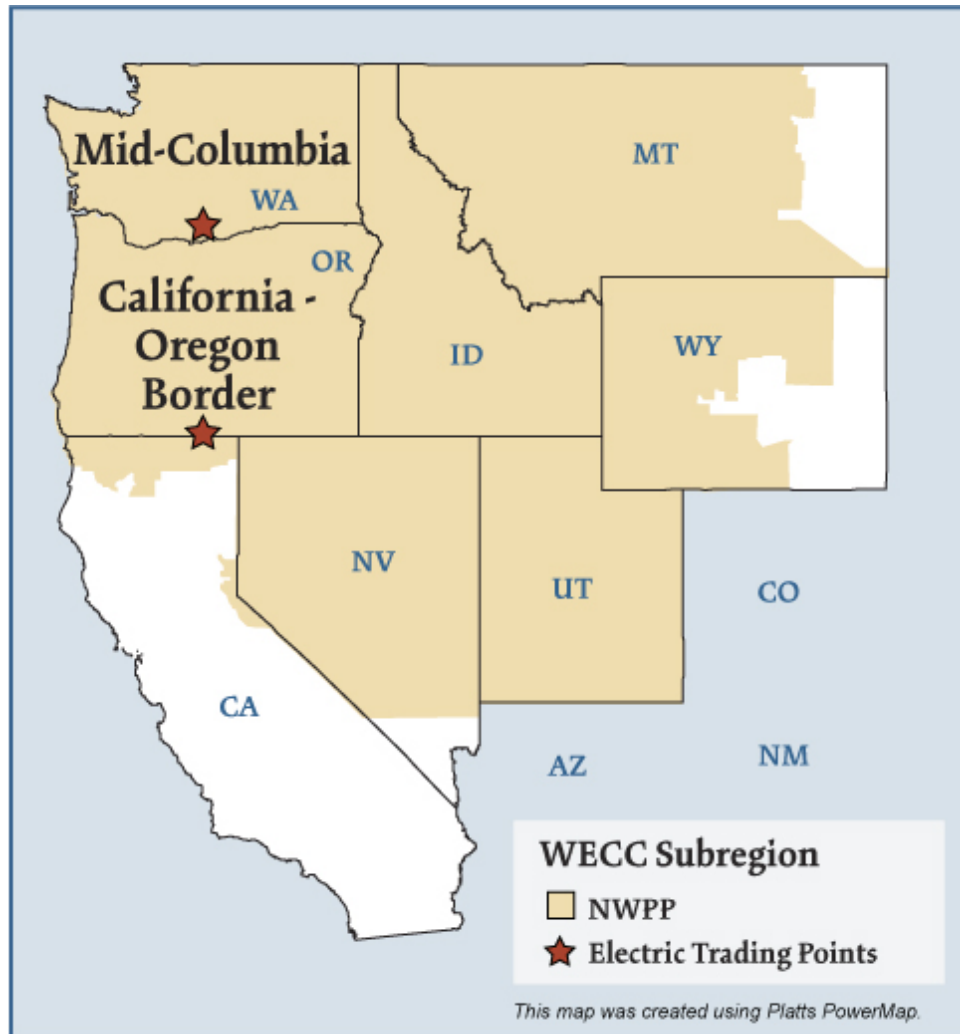


# Northwest Electric Market



## Overview

### Geography

States covered: All or most of Washington, Oregon, Idaho, Utah, Nevada, Montana, Wyoming and part of California.

Reliability region: Northwest Power Pool Area (NWPP) sub-region of the Western Electric Coordinating Council (WECC).

Balancing authorities: See page 5.

Hubs: California-Oregon Border (COB), Mid-Columbia (Mid-C)

### RTO/ISO

None

### Generation/Supply

Marginal fuel type: Hydro and natural gas

Generating capacity (winter 2005): 57,120 MW

Capacity reserve (winter 2005): 16,822 MW

Reserve margin (winter 2005): 42%

When taken together, hydro, fossil fuels, nuclear energy, and renewable resources, were adequate to provide electricity in excess of in-region needs.

**Federal Energy Regulatory Commission • Market Oversight @ FERC.gov****Demand**

All time peak demand (2005): 40,298 MW

Peak demand growth: 1.5% (2004–2005)

**Prices**

Index Annual Average of Daily Bilateral Day Ahead On-Peak Prices:

Platts California-Oregon Border (COB) Hub:

2004: \$49.02/MWh 2005: \$66.88/MWh 2006: \$55.57/MWh

Platts Mid-Columbia (Mid-C) Hub:

2004: \$44.50/MWh 2005: \$63.09/MWh 2006: \$50.23/MWh

Physical and financial electricity products are traded through brokers using the Mid-Columbia (Mid-C) and California-Oregon Border (COB) hubs as pricing points.

**Interconnections/Seams**

The region relies on hydroelectric production for approximately two thirds of its electricity needs. In most years, Northwest sells surplus power into California and the Southwest.

## Focal Points

**BPA in the Market:** The Bonneville Power Administration (BPA) is the largest wholesale power supplier in the Northwest, according to the agency. BPA meets approximately 40 percent of the region's firm energy supply from resources under its control, primarily the federal hydroelectric dams in the Northwest.

BPA has agreements to sell power from federal hydropower generation in the Northwest and from certain nonfederal power plants, such as Energy Northwest's nuclear plant, Columbia Generating Station. BPA sells most of its power at cost-based rates to regional public power and municipal utilities, electric cooperatives, and direct service industries (such as aluminum smelters). After meeting its regional commitments, BPA sells surplus power to other Western market participants at market prices.

**Severe Heat Wave:** In late July 2006, a severe heat wave resulted in 100+ degree temperatures over much of the West - and greater than 110 degrees in some areas. Northwest utilities urged consumers to conserve. From July 17 through July 25, various peak load records were set by utility customers (e.g., Idaho Power and NorthWestern Energy) which is notable since the Northwest overall is typically a winter-peaking area. Control areas managed by Portland General Electric, PacifiCorp, and Puget Sound Energy declared NERC Energy Emergency Alert levels 1 and 2 (for Puget Sound Energy, level 1 only), meaning all resources were in use and/or load management procedures were in effect. Although a concurrent fire in eastern Oregon threatened power lines in the Idaho-Oregon area, no curtailment of non-firm load was called. Power prices in the Northwest bilateral markets rose to over \$350/MWh on July 24, the date that CAISO declared a Stage 2 Emergency - CAISO's call for critical conservation due to very tight power supplies in its control area.

## Balancing Authorities in the Northwest Electric Market

### Balancing Authority

Alberta Electric System Operator  
 Avista Corp.  
 Bonneville Power Administration  
 British Columbia Transmission Corporation  
 Idaho Power Company  
 NorthWestern Energy  
 PacifiCorp-East  
 PacifiCorp-West  
 Portland General Electric Company  
 PUD No. 1 of Chelan County  
 PUD No. 1 of Douglas County  
 PUD No. 2 of Grant County  
 Puget Sound Energy  
 Seattle Department of Lighting  
 Sierra Pacific Power Company  
 Tacoma Power  
 Western Area Power Administration - Upper Great Plains West

### NERC Acronym

AESO  
 AVA  
 BPAT  
 BCHA  
 IPCO  
 NWMT  
 PACE  
 PACW  
 PGE  
 CHPD  
 DOPD  
 GCPD  
 PSEI  
 SCL  
 SPPC  
 TPWR  
 WAUW

## Supply and Demand Statistics for the Northwest

| <b>Supply Demand Statistics</b> |         |         |         |
|---------------------------------|---------|---------|---------|
|                                 | 2003    | 2004    | 2005    |
| Winter Generating Capacity MW   | 54,802  | 57,101  | 57,120  |
| Winter Peak Demand MW           | 35,456  | 39,710  | 40,298  |
| Winter Reserves MW              | 19,346  | 17,391  | 16,822  |
| Winter Reserve Margin:          | 55%     | 44%     | 42%     |
| Annual Load (GWh):              | 219,582 | 223,148 | 234,153 |
| Annual Net Generation GWh       | NA      | NA      | NA      |

Source: Derived from WECC data.

Updated February 2, 2007

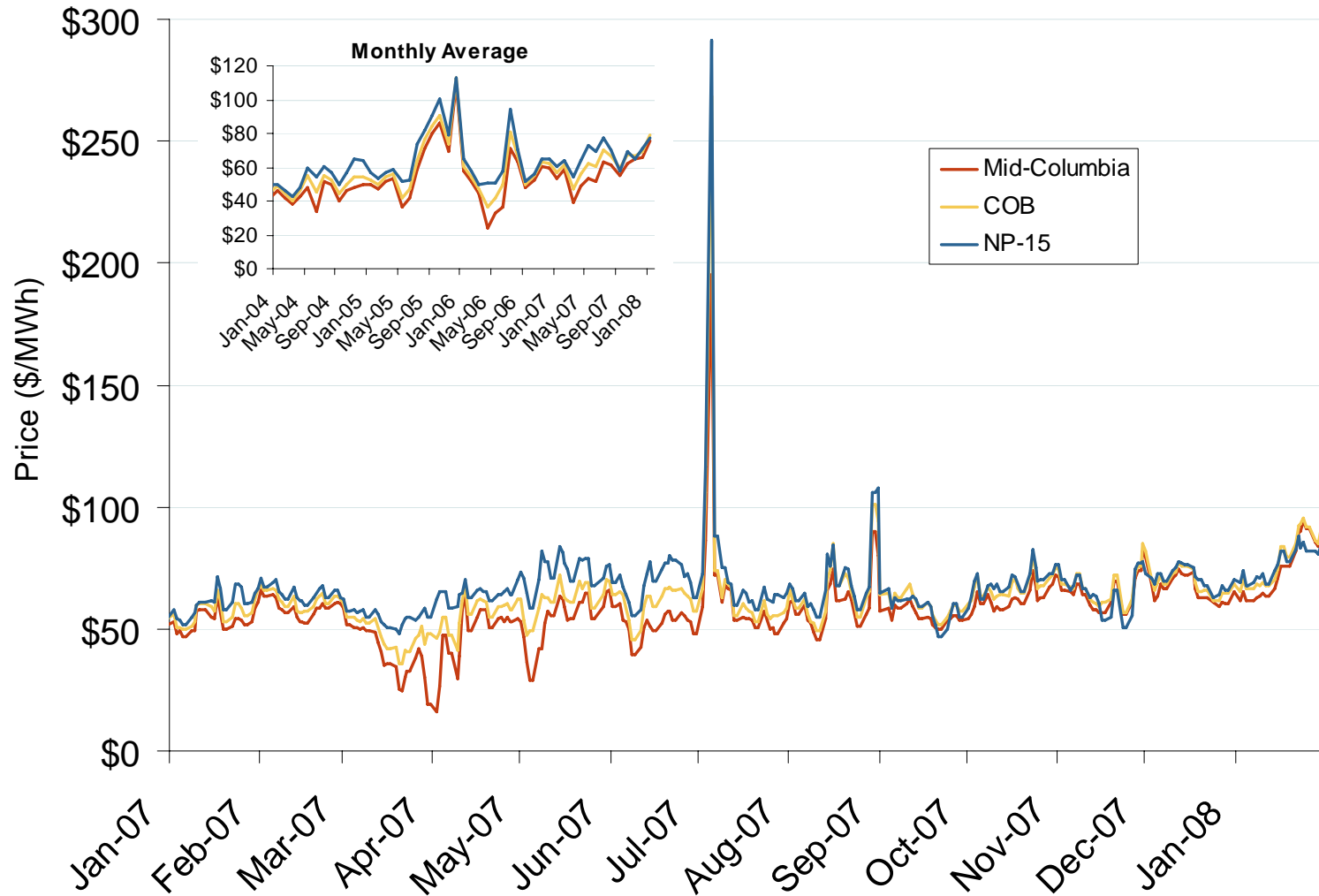
1039

## Yearly Average of Bilateral DA Prices – On-Peak

| <b>Annual Average Day Ahead Prices (\$/MWh)</b> |             |             |                |
|---|-------------|-------------|----------------|
|   | <b>2005</b> | <b>2006</b> | <b>5 years</b> |
| Mid-Columbia (Mid-C)                            | \$63.09     | \$50.23     | \$44.48        |
| California-Oregon Border (COB)                  | \$66.88     | \$55.57     | \$48.88        |

Wholesale market participants utilize physical trades at COB and both physical and financial trades at Mid-C.

# Northwestern Daily Bilateral Day-Ahead On-Peak Prices

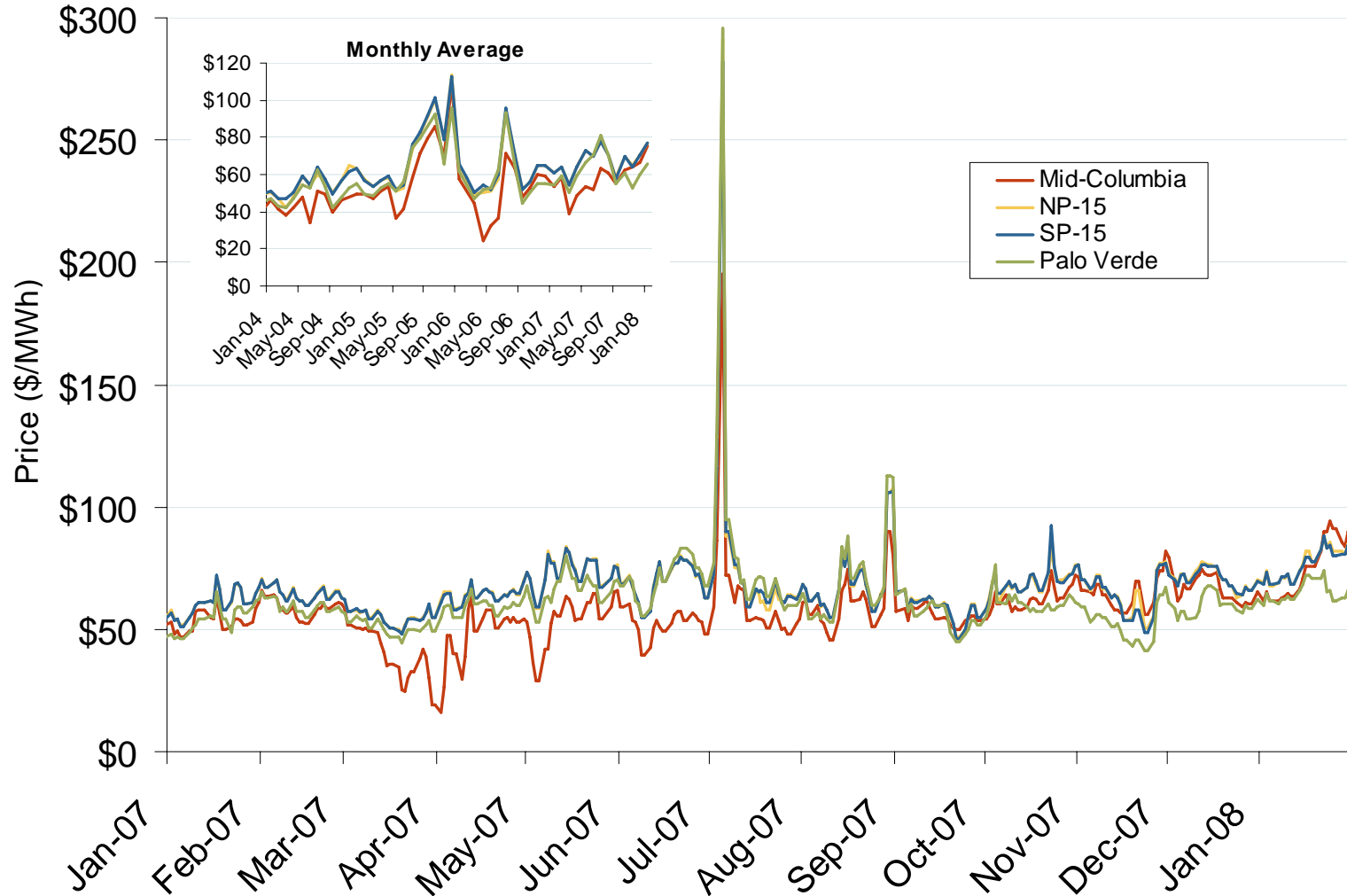


Source: Derived from Platts data.

Updated February 8, 2008



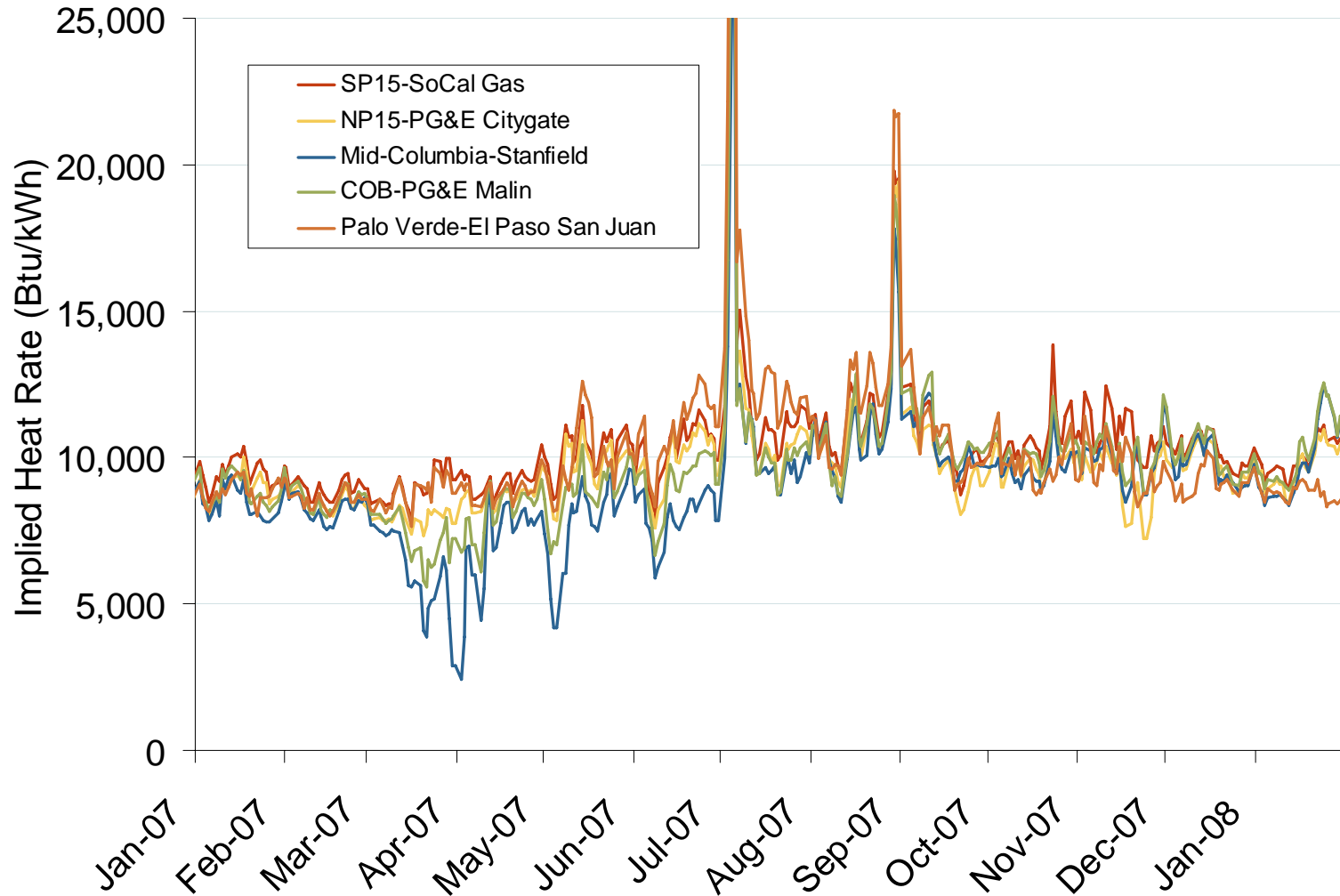
## Western Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.

Updated February 8, 2008

## Implied Heat Rates at Western Trading Points

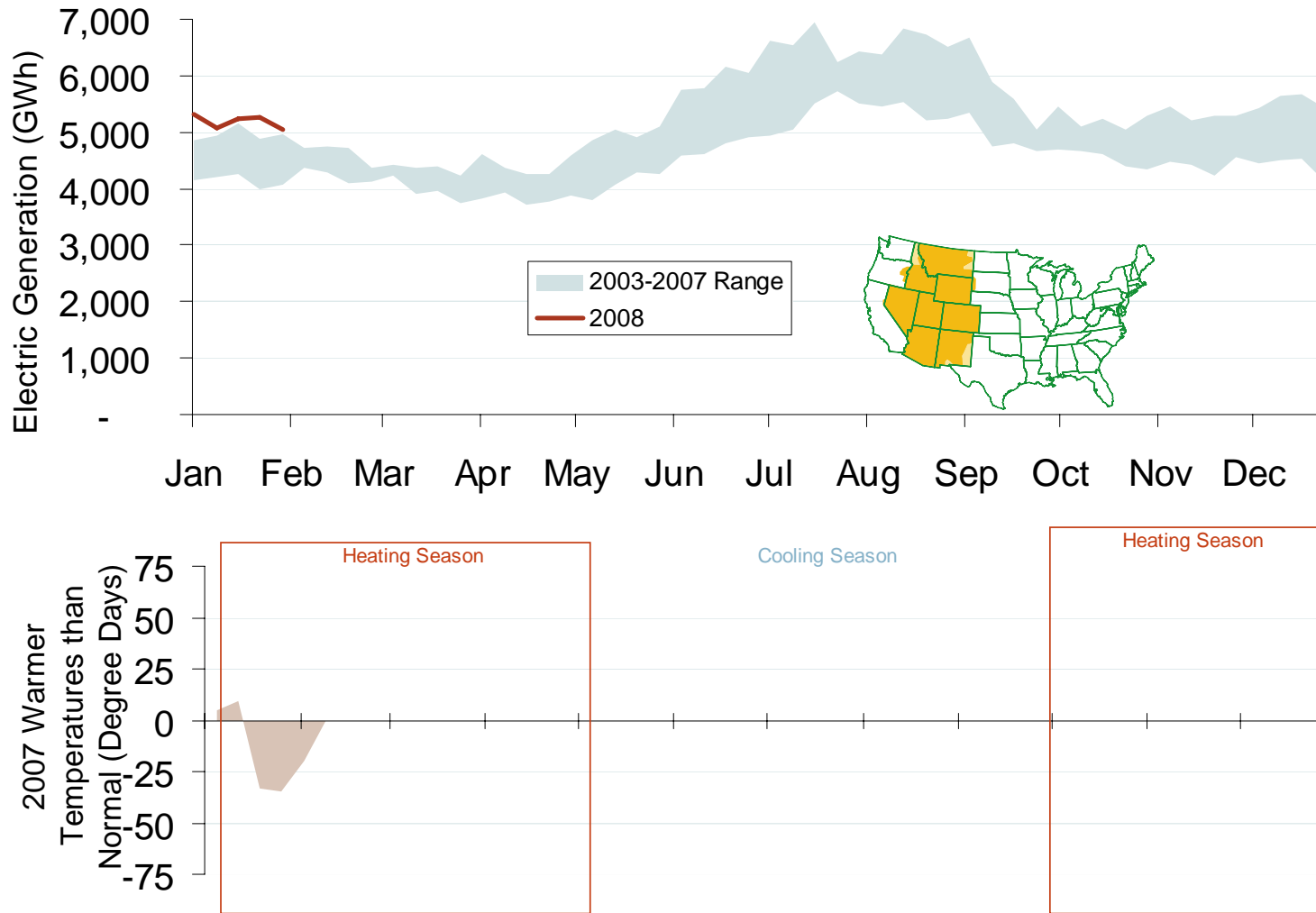


Source: Derived from *Platts* data

Updated February 8, 2008

1142

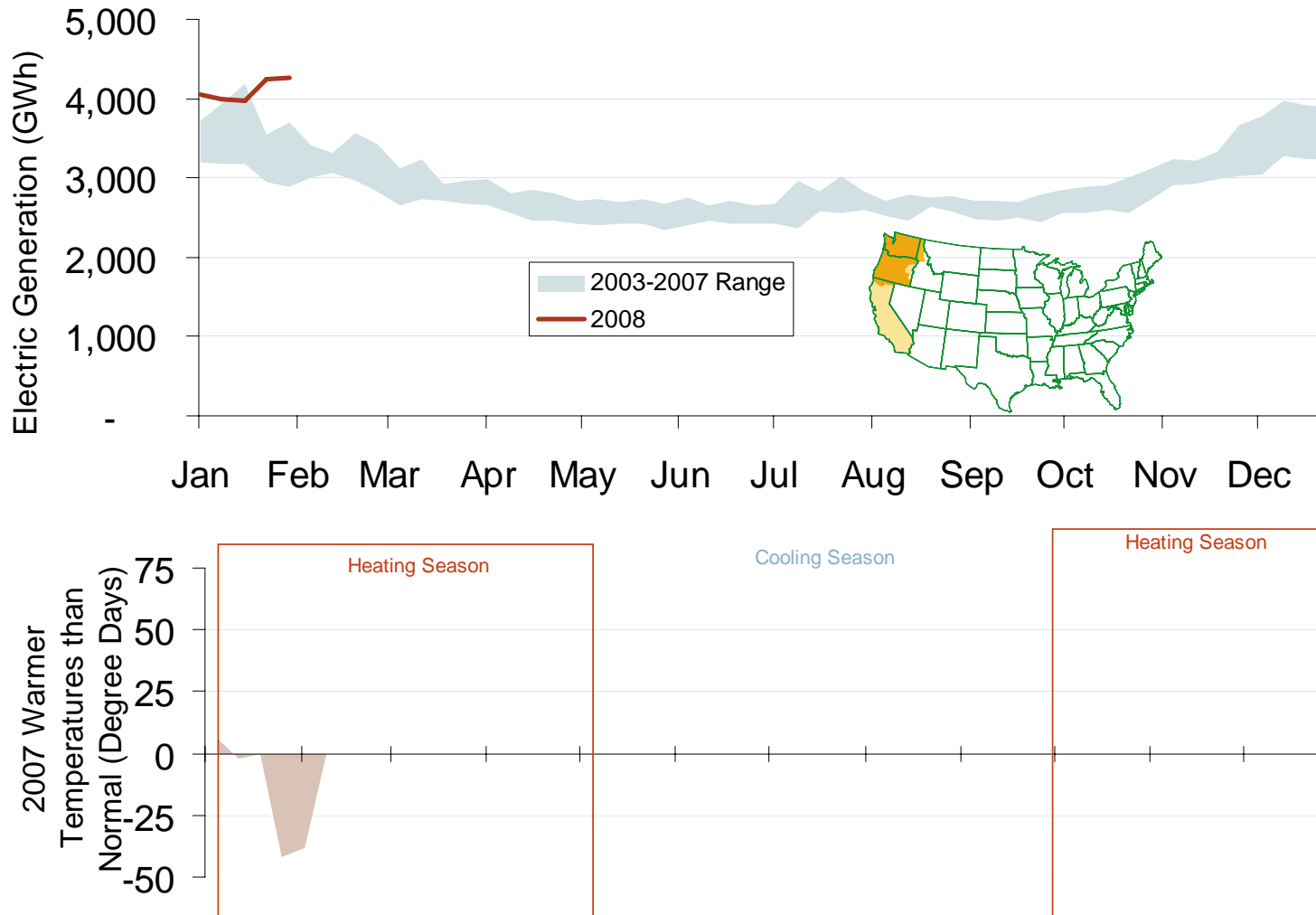
# Weekly Electric Generation Output and Temperatures Rocky Mountains Region



Source: Derived from EEI and NOAA data.

Updated February 8, 2008

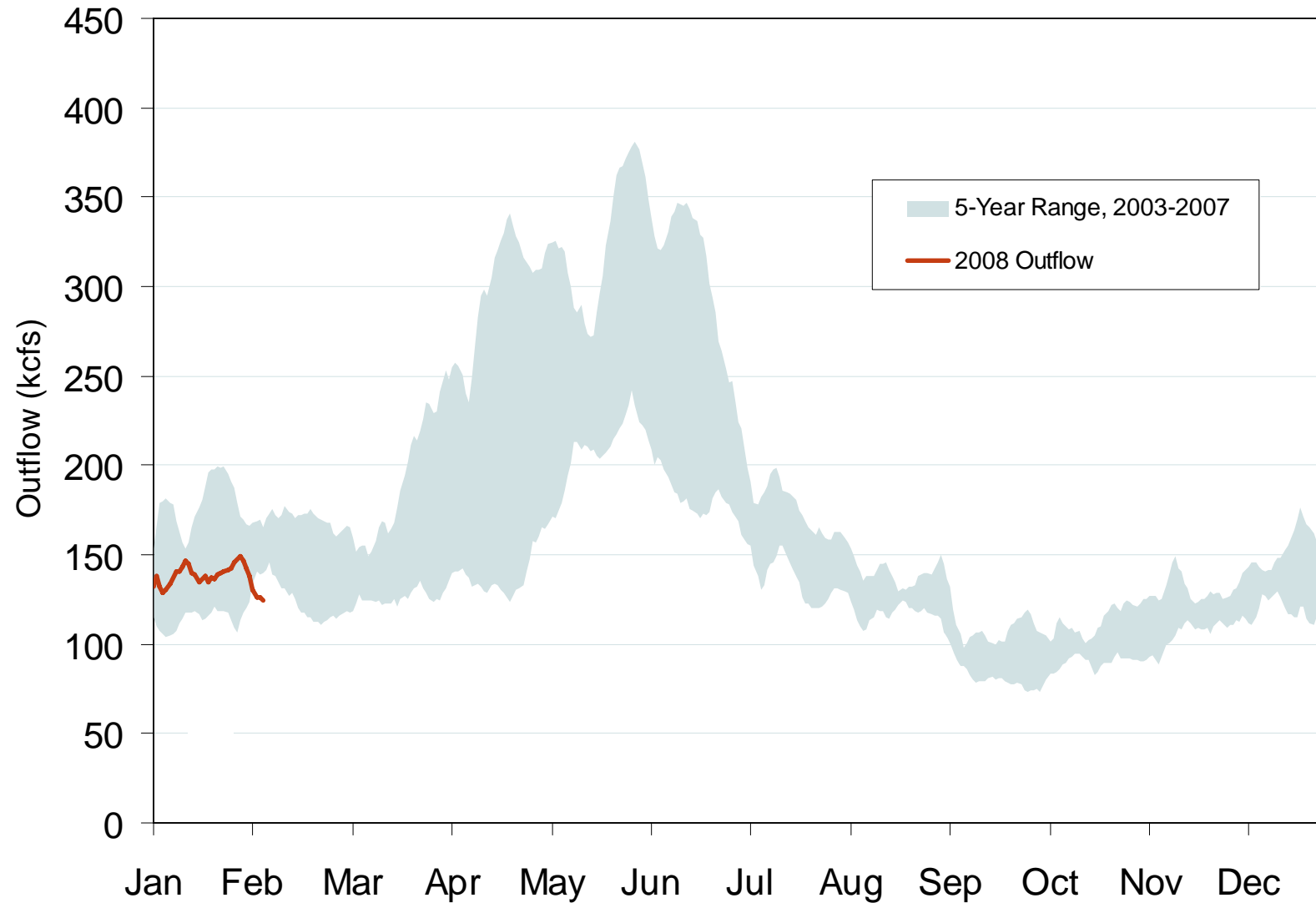
# Weekly Electric Generation Output and Temperatures Pacific Northwest Region



Source: Derived from EEI and NOAA data.

Updated February 8, 2008

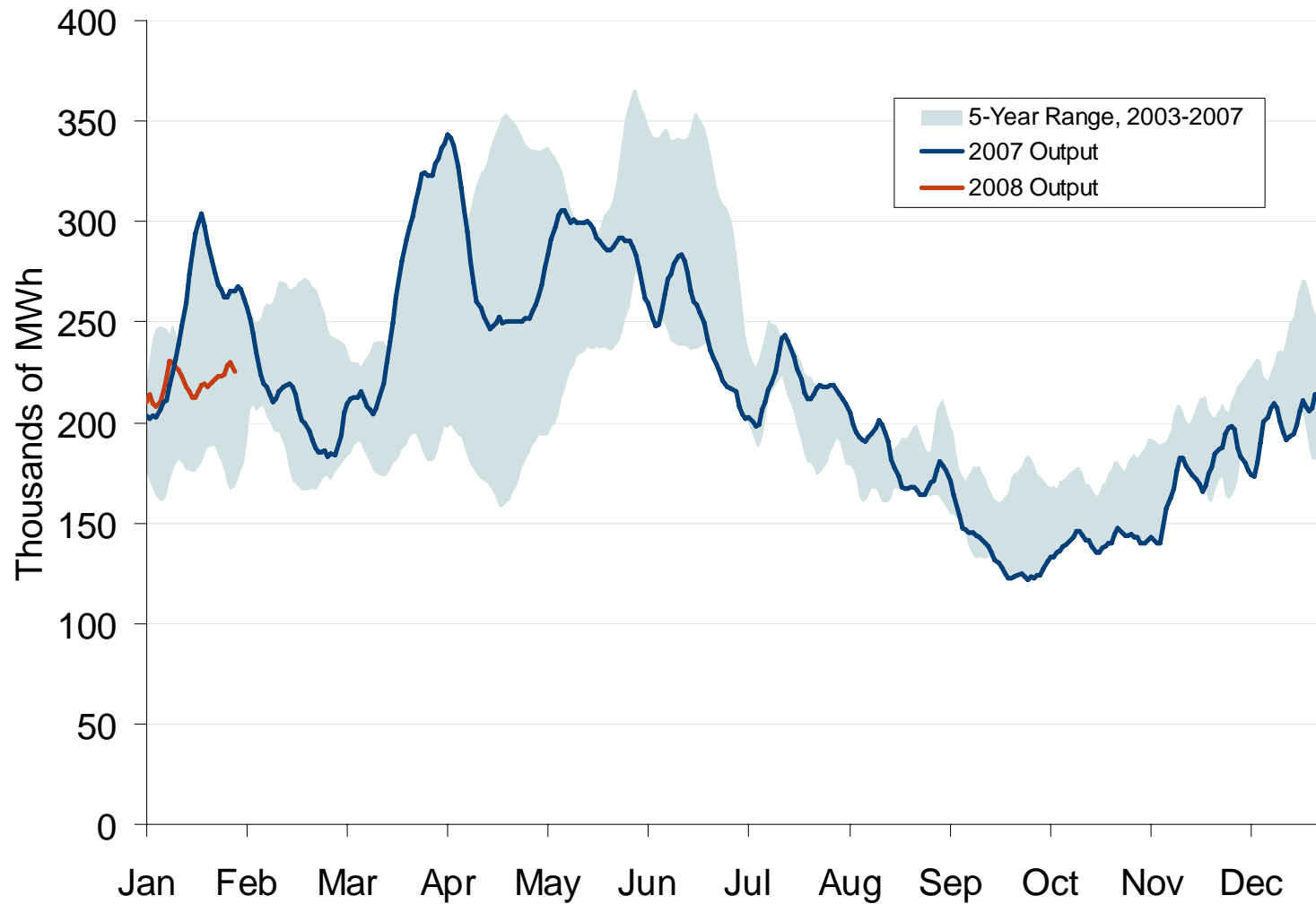
## Stream Flow at The Dalles Dam



Source: Derived from USACE data.  
Trend lines are 7-day moving averages.

Updated February 8, 2008

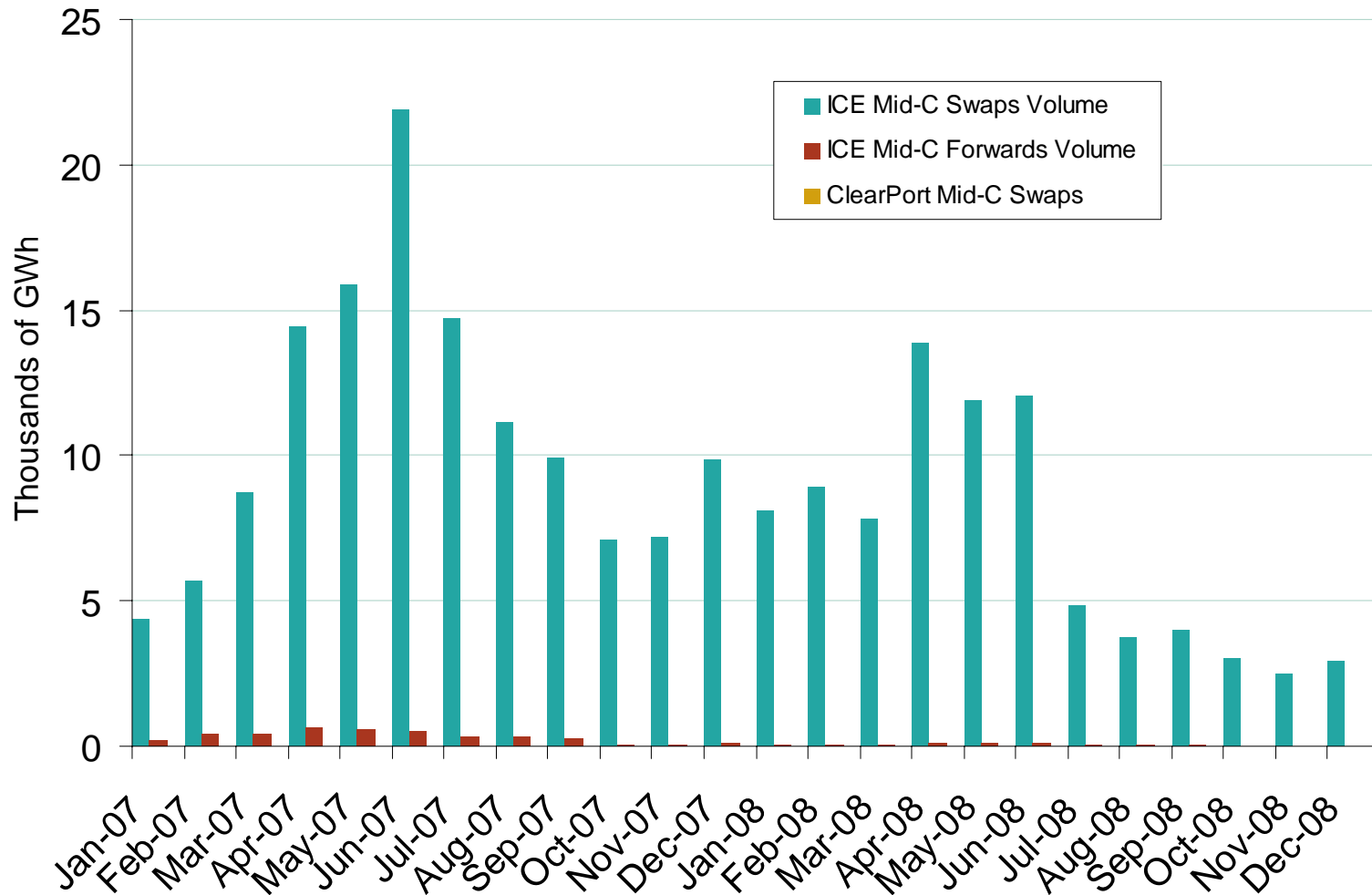
## Pacific Northwest Hydroelectric Production



Source: Derived from USACE data.  
Trend lines are 7-day moving averages.

Updated February 8, 2008

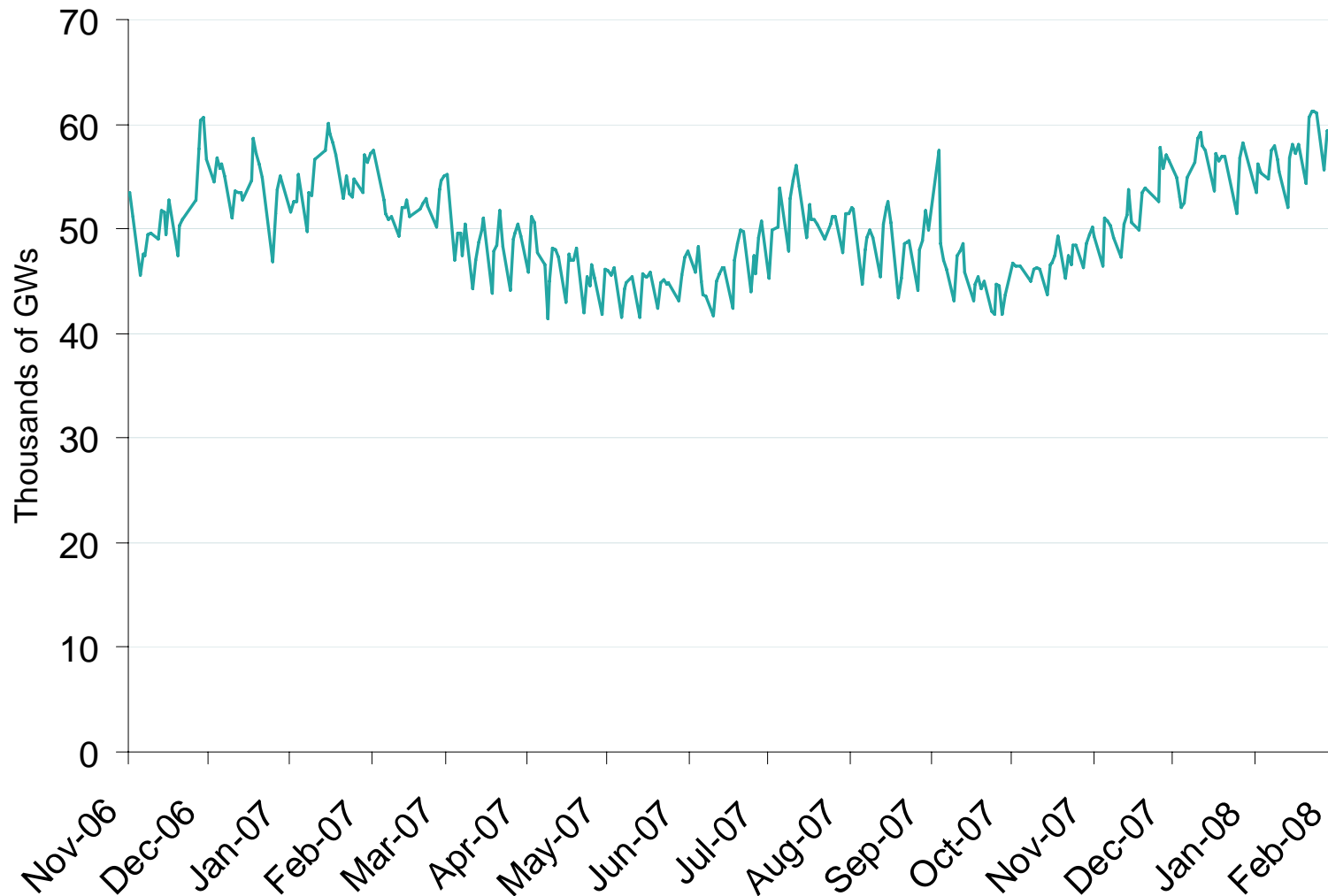
## Mid-Columbia Forward and Swap Volumes



Source: Derived from ICE and Nymex ClearPort data. 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. Nymex ClearPort on-peak swaps (financial) volume are for Mid-Columbia and are traded by month.

Updated February 8, 2008

## Northwest Daily Actual Peak Demand



Source: Derived from WECC Daily Report data available at <http://wecc.biz>. Data shown is generally Sunday through Thursday due to limitations of daily reports.

Updated February 8, 2008