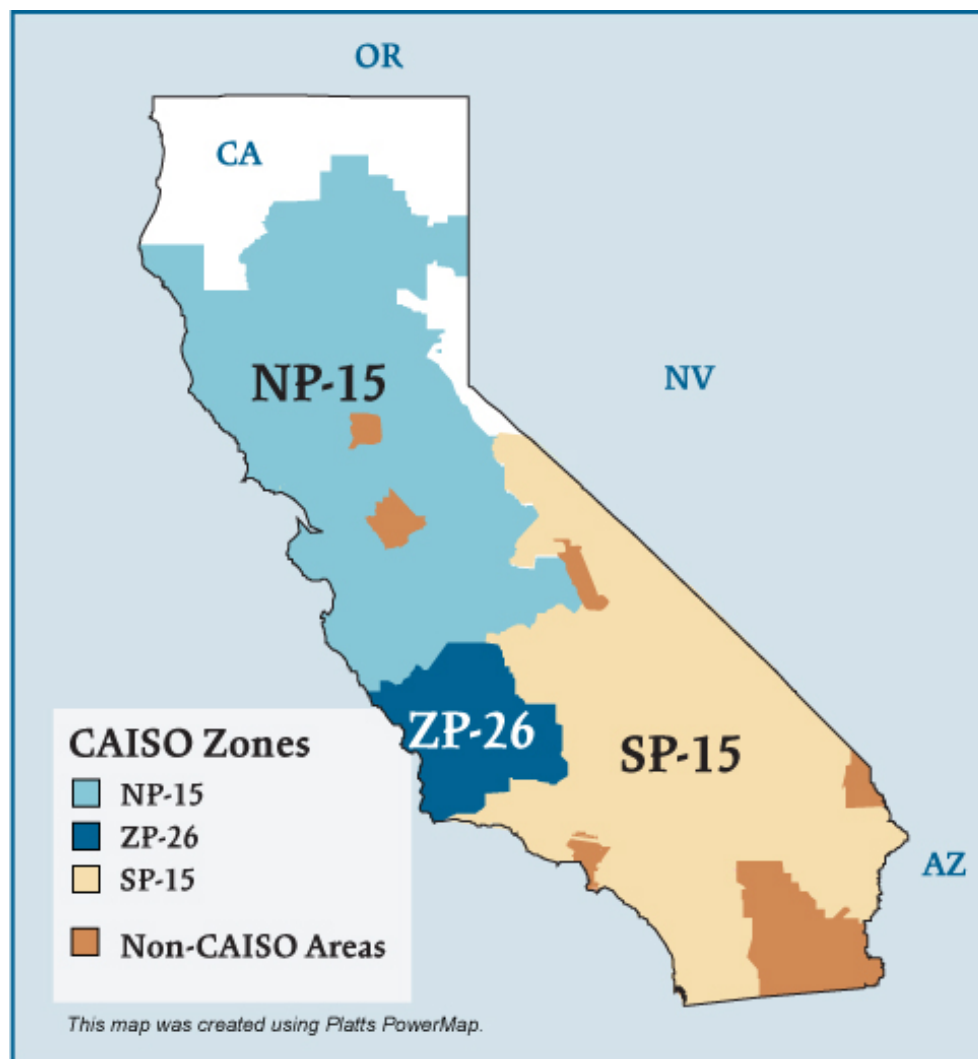


## California Electric Regions



## 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

**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.

**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

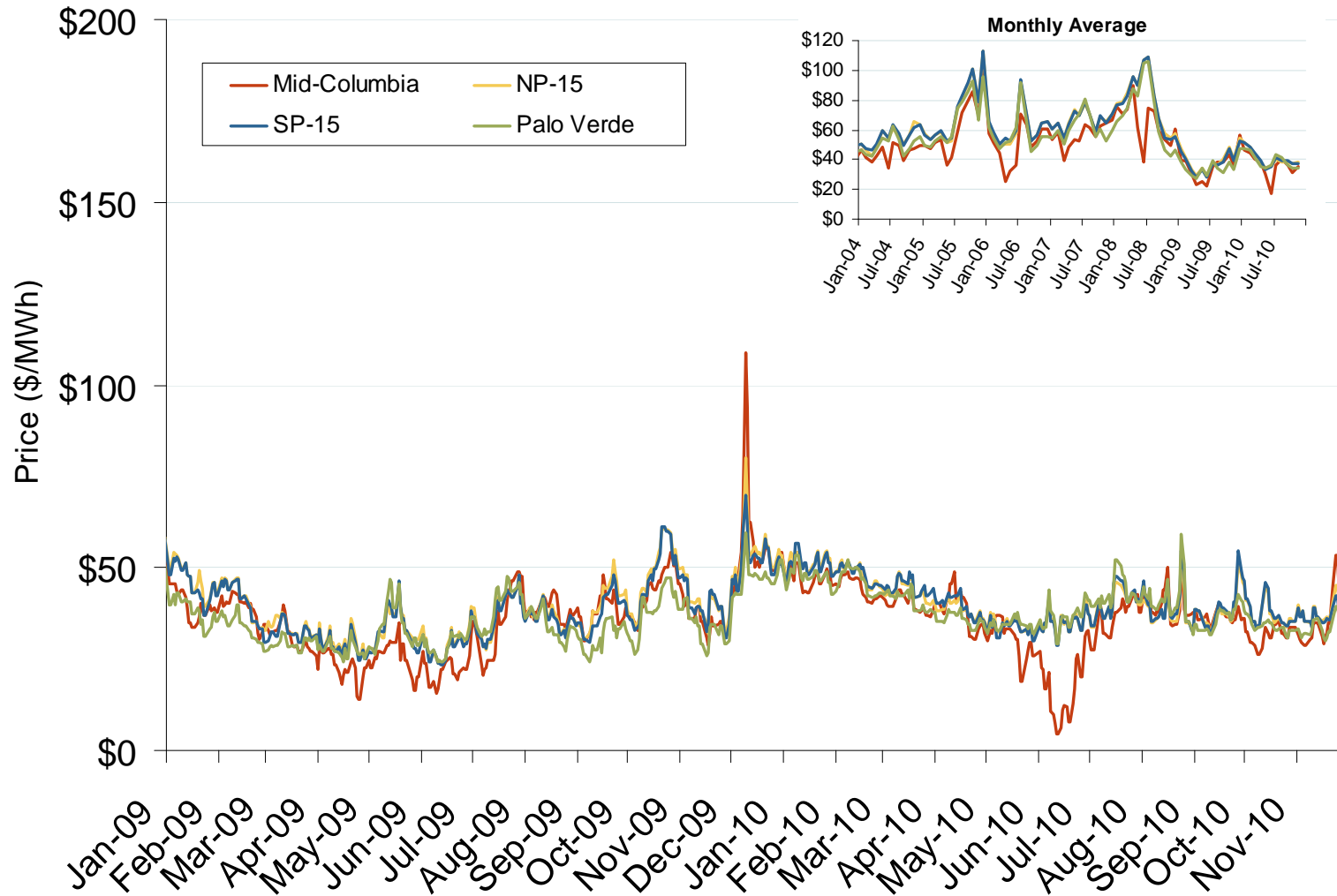
**Interconnections/Seams**

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

## Annual Average Bilateral Prices

Annual Average Day Ahead On Peak Prices (\$/MWh)						
	2005	2006	2007	2008	2009	5-Year Avg
NP15	\$72.49	\$61.08	\$66.59	\$80.14	\$39.29	\$63.93
SP15	\$73.04	\$61.95	\$66.48	\$79.36	\$38.31	\$63.84

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



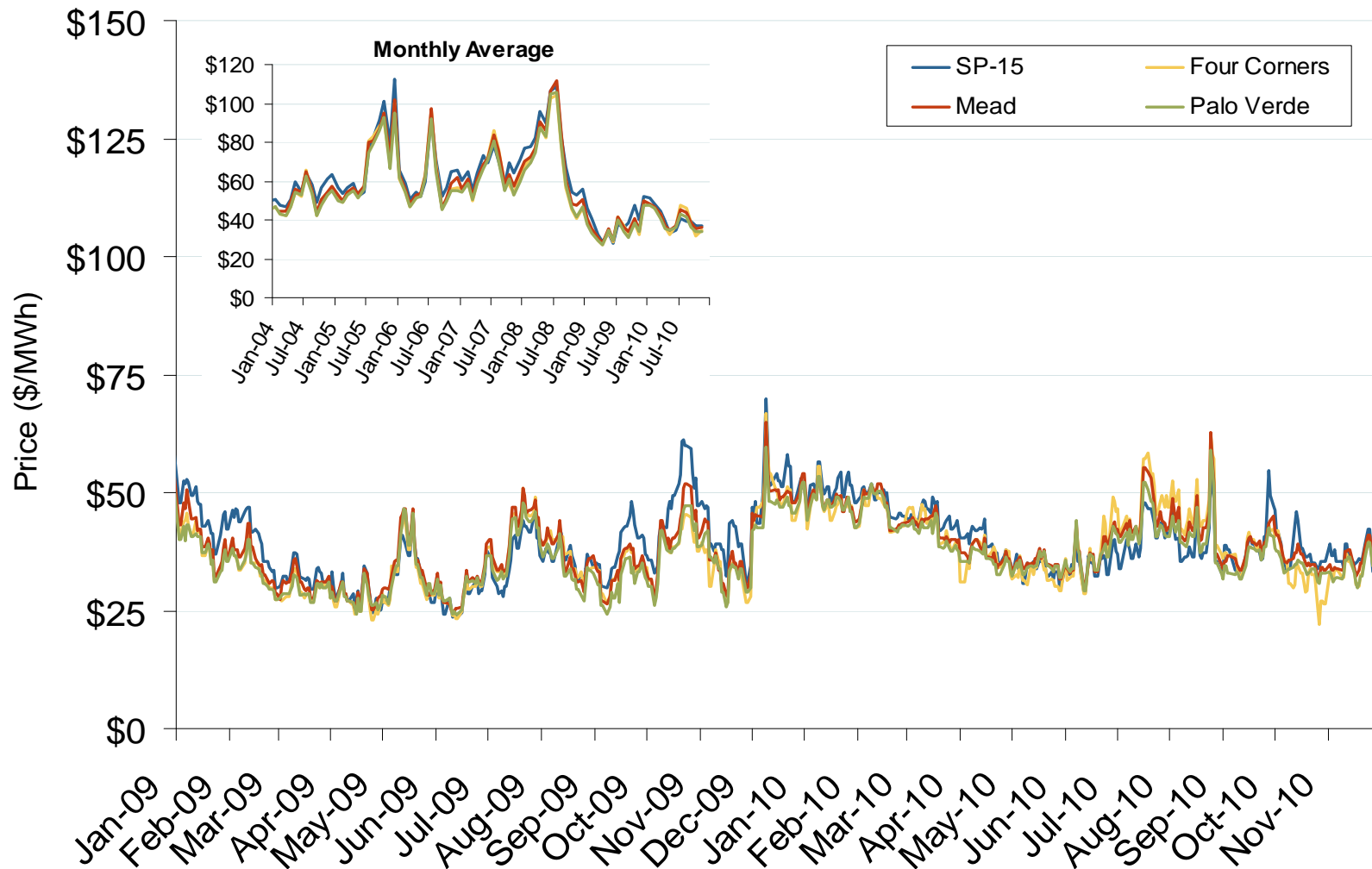
Source: Derived from *Platts* data.

December 2010

Updated December 8, 2010

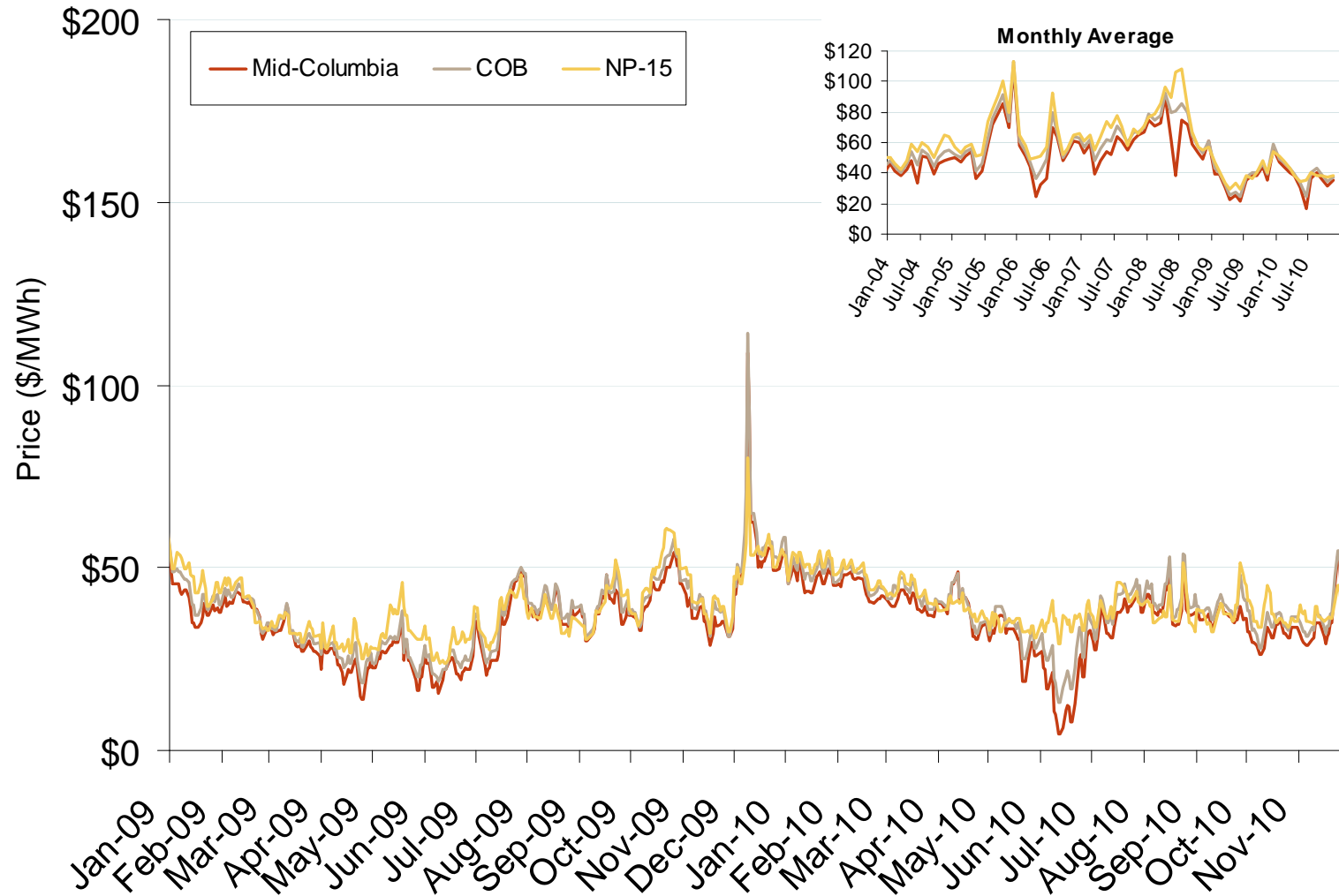
1006

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



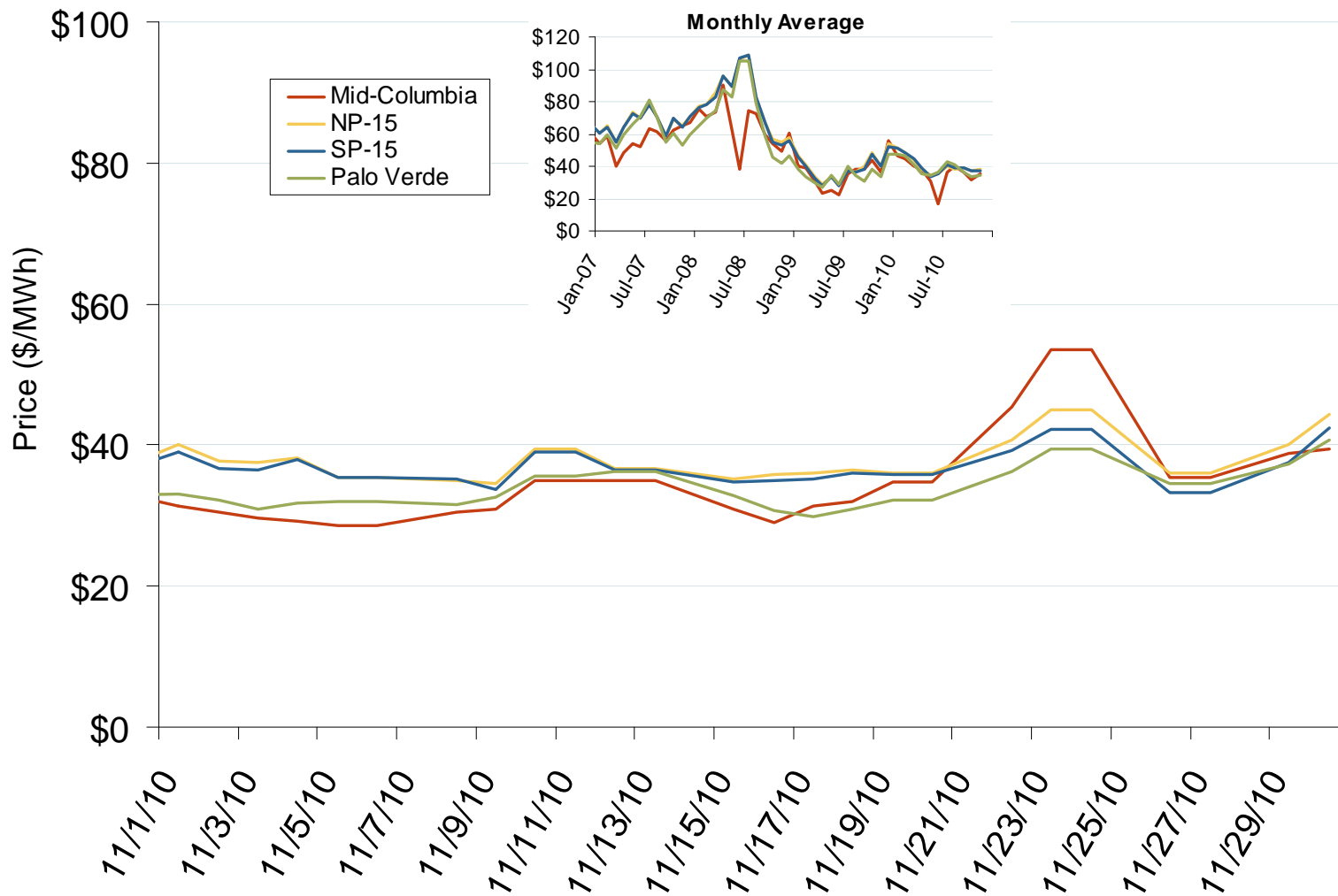
Source: Derived from *Platts* data.  
December 2010

# Northwestern Daily Bilateral Day-Ahead On-Peak Prices



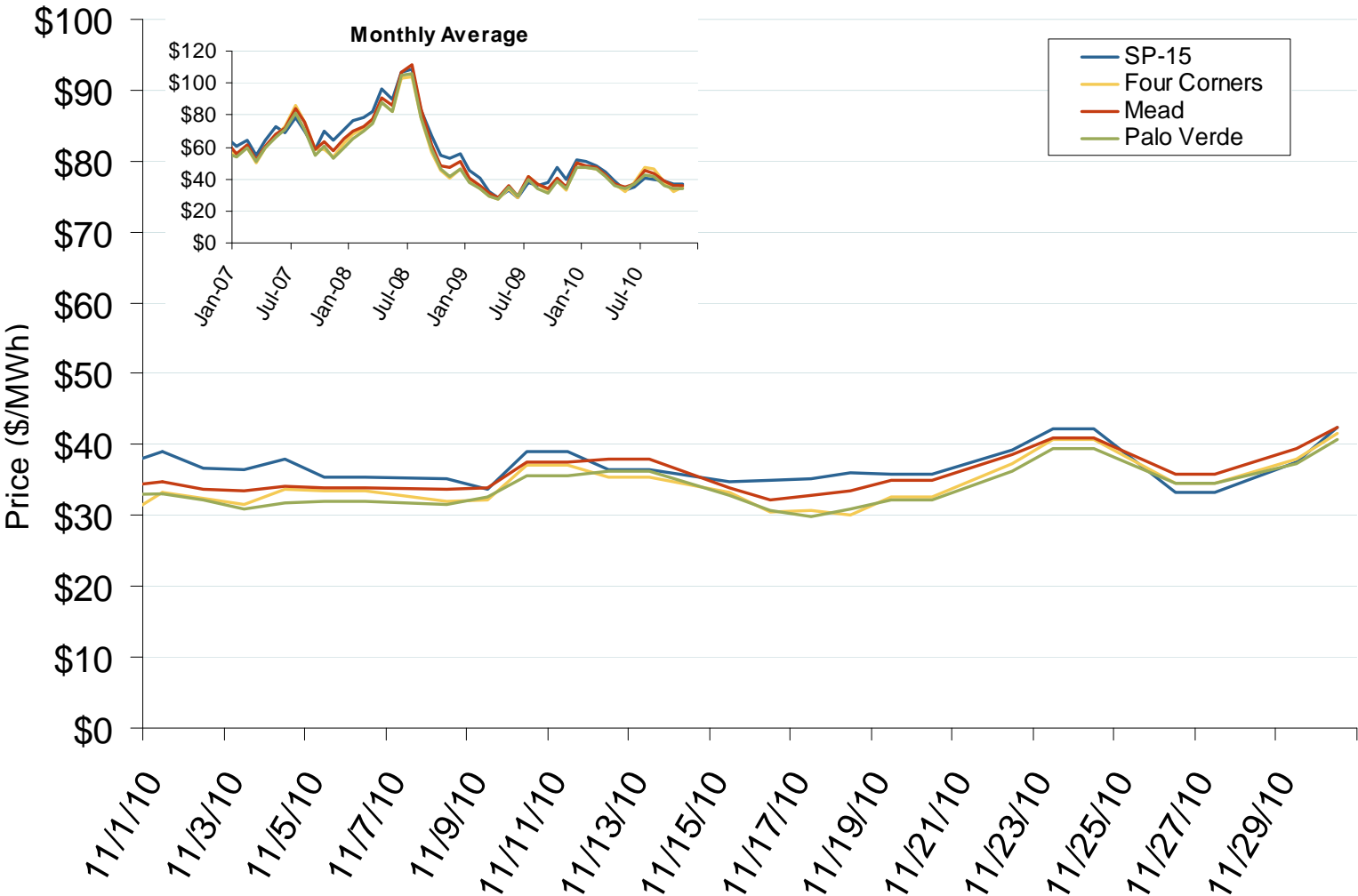


## Western Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.  
December 2010

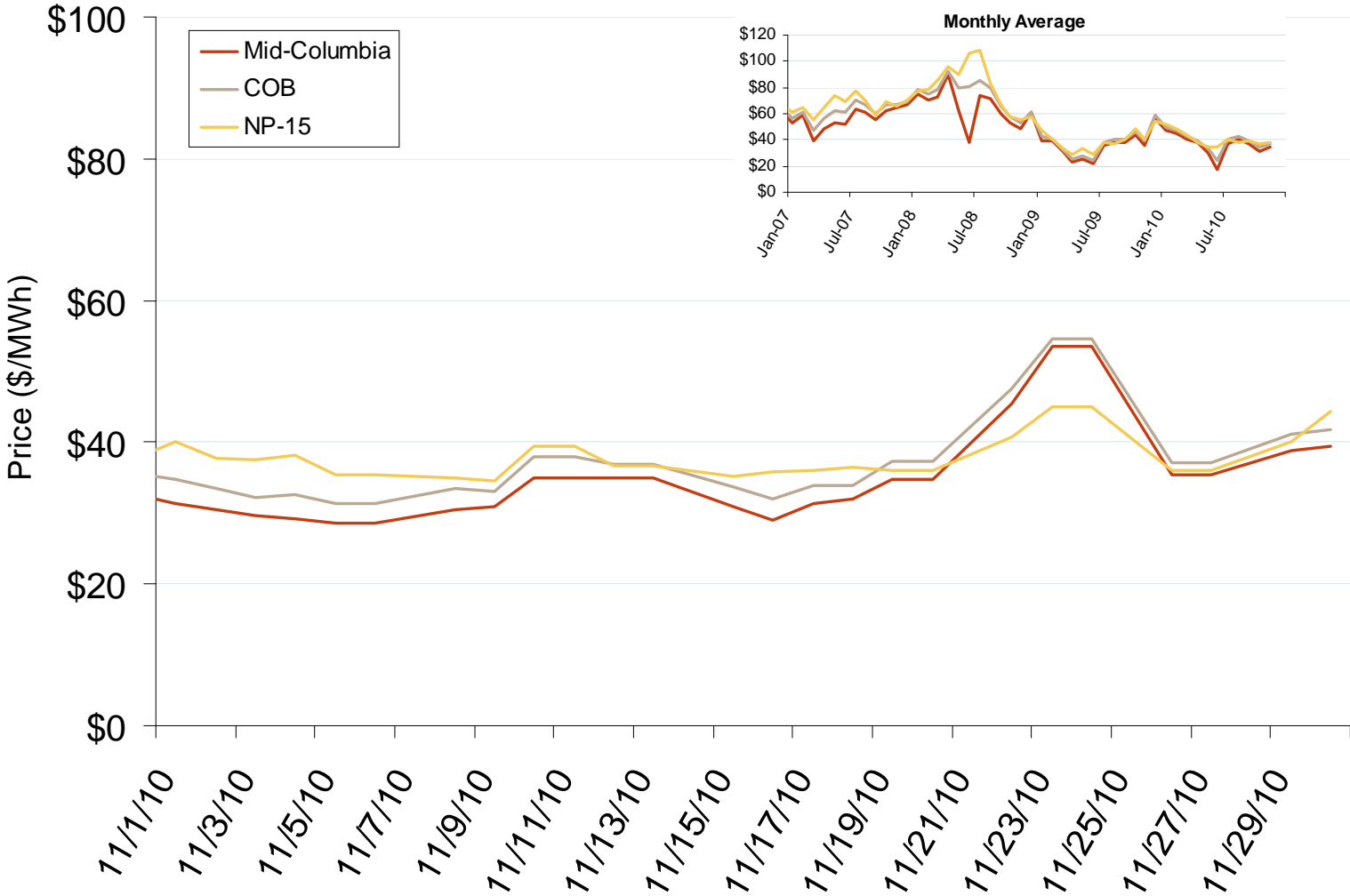
# Southwestern Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.  
December 2010

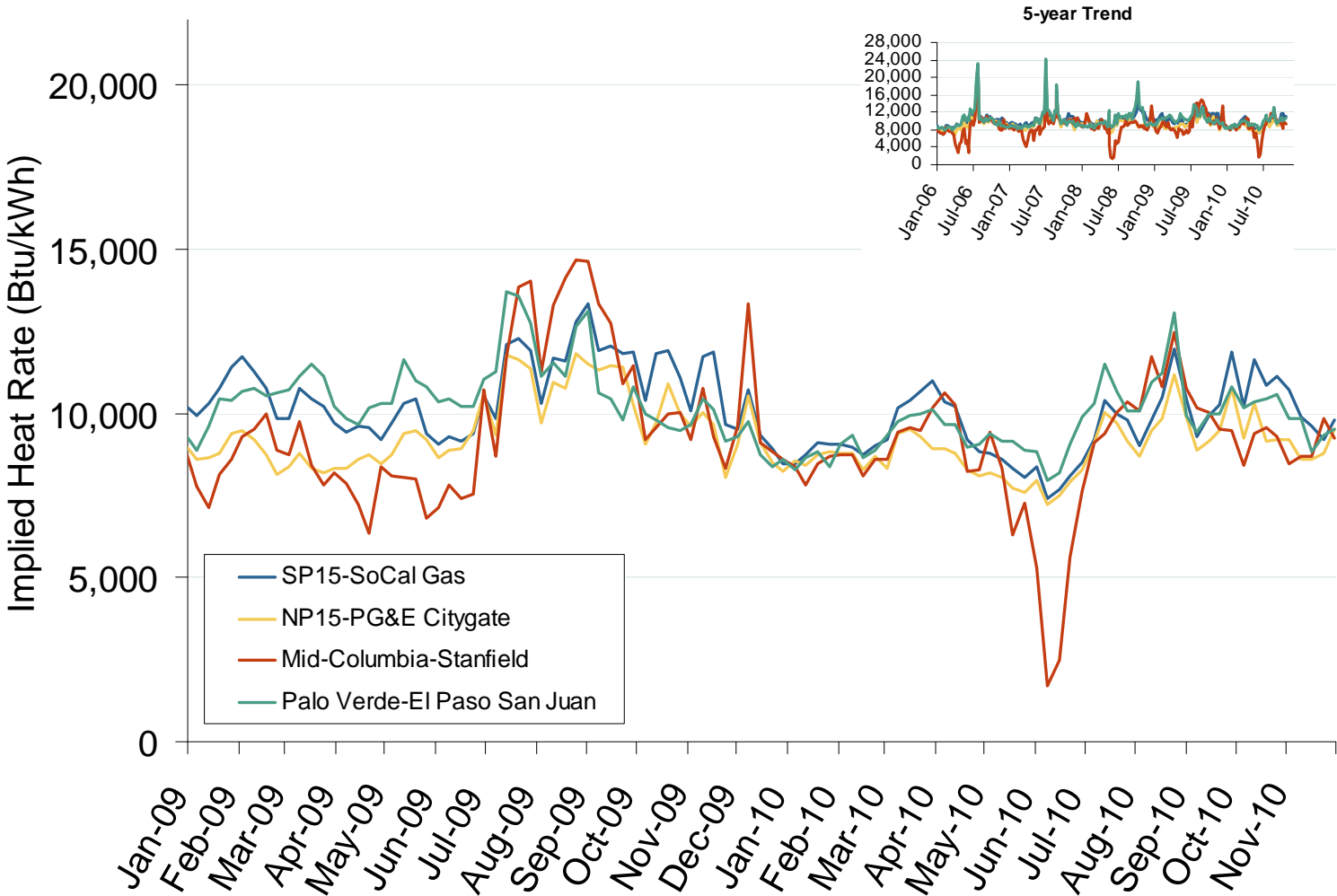
Updated December 8, 2010

# Northwestern Daily Bilateral Day-Ahead On-Peak Prices



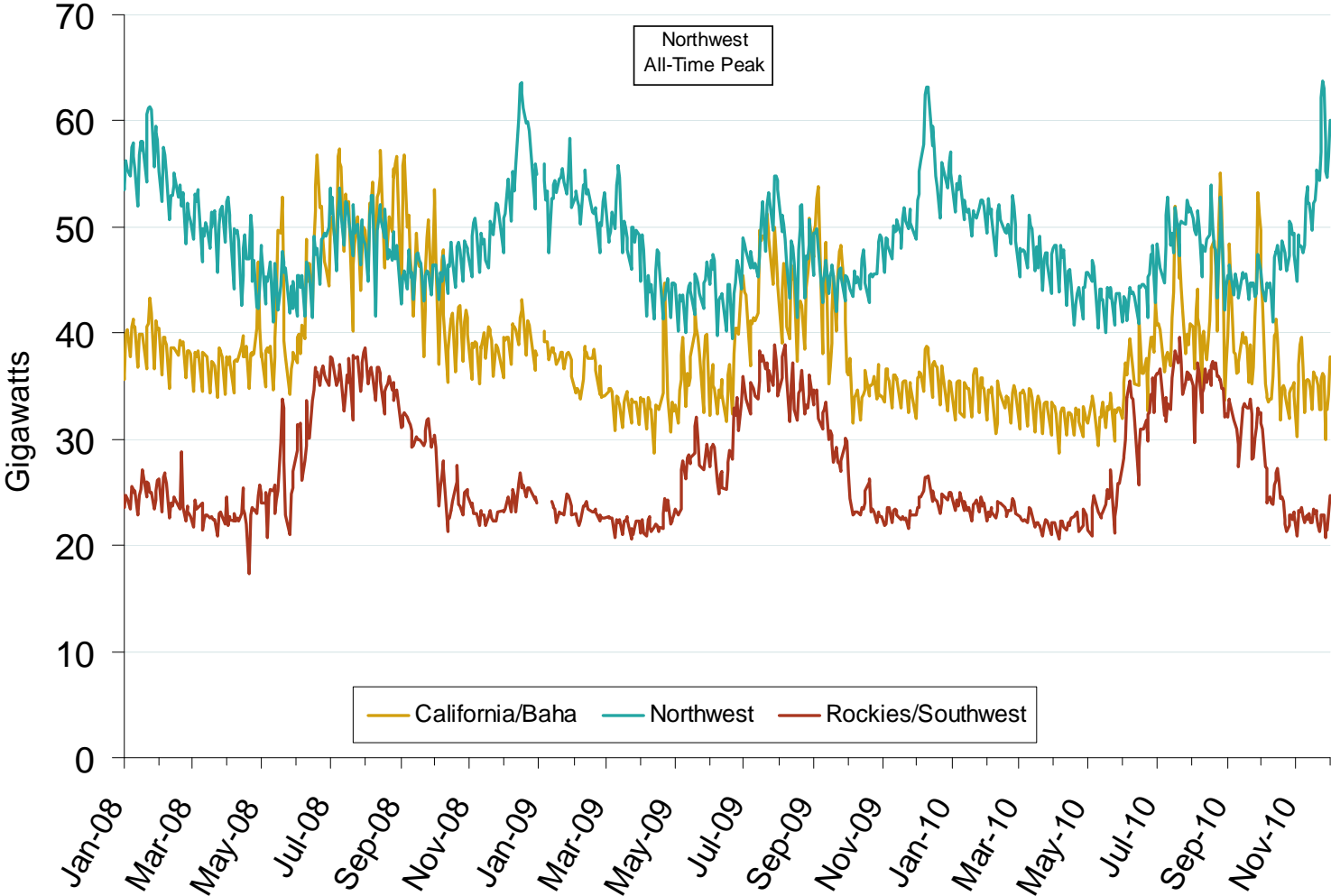
Source: Derived from *Platts* data.  
December 2010

# Implied Heat Rates at Western Trading Points Weekly Averages



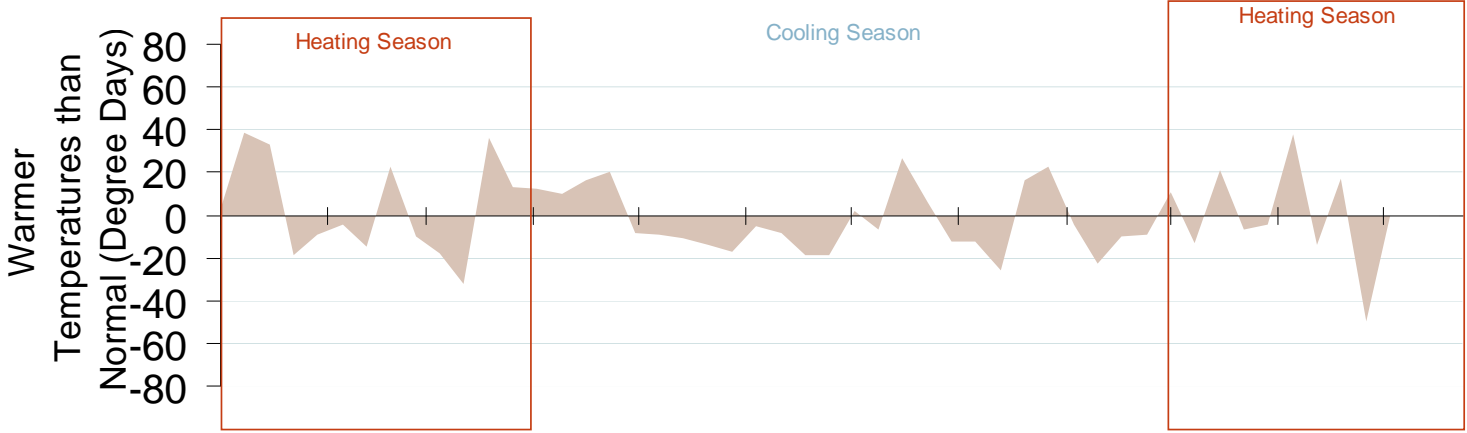
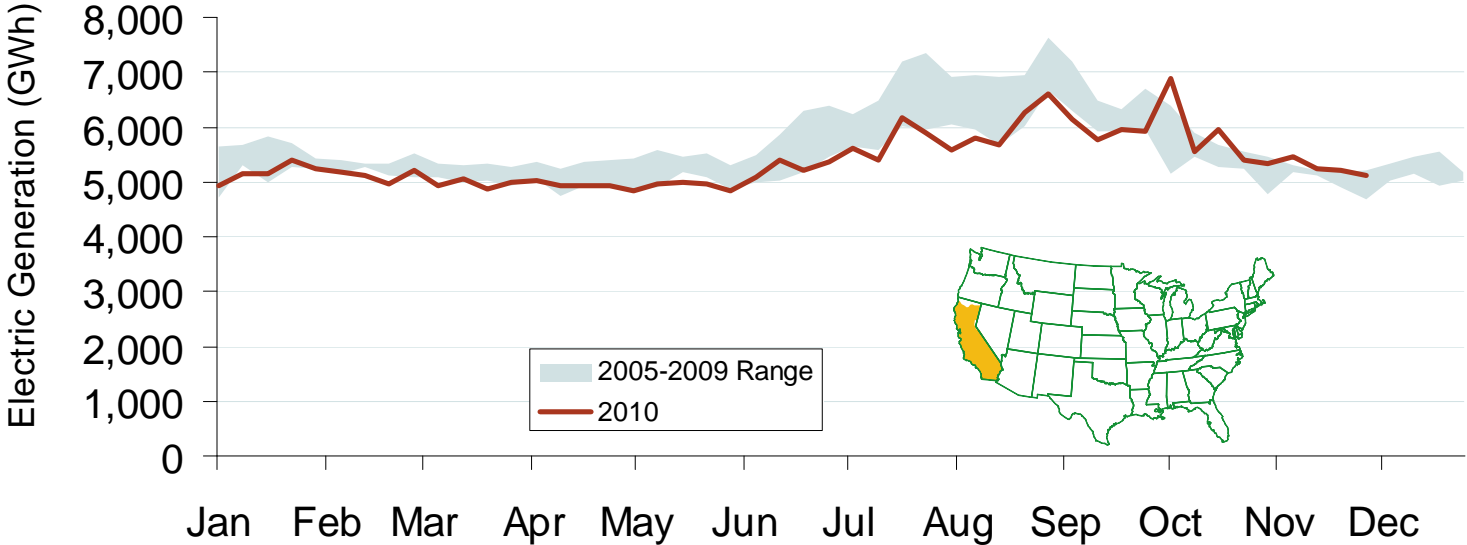
Source: Derived from *Platts* on-peak electric and natural gas price data.

# Western Daily Actual Peak Demand



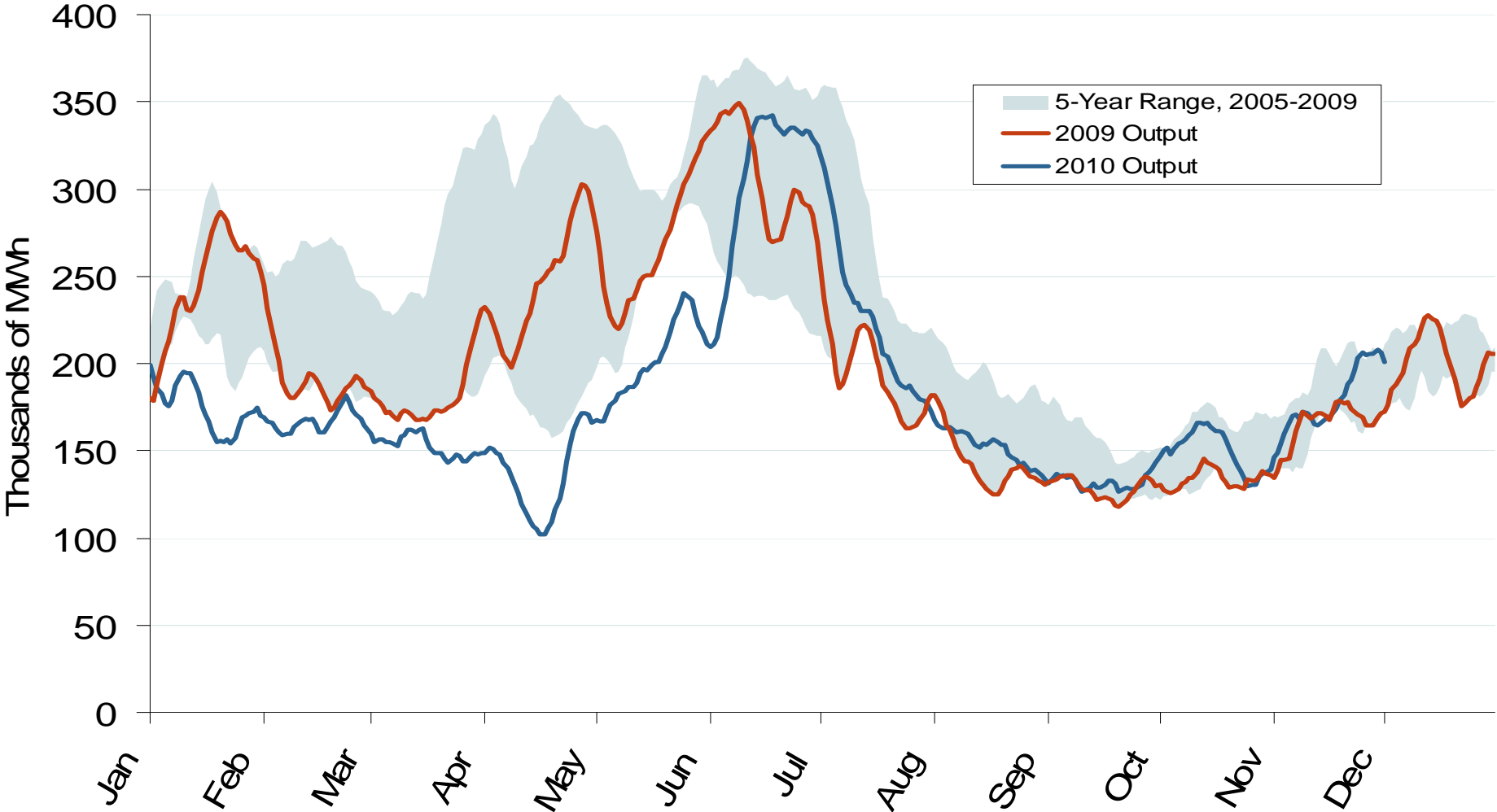
Source: Derived from WECC Daily Report data available at <http://wecc.biz>. Data does not include weekends and holidays. Some data for 12/31/2008 – 1/9/2009 are not available from WECC.

# Weekly Electric Generation Output and Temperatures California



Source: Derived from *EEl* and *NOAA* data.  
December 2010

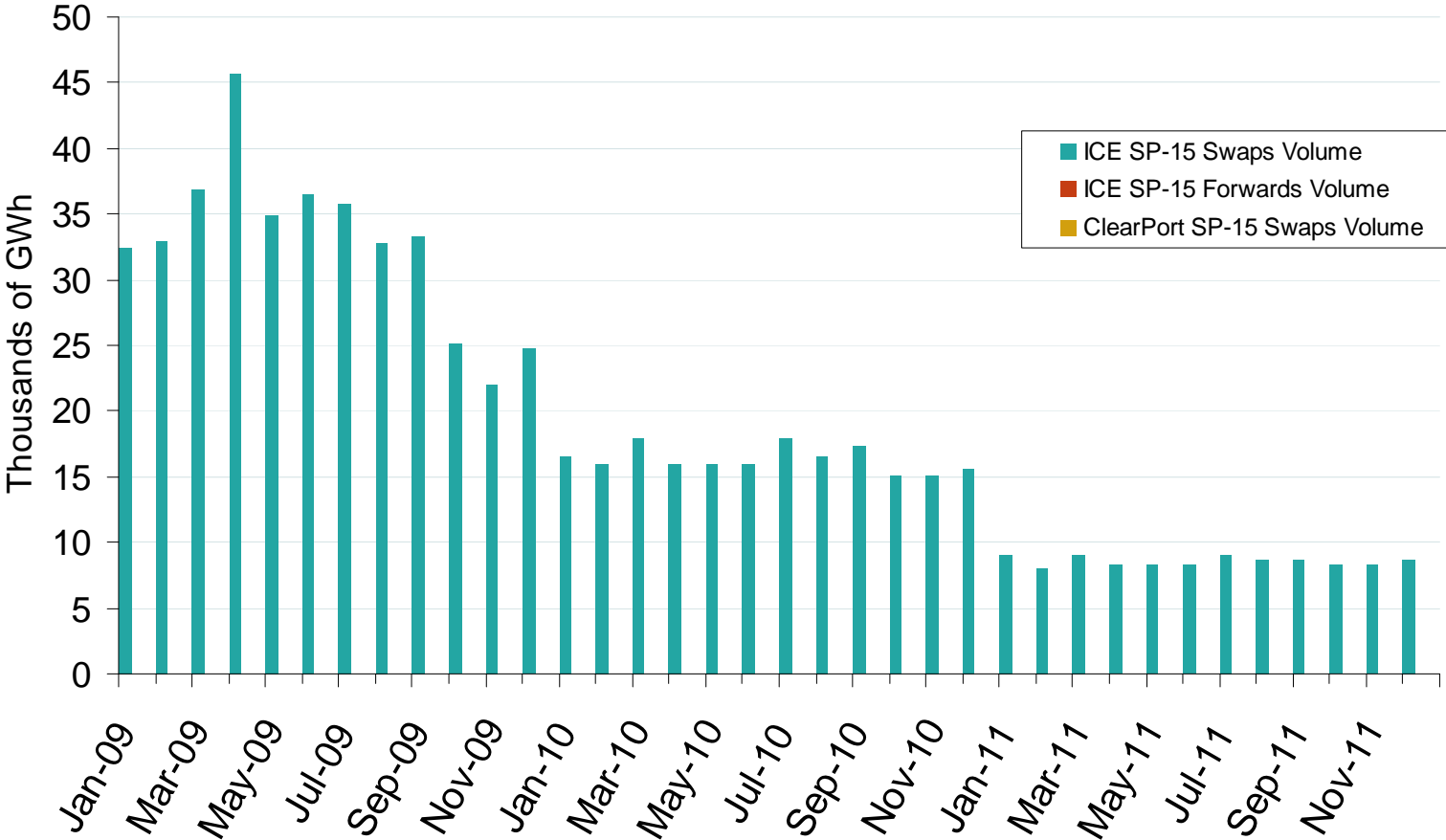
# Pacific Northwest Hydroelectric Production



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

Trend lines are 7-day moving averages.

# 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.