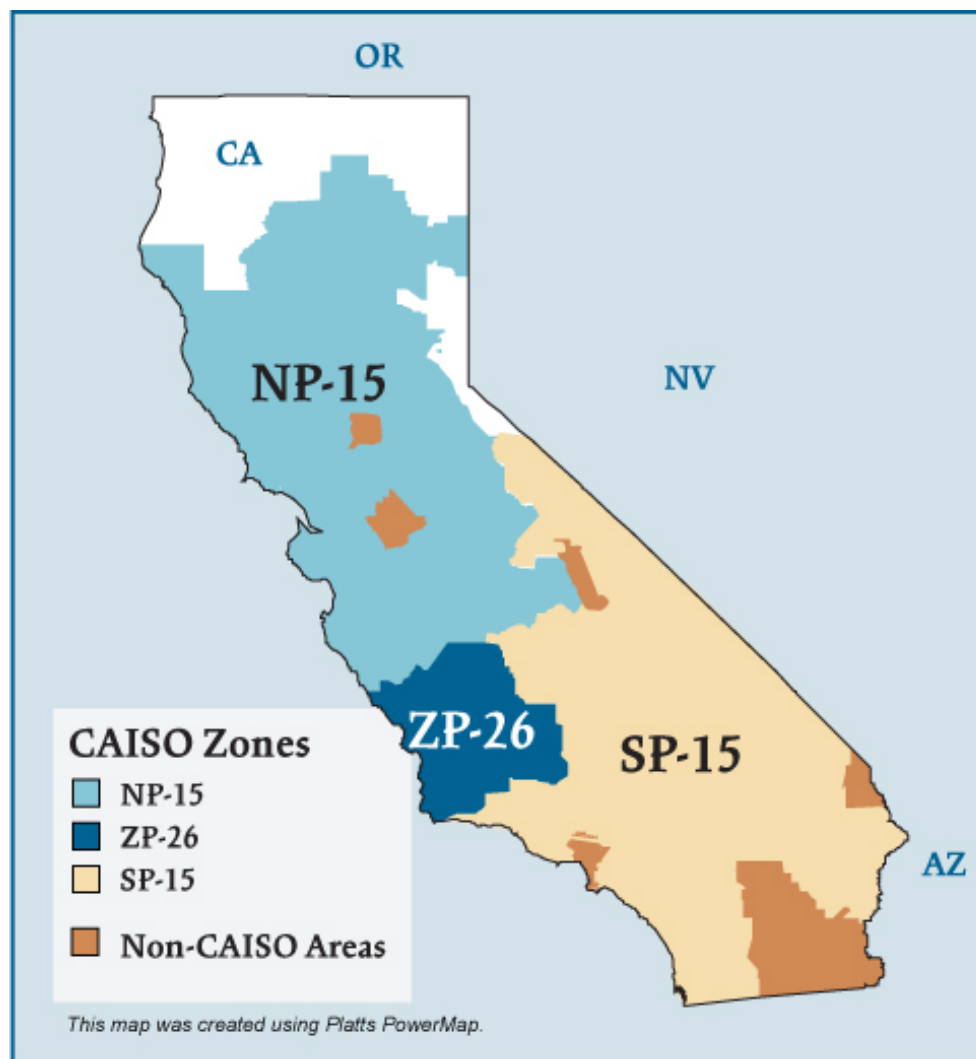


## California Electric Regions



## California Electric Market: Overview and Focal Points

### Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

## Overview

### Geography

States covered: California (most of) and northern Baja California (Mexico)

Reliability region: California-Mexico Power Area (CAMX) sub-region of the Western Electric Coordinating Council (WECC)

Balancing authorities: California ISO (CAISO), Sacramento Municipal Utility District (SMUD), Turlock Irrigation District (TID), Los Angeles Department of Water and Power (LADWP), and Comision Federal de Electricidad (CFE).

Approximately 80% of demand in the CAMX subregion is within the area of the CAISO balancing authority. The portion of the CAMX area within Mexico is comparatively small. The remaining 20% of California's load is managed primarily by municipal utilities and irrigation districts such as the Los Angeles Department of Water and Power, the Sacramento Municipal Utility District, and the Imperial Irrigation District.

CAISO zones: NP-15, ZP-26, SP-15

### RTO/ISO

California ISO (CAISO) (established 1998) operates the region's power grid and wholesale electric markets:

- Real-time imbalance energy,
- Ancillary services, and
- Transmission usage.

[CAISO 2008 State of the Markets Report](#)

Market Monitor: Keith Casey – Director, Department of Market Monitoring

*Updated May 13, 2008*

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## California Electric Market: Overview and Focal Points

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

### Generation/Supply

Marginal fuel type: natural gas

Generating capacity (summer 2006): 56,347 MW

Capacity reserve (summer 2006): 6,077 MW

Reserve margin (summer 2006): 12%

### Demand

All time peak demand: 50,270 MW (set July 24, 2006)

System peak loads declined in 2008, due in large part to a generally mild summer

.

Peak demand change: -3.5% (2007-2008)

	2004	2005	2006	2007	2008
Summer Peak Demand (MW)	45,597	45,562	50,270	48,615	46,897

Source: Derived from CAISO data.

Load pockets: Humbolt, North Bay, Greater San Francisco Bay, Sierra, Stockton, Los Angeles Basin, and San Diego areas.

## California Electric Market: Overview and Focal Points

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Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

### Prices (CAISO only)

Annual Average Price (ISO Real-time)

NP-15:

2004: \$38.35/MWh

2005: \$54.39/MWh

2006: \$43.17/MWh

2007: \$54.44/MWh

SP-15:

2004: \$39.47/MWh

2005: \$55.57/MWh

2006: \$46.50/MWh

2007: \$54.45/MWh

### Interconnections/Seams

Load serving entities within CAISO rely on imports for approximately one-fourth of their annual energy needs.

*Updated May 13, 2008*

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## Supply and Demand Statistics for CAISO

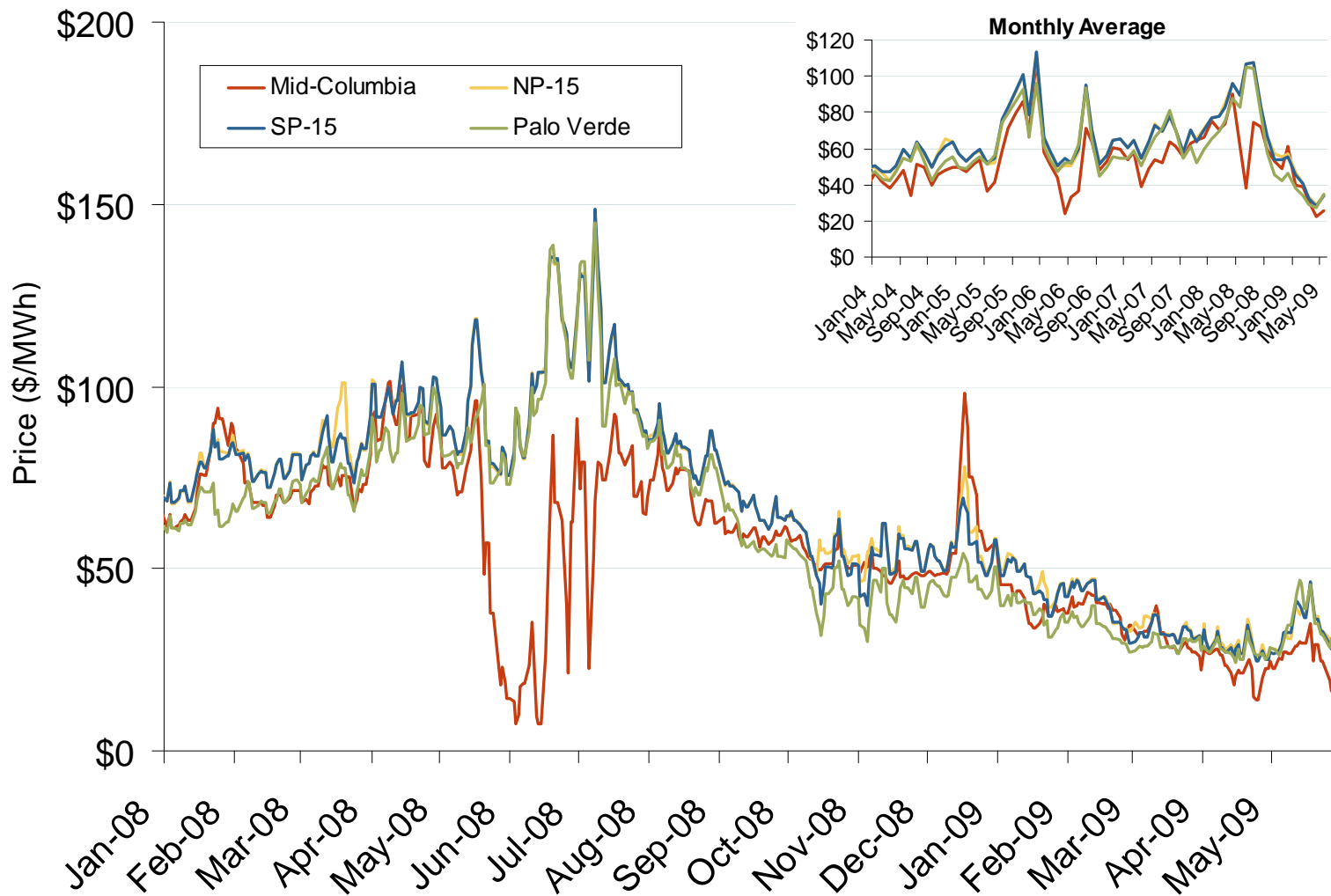
<b>Supply Demand Statistics</b>			
	2004	2005	2006
Summer Generating Capacity MW (1)	54,038	55,694	56,347
Summer Peak Demand MW	45,597	45,431	50,270
Summer Reserves MW	8,441	10,263	6,077
Summer Reserve Margin:	19%	23%	12%
Annual Load (GWh):	239,788	236,449	240,259
Annual Net Generation GWh	178,304	179,188	177,757

Footnote (1): Generation capacity includes dynamically scheduled generation, and excludes any derates of the resources or imports.

## Annual Average Bilateral Prices

Annual Average Day Ahead On Peak Prices (\$/MWh)						
	2004	2005	2006	2007	2008	5-Year Avg
NP15	\$54.44	\$72.49	\$61.08	\$66.59	\$80.14	\$66.95
SP15	\$55.18	\$73.04	\$61.95	\$66.48	\$79.36	\$67.20

# Western Daily Bilateral Day-Ahead On-Peak Prices

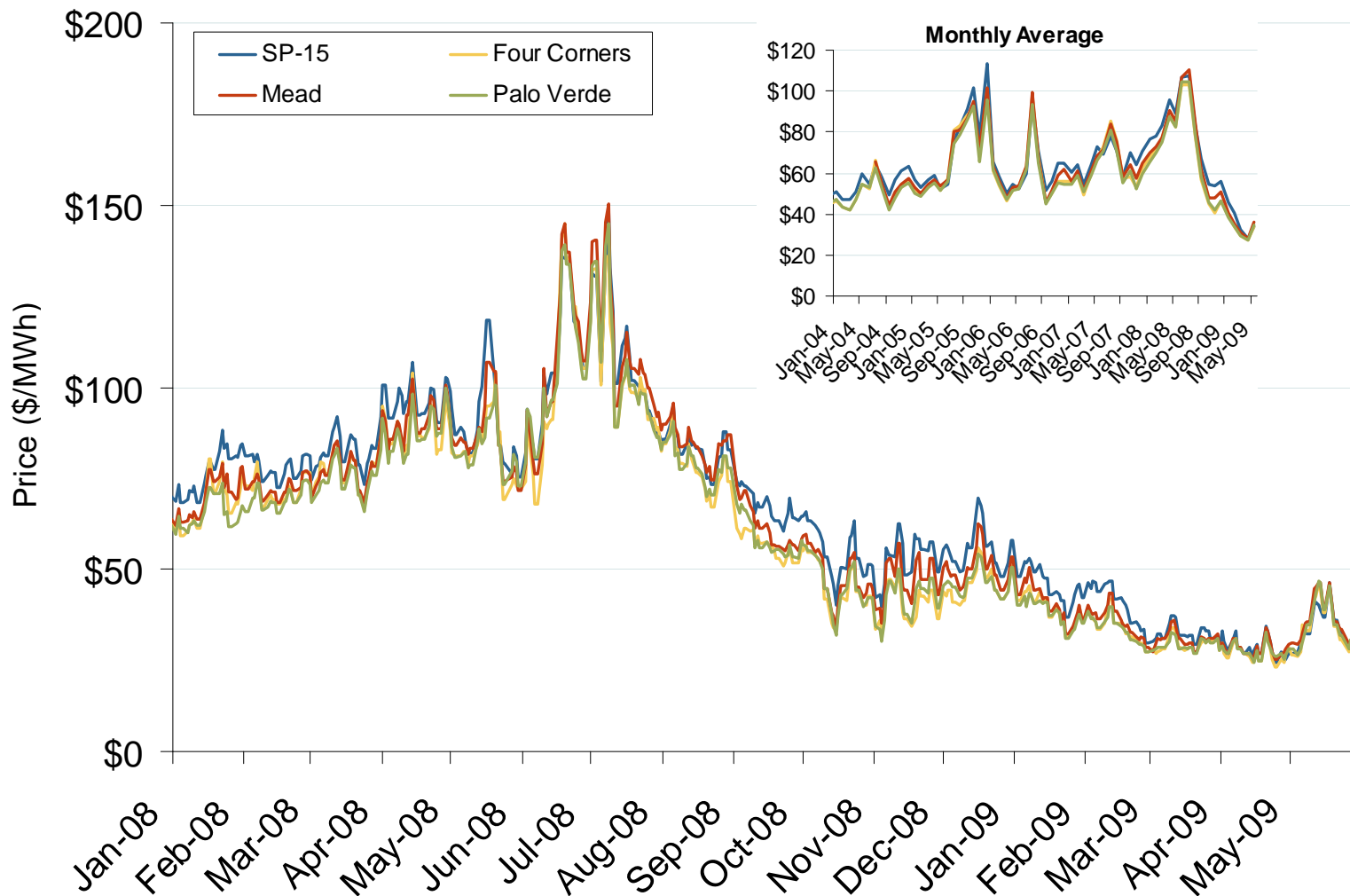


Source: Derived from *Platts* data.

Updated June 5, 2009

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# Southwestern Daily Bilateral Day-Ahead On-Peak Prices



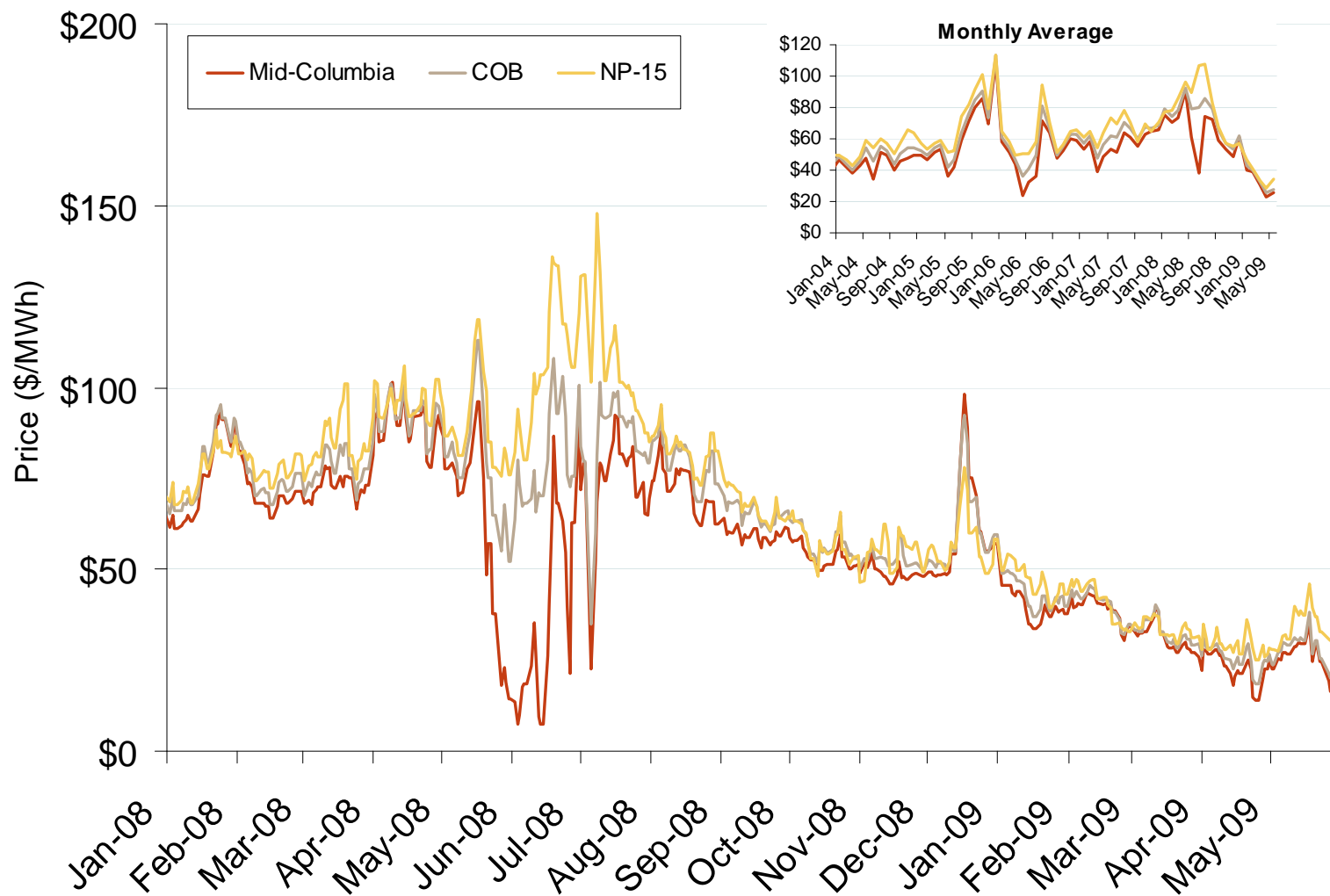
Source: Derived from *Platts* data.

Updated June 5, 2009

1005



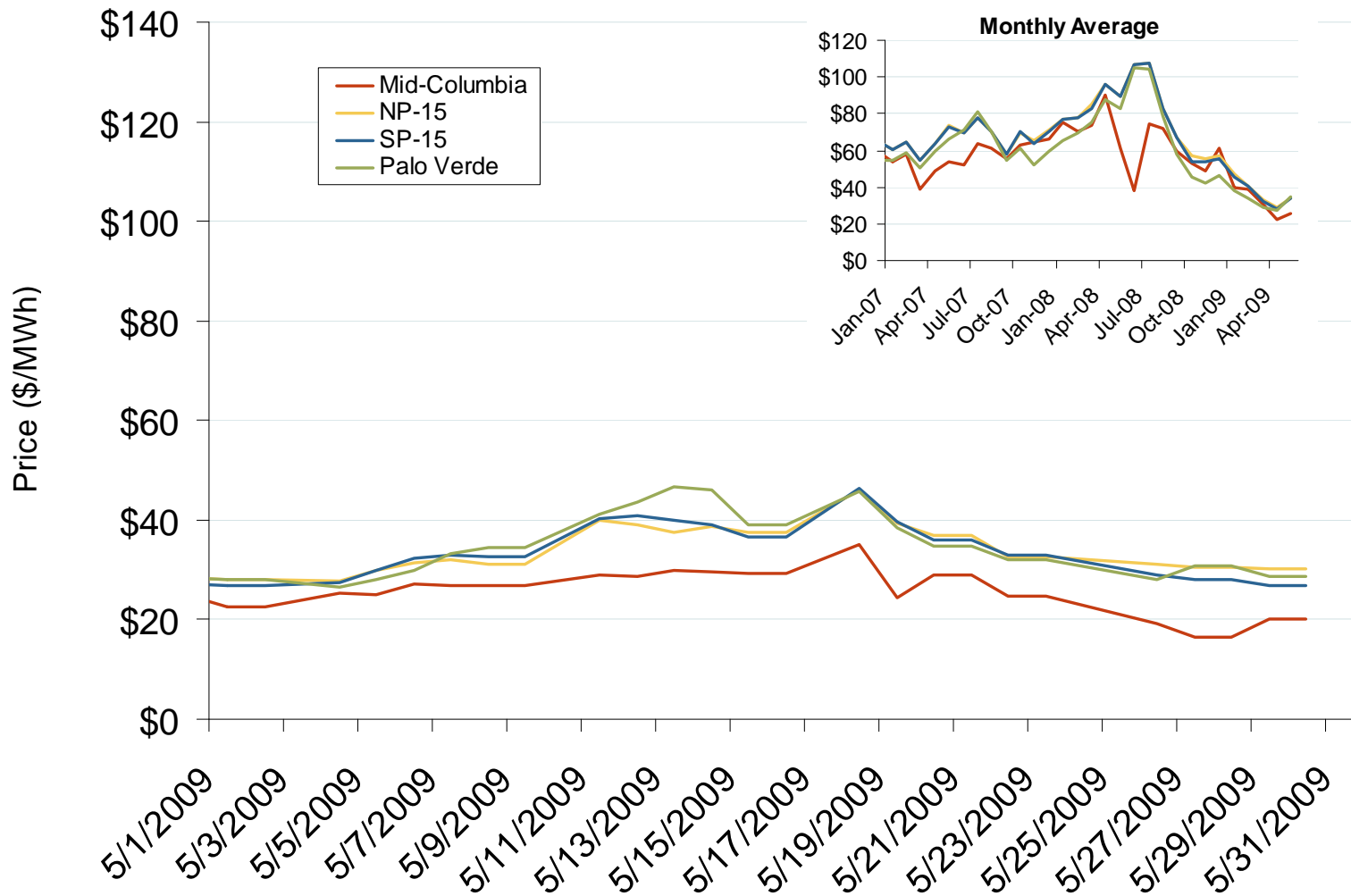
## Northwestern Daily Bilateral Day-Ahead On-Peak Prices

Source: Derived from *Platts* data.

Updated June 5, 2009

1007

# Western Daily Bilateral Day-Ahead On-Peak Prices

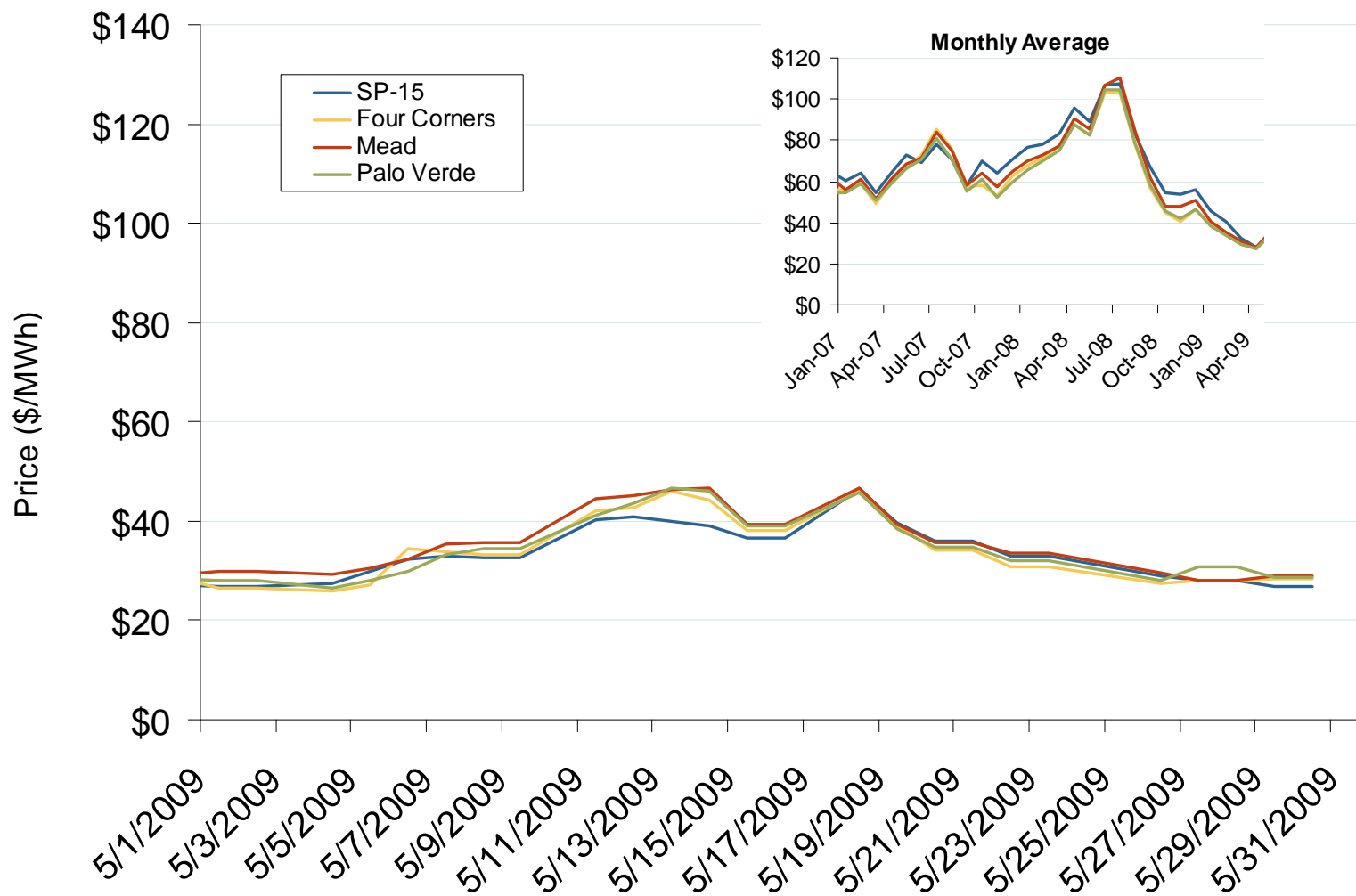


Source: Derived from Platts data.

Updated June 5, 2009

11022

# Southwestern Daily Bilateral Day-Ahead On-Peak Prices

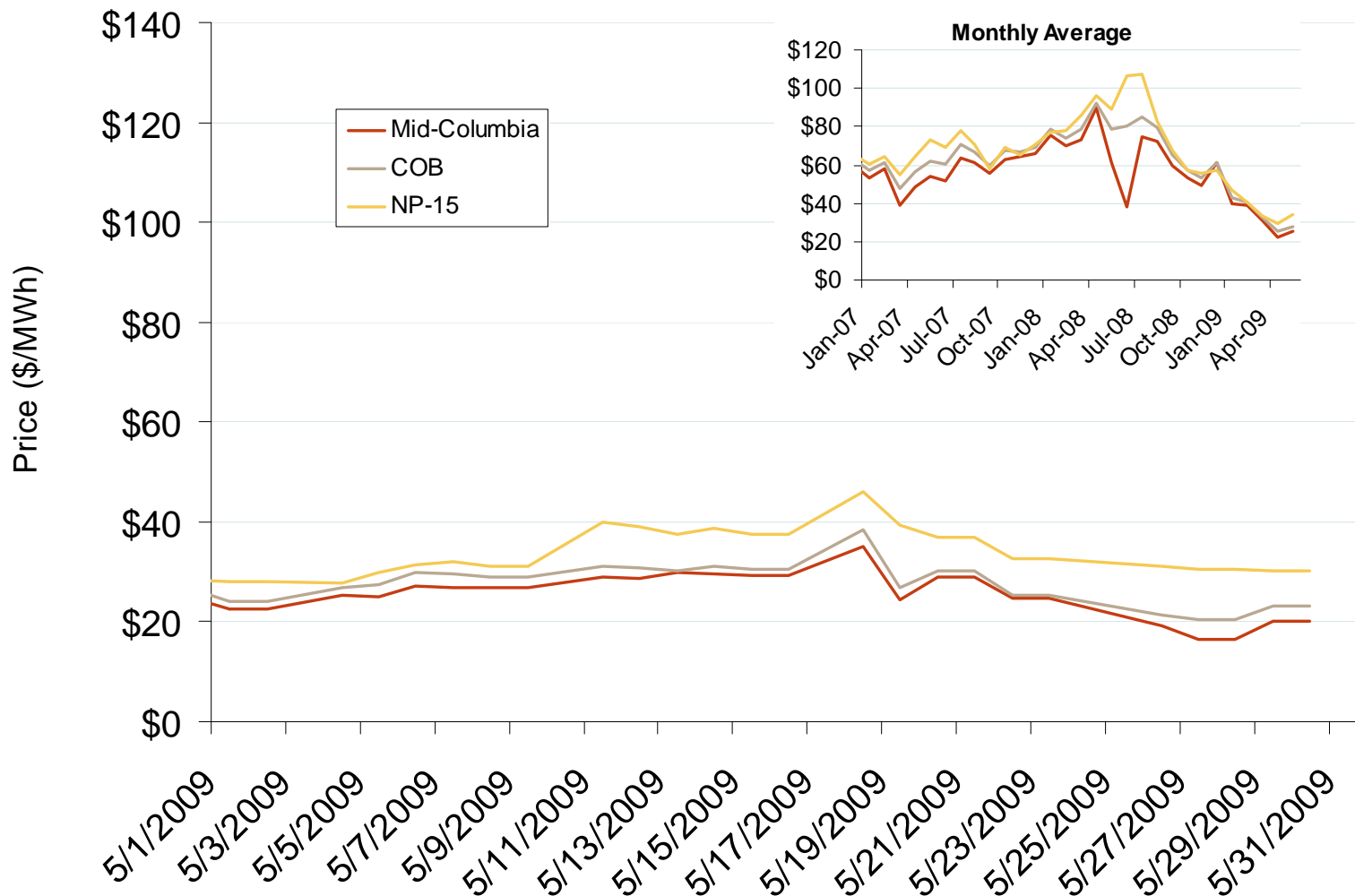


Source: Derived from *Platts* data.

Updated June 5, 2009

11021

# Northwestern Daily Bilateral Day-Ahead On-Peak Prices

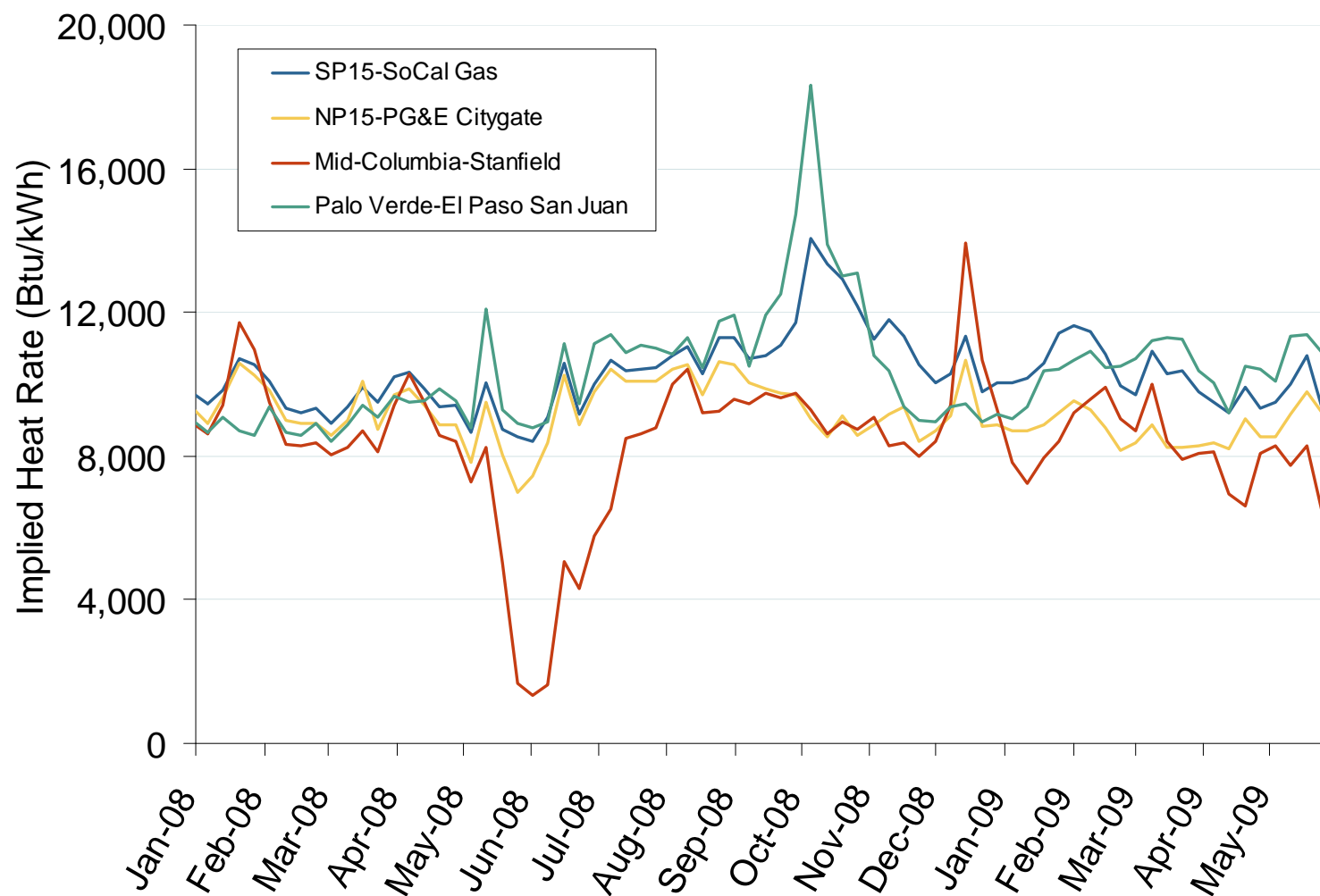


Source: Derived from *Platts* data.

Updated June 5, 2009

11023

## Implied Heat Rates at Western Trading Points Weekly Averages

Source: Derived from *Platts* data

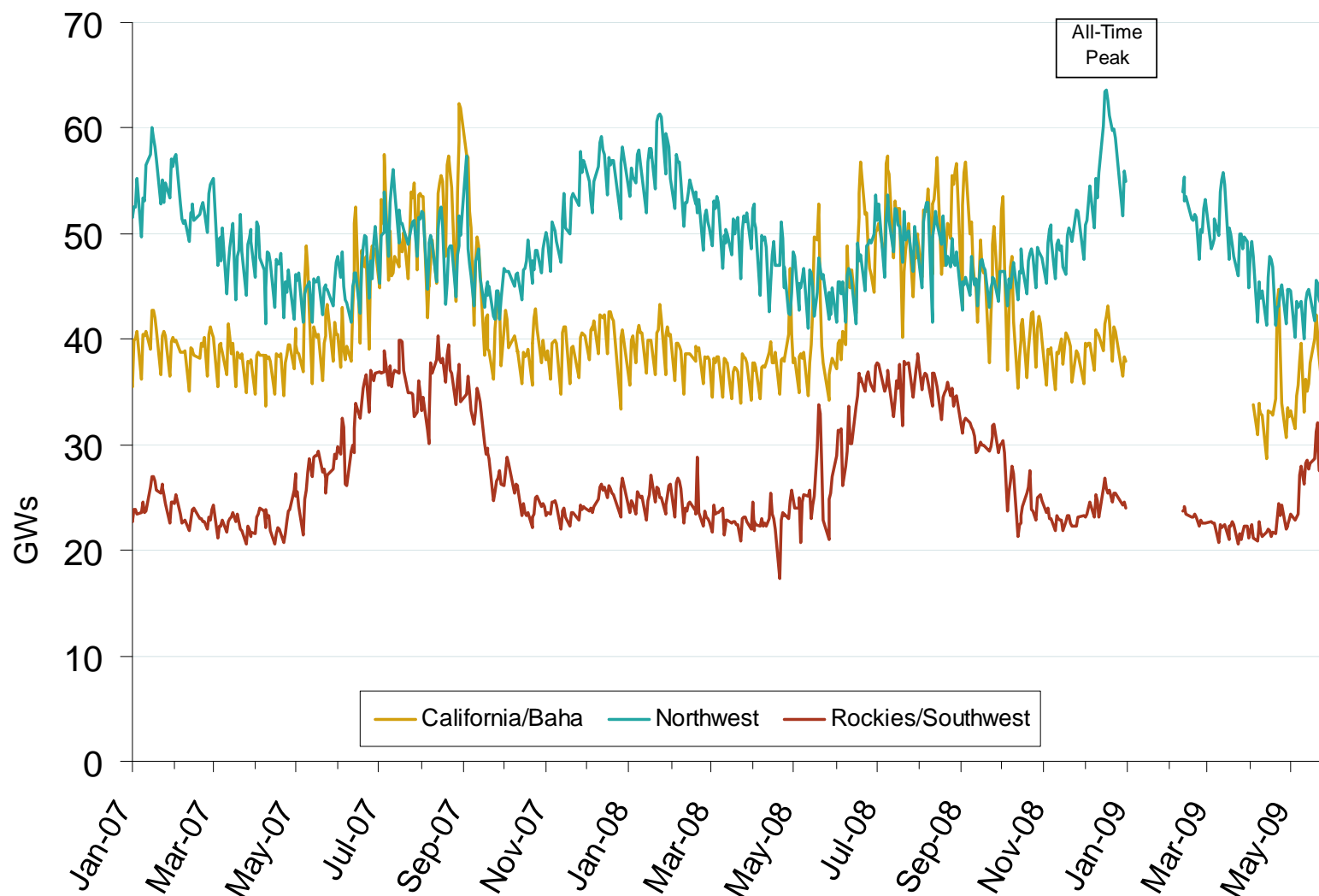
Updated June 5, 2009

1143

## California Electric Market: Daily Peak Demand

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

## Western Daily Actual Peak Demand

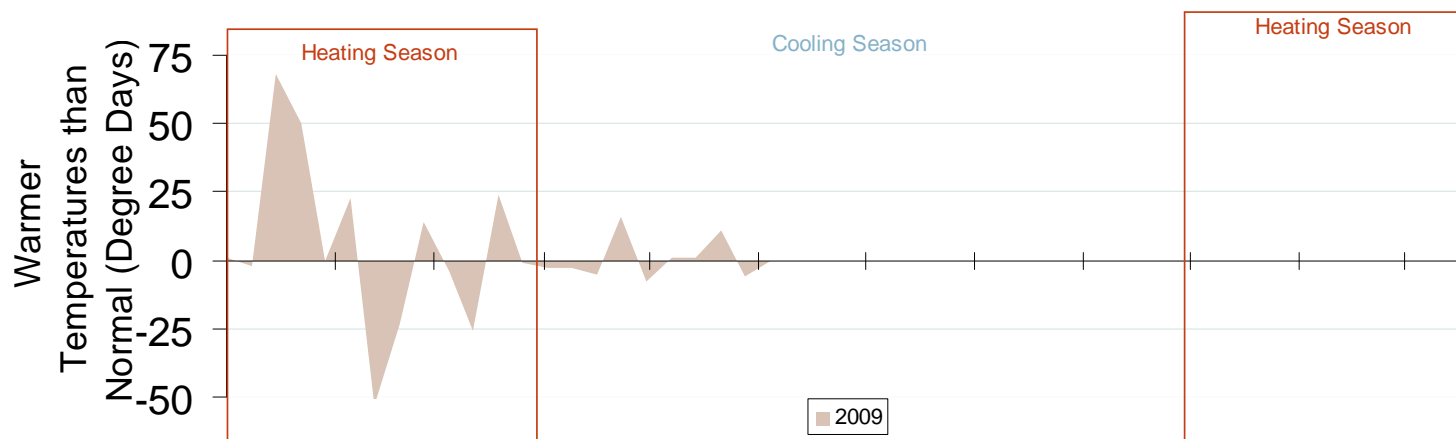
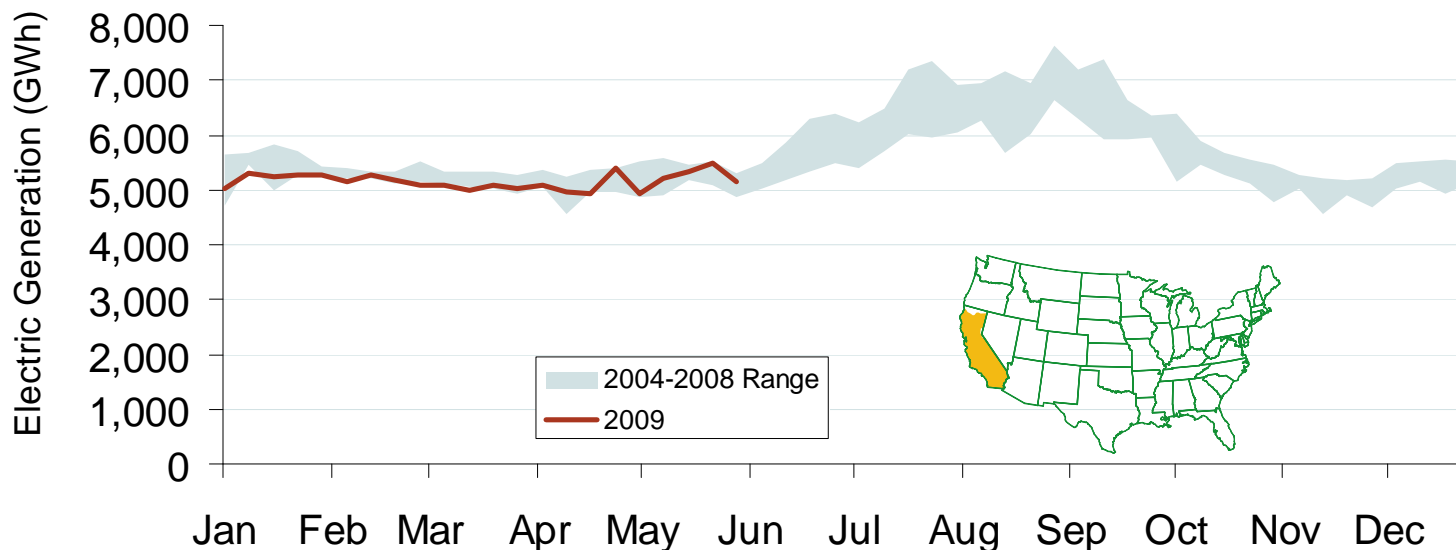


Source: Derived from WECC Daily Report data available at <http://wecc.biz>. Data does not include weekends and holidays. The WECC Daily Report was not published from 12/31/2008 through mid-February.

Updated June 5, 2009

1192

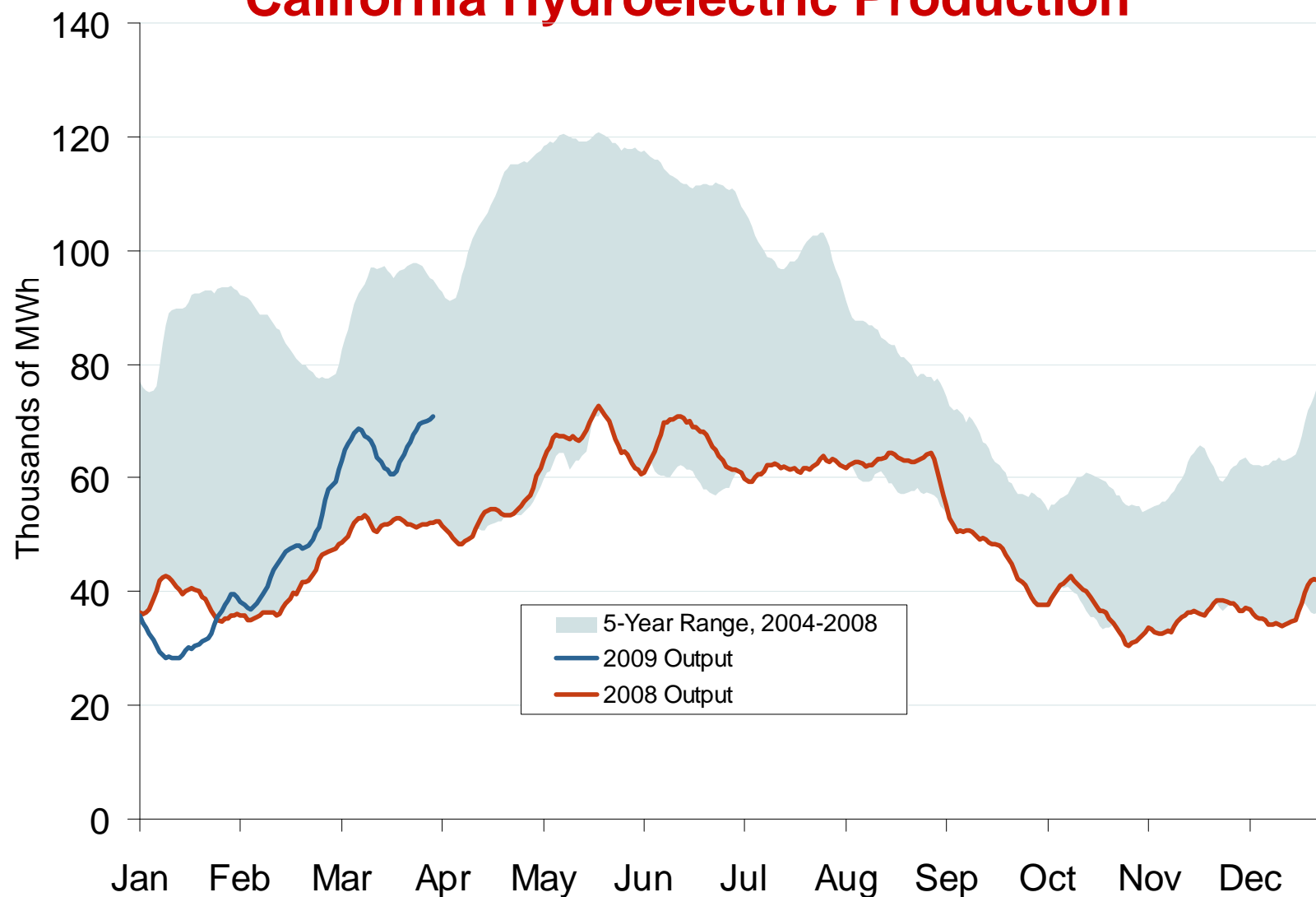
# Weekly Electric Generation Output and Temperatures California



Source: Derived from EEI and NOAA data.

Updated June 5, 2009

## California Hydroelectric Production



Source: Derived from CAISO data.

Trend lines are 7-day moving averages.

Updated April 7, 2009

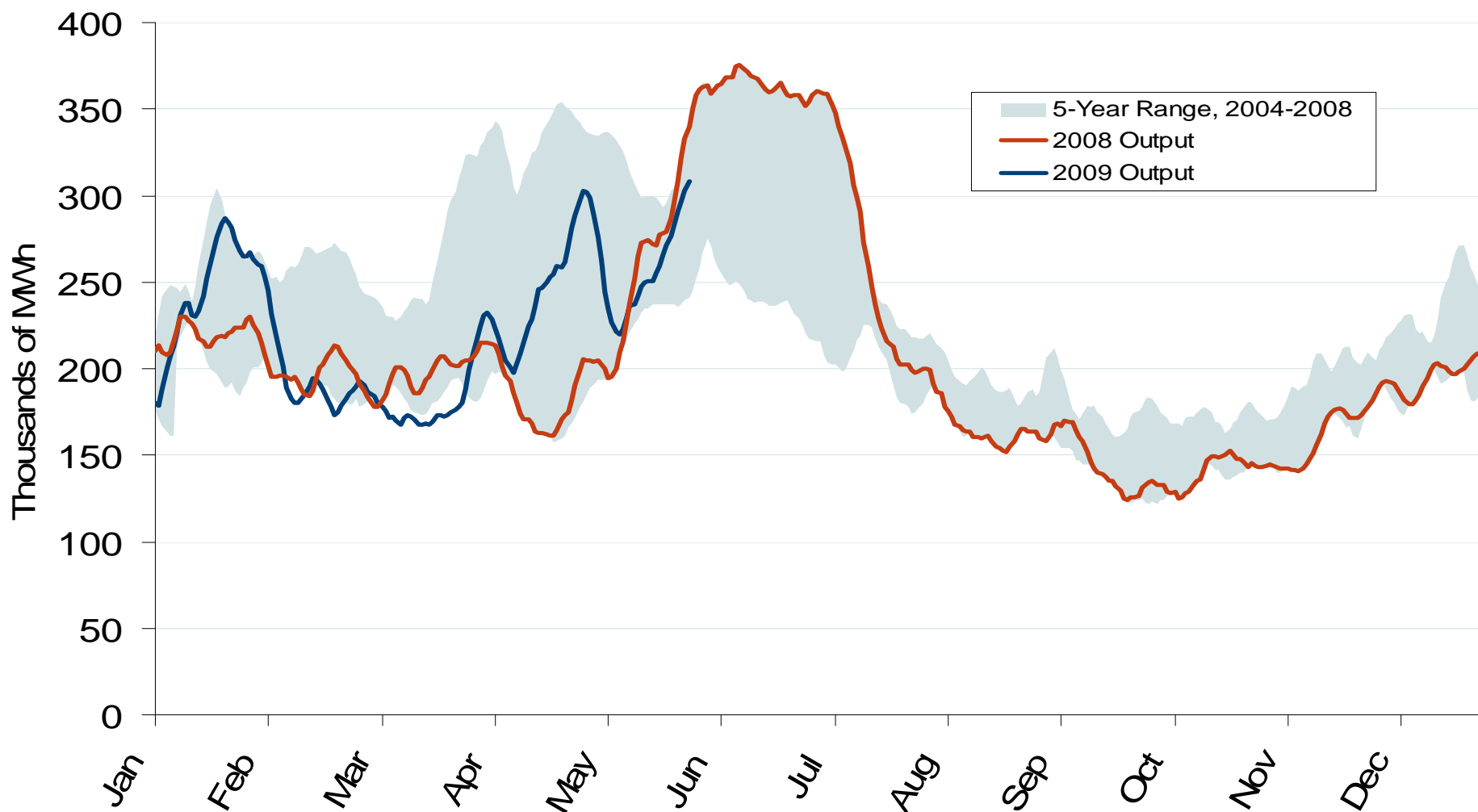
1104



## California Electric Market: Pacific Northwest Hydro Production

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

## Pacific Northwest Hydroelectric Production



Source: Derived from USACE data reflecting the output of the 24 largest facilities.  
Trend lines are 7-day moving averages.

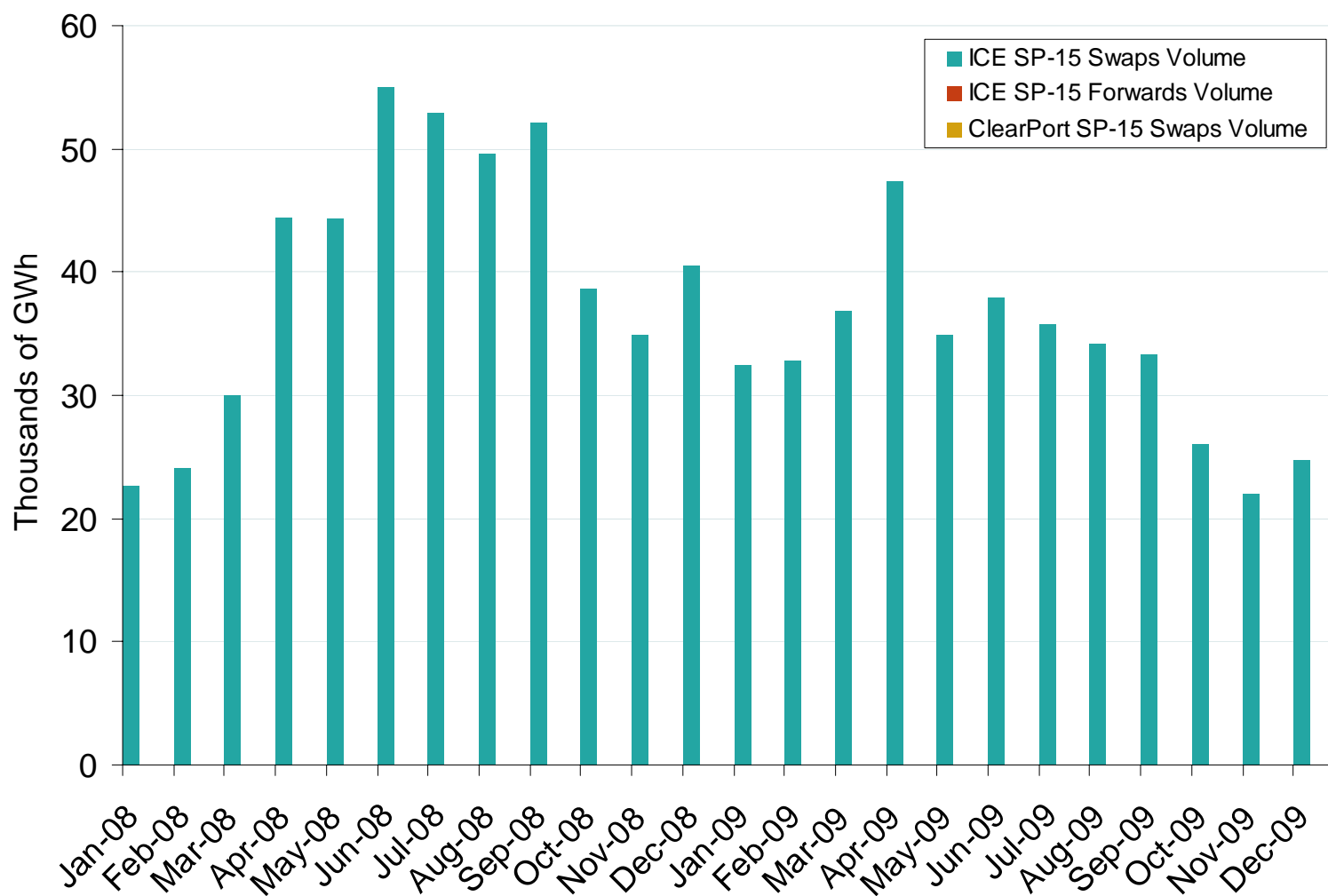
Updated June 5, 2009

1105

## California Electric Market: Physical &amp; Financial Market Volumes

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

## SP-15 Forward and Swap Volumes

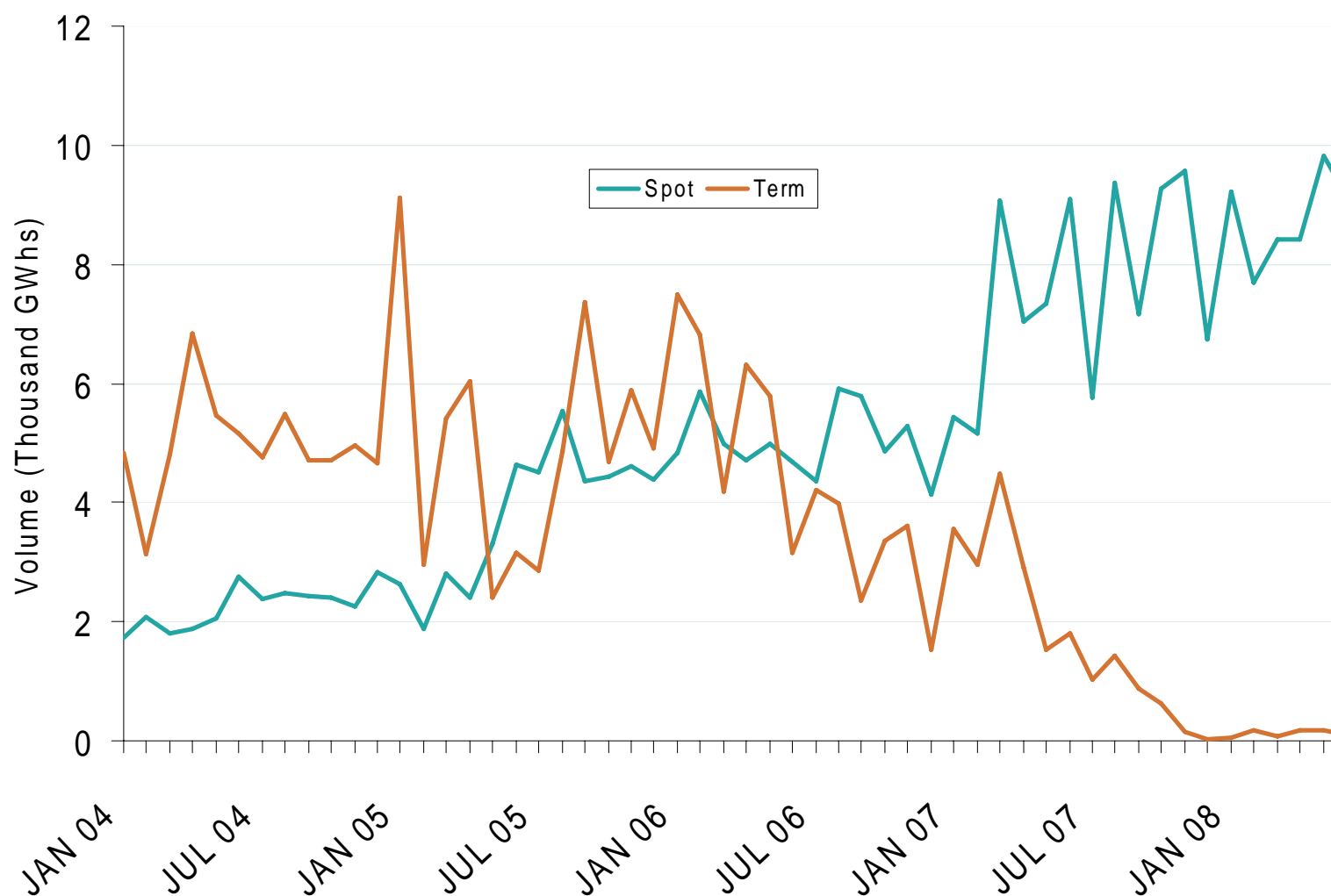


Source: Derived from *ICE* and *Nymex ClearPort*. ICE on-peak forward (physical) and swap (financial) volumes are for SP-15 and include monthly, dual monthly, quarterly, and calendar year contracts traded for each month. Nymex ClearPort on-peak swap (financial) volumes are for the SP-15 Hub traded by month.

Updated June 5, 2009

1008

## Western Physical Power Volumes Traded on ICE by Month

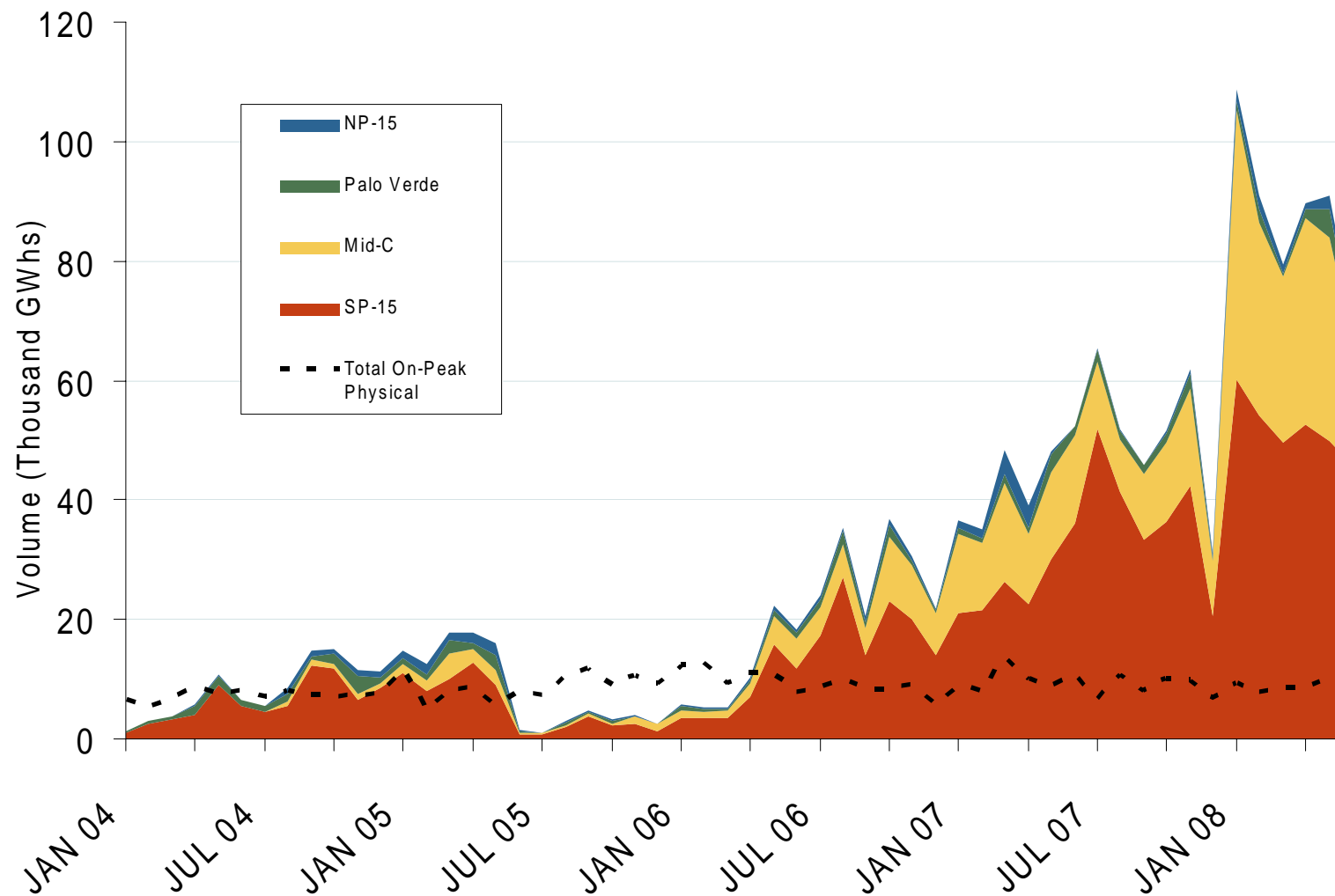


Source: Derived from ICE data.

Updated August 14, 2008

1200

## Western Financial On-Peak Products Traded on ICE by Hub



Source: Derived from ICE data.

Updated August 14, 2008

1203