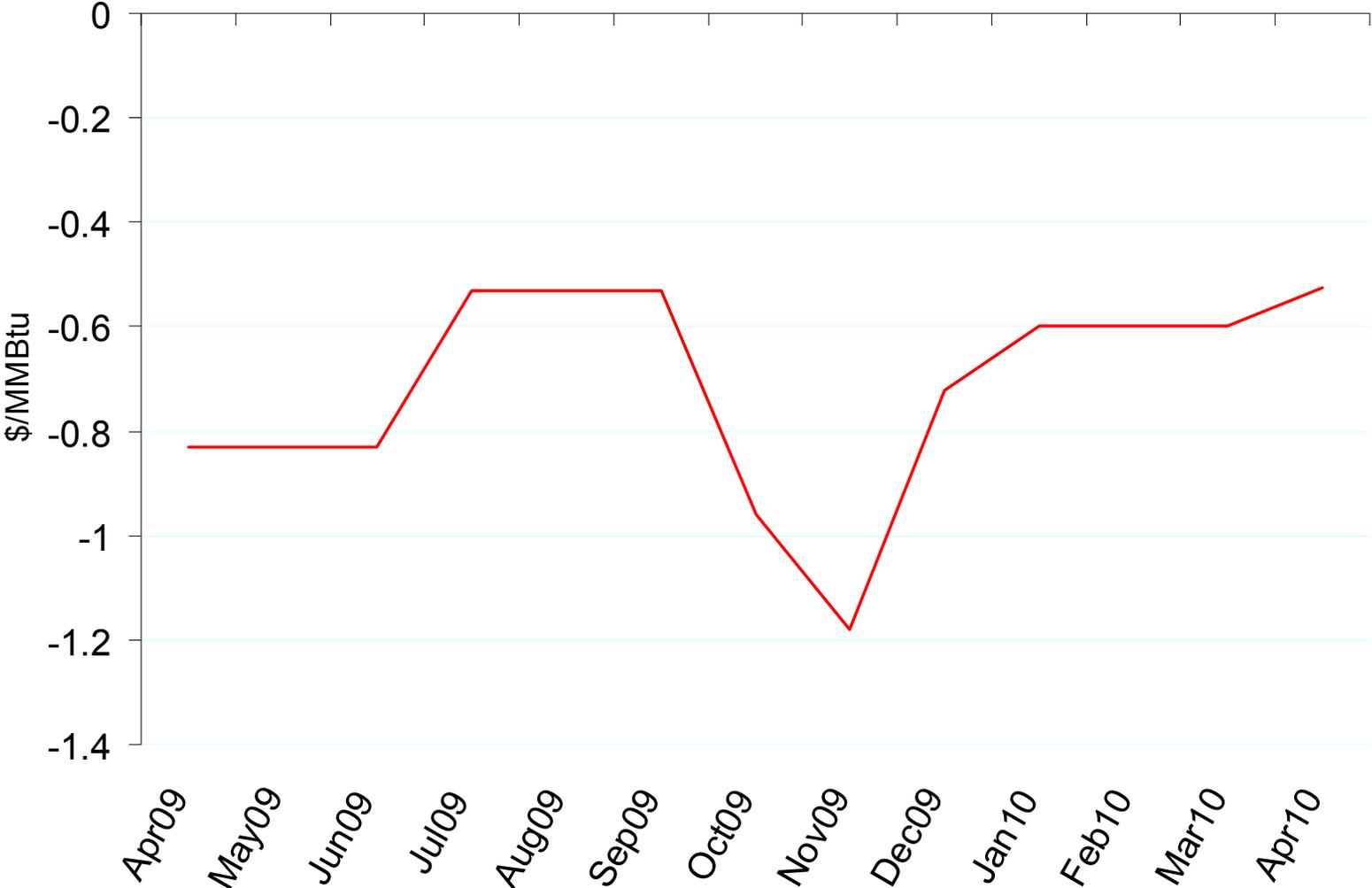
Updated March 9, 2009

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



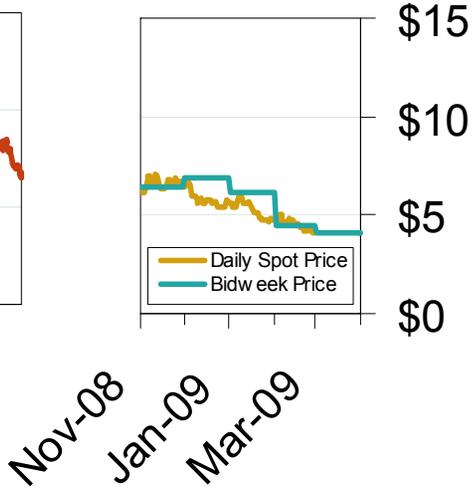
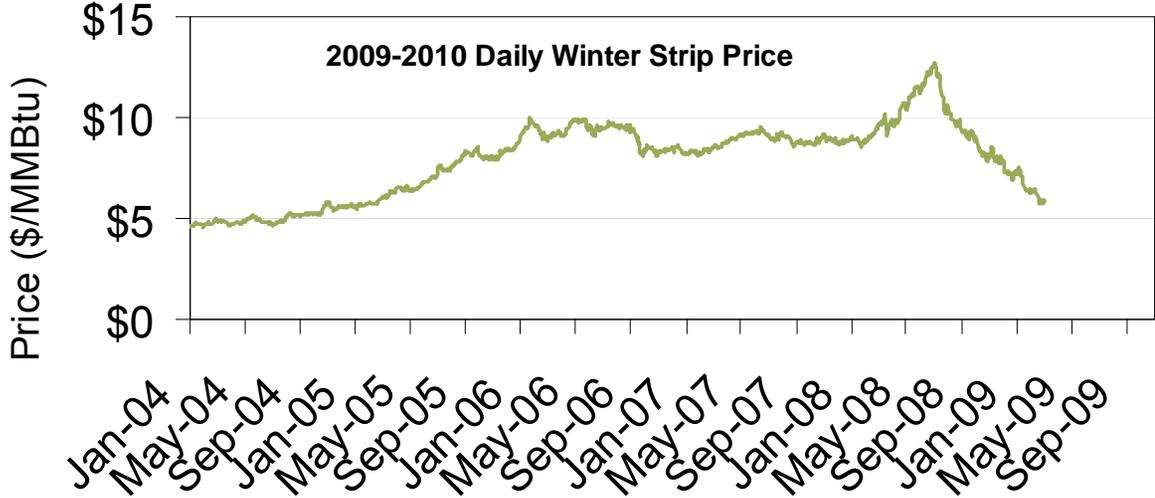
Source: Derived from Baker Hughes data.  
March 2009 Western Snapshot Report

# SoCal Border Forward Basis Swap



Source: Derived from *Bloomberg* data.  
March 2009 Western Snapshot Report

# Natural Gas Winter Futures Strip - Henry Hub



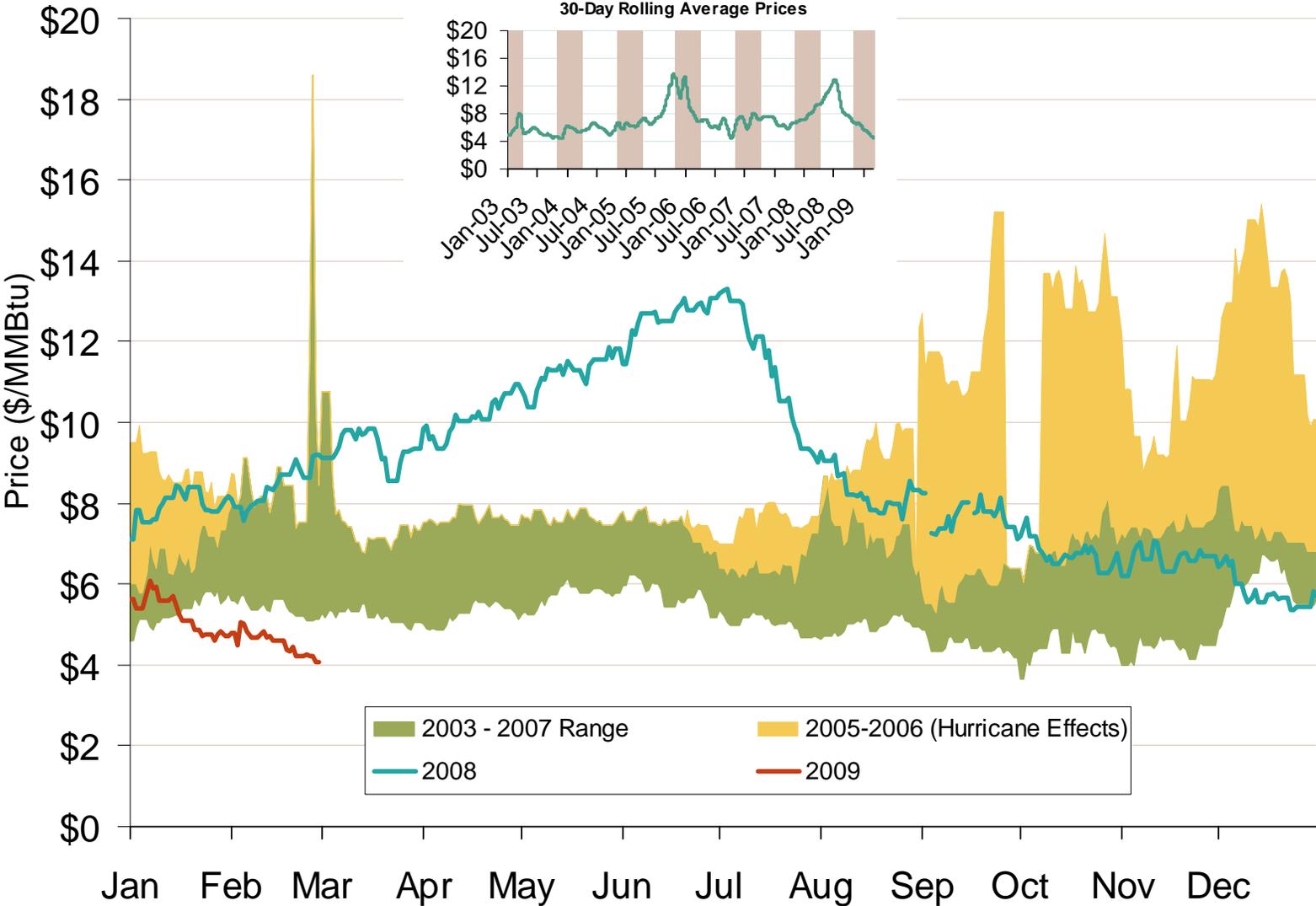
Source: Derived from EIA, *Monthly Energy Review*.  
March 2009 Western Snapshot Report



# Natural Gas and Fuel Markets

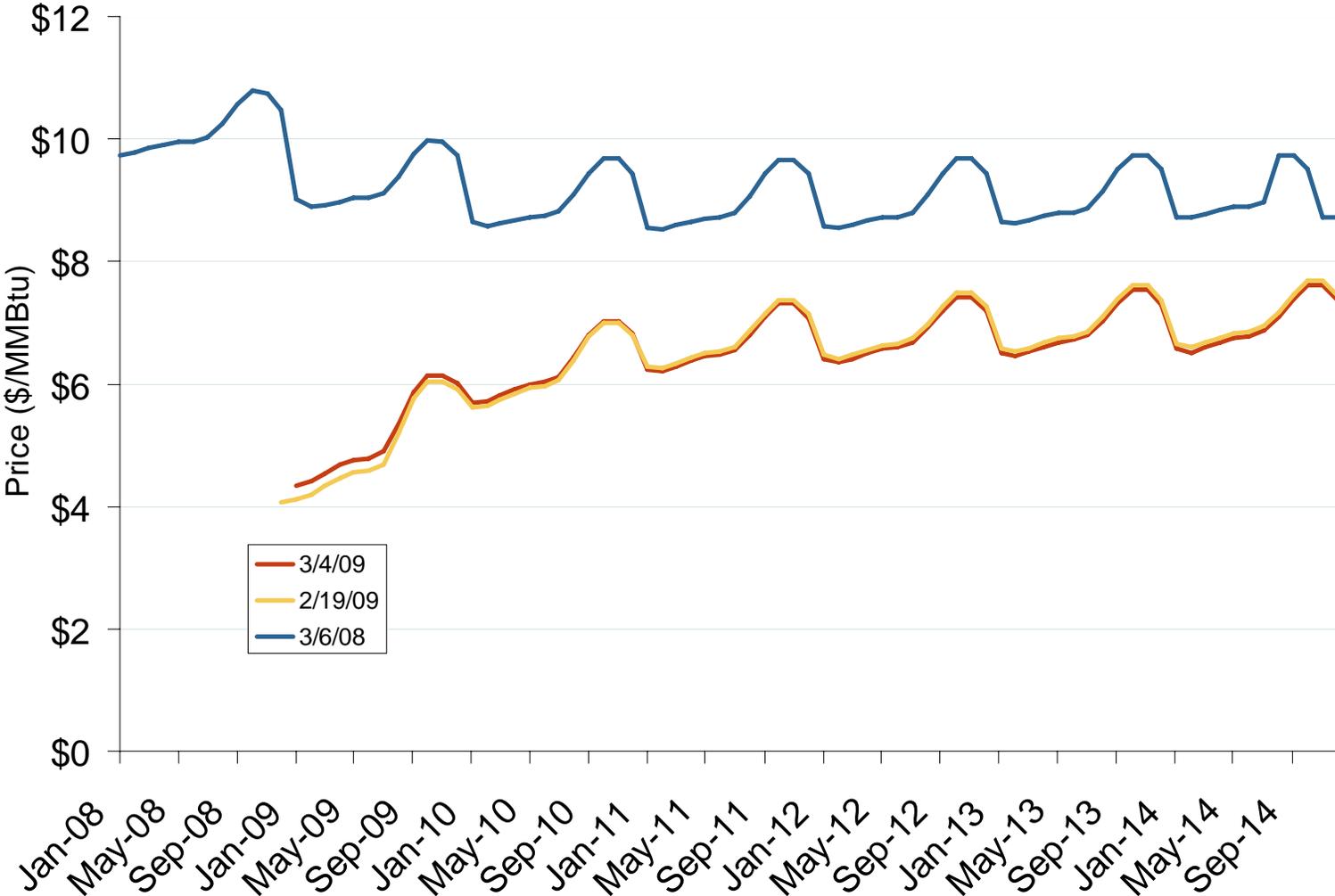
Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

# Henry Hub Natural Gas Daily Spot Prices 2008, 2009 and 2003-2007 Year Range



Source: Derived from Platts data.

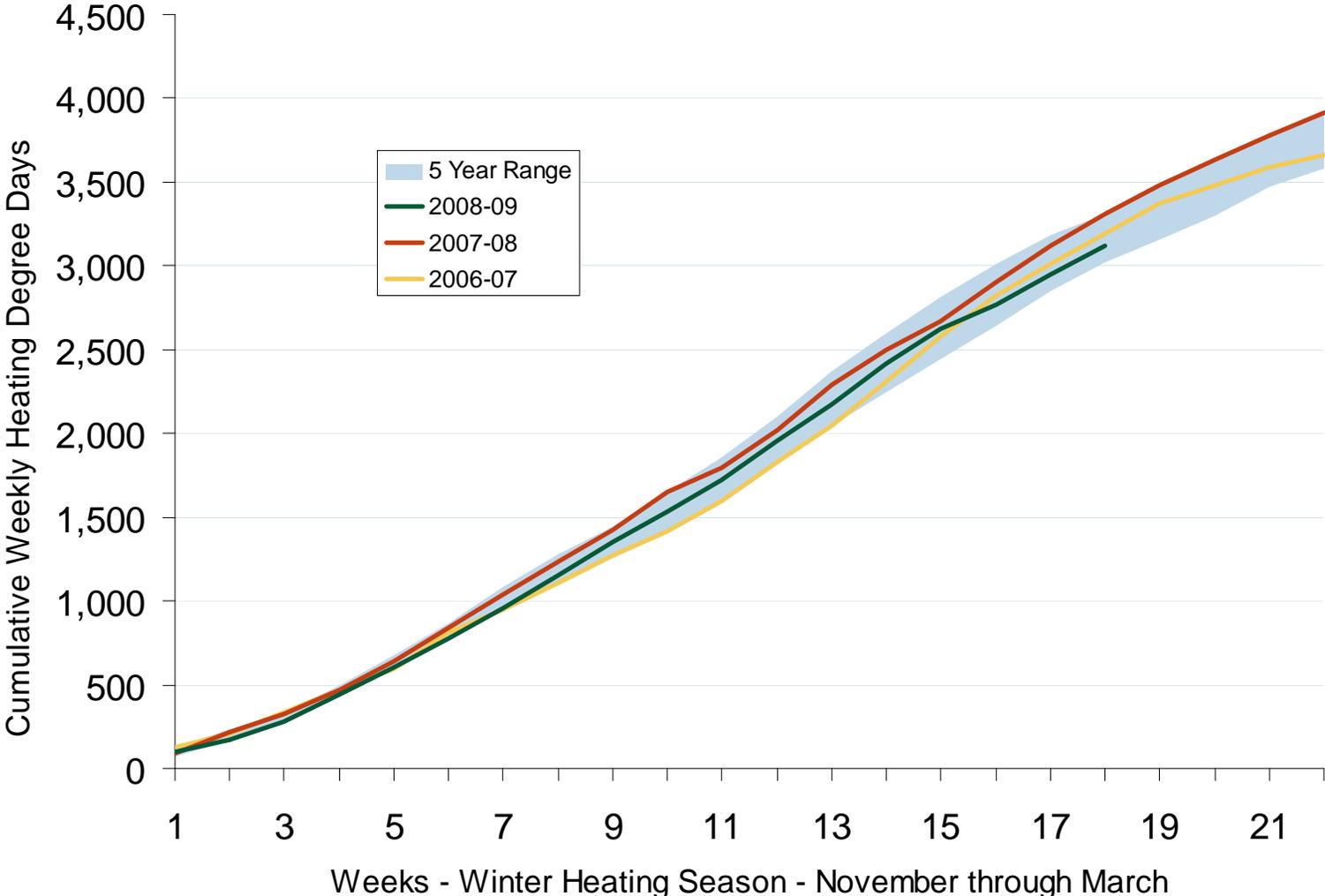
# NYMEX Natural Gas Forward Price Curve



Source: Derived from NYMEX data.  
March 2009 Western Snapshot Report

Updated March 9, 2009

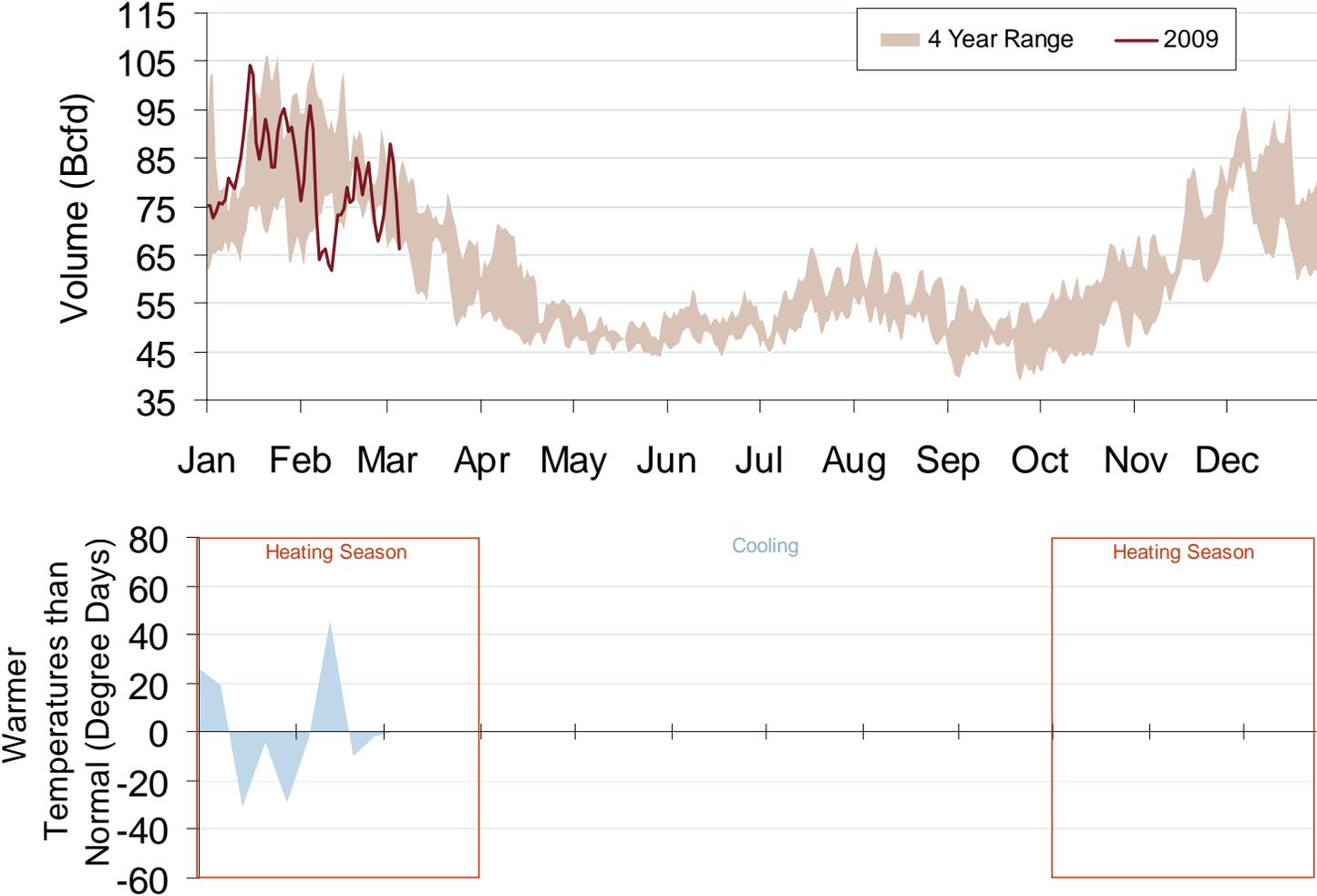
# U. S. Winter Cumulative Heating Degree Days



Source: Derived from NOAA data.  
March 2009 Western Snapshot Report

Updated March 9, 2009

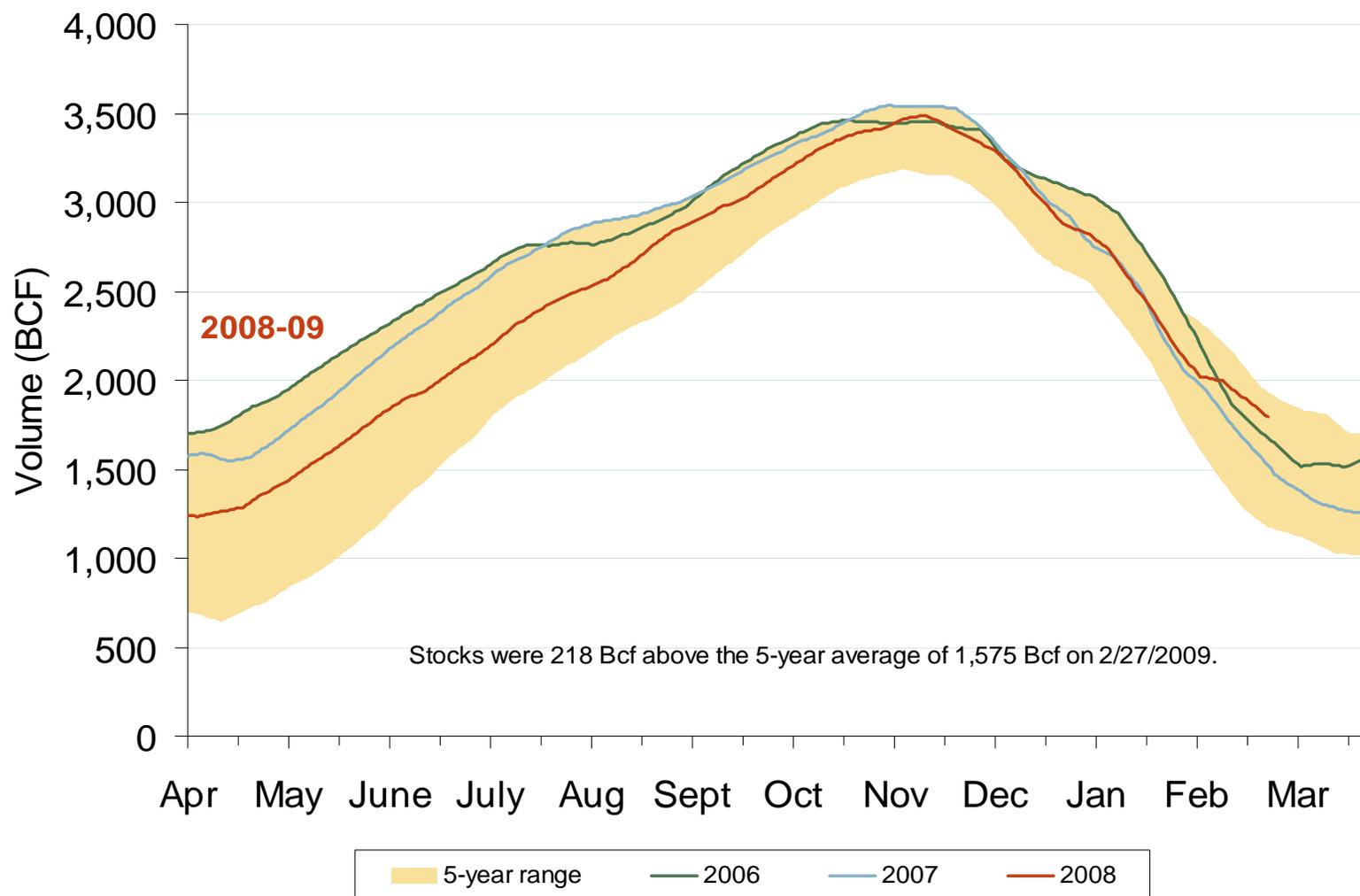
# Total U.S. Natural Gas Demand (All Sectors) and Temperatures



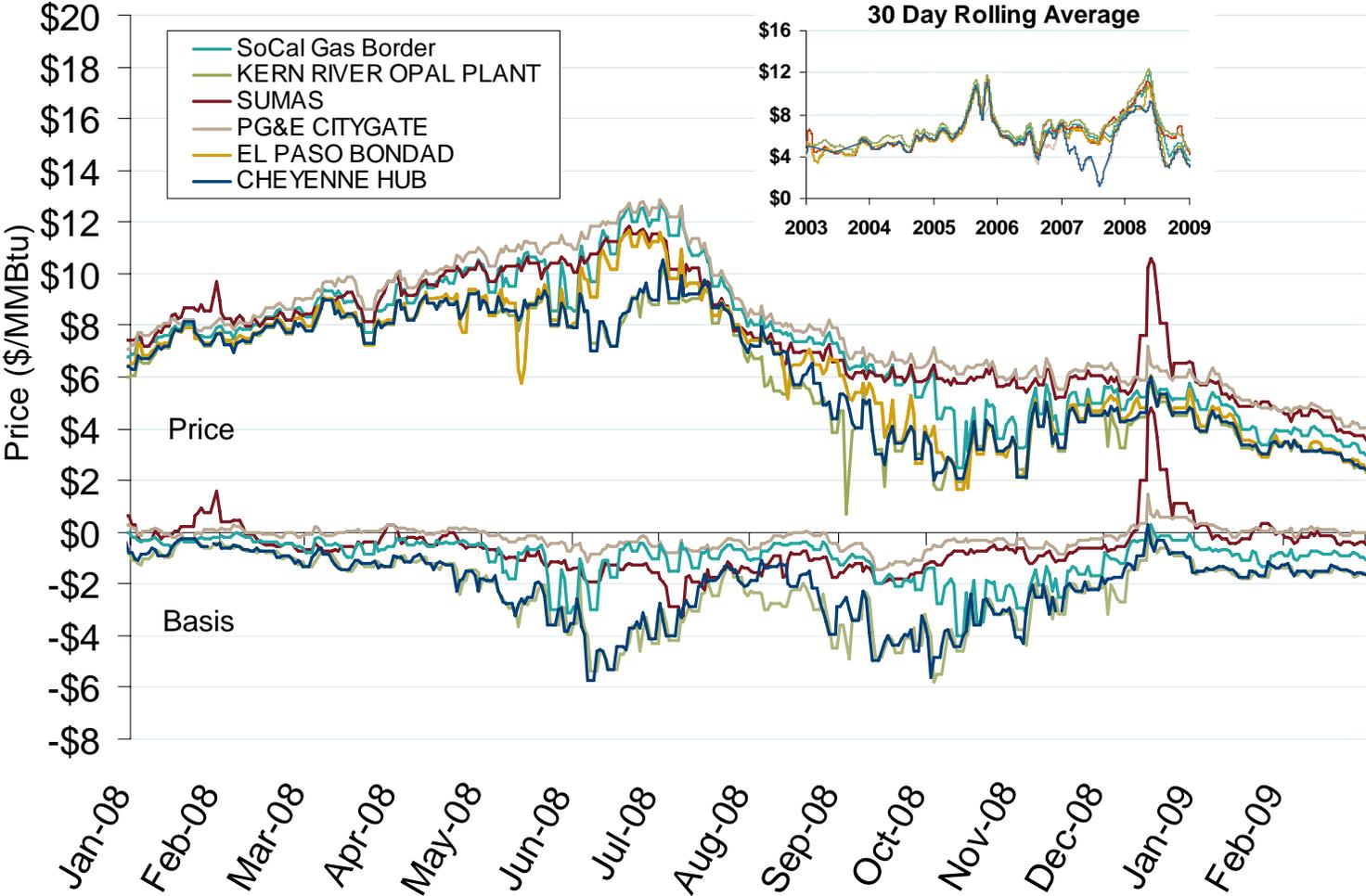
Source: Derived from *Bentek Energy* data.  
March 2009 Western Snapshot Report

Updated March 9, 2009

## Total U.S. Working Gas in Storage



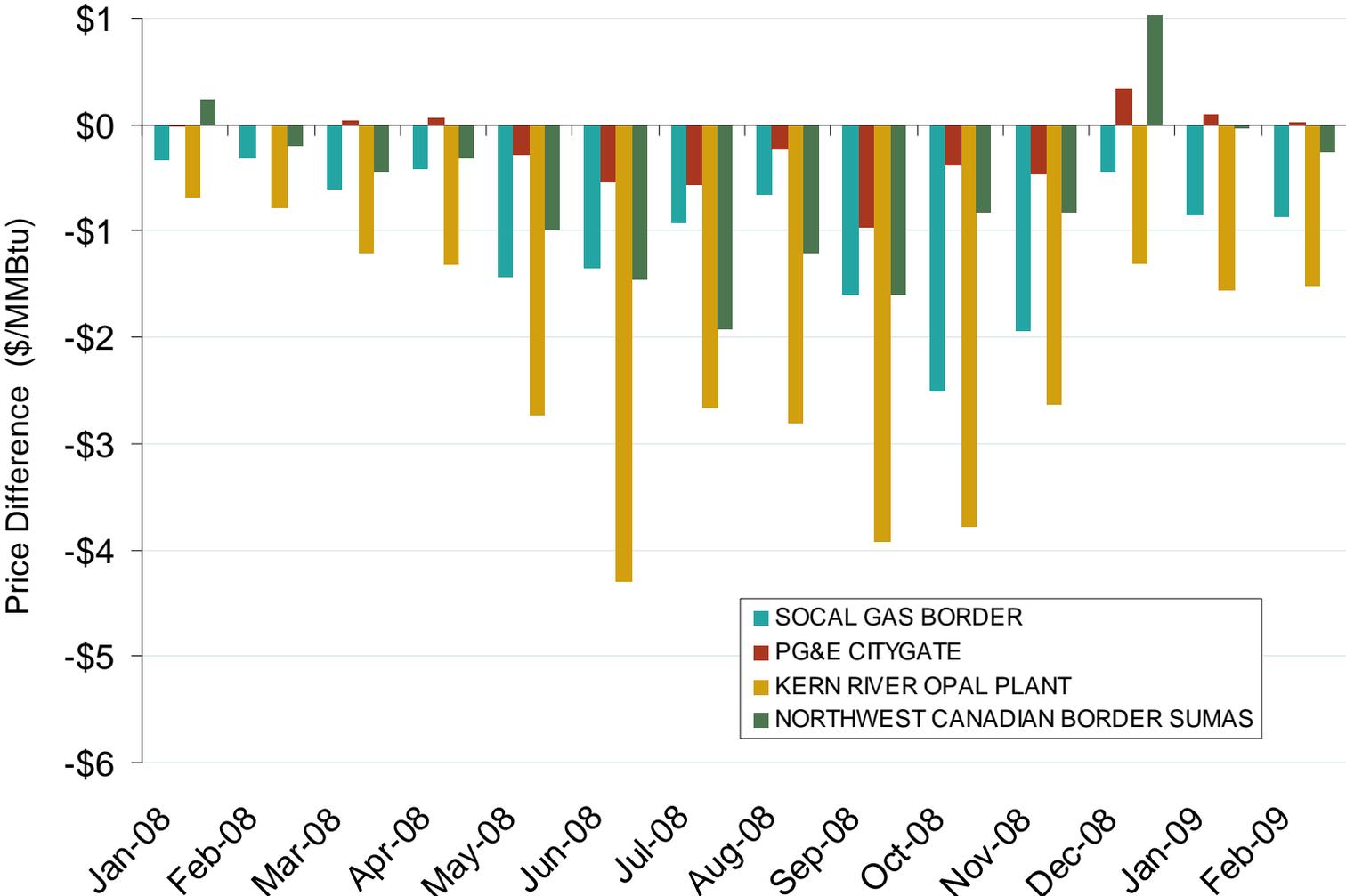
# Western Day-Ahead Hub Spot Prices and Basis



Source: Derived from *Platts* data.  
March 2009 Western Snapshot Report

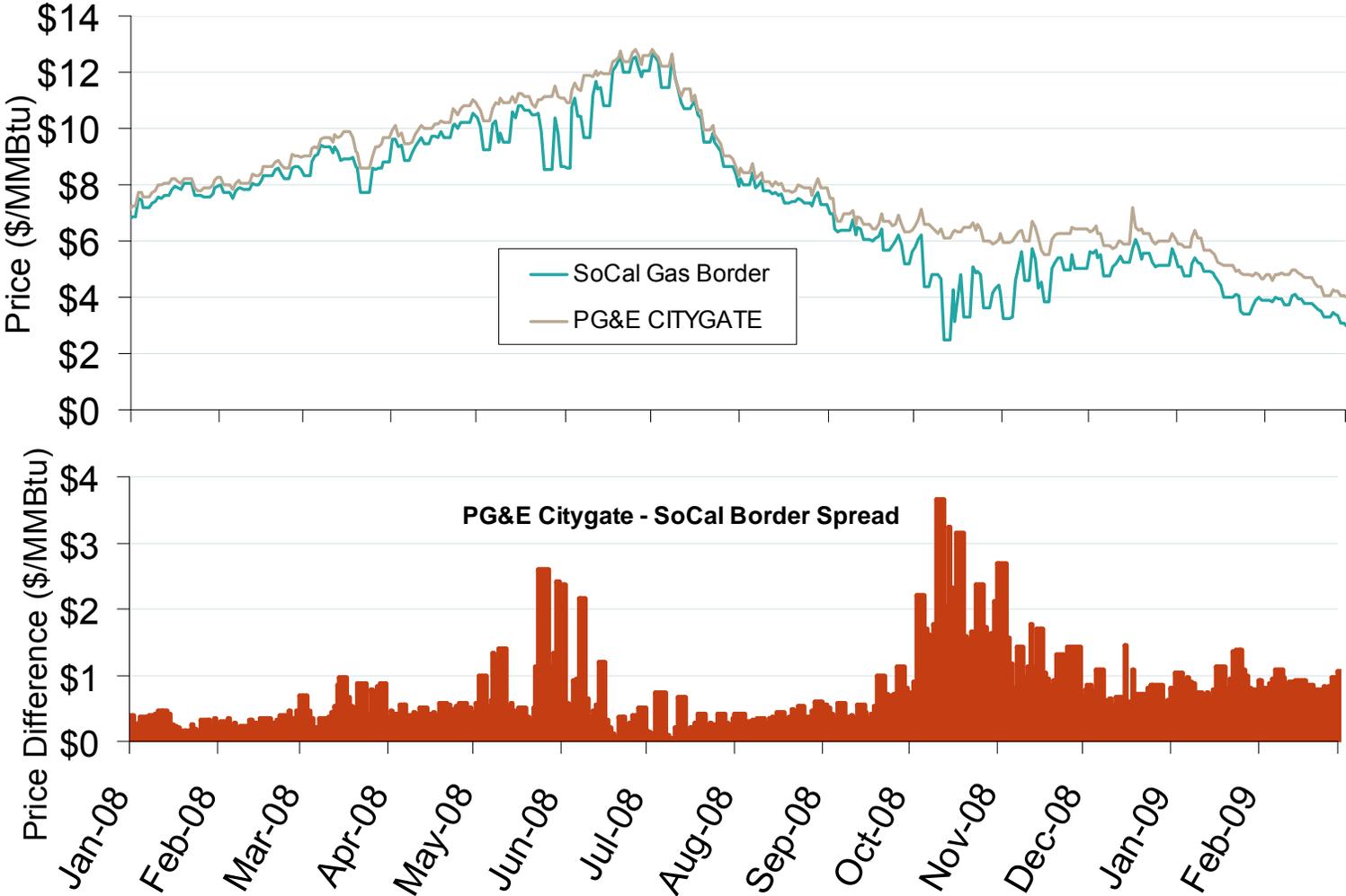
Updated March 9, 2009

# Western Monthly Average Basis Value to Henry Hub



Source: Derived from *Platts* data.  
March 2009 Western Snapshot Report

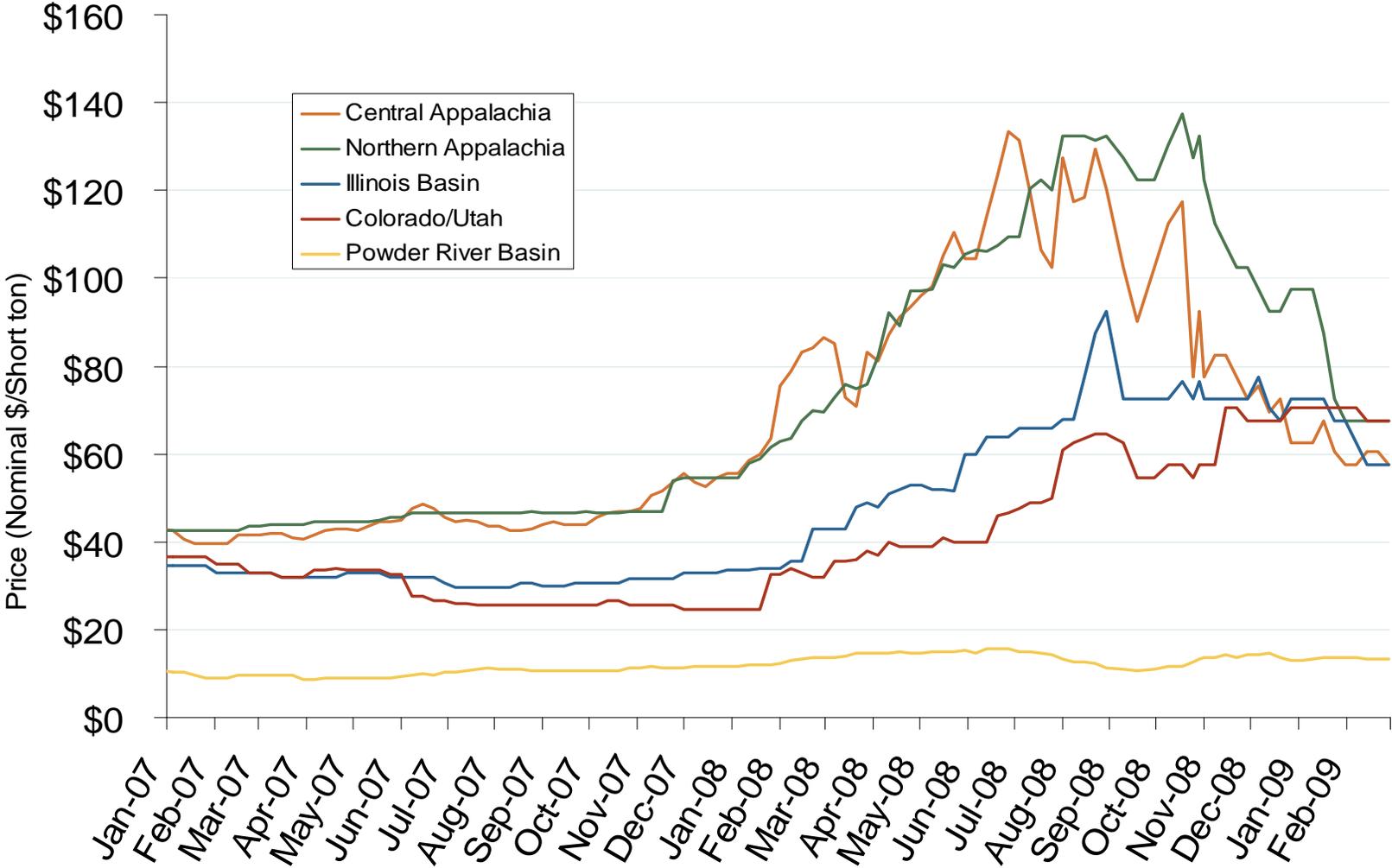
# Difference in Northern and Southern California Daily Spot Prices



Source: Derived from *Platts* data.  
March 2009 Western Snapshot Report

Updated March 9, 2009

# Regional Coal Spot Prices

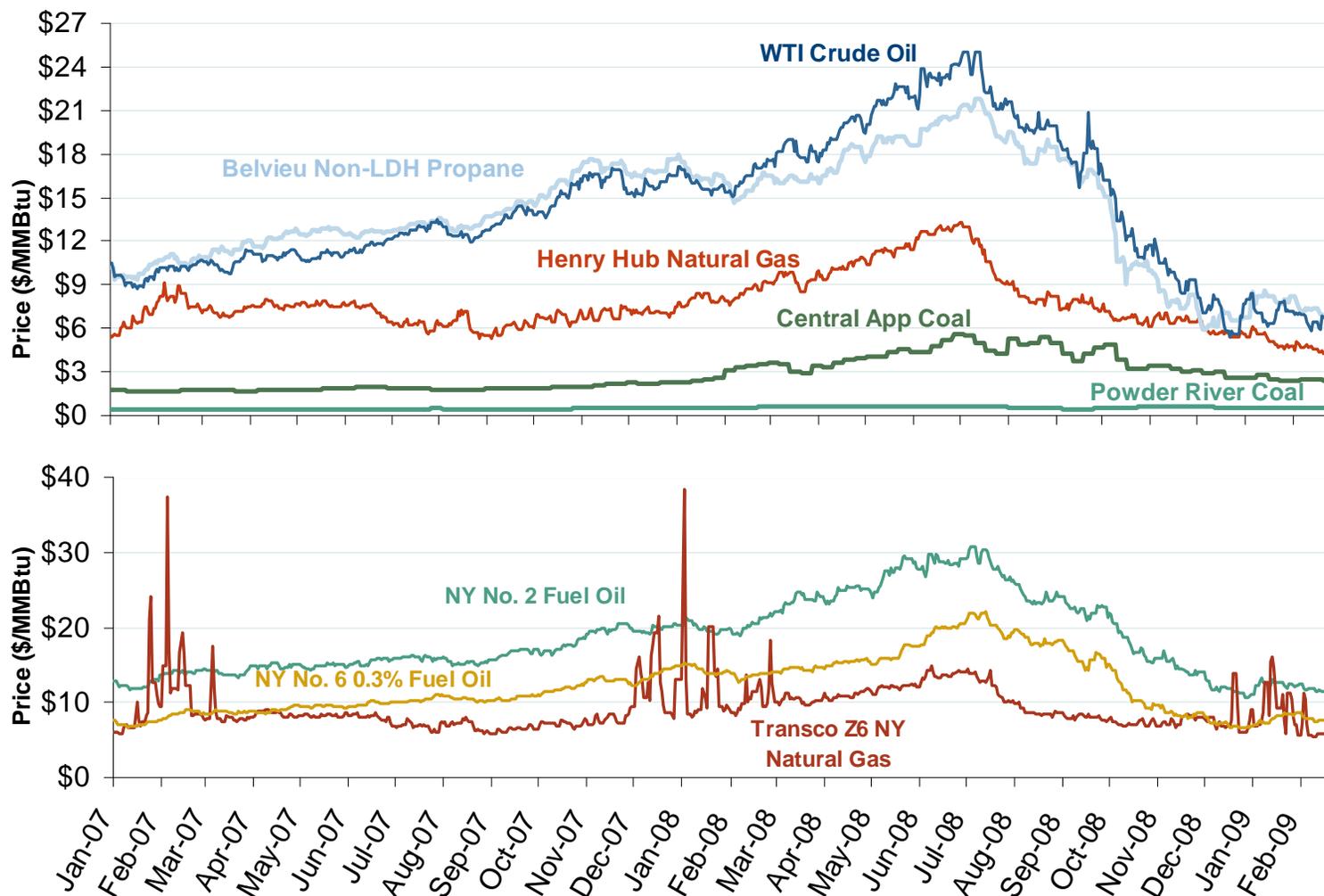


Note: Does not reflect the delivered price of coal; excludes incremental cost of emissions allowances.

Source: Derived from *Bloomberg* data.  
March 2009 Western Snapshot Report

Updated March 9, 2009

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

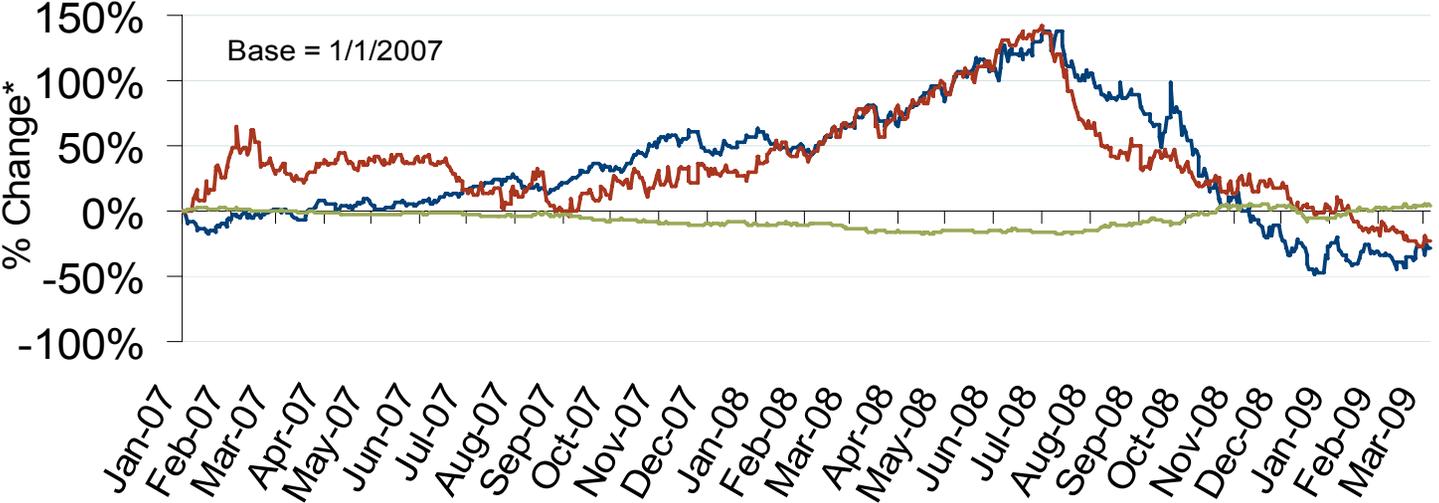
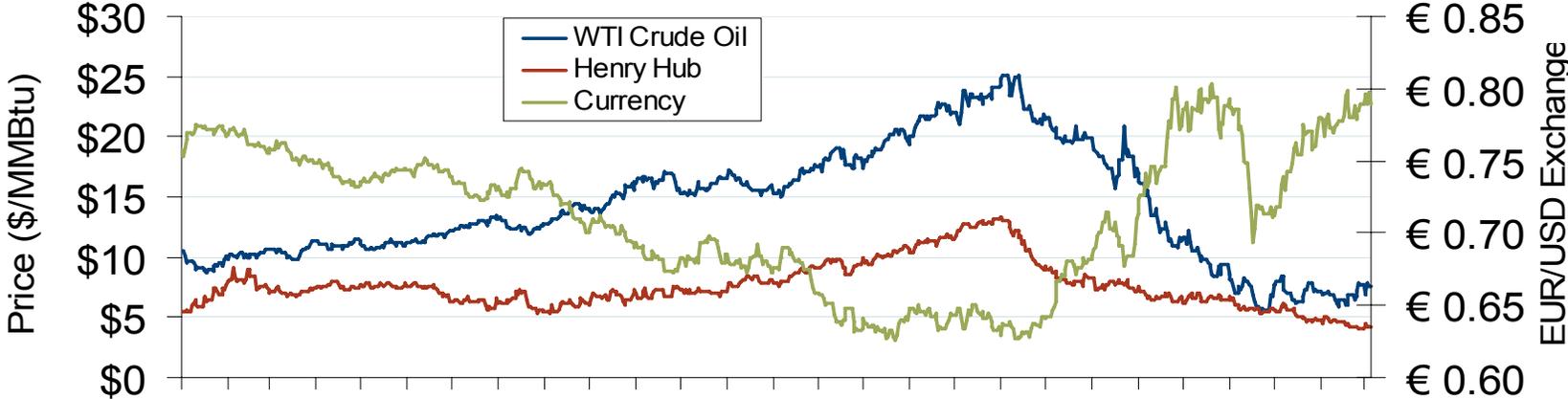


Source: Derived from *ICE* and *Bloomberg* data.

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 March 9, 2009

# Oil, Natural Gas and Currency Spot Prices



Source: Derived from *Bloomberg* data.

Updated March 9, 2009

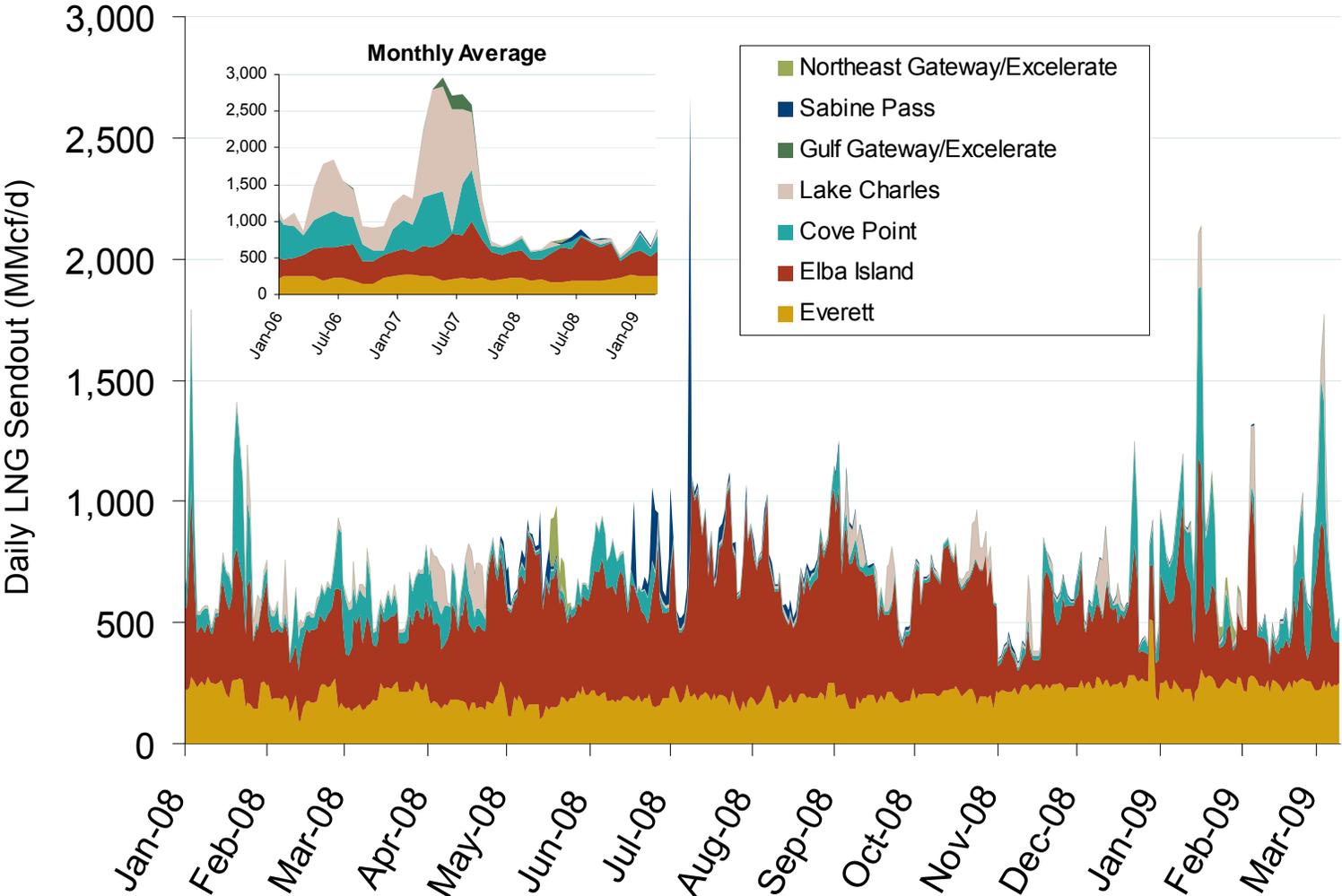
# World LNG Estimated March 2009 Landed Prices



Source: Waterborne Energy, Inc. Data in \$US/MMBtu.  
March 2009 Western Snapshot Report

Updated March 9, 2009

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

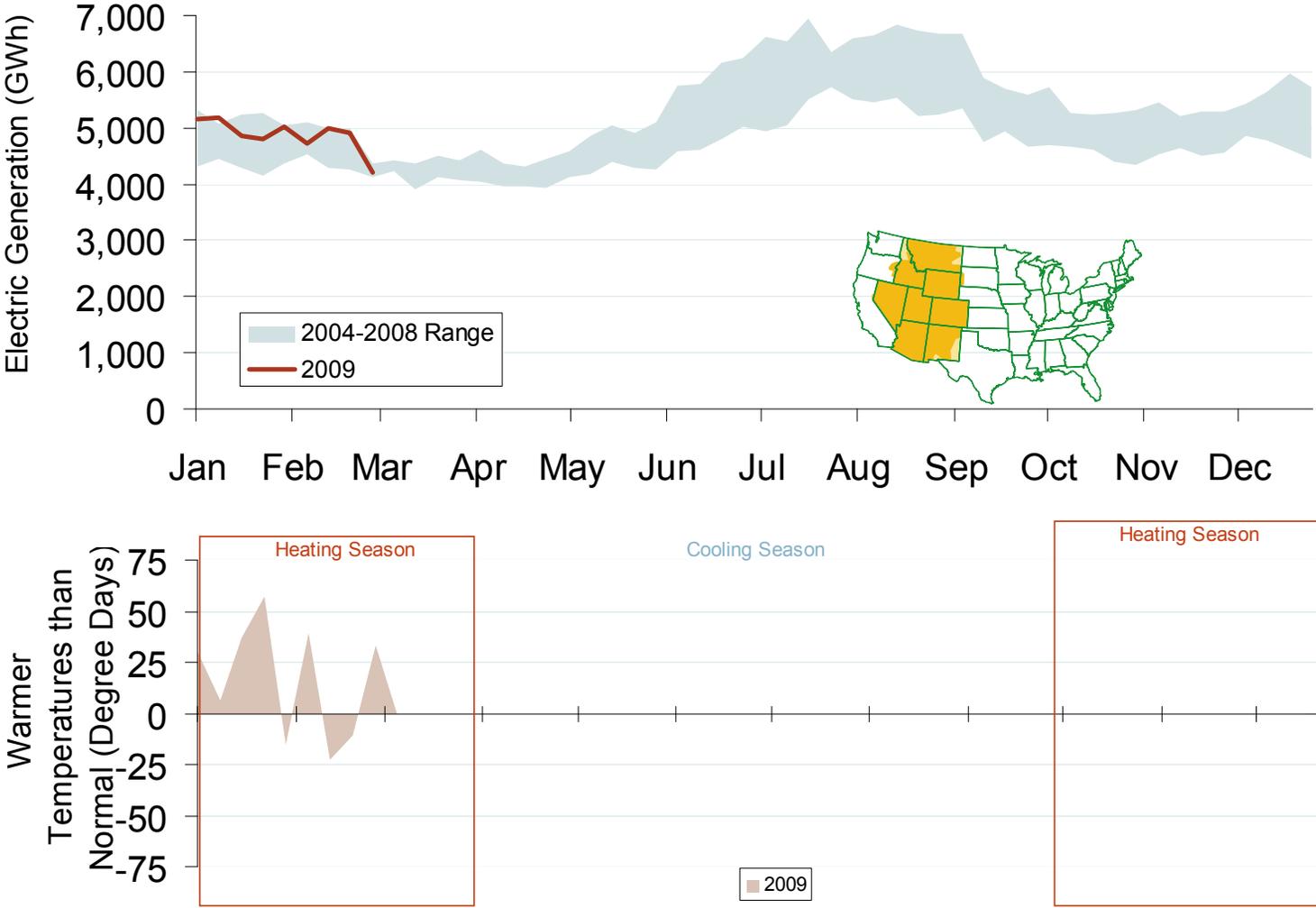


Source: Derived from *Bentek* data. Excludes Everett LNG delivered via truck and consumed by the Mystic plant as well as Freeport LNG which flows via intrastate pipelines.  
 March 2009 Western Snapshot Report



# Electricity Markets

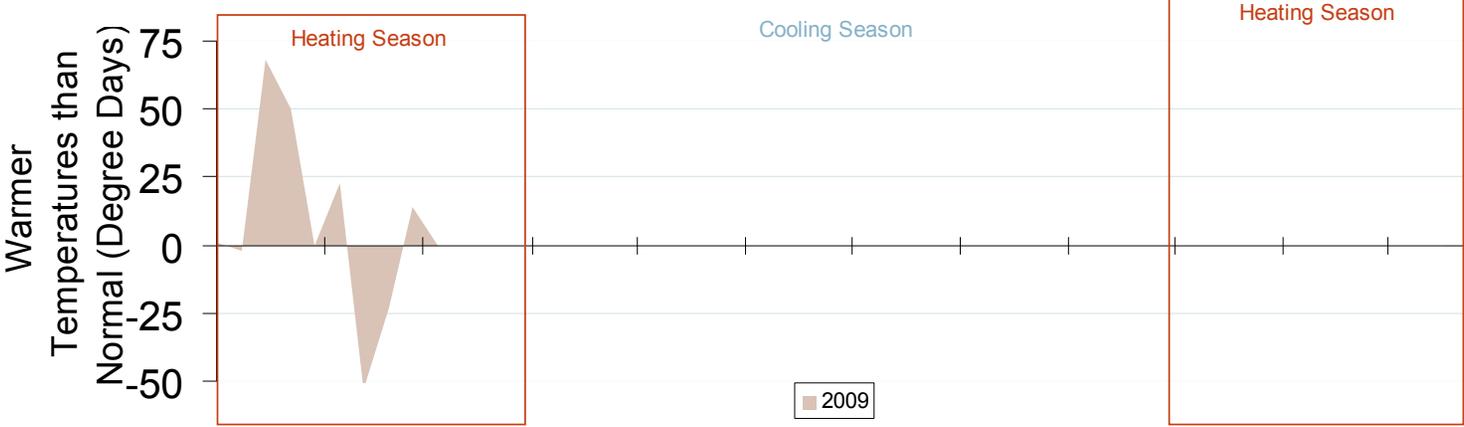
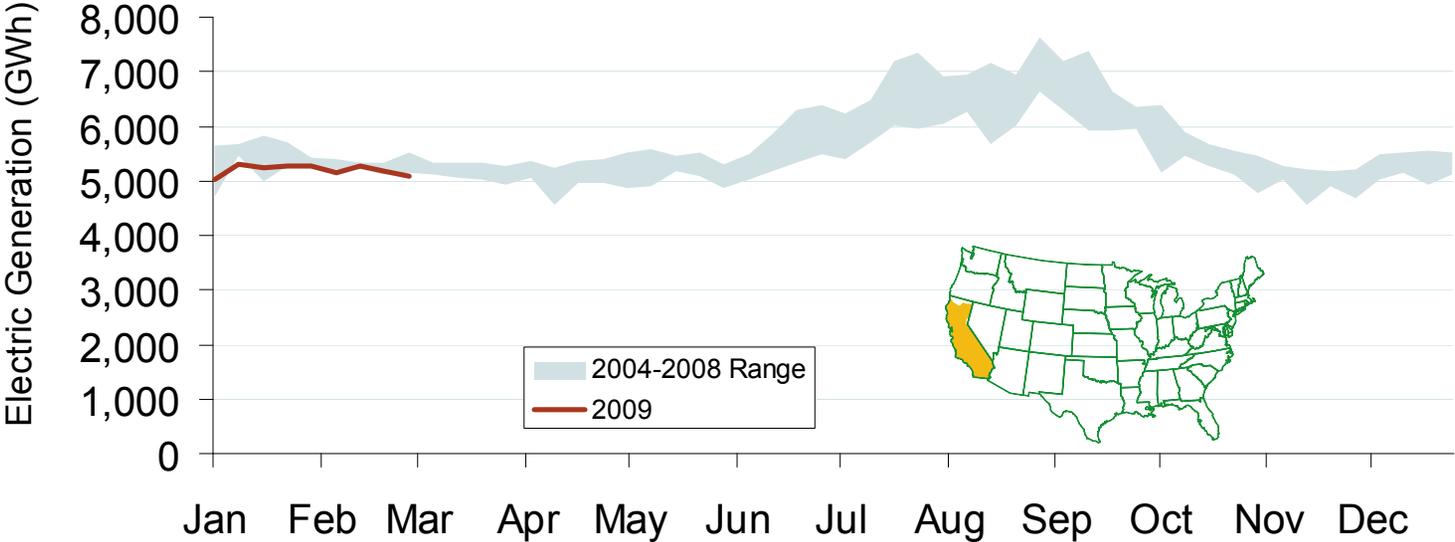
# Weekly Electric Generation Output and Temperatures Rocky Mountains Region



Source: Derived from *EEI* and *NOAA* data.  
March 2009 Western Snapshot Report

Updated March 9, 2009

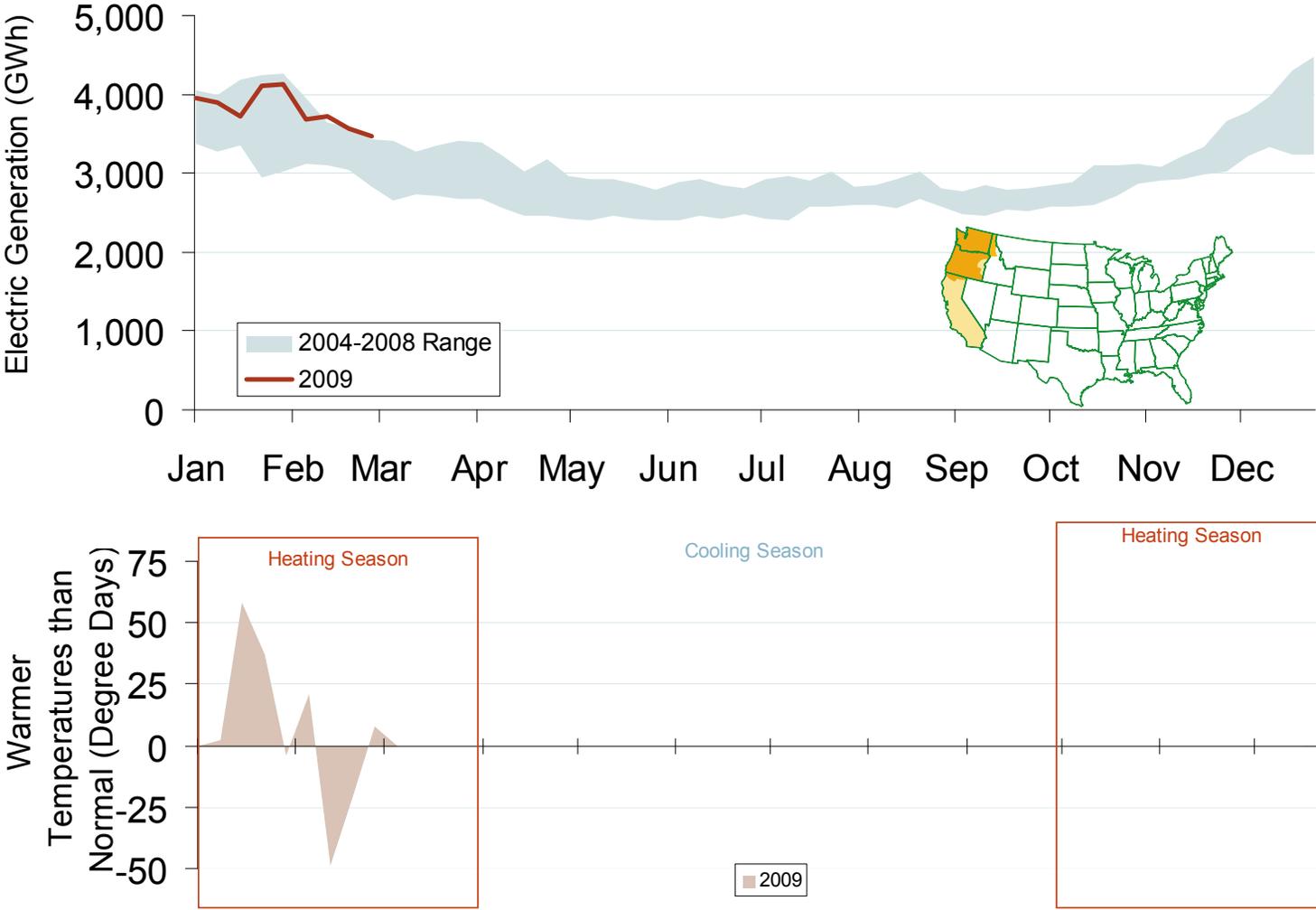
# Weekly Electric Generation Output and Temperatures California



Source: Derived from EEI and NOAA data.  
March 2009 Western Snapshot Report

Updated March 9, 2009

# Weekly Electric Generation Output and Temperatures Pacific Northwest Region



Source: Derived from *EEI* and *NOAA* data.  
March 2009 Western Snapshot Report

Updated March 9, 2009

## Pacific/Northwest Hydro and Snowpack Levels

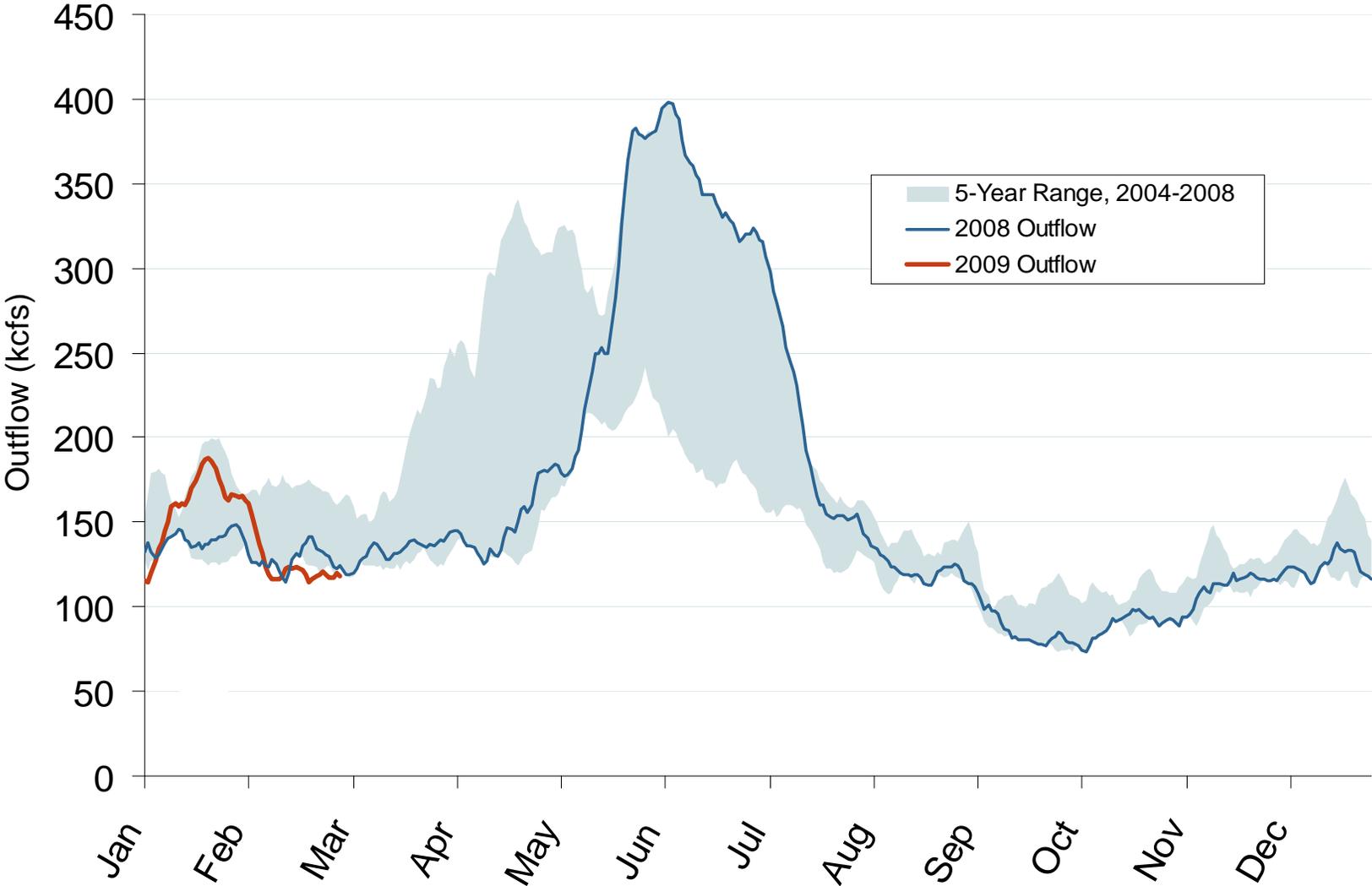
	Hydro Generation		Snow Water Equivalent <sup>3</sup>		
	In-State Capacity (MW) <sup>1</sup>	Additional Capacity Created Downstream (MW) <sup>2</sup>	One Year Ago (% of average)	2/17/09 (% of average)	3/5/09 (% of average)
Washington	21,500	0	128%	71%	74%
Oregon	9,100	0	132%	81%	83%
California	10,400	0	110%	76%	88%
Idaho	2,700	19,700	104%	82%	83%
Montana	2,700	16,200	111%	83%	87%
British Columbia	10,000	16,200	108%	82%	85%

<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).

# Stream Flow at The Dalles Dam



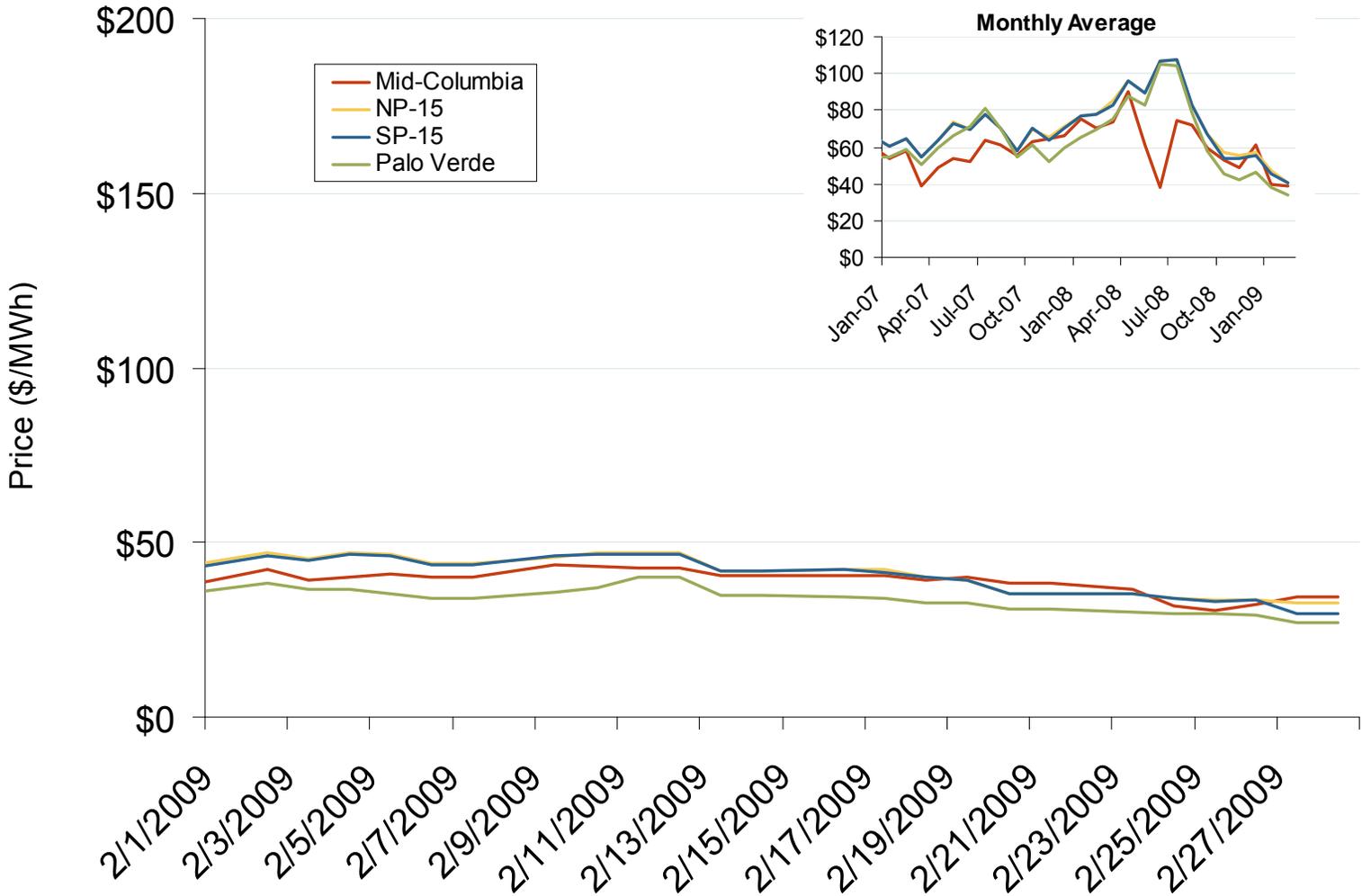
Source: Derived from USACE data.

Trend lines are 7-day moving averages.

March 2009 Western Snapshot Report

Updated March 9, 2009

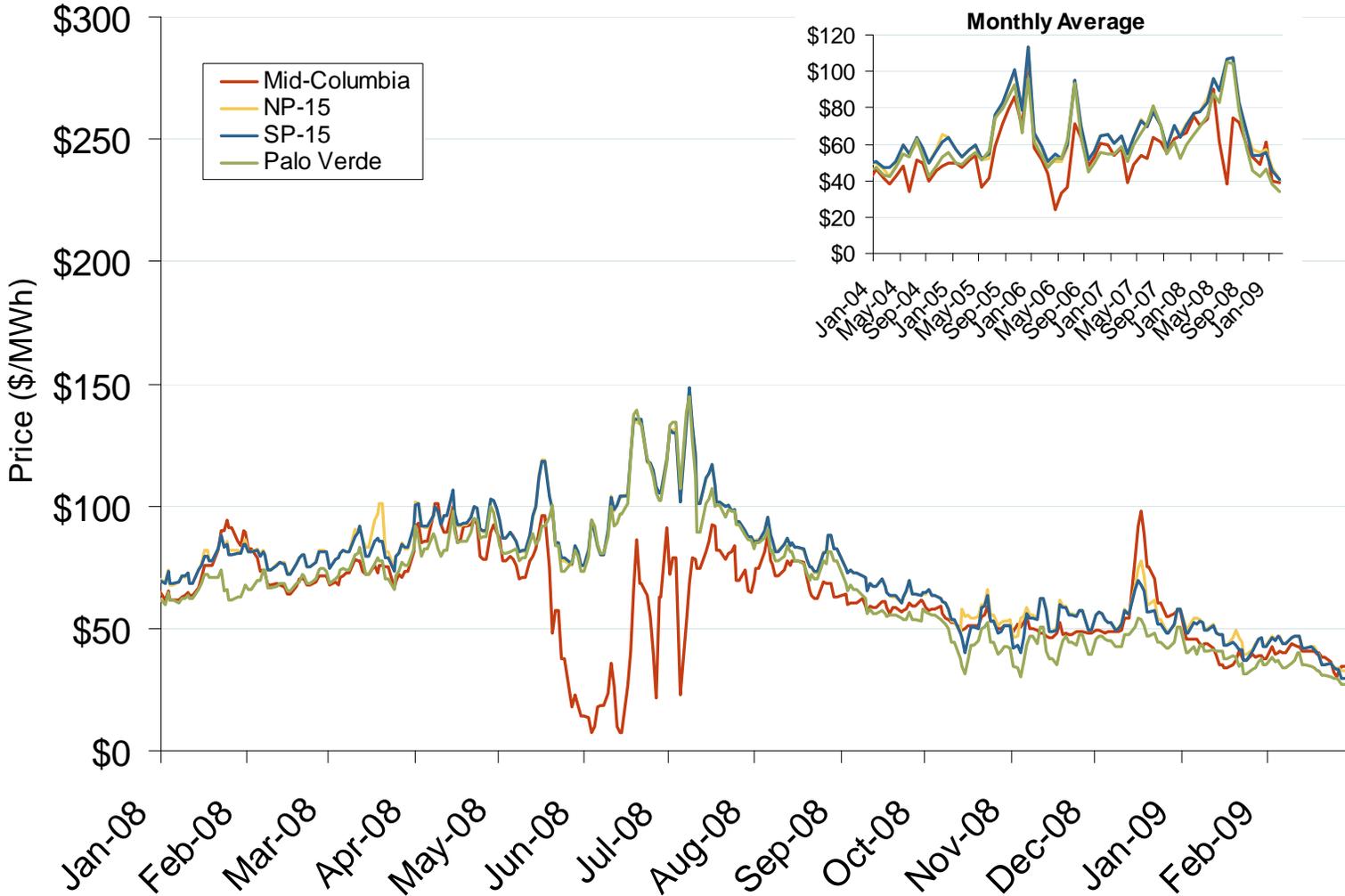
# Western Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.  
March 2009 Western Snapshot Report

Updated March 9, 2009

# Western Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.  
March 2009 Western Snapshot Report

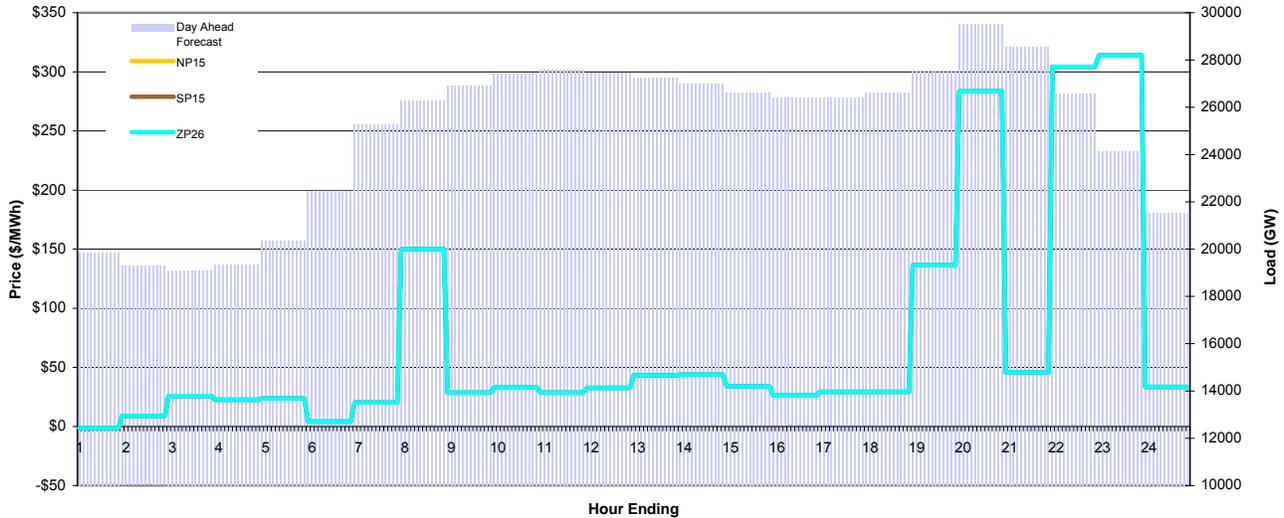
# CAISO Daily Report

## Delivery Day: 20090309

Price Color Codes: <=0 >=100 >=200

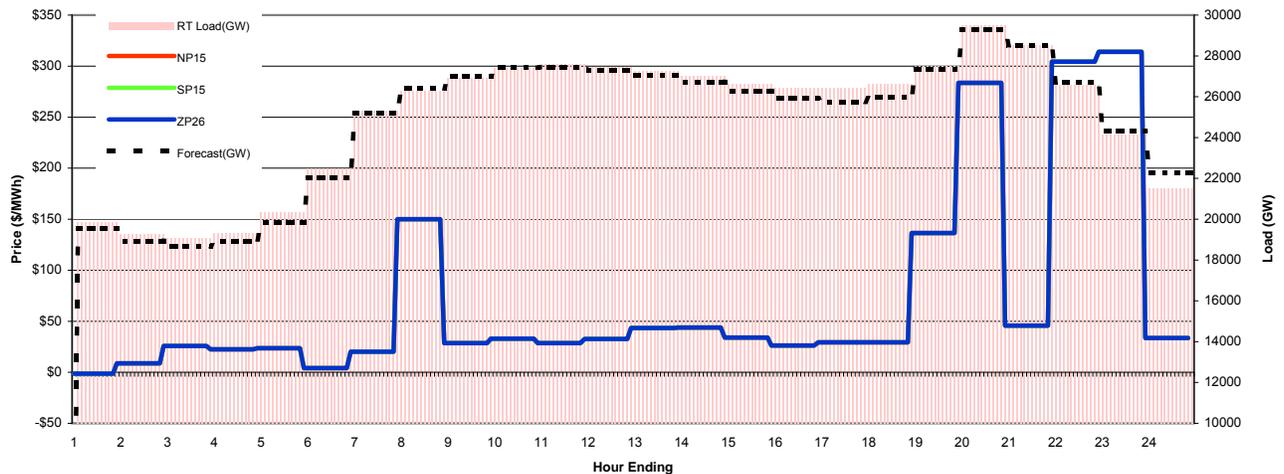
### Day-Ahead Prices and Cleared Load

	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11	HE12	HE13	HE14	HE15	HE16	HE17	HE18	HE19	HE20	HE21	HE22	HE23	HE24
DLAP_PGAE-APND	36.81	34.23	34.23	33.45	33.52	36.90	39.54	44.01	41.50	41.54	43.00	42.94	42.11	41.48	40.88	40.23	40.48	38.81	42.34	53.26	51.70	40.31	38.43	34.55
DLAP_SCE-APND	40.95	36.14	35.62	35.45	36.21	37.44	37.14	41.19	39.31	40.03	41.43	41.47	40.55	39.95	39.36	38.26	38.69	37.12	40.45	50.34	48.82	38.39	37.28	33.78
DLAP_SDGE-APND	35.79	32.74	32.53	31.87	32.14	34.81	36.75	40.83	39.06	39.72	41.14	41.20	40.32	39.73	39.15	38.12	38.41	36.93	40.13	50.11	48.61	38.25	36.90	33.20
Day Ahead Forecast	19.8	19.3	19.1	19.3	20.4	22.5	25.3	26.3	26.9	27.4	27.6	27.5	27.3	27.0	26.6	26.4	26.4	26.6	27.5	29.5	28.6	26.6	24.1	21.5

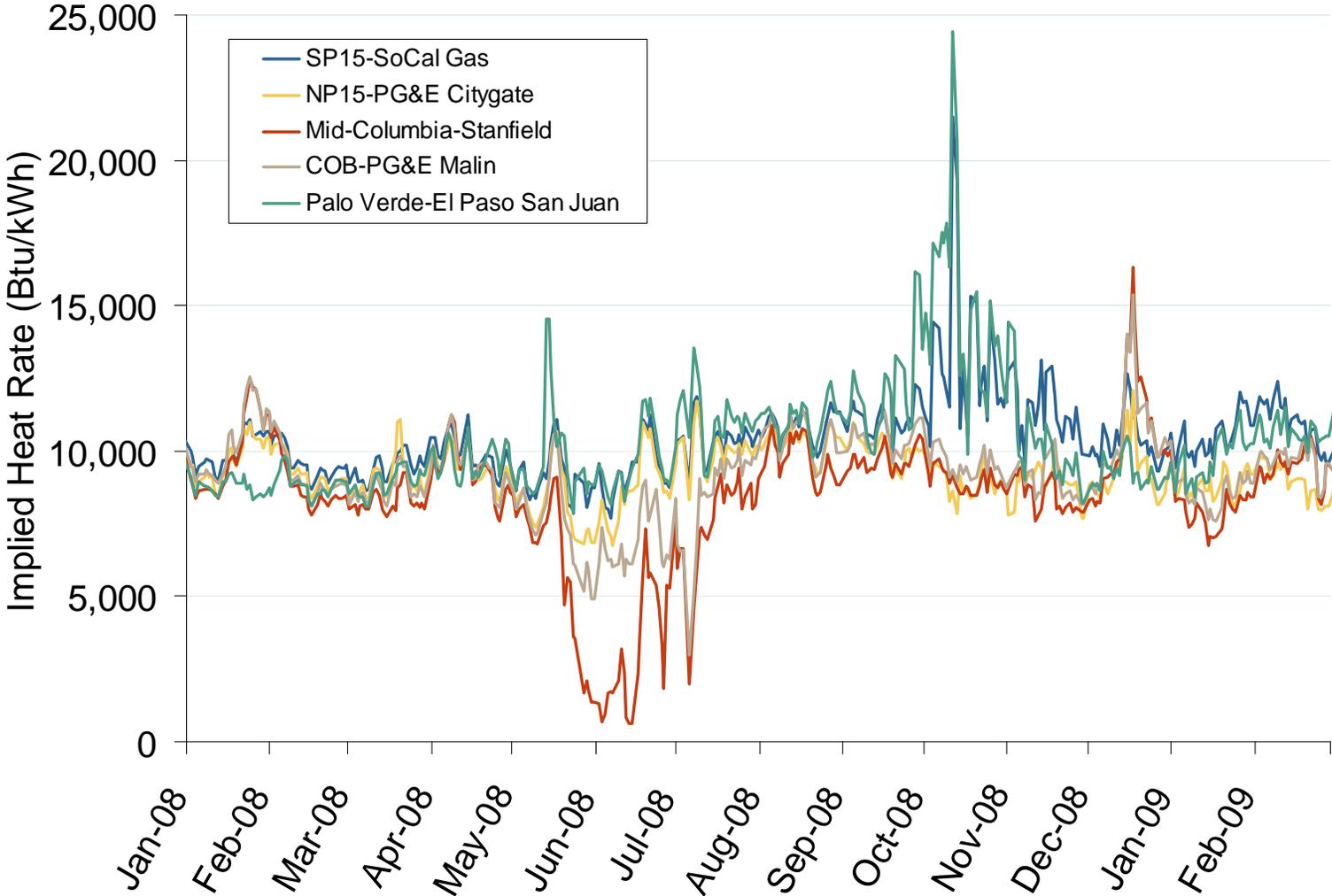


### Preliminary Real-Time Prices with Forecasted and Actual System Load

	HE1	HE2	HE3	HE4	HE5	HE6	HE7	HE8	HE9	HE10	HE11	HE12	HE13	HE14	HE15	HE16	HE17	HE18	HE19	HE20	HE21	HE22	HE23	HE24
NP15	-1.40	8.76	25.82	22.56	23.64	4.14	20.19	149.96	28.57	32.87	28.60	32.60	43.32	43.85	33.97	26.16	29.30	29.29	136.38	283.55	45.68	304.28	313.97	33.50
SP15	-1.40	8.76	25.82	22.56	23.64	4.14	20.19	149.96	28.57	32.87	28.60	32.60	43.32	43.85	33.97	26.16	29.30	29.29	136.38	283.55	45.68	304.28	313.97	33.50
ZP26	-1.40	8.76	25.82	22.56	23.64	4.14	20.19	149.96	28.57	32.87	28.60	32.60	43.32	43.85	33.97	26.16	29.30	29.29	136.38	283.55	45.68	304.28	313.97	33.50
Day Ahead Forecast	19.5	18.9	18.7	18.9	19.8	22.0	25.2	26.4	27.0	27.4	27.5	27.3	27.1	26.7	26.3	25.9	25.7	26.0	27.4	29.3	28.5	26.7	24.3	22.3
Forecast-Actual	-0.31	-0.35	-0.41	-0.43	-0.52	-0.46	-0.12	0.10	0.08	0.00	-0.12	-0.17	-0.20	-0.28	-0.37	-0.50	-0.72	-0.67	-0.16	-0.23	-0.03	0.09	0.18	0.73

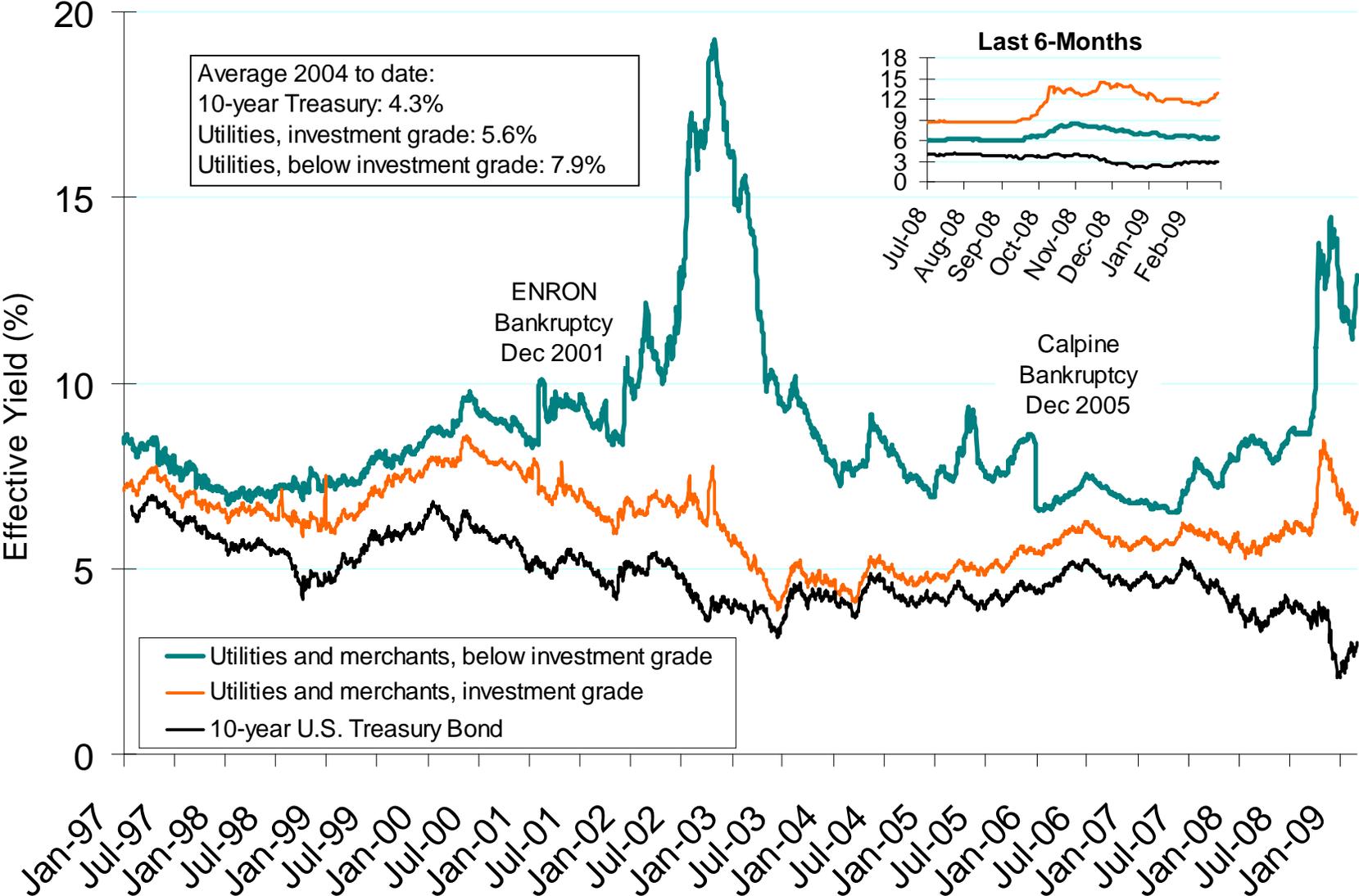


# Implied Heat Rates at Western Trading Points



Source: Derived from *Platts* data  
March 2009 Western Snapshot Report

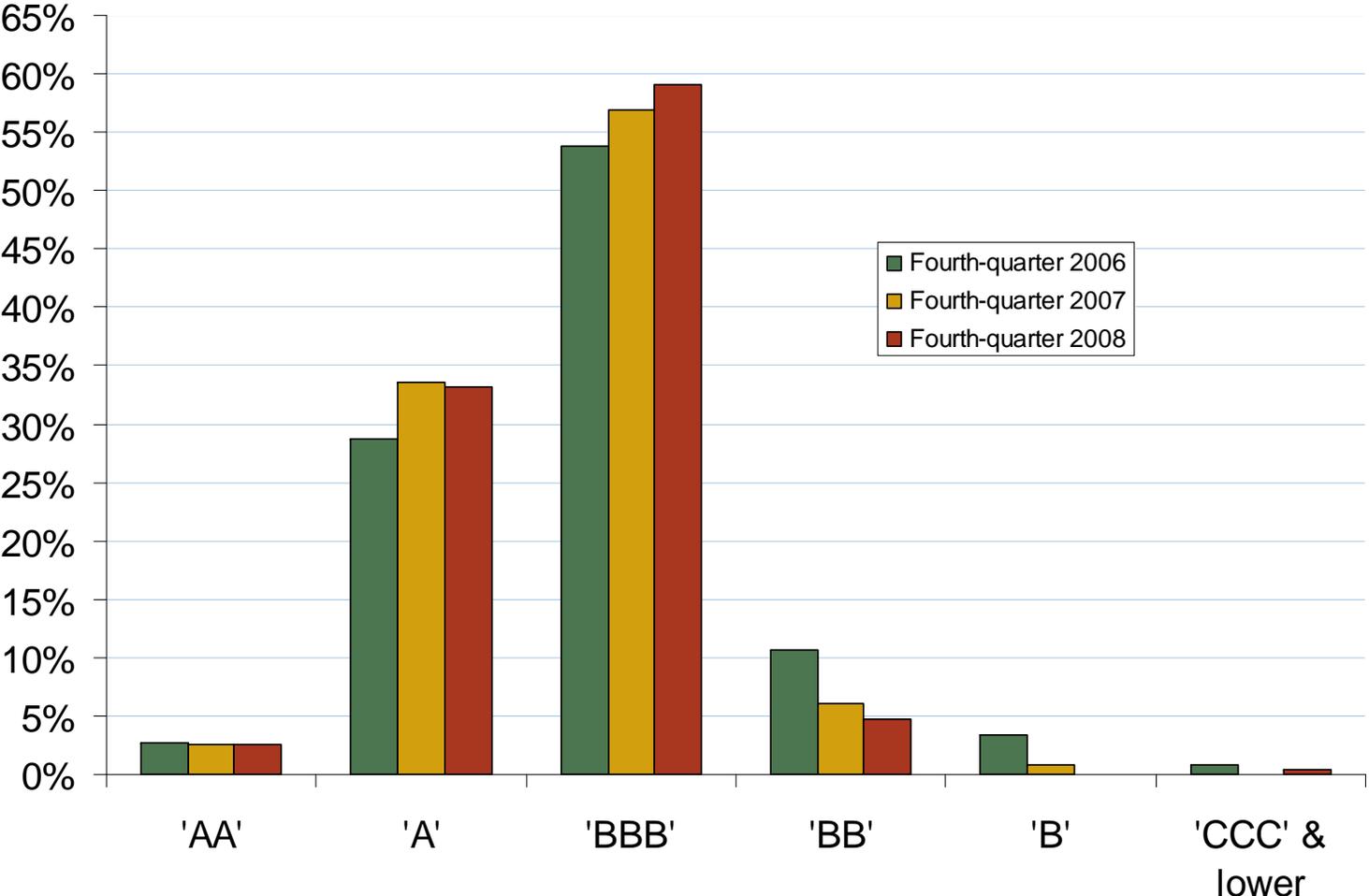
### Yields of Utilities, Merchants and Ten Year Treasury Bonds



Source: Derived from Merrill Lynch Index U.S Corporates, Gas and Electric Utilities and Bloomberg data.  
March 2009 Western Snapshot Report

Updated March 9, 2009

### U.S. Electric and Gas Utility Ratings Distribution



Source: Derived from Standard and Poors data.  
March 2009 Western Snapshot Report