

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

Supply Demand Statistics			
	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

Annual Average Bilateral Prices

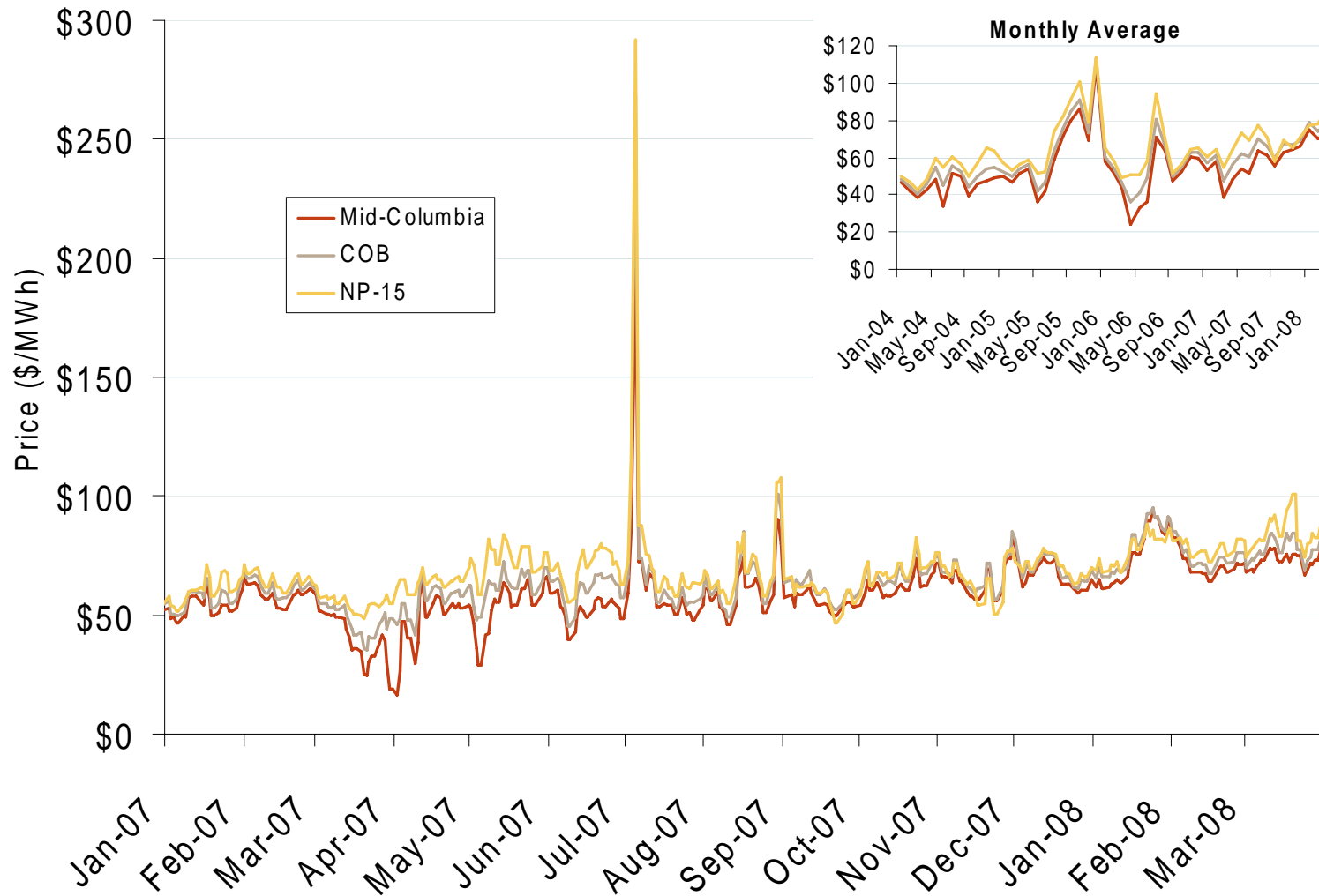
Annual Average Day Ahead On Peak Prices (\$/MWh)				
	2005	2006	2007	5 Years
Mid-Columbia (Mid-C)	\$62.95	\$50.18	\$56.57	\$50.97
California-Oregon Border (COB)	\$66.95	\$55.58	\$62.14	\$55.62

Source: Derived from *Platts* data.

Updated March 7, 2008

1040

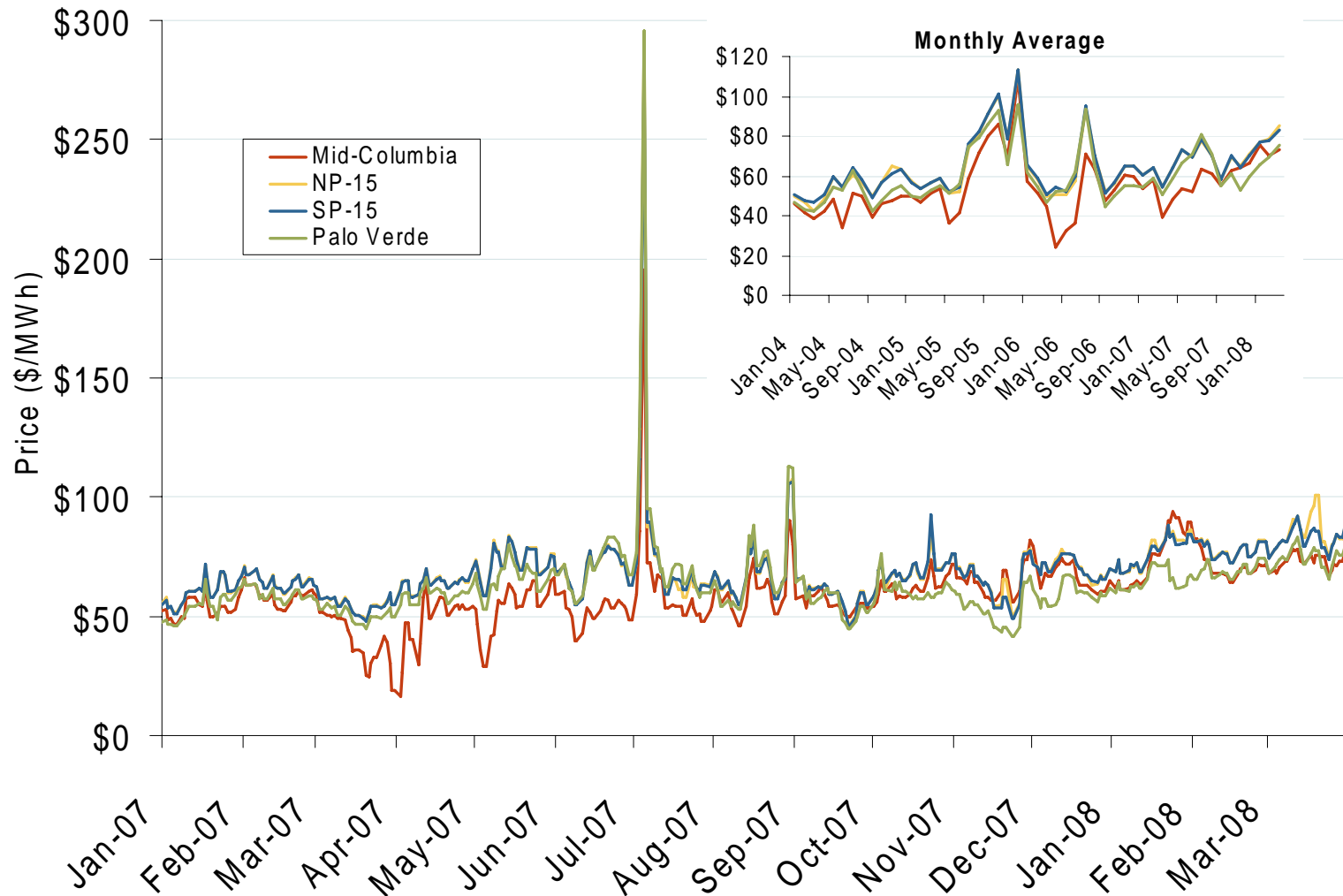
Northwestern Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from Platts data.

Updated April 4, 2008

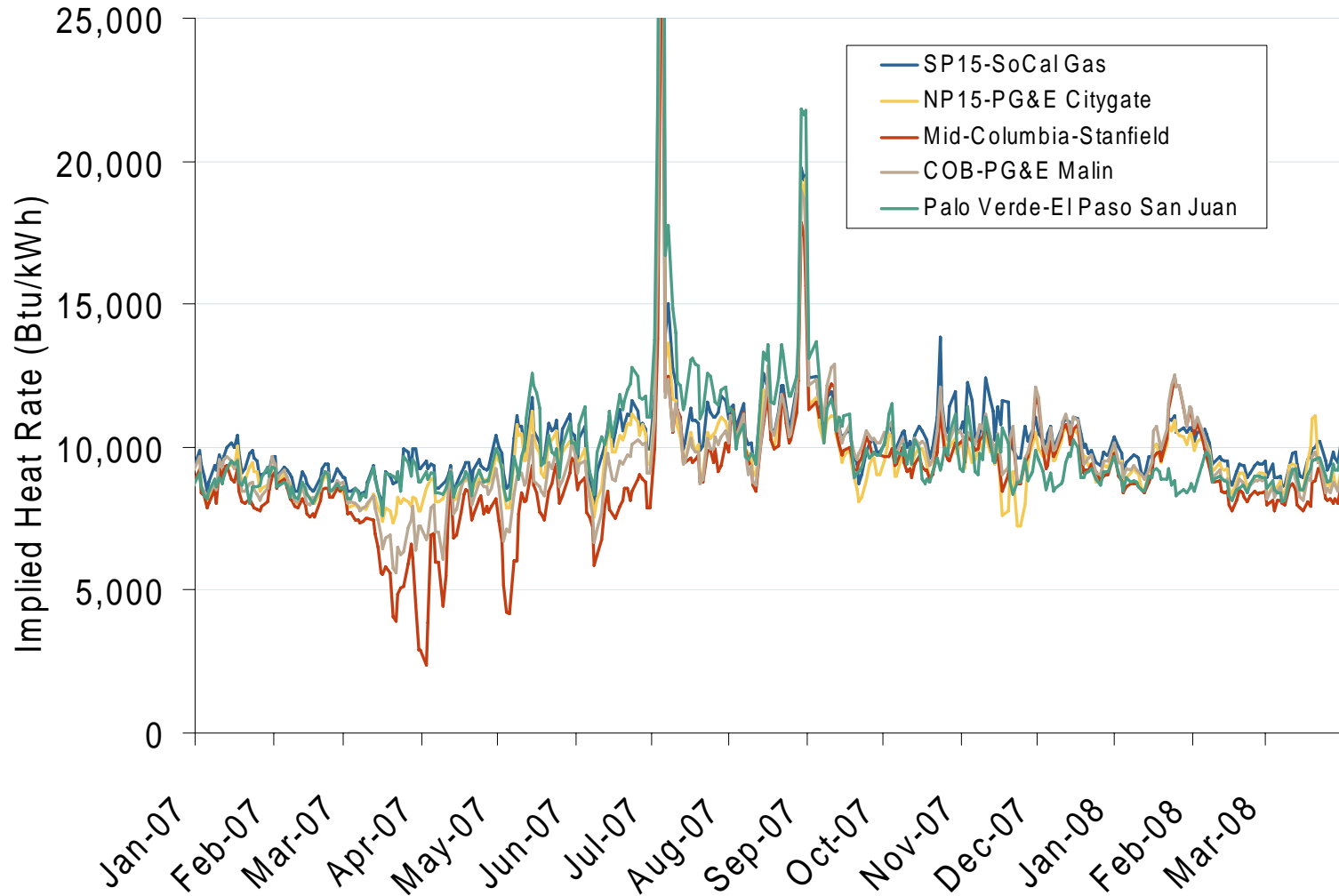
Western Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from Platts data.

Updated April 4, 2008

Implied Heat Rates at Western Trading Points

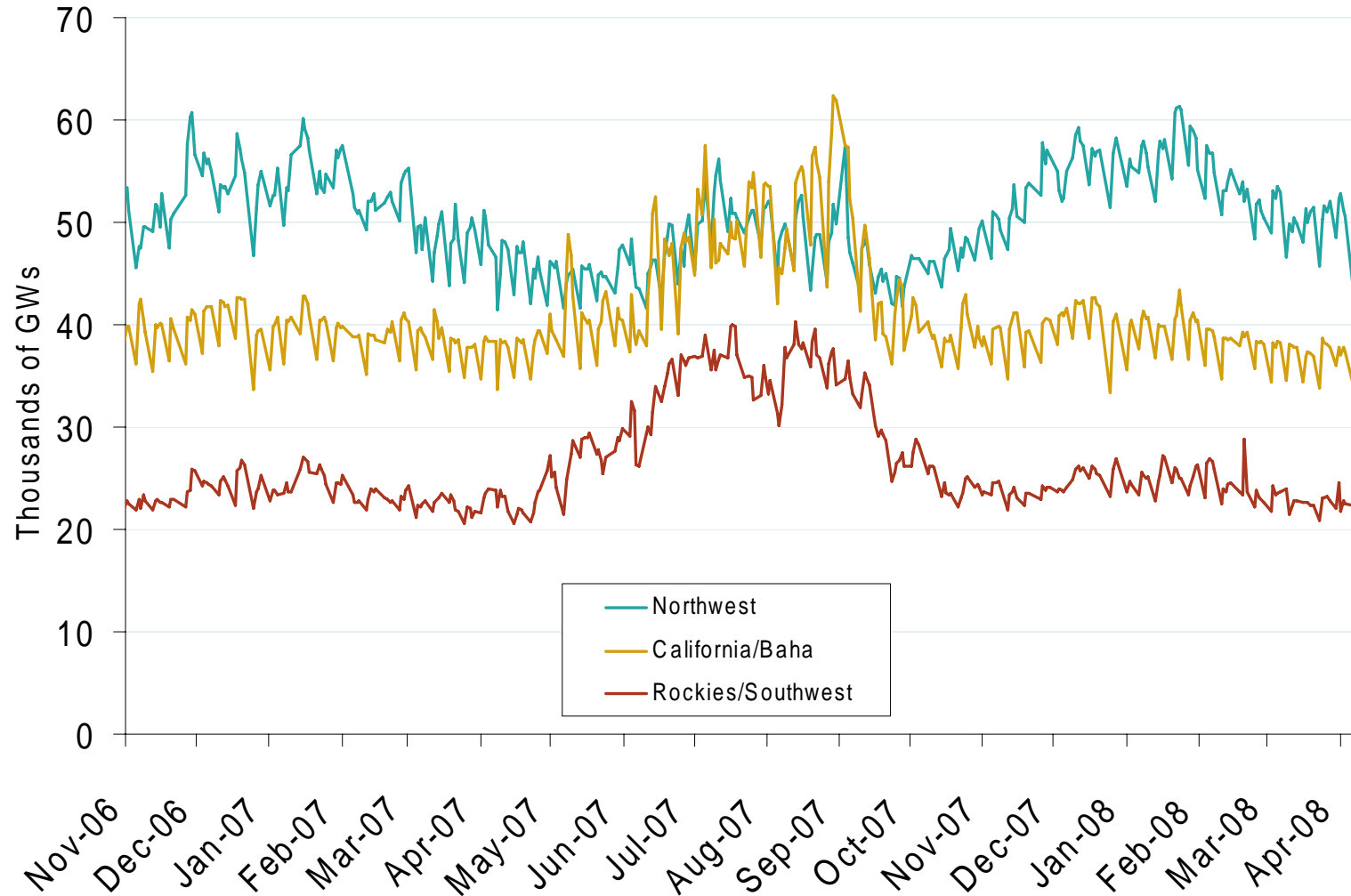


Source: Derived from *Platts* data

Updated April 4, 2008

1142

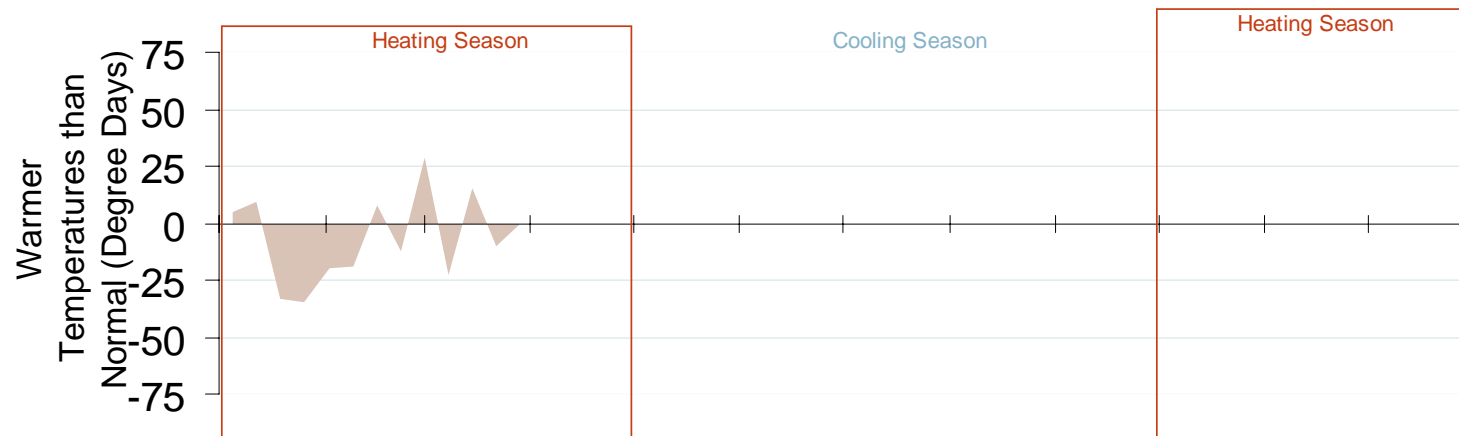
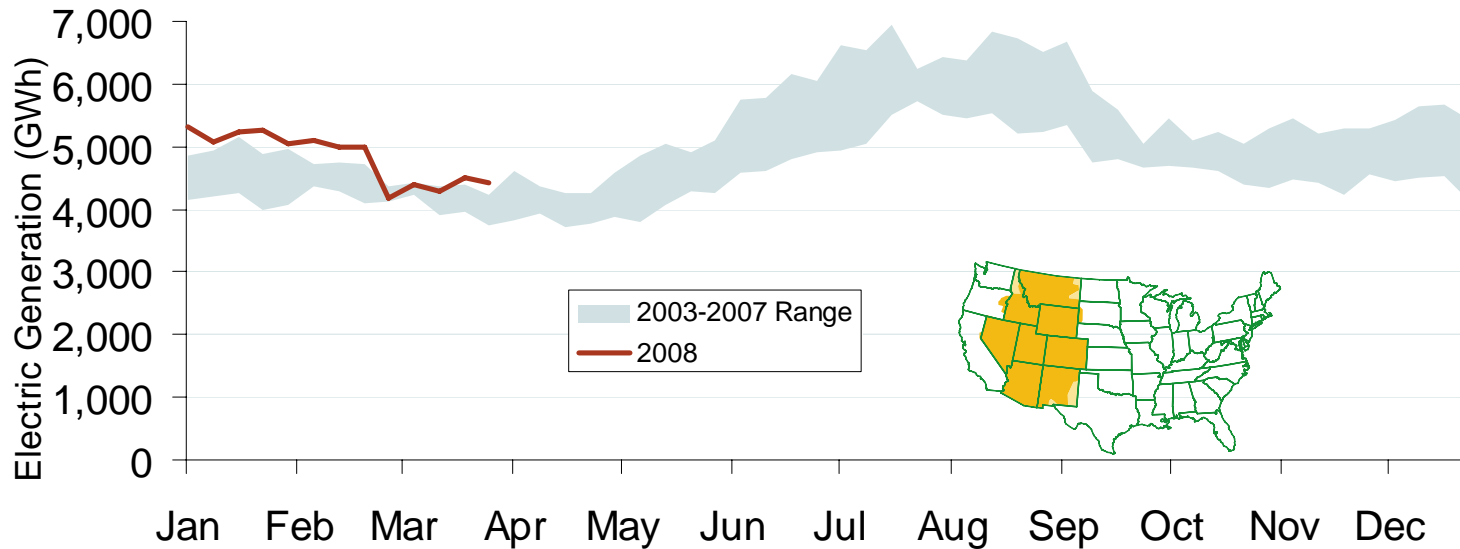
Western Daily Actual Peak Demand



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 April 8, 2008

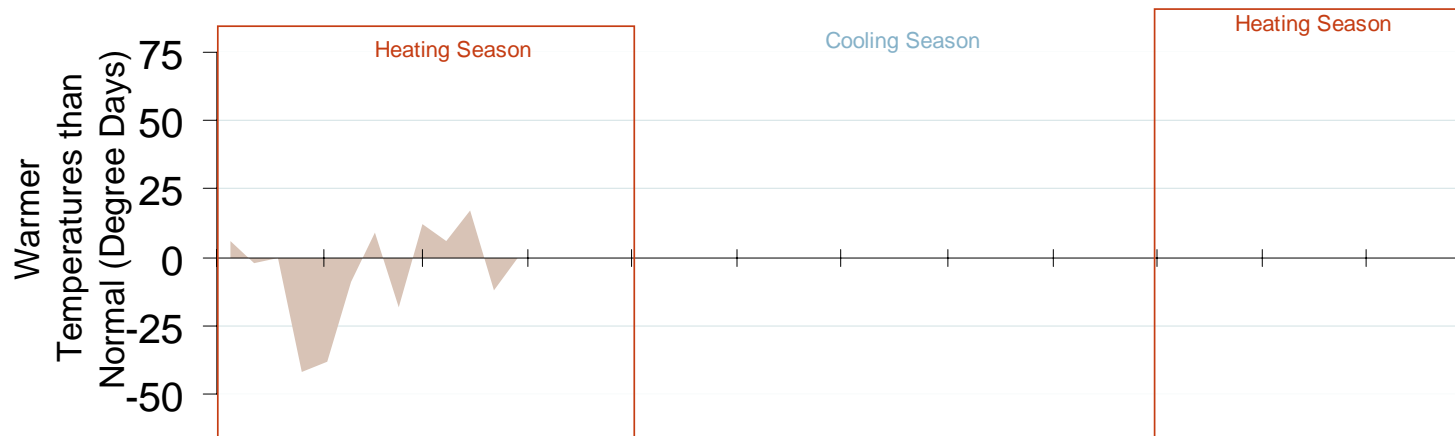
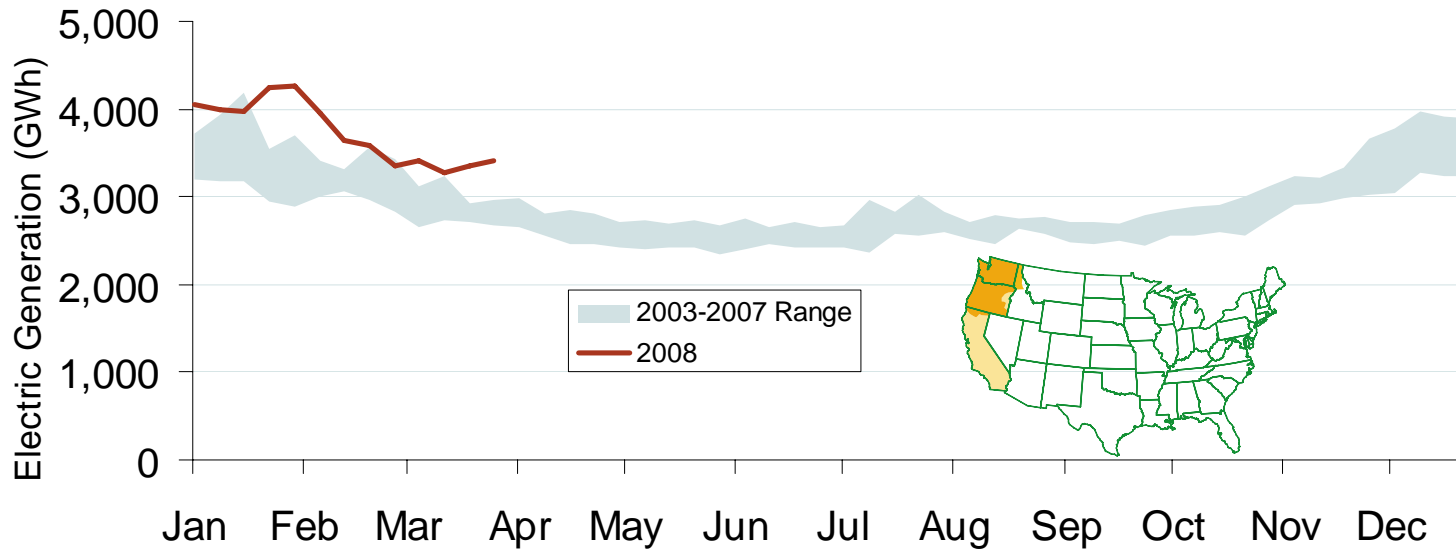
Weekly Electric Generation Output and Temperatures Rocky Mountains Region



Source: Derived from EEI and NOAA data.

Updated April 4, 2008

Weekly Electric Generation Output and Temperatures Pacific Northwest Region



Source: Derived from EEI and NOAA data.

Updated April 4, 2008

Pacific/Northwest Hydro and Snowpack Levels

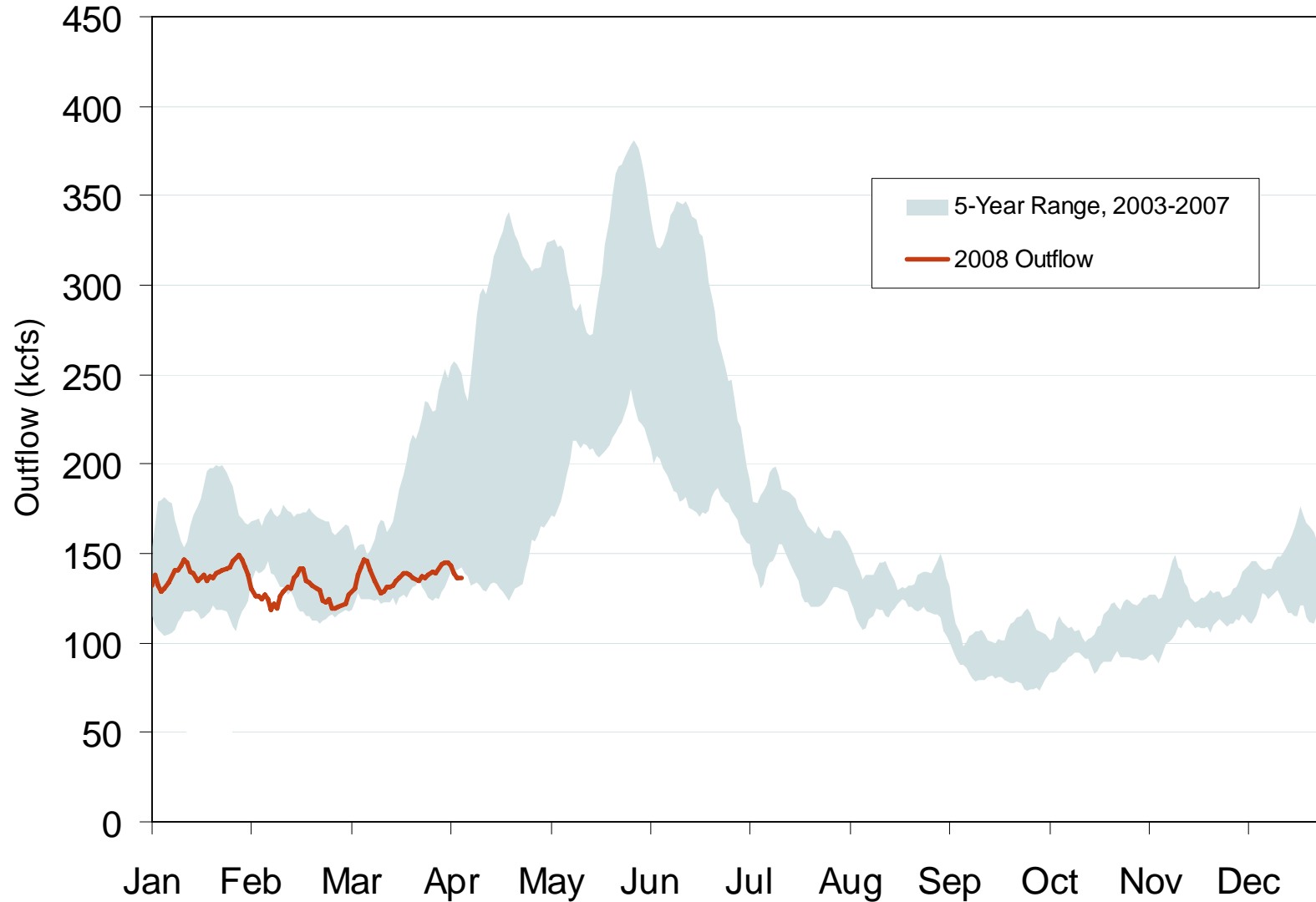
	Hydro Generation		Snow Water Equivalent ³		
	In-State Capacity (MW) ¹	Additional Capacity Created Downstream (MW) ²	One Year Ago (% of average)	3/06/08 (% of average)	3/31/08 (% of average)
California	10,400	0	44%	110%	98%
British Columbia	10,000	16,200	129%	108%	105%
Idaho	2,700	19,700	63%	103%	106%
Washington	21,500	0	92%	127%	131%
Montana	2,700	16,200	78%	111%	112%
Oregon	9,100	0	60%	133%	159%

1 Net summer capacity in megawatts by state (EIA).

2 Approximate electric capacity created by water flow through the downstream states (EIA and BPA). The capacity estimates reflect the water flow pattern of the series of hydro facilities on the Snake and Columbia Rivers.

3 Snow Water Equivalent, in percent of the historical average for the same date, is the ratio of current snow water daily data (collected by the Natural Resources Conservation Services' Snowtel Telemetry sites) compared to the average snow water for the same day between 1961-1990. Total Hydro Capacity figures by state do not tie precisely to Snow Water Equivalent data due to such factors as snow basin terrain and complex distribution of run-off to neighboring state hydroelectric dams or shared facilities (e.g., Columbia River hydroelectric dams on the border of Washington and Oregon) (Bloomberg).

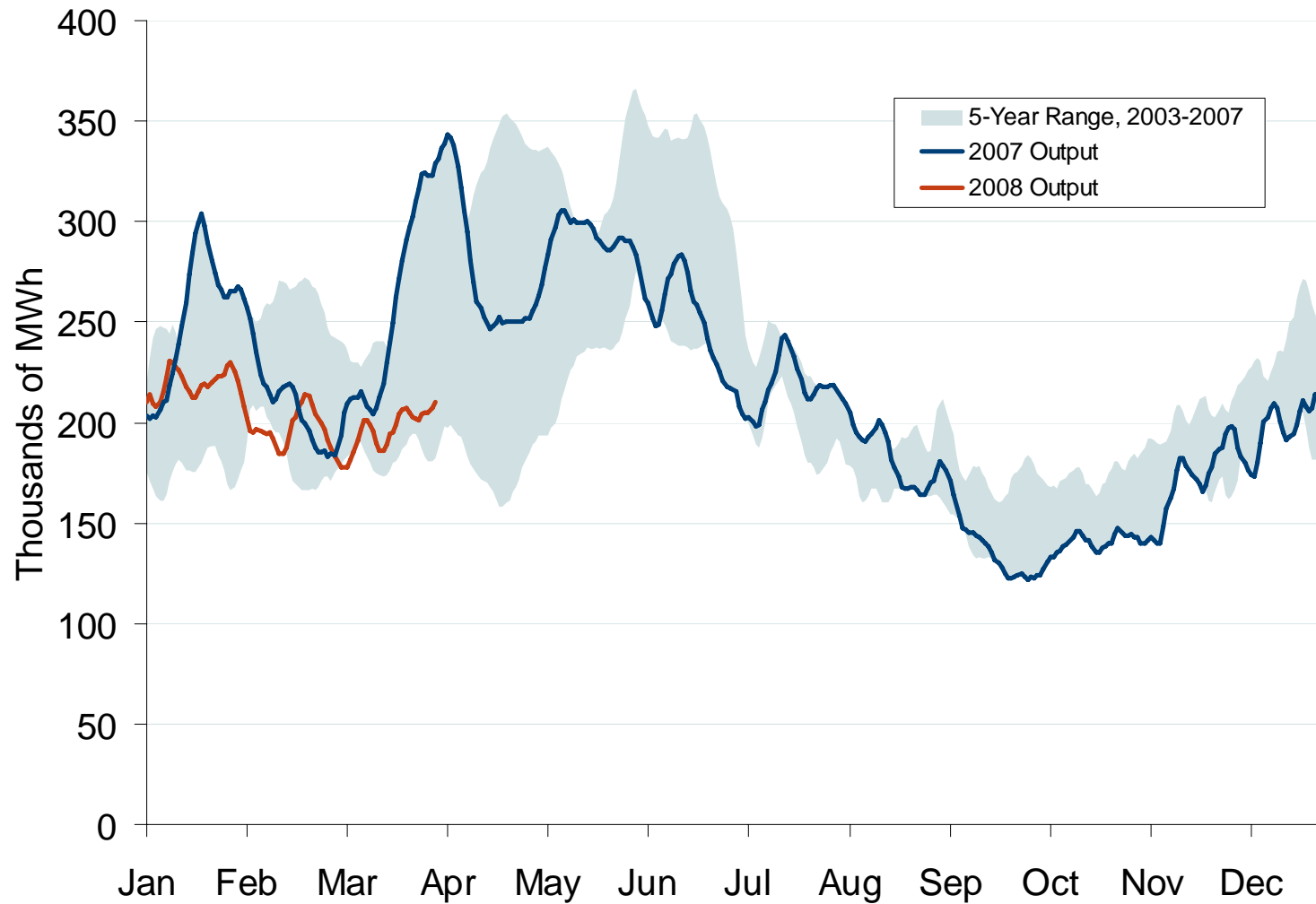
Stream Flow at The Dalles Dam



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

Updated April 4, 2008

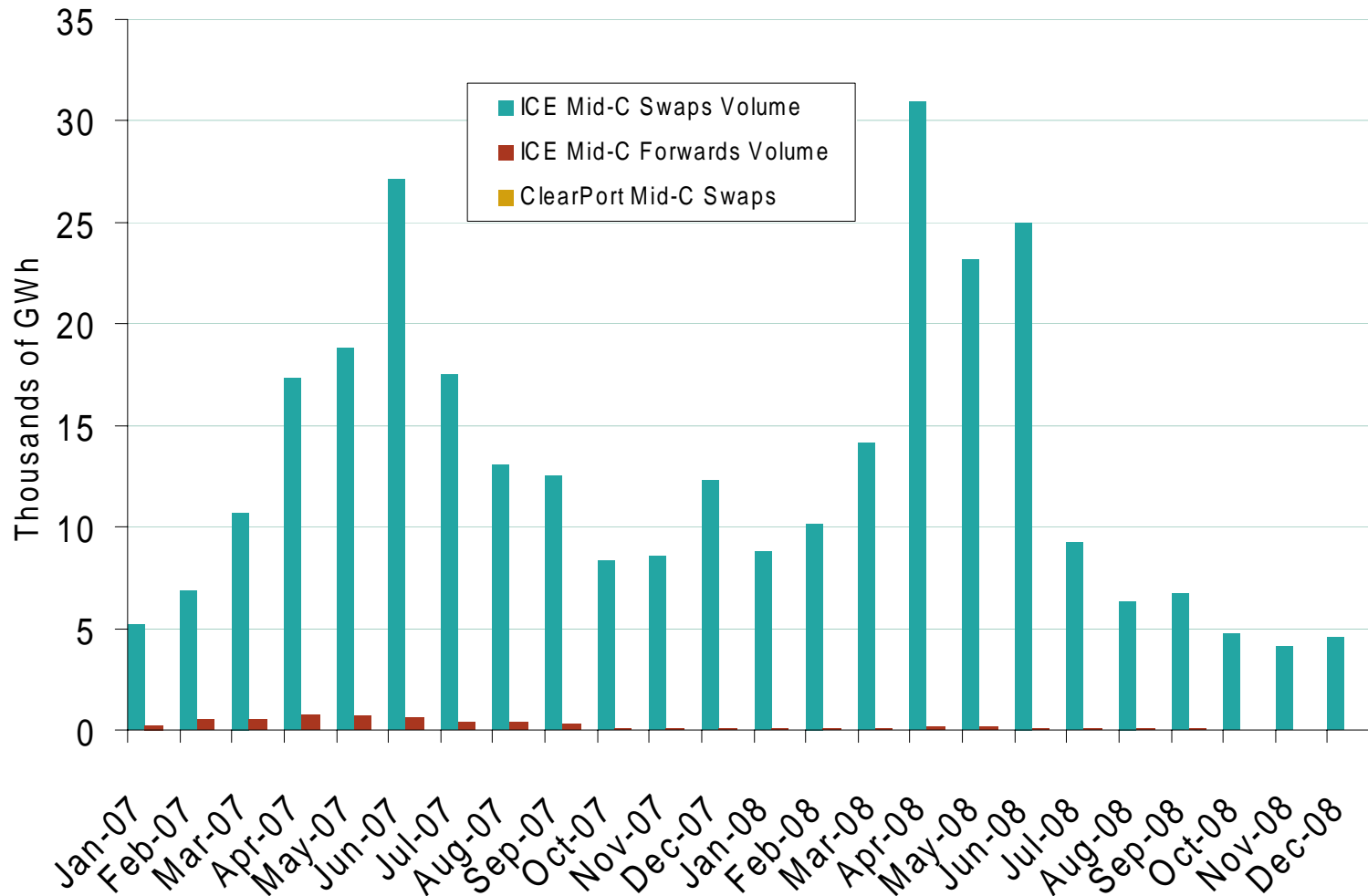
Pacific Northwest Hydroelectric Production



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

Updated April 4, 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 April 4, 2008