California Electric Regions

This map was created using Platts PowerMap.
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)

<table>
<thead>
<tr>
<th>Year</th>
<th>Summer Peak Demand (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>45,597</td>
</tr>
<tr>
<td>2005</td>
<td>45,562</td>
</tr>
<tr>
<td>2006</td>
<td>50,270</td>
</tr>
<tr>
<td>2007</td>
<td>48,615</td>
</tr>
<tr>
<td>2008</td>
<td>46,897</td>
</tr>
</tbody>
</table>

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.
California Annual Average Bilateral Prices

### Annual Average Day Ahead On Peak Prices ($/MWh)

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>5-Year Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>NP15</td>
<td>$61.08</td>
<td>$66.59</td>
<td>$80.14</td>
<td>$39.29</td>
<td>$40.08</td>
<td>$57.45</td>
</tr>
<tr>
<td>SP15</td>
<td>$61.95</td>
<td>$66.48</td>
<td>$79.36</td>
<td>$38.31</td>
<td>$40.21</td>
<td>$57.28</td>
</tr>
</tbody>
</table>

Source: Derived from *Platts* data.

Updated: January 4, 2011
California Electric Market: Western Bilateral Prices

Western Daily Bilateral Day-Ahead On-Peak Prices

Source: Derived from Platt's data

Updated: December 05, 2011
Southwestern Daily Bilateral Day-Ahead On-Peak Prices

Source: Derived from Platts data

Updated: December 05, 2011
Northwestern Daily Bilateral Day-Ahead On-Peak Prices

Source: Derived from *Platts* data

Updated: December 05, 2011
Western Daily Bilateral Day-Ahead On-Peak Prices

Price ($/MWh)

Source: Derived from Platt's data

Updated: December 05, 2011
Southwestern Daily Bilateral Day-Ahead On-Peak Prices

Monthly Average

Price ($/MWh)

Source: Derived from Platts data
December 2011

Updated: December 05, 2011
Northwestern Daily Bilateral Day-Ahead On-Peak Prices

Monthly Average

Source: Derived from *Platts* data

December 2011

Updated: December 05, 2011
**California Electric Market: Western Implied Heat Rates**

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

- **SP15-SoCal Gas**
- **NP15-PG&E Citygate**
- **Mid-Columbia-Stanfield**
- **Palo Verde-El Paso San Juan**

*Note: ICE on-peak forward (physical) and swap (financial) volumes are for Mid-Columbia and include monthly, dual monthly, quarterly, and calendar year contracts traded for each month.*

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

*Updated: December 08, 2011*
Weekly Electric Generation Output and Temperatures California

Weekly Power Generation & Temps. - California

Electric Generation (GWh)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Degree Days Deviation from Normal

-80 -60 -40 -20 0 20 40 60 80

2006-10 Range

2011

Source: Derived from EEI and NOAA data

Updated: December 07, 2011
Notes: Trend lines are 7-day moving averages
Source: Derived from USACE data reflecting the output of the 24 largest facilities

Updated: December 06, 2011
California Electric Market: Daily Peak Demand

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

Updated: December 05, 2011

December 2011