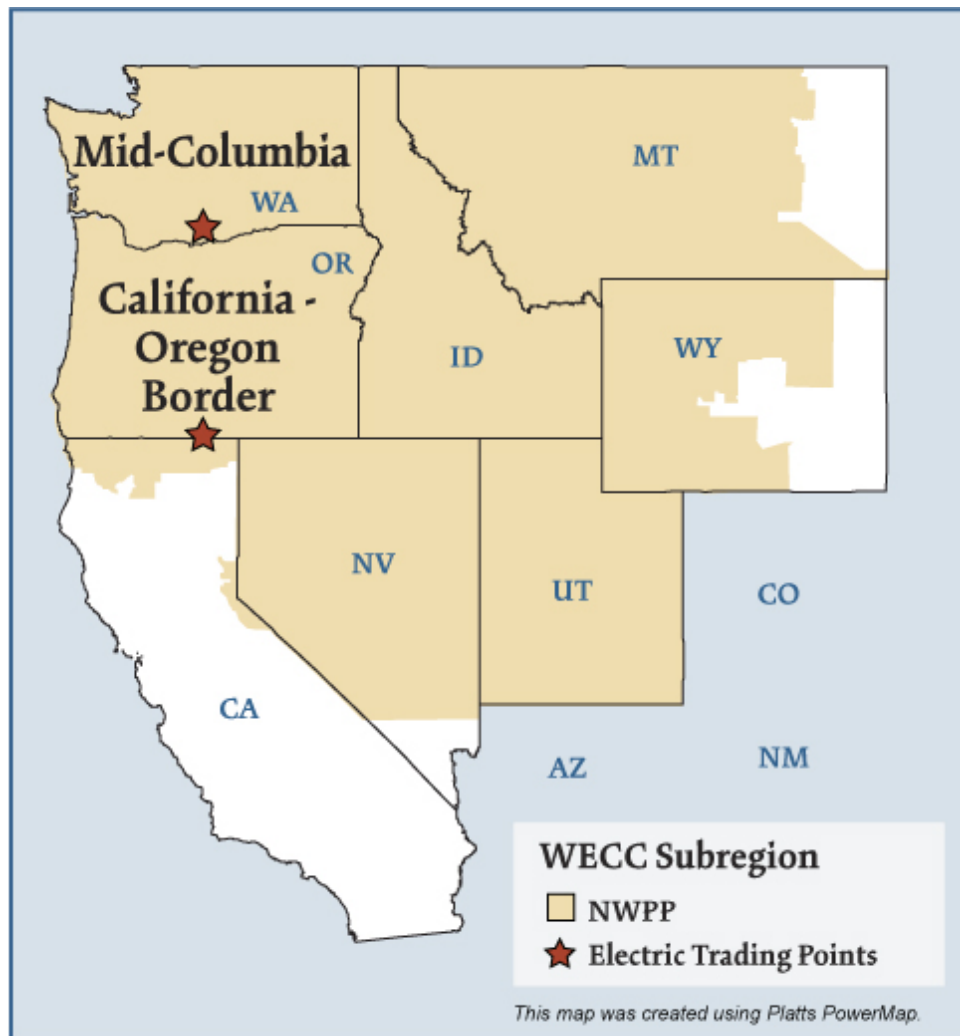


# Northwest Electric Market



## 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

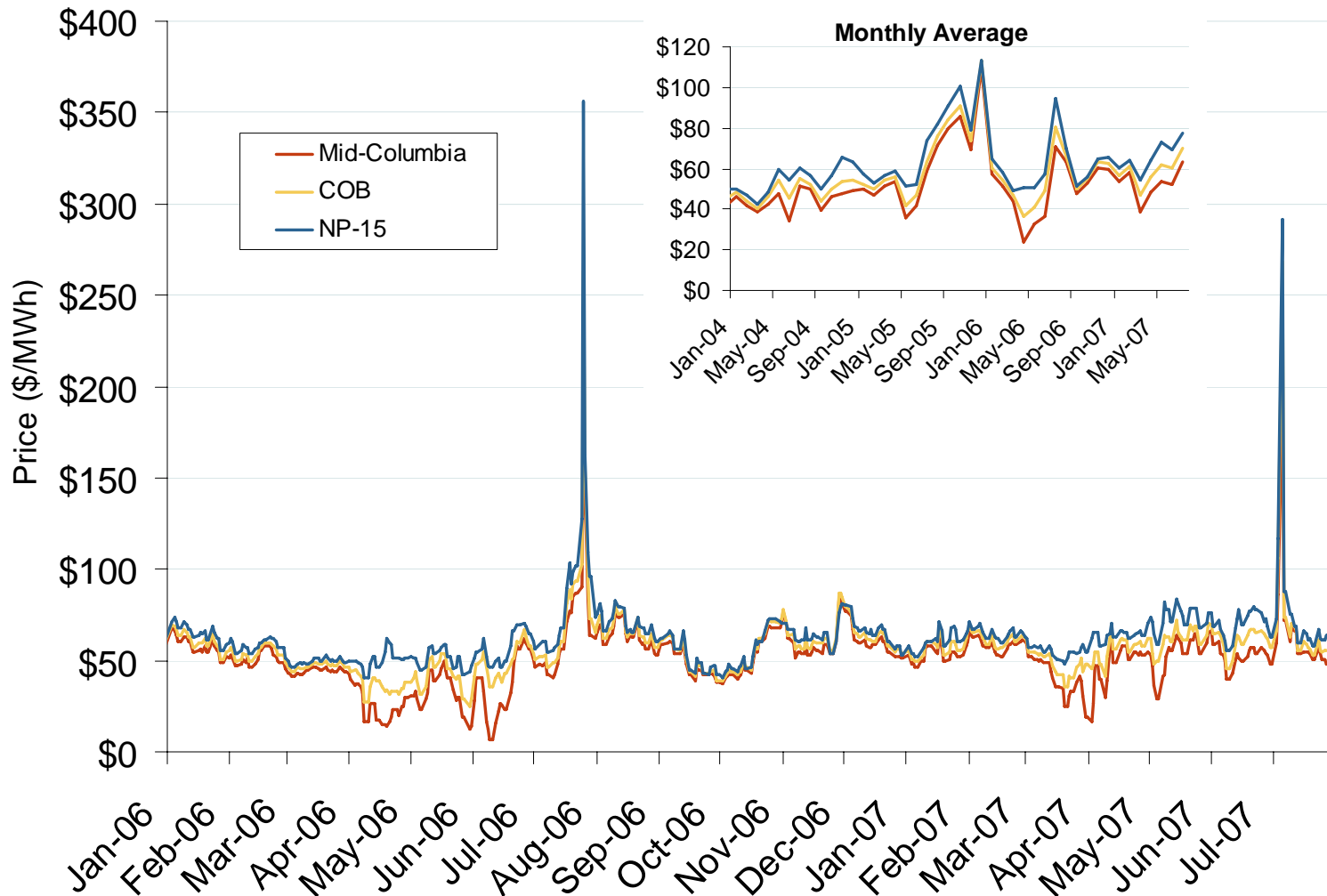
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## Yearly Average of Bilateral DA Prices – On-Peak

<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

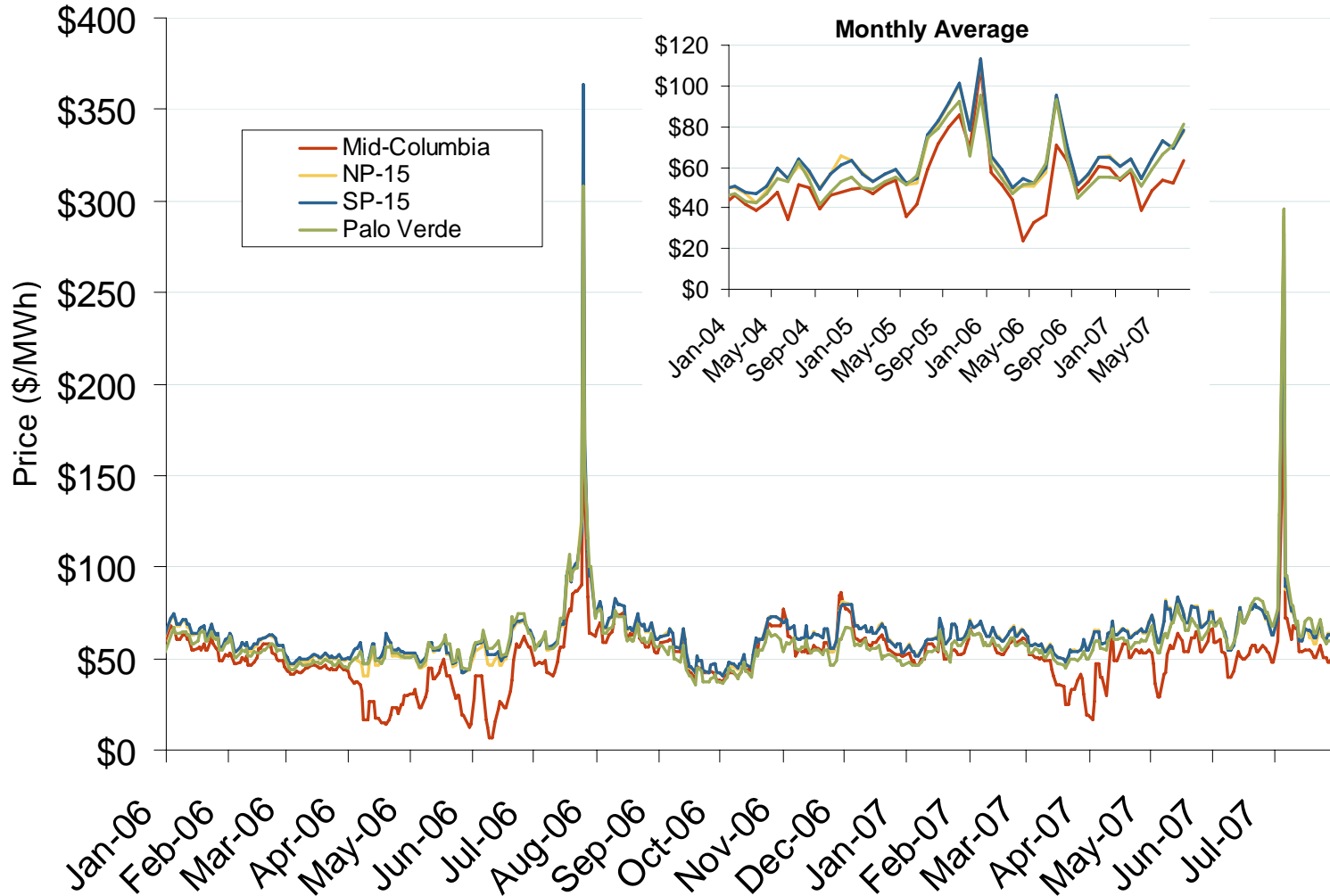


Source: Derived from *Platts* data.

Updated August 3, 2007



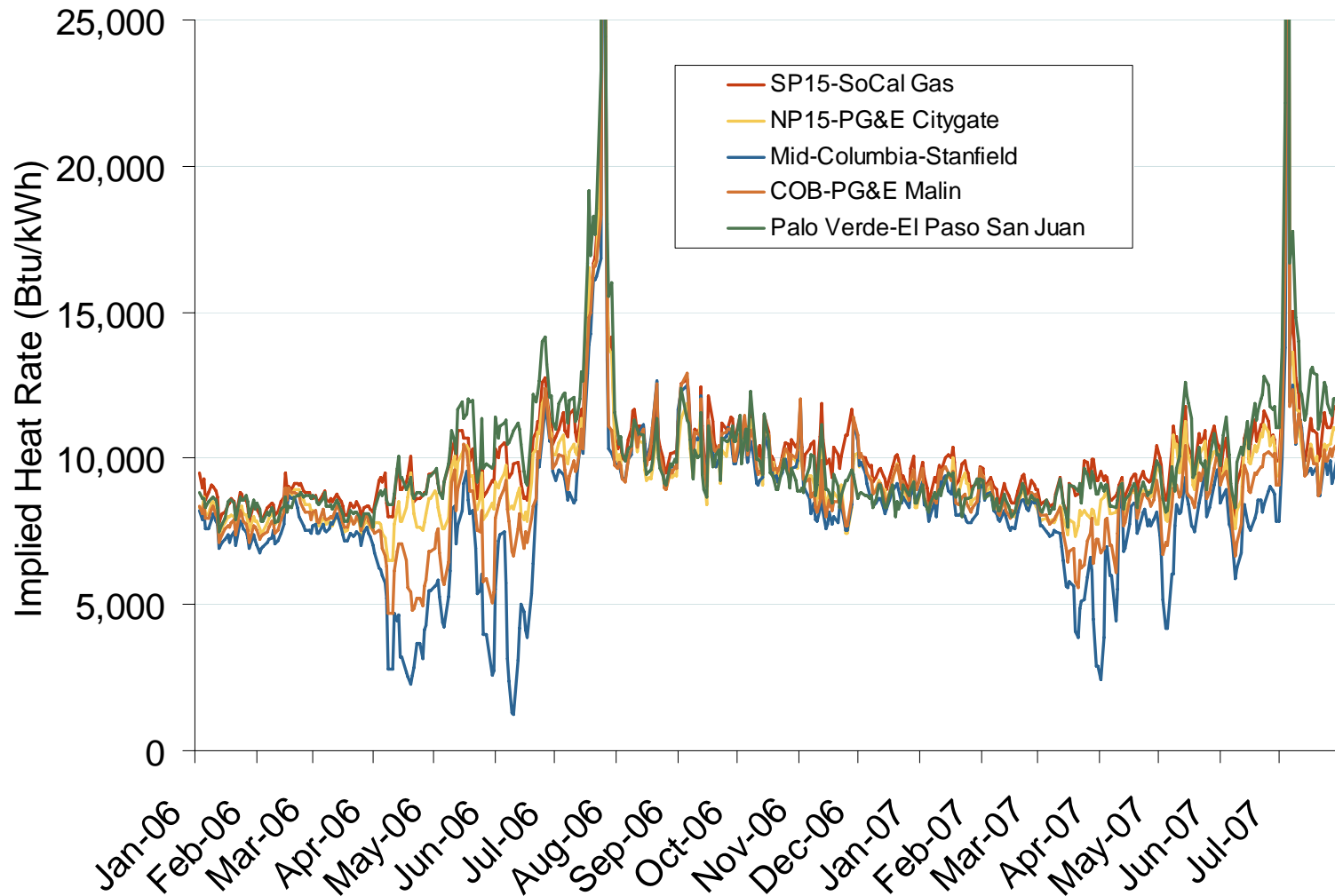
## Western Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.

Updated August 3, 2007

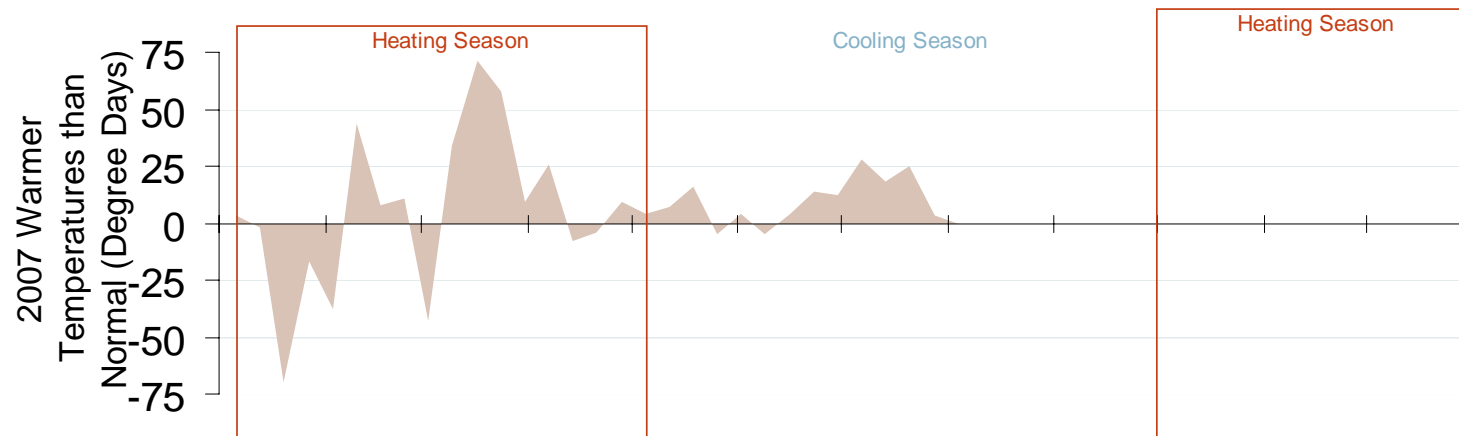
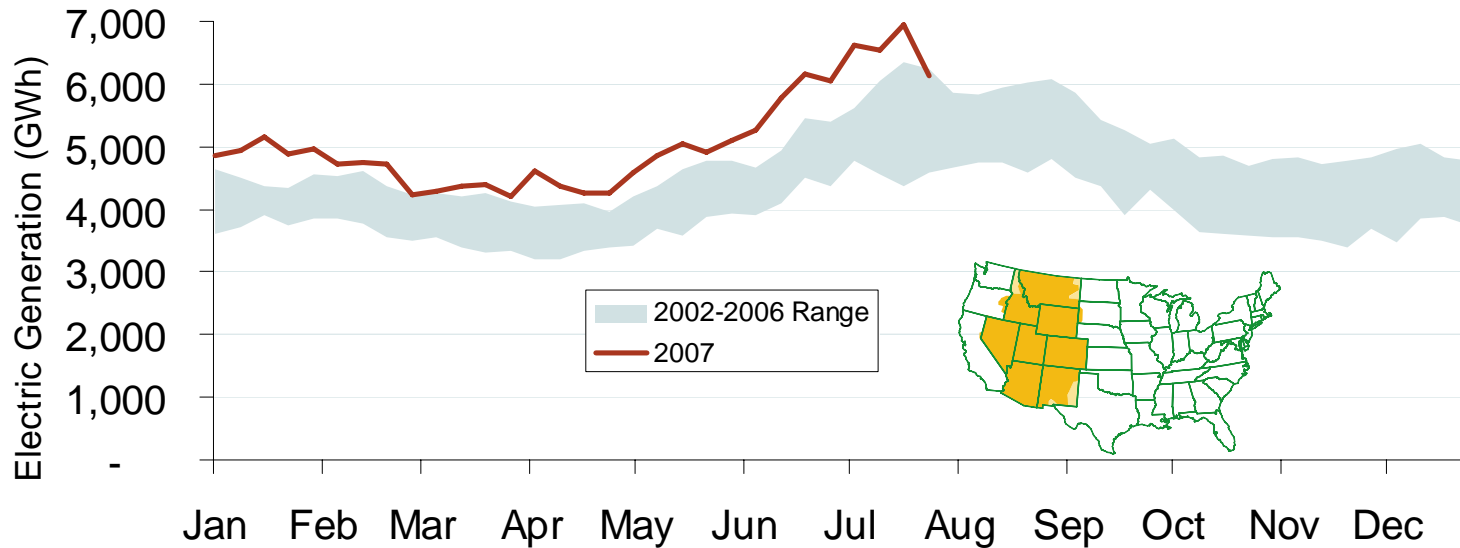
## Implied Heat Rates at Western Trading Points



Source: Derived from *Platts* data

Updated August 3, 2007

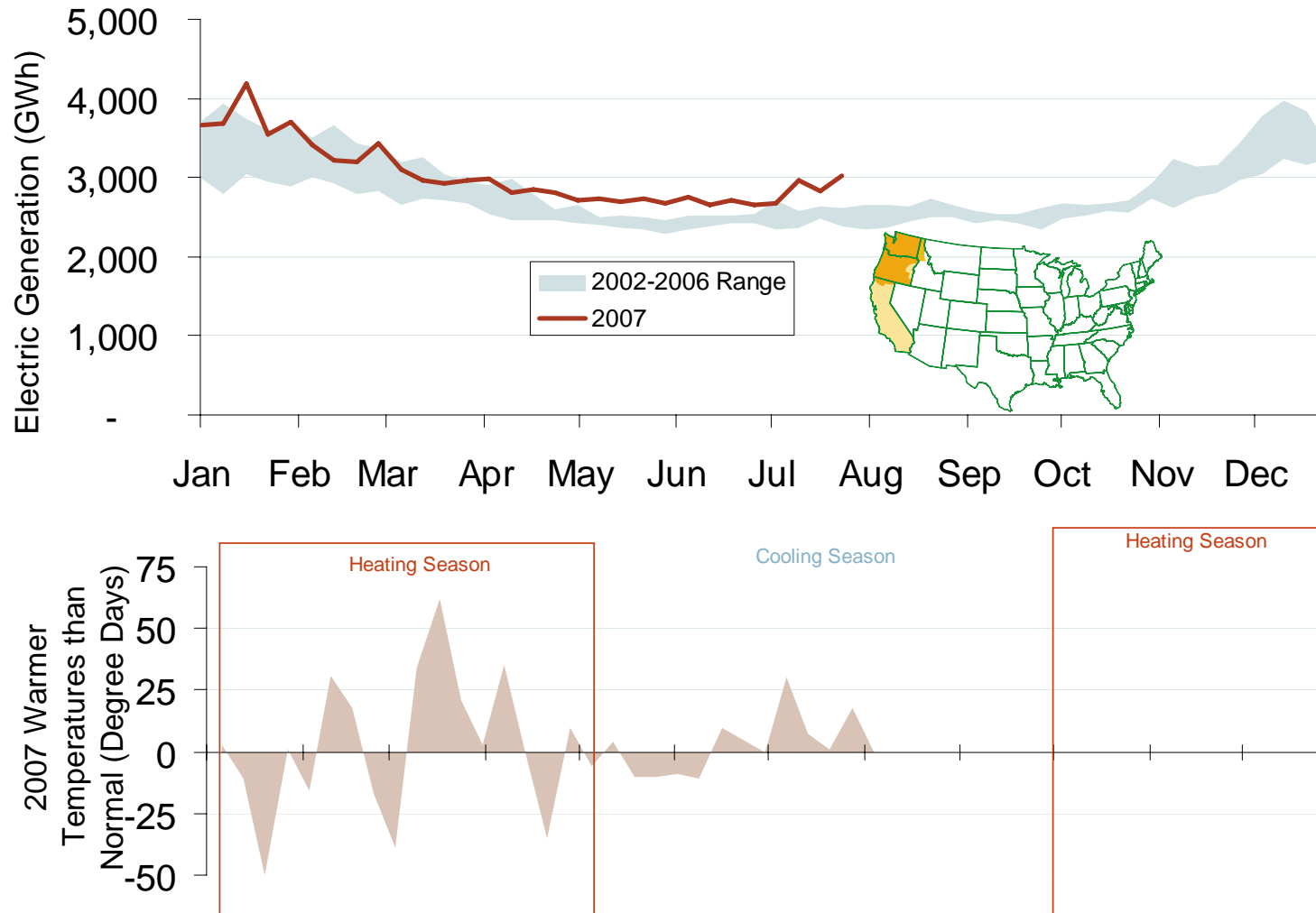
# Weekly Electric Generation Output and Temperatures Rocky Mountains Region



Source: Derived from EEI and NOAA data.

Updated August 3, 2007

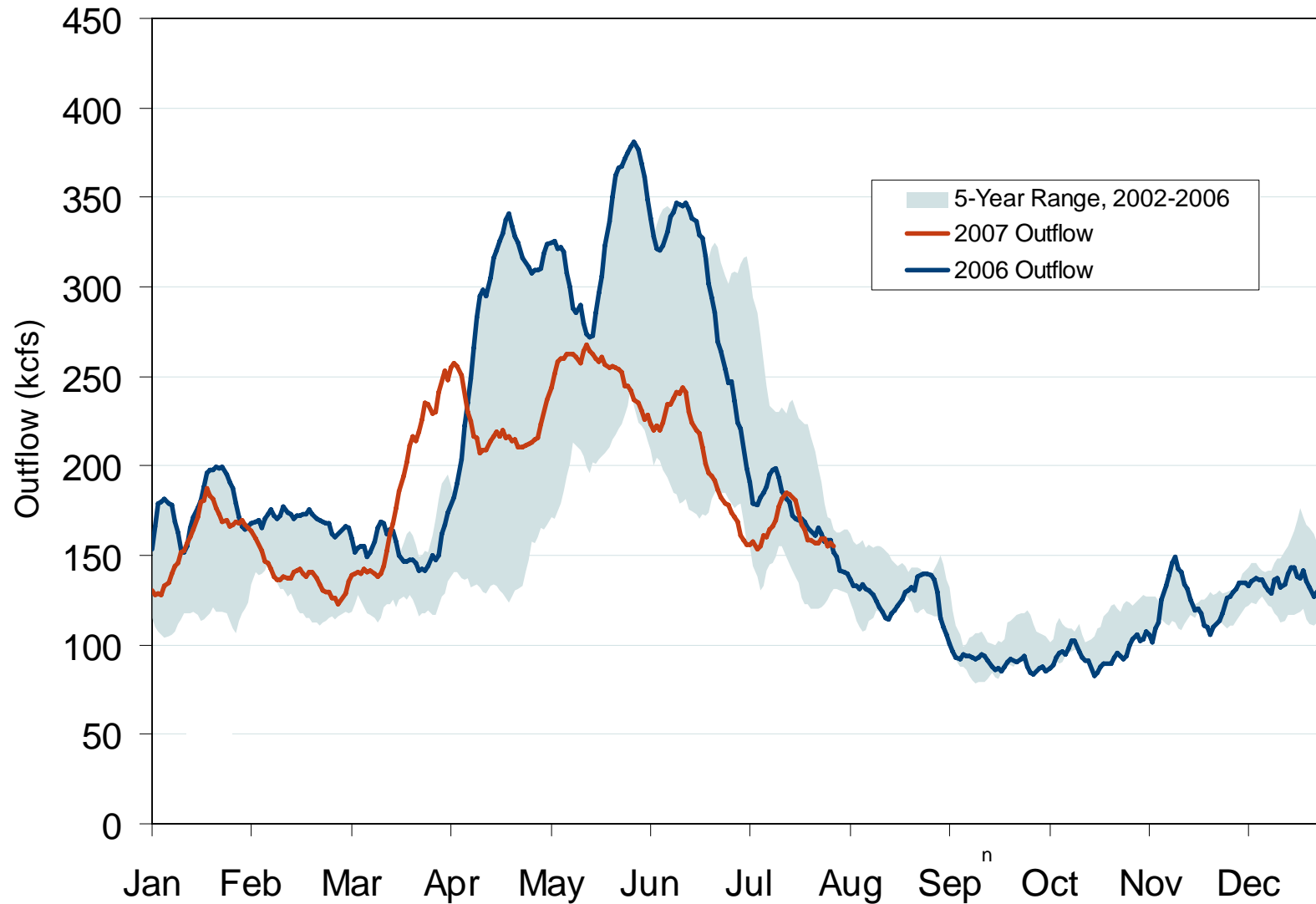
# Weekly Electric Generation Output and Temperatures Pacific Northwest Region



Source: Derived from EEI and NOAA data.

Updated August 3, 2007

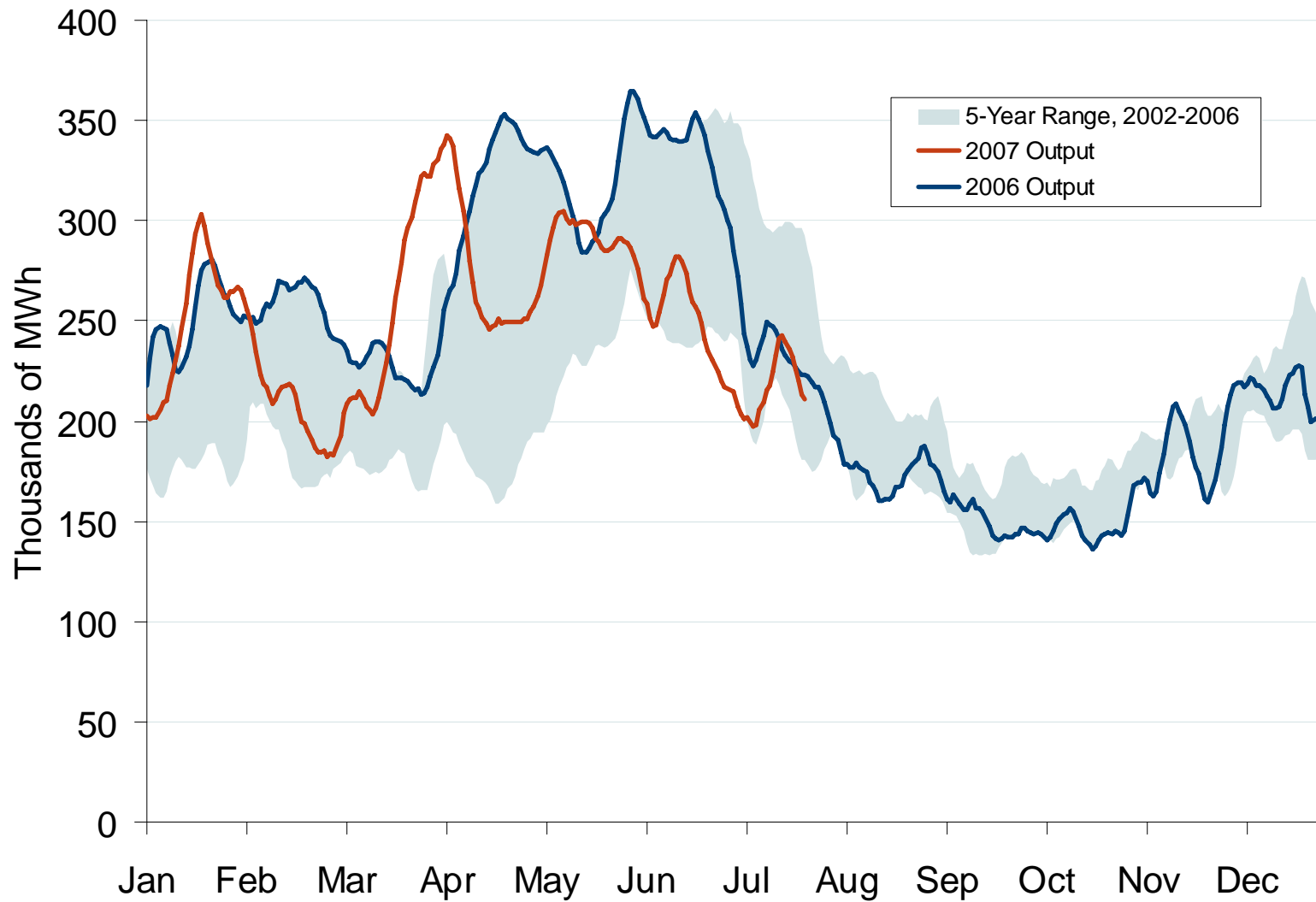
## Stream Flow at The Dalles Dam



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

Updated August 3, 2007

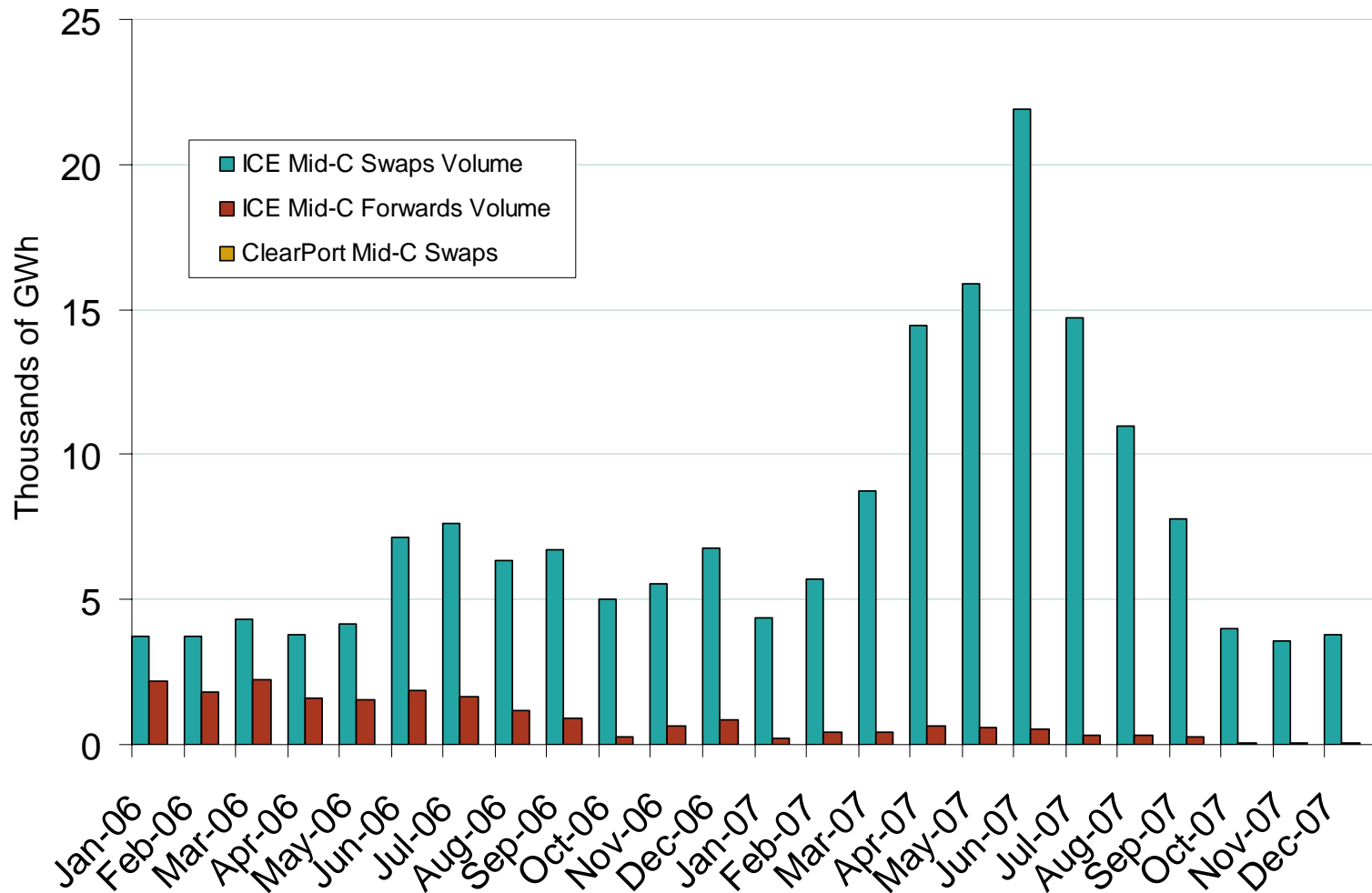
## Pacific Northwest Hydroelectric Production



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

Updated August 3, 2007

## 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 August 3, 2007