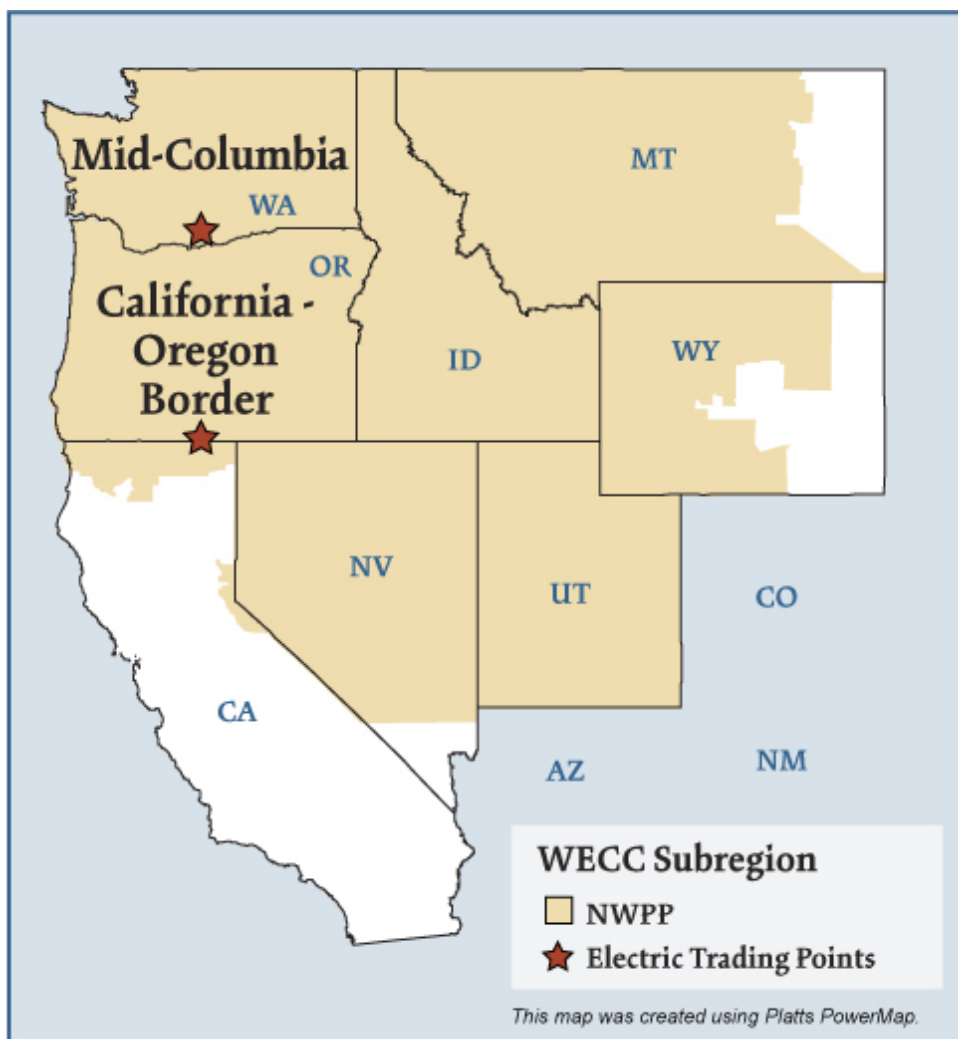


Northwest Electric Market



Northwest Electric Market: Overview and Focal Points

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

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.

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Northwest Electric Market: Overview and Focal Points

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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: \$66.95/MWh 2006: \$55.58/MWh 2007: \$62.14/MWh

Platts Mid-Columbia (Mid-C) Hub:

2004: \$44.50/MWh 2005: \$62.95/MWh 2006: \$50.18/MWh 2007: \$56.57/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.

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.

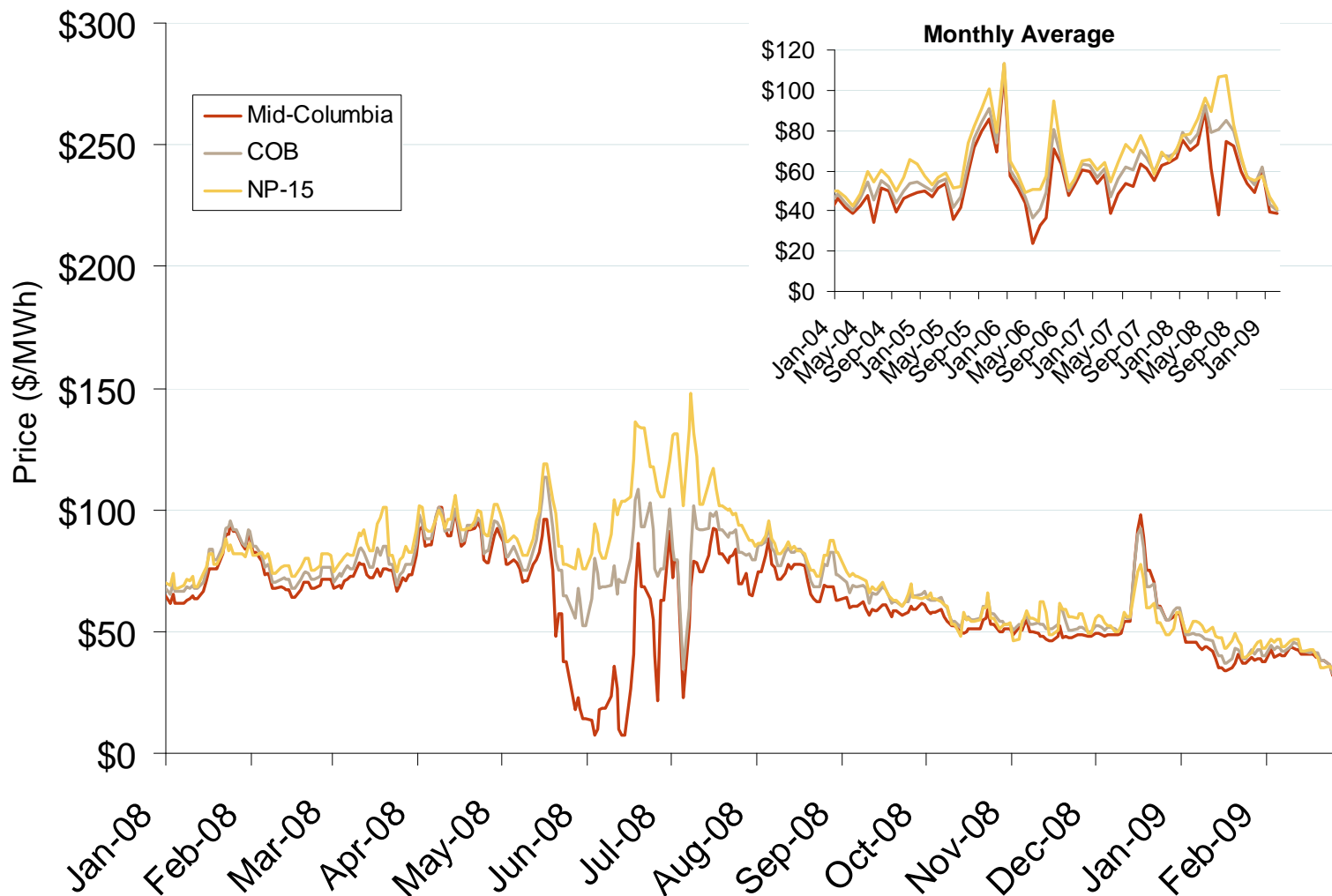
Updated February 2, 2007

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Annual Average Bilateral Prices

Annual Average Day Ahead On Peak Prices (\$/MWh)						
	2004	2005	2006	2007	2008	5-Year Avg
Mid-Columbia (Mid-C)	\$44.53	\$62.95	\$50.18	\$56.57	\$65.00	\$55.84
California-Oregon Border (COB)	\$49.08	\$66.95	\$55.58	\$62.14	\$73.86	\$61.52

Northwestern Daily Bilateral Day-Ahead On-Peak Prices

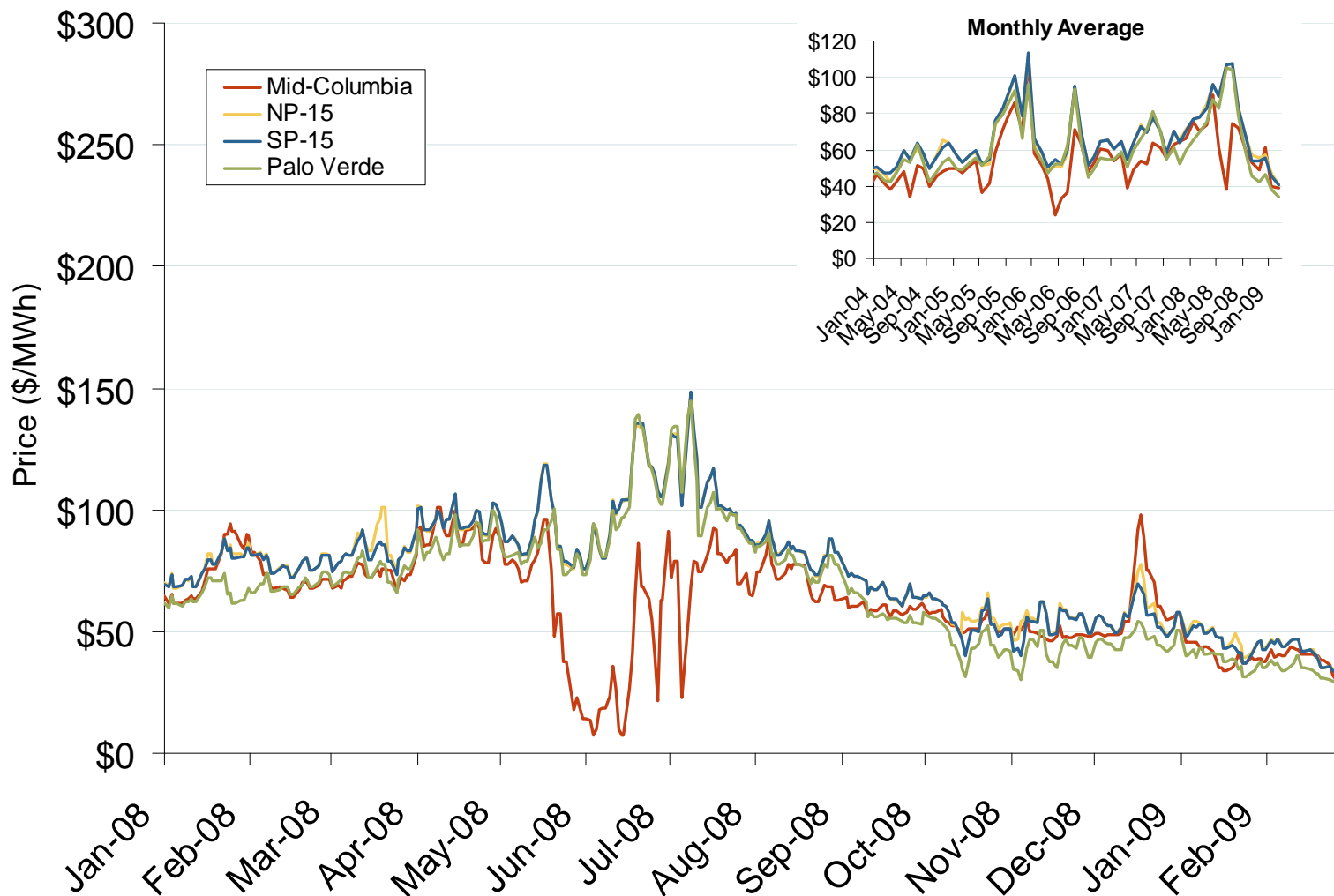


Source: Derived from *Platts* data.

Updated March 9, 2009

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Western Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from Platts data.

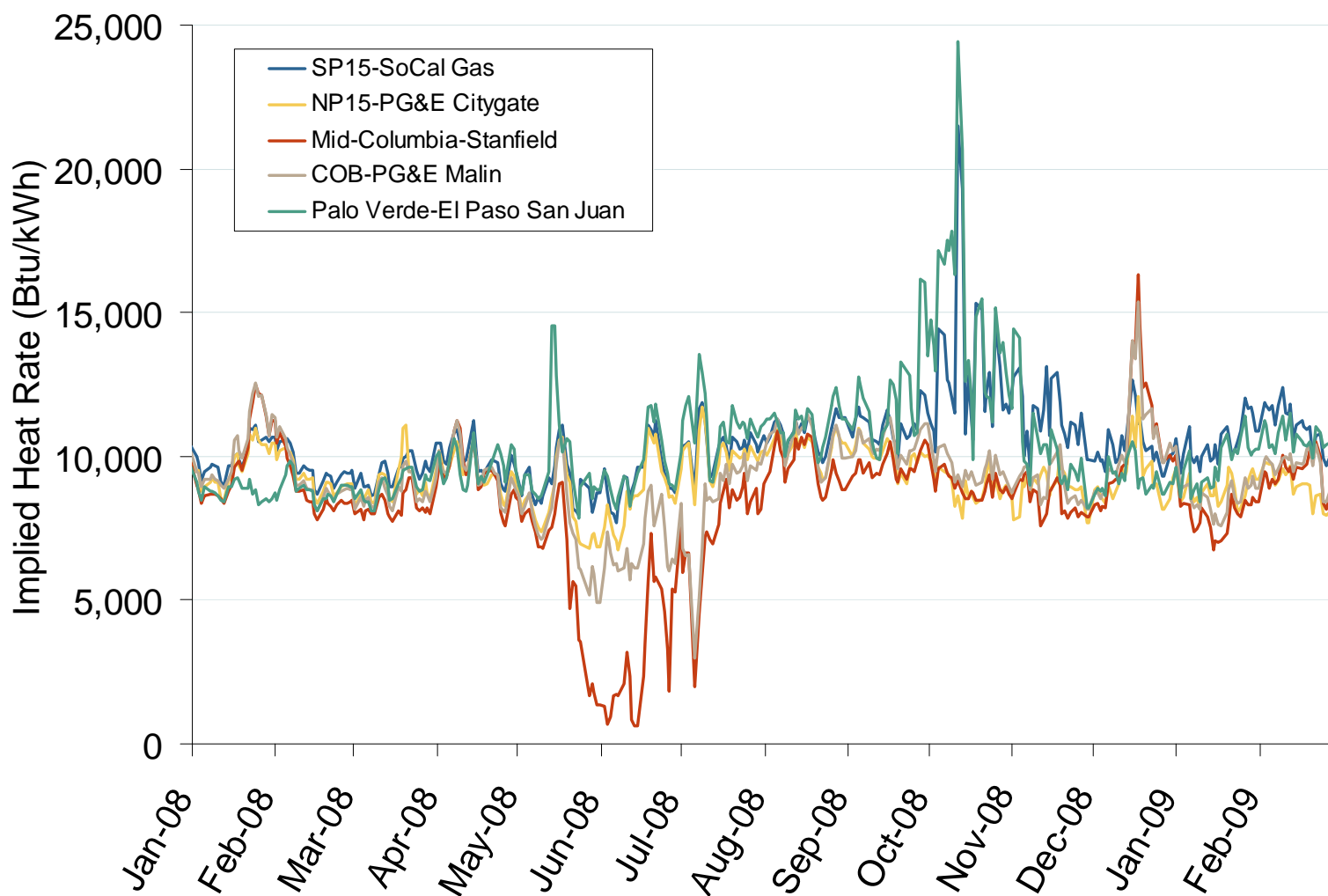
Updated March 9, 2009

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Northwest Electric Market: Western Implied Heat Rates

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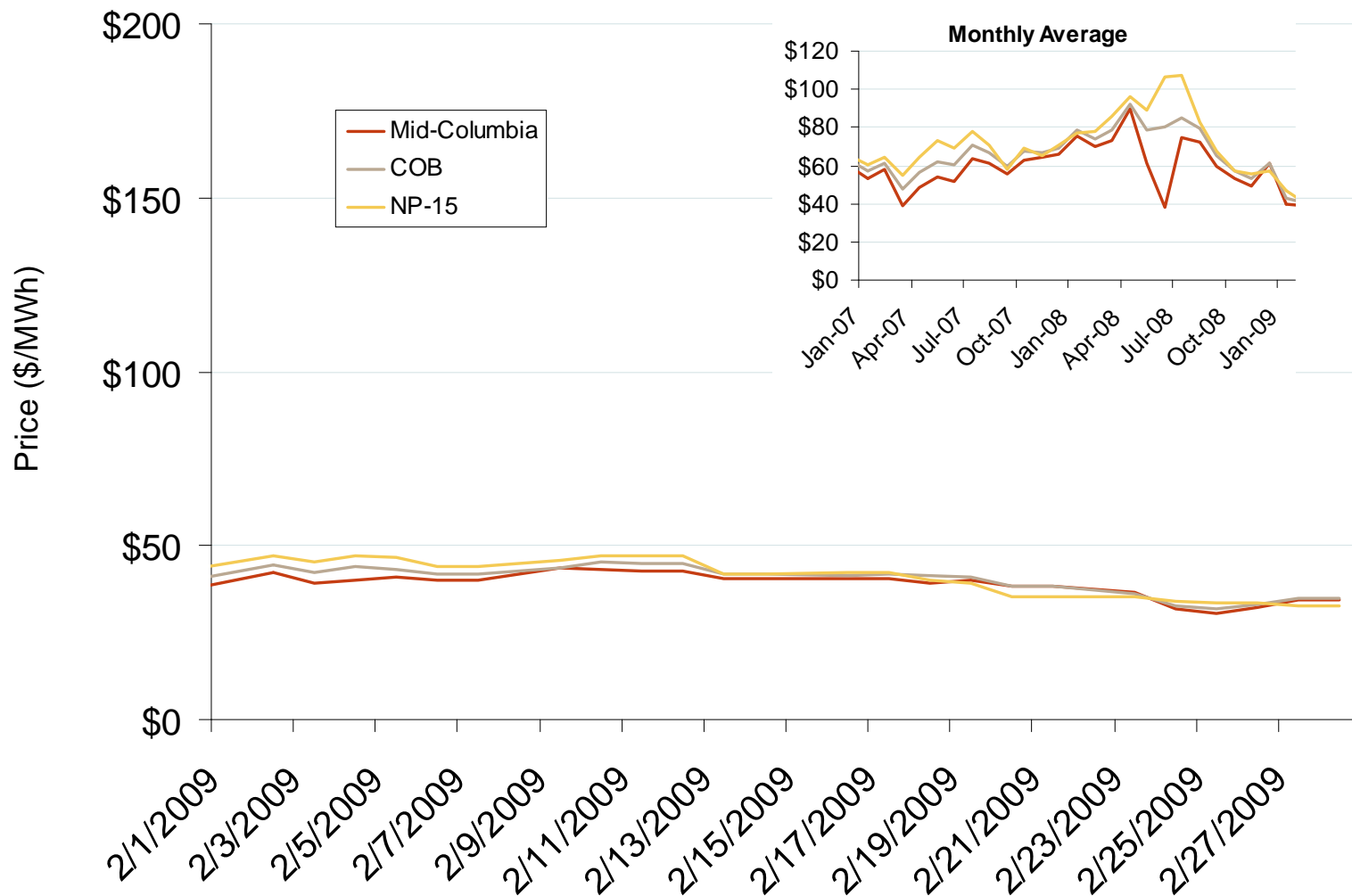
Implied Heat Rates at Western Trading Points

Source: Derived from *Platts* data

Updated March 9, 2009

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Northwestern Daily Bilateral Day-Ahead On-Peak Prices

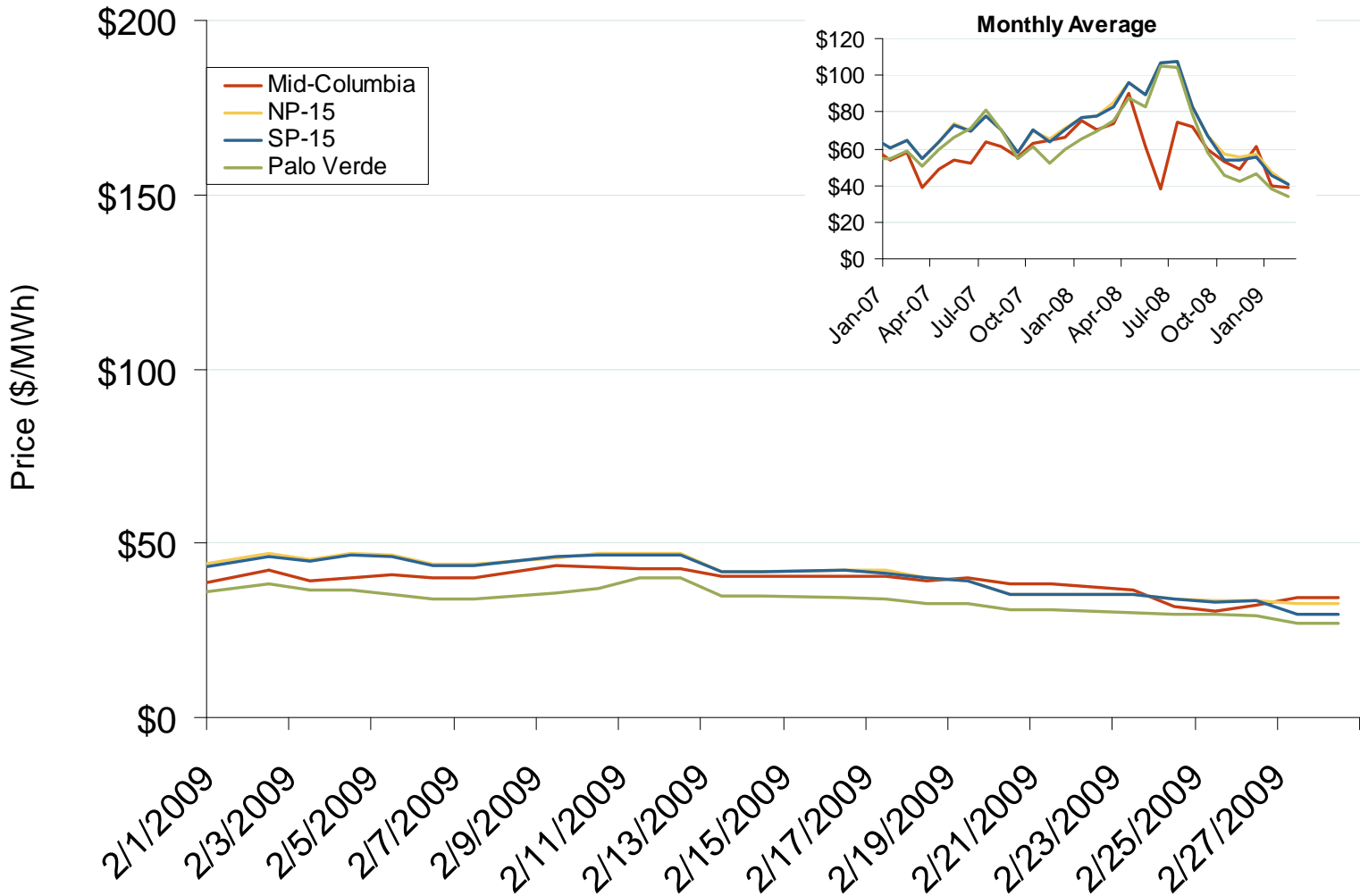


Source: Derived from *Platts* data.

Updated March 9, 2009

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Western Daily Bilateral Day-Ahead On-Peak Prices

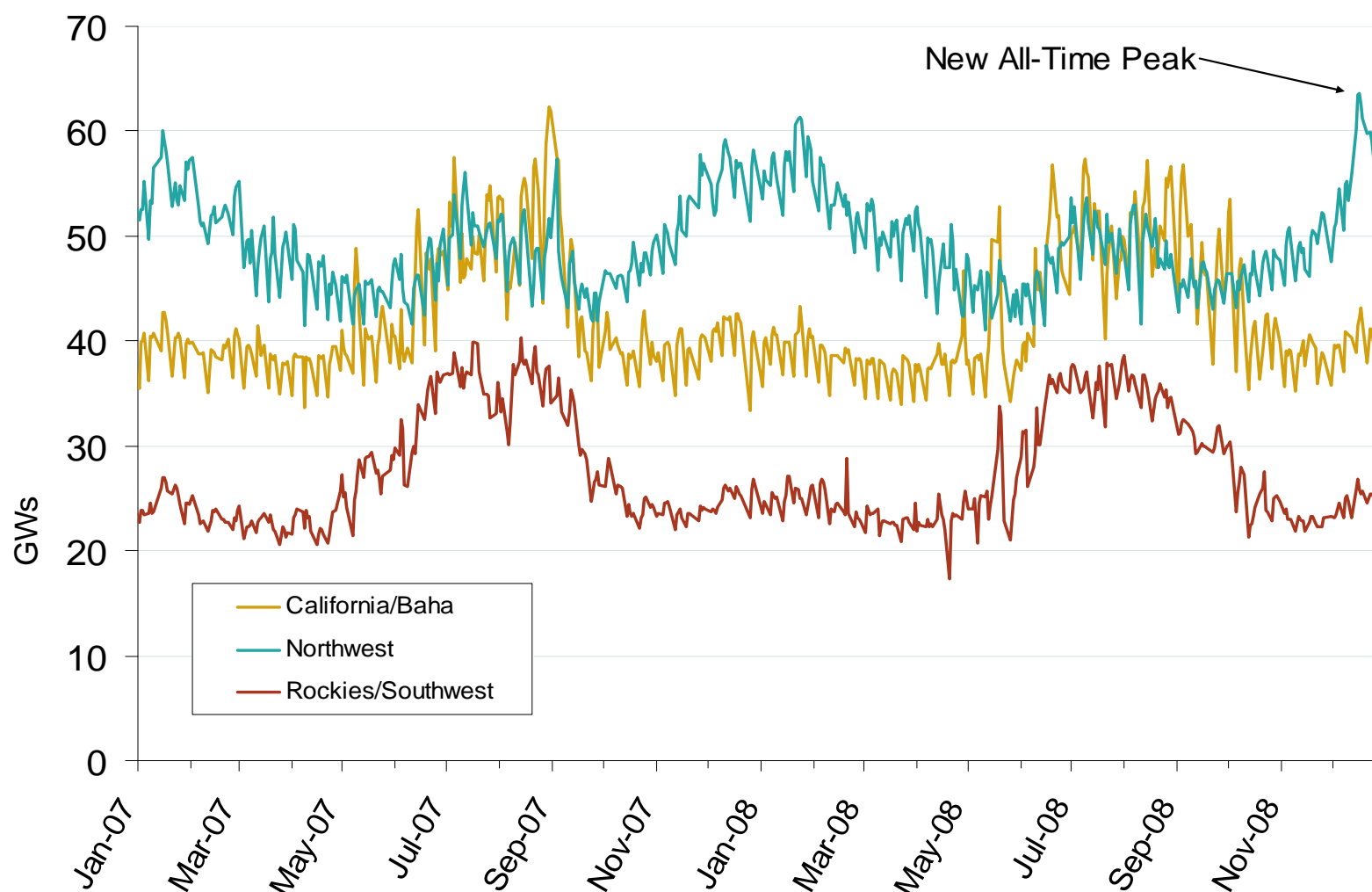


Source: Derived from *Platts* data.

Updated March 9, 2009

Northwest Electric Market: Daily Peak Demand

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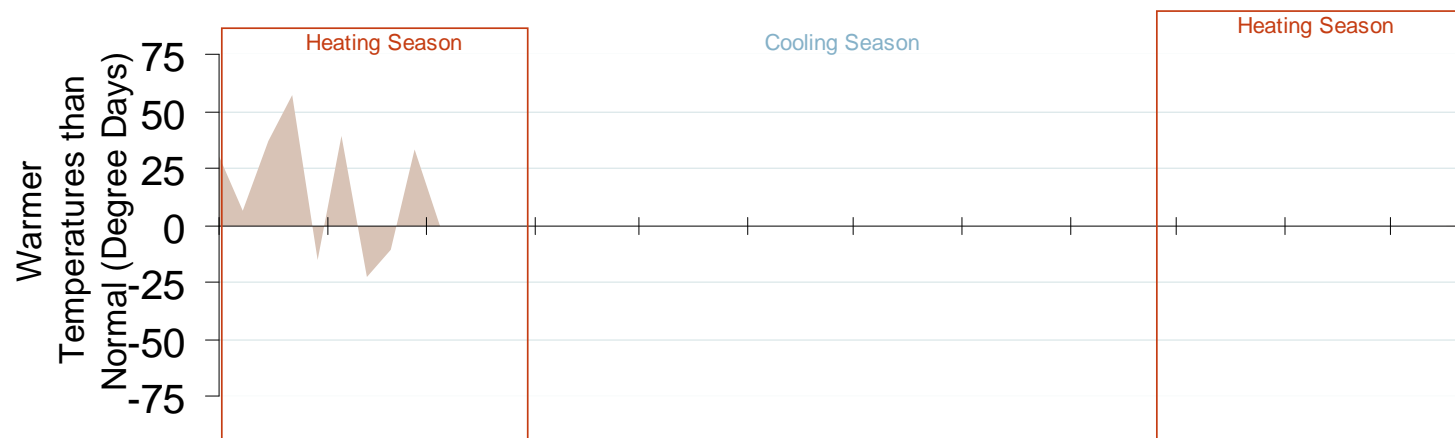
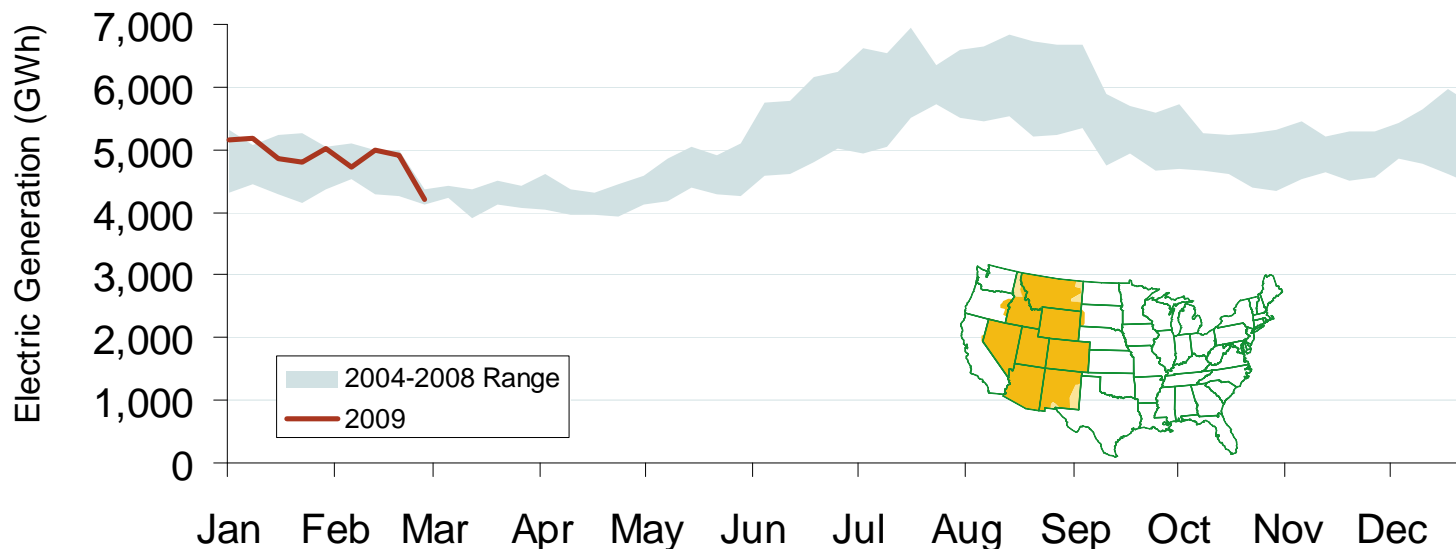
Western Daily Actual Peak Demand

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 January 9, 2009

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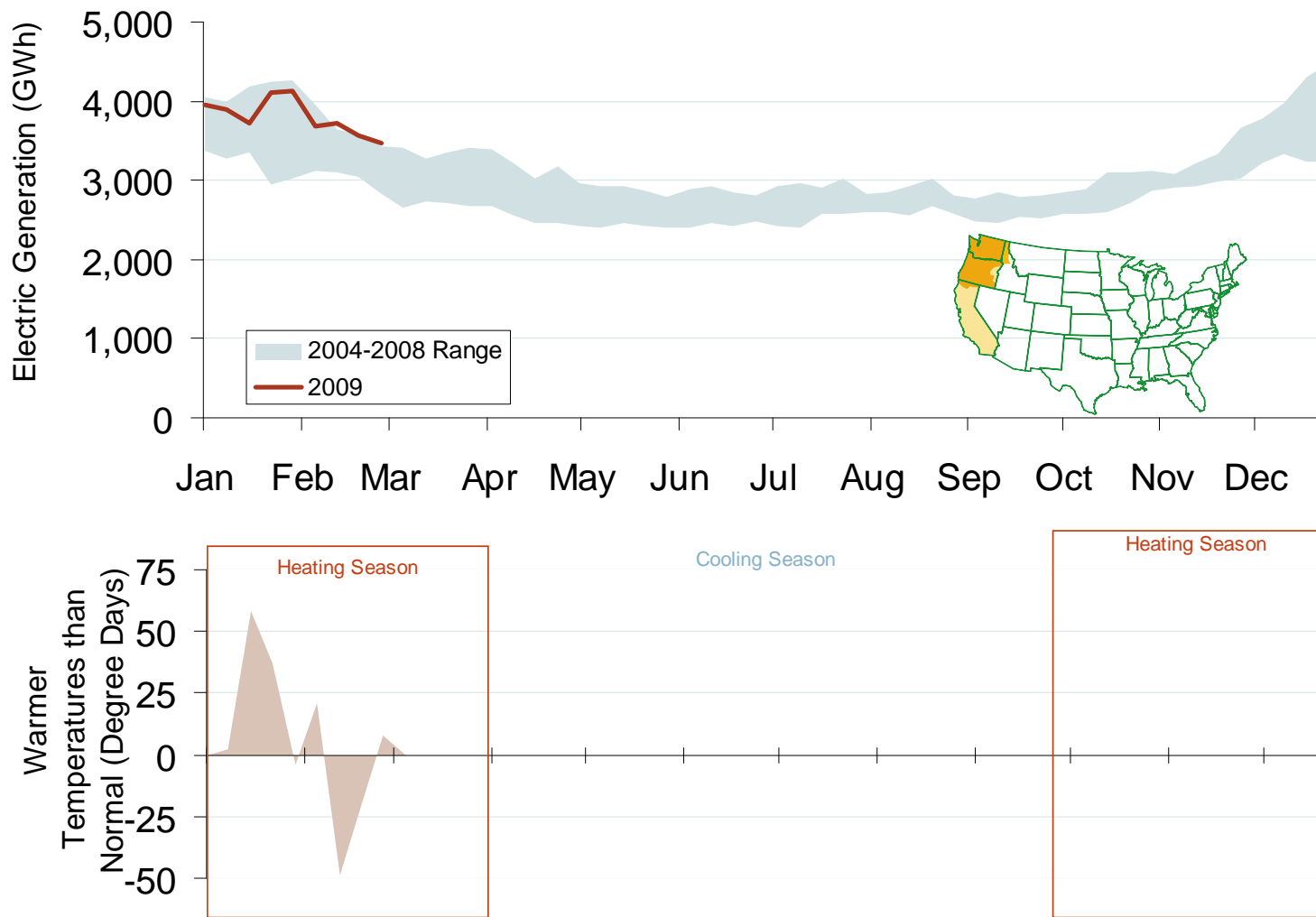
Weekly Electric Generation Output and Temperatures Rocky Mountains Region



Source: Derived from EEI and NOAA data.

Updated March 9, 2009

Weekly Electric Generation Output and Temperatures Pacific Northwest Region



Source: Derived from *EEl* and NOAA data.

Updated March 9, 2009

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)	2/17/09 (% of average)	3/5/09 (% of average)
Washington	21,500	0	128%	71%	74%
Oregon	9,100	0	132%	81%	83%
California	10,400	0	110%	76%	88%
Idaho	2,700	19,700	104%	82%	83%
Montana	2,700	16,200	111%	83%	87%
British Columbia	10,000	16,200	108%	82%	85%

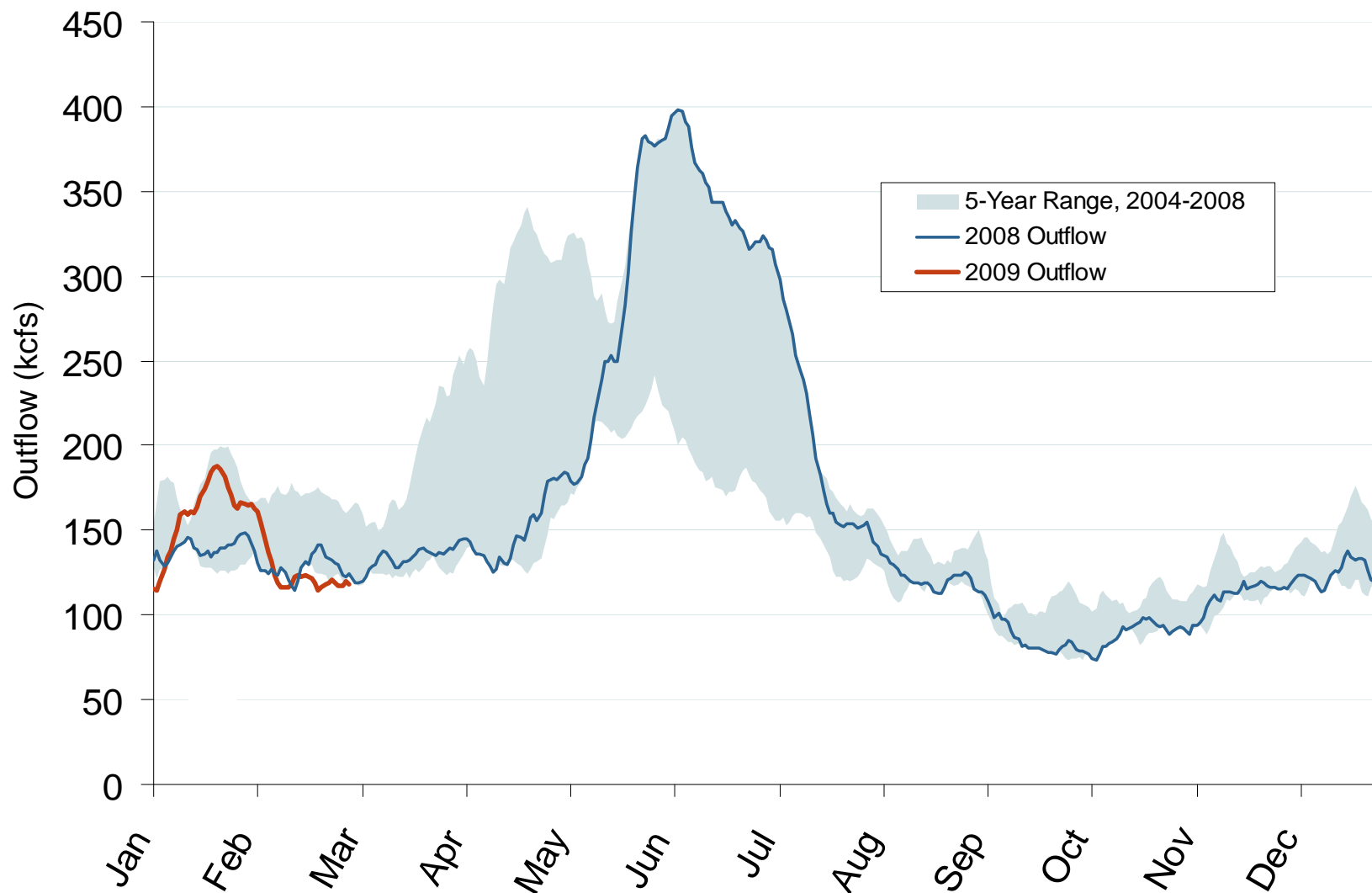
¹ Net summer capacity in megawatts by state (EIA).

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, California Dept. of Water Resource and Government of British Columbia Ministry of Environment).

Northwest Electric Market: The Dalles Dam Stream Flow

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

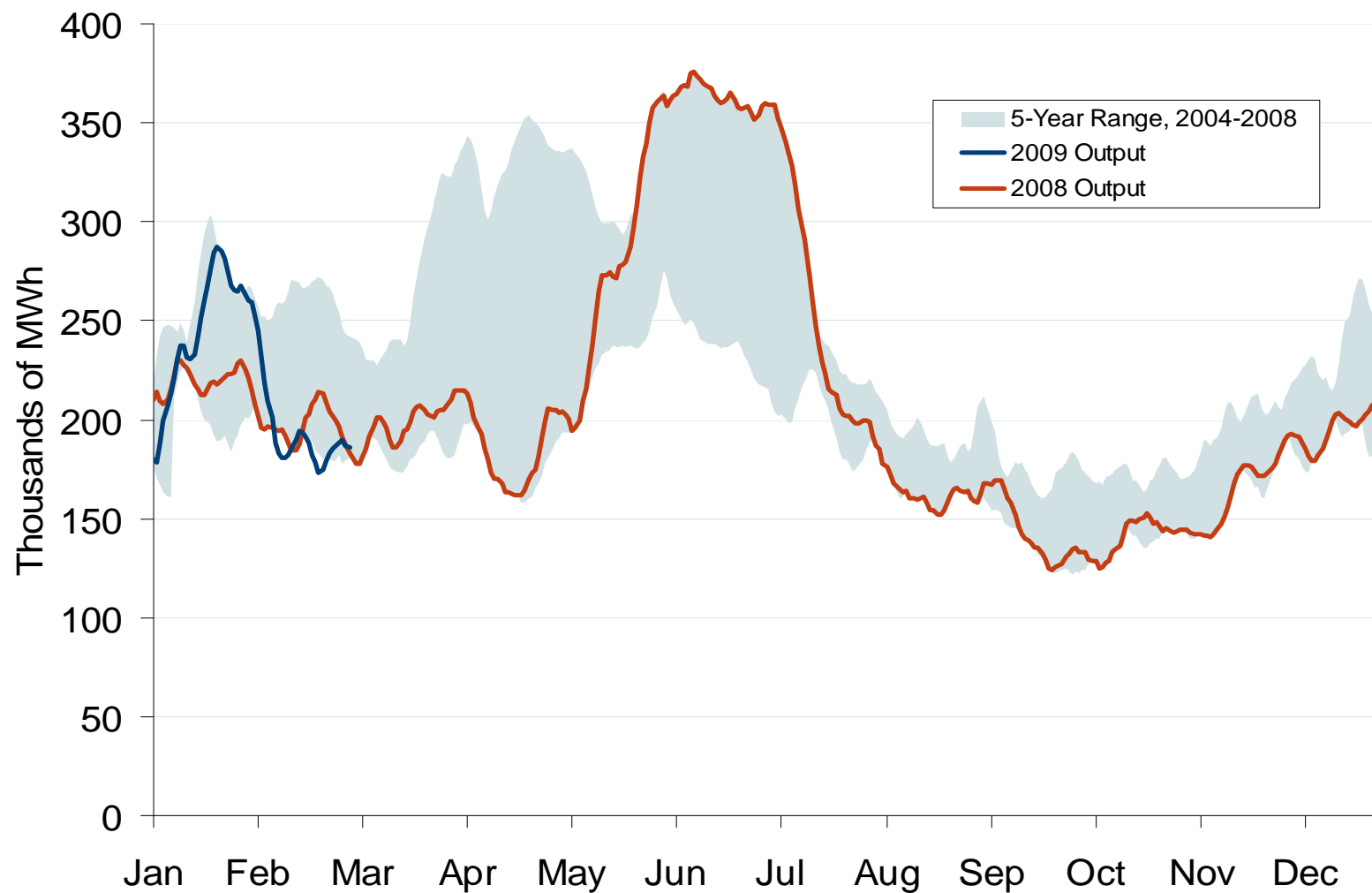
Stream Flow at The Dalles Dam

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

Updated March 9, 2009

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Pacific Northwest Hydroelectric Production



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

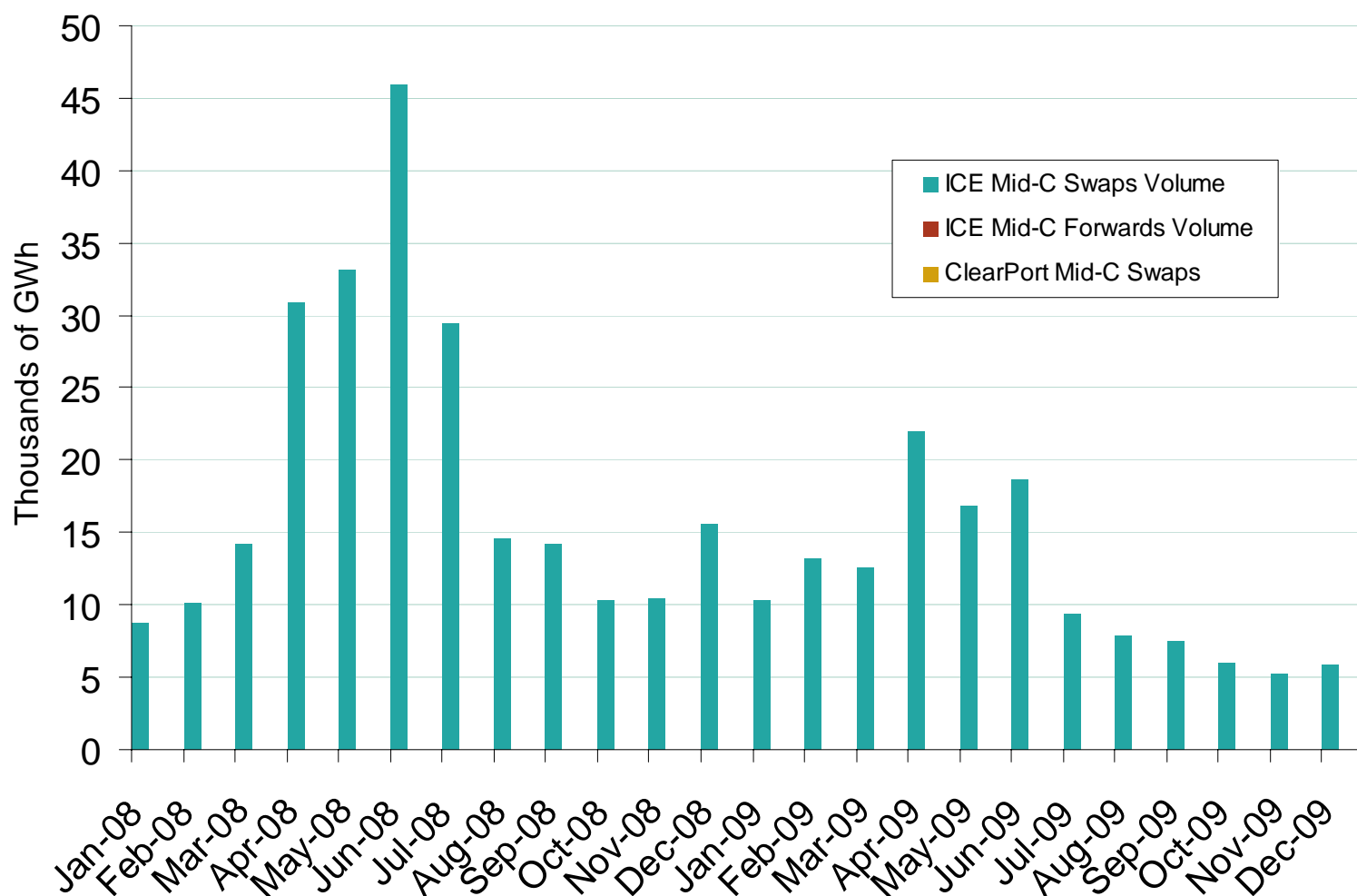
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Northwest Electric Market: Physical & Financial Market Volumes

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Mid-Columbia Forward and Swap Volumes

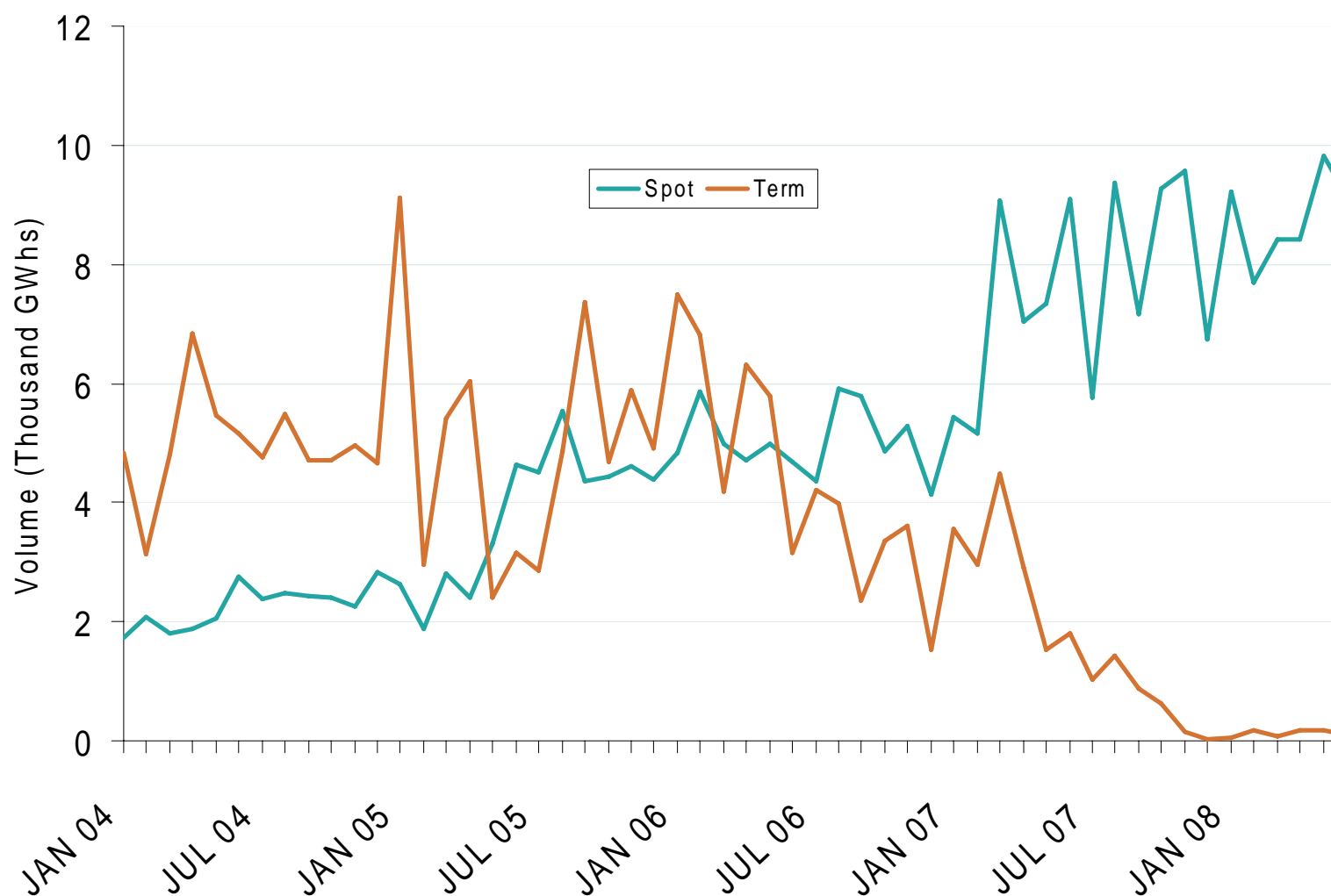


Source: Derived from *ICE* and *Nymex ClearPort* data. ICE on-peak forward (physical) and swap (financial) volumes are for Mid-Columbia and include monthly, dual monthly, quarterly, and calendar year contracts traded for each month. Nymex ClearPort on-peak swaps (financial) volume are for Mid-Columbia and are traded by month.

Updated March 9, 2009

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Western Physical Power Volumes Traded on ICE by Month



Source: Derived from ICE data.

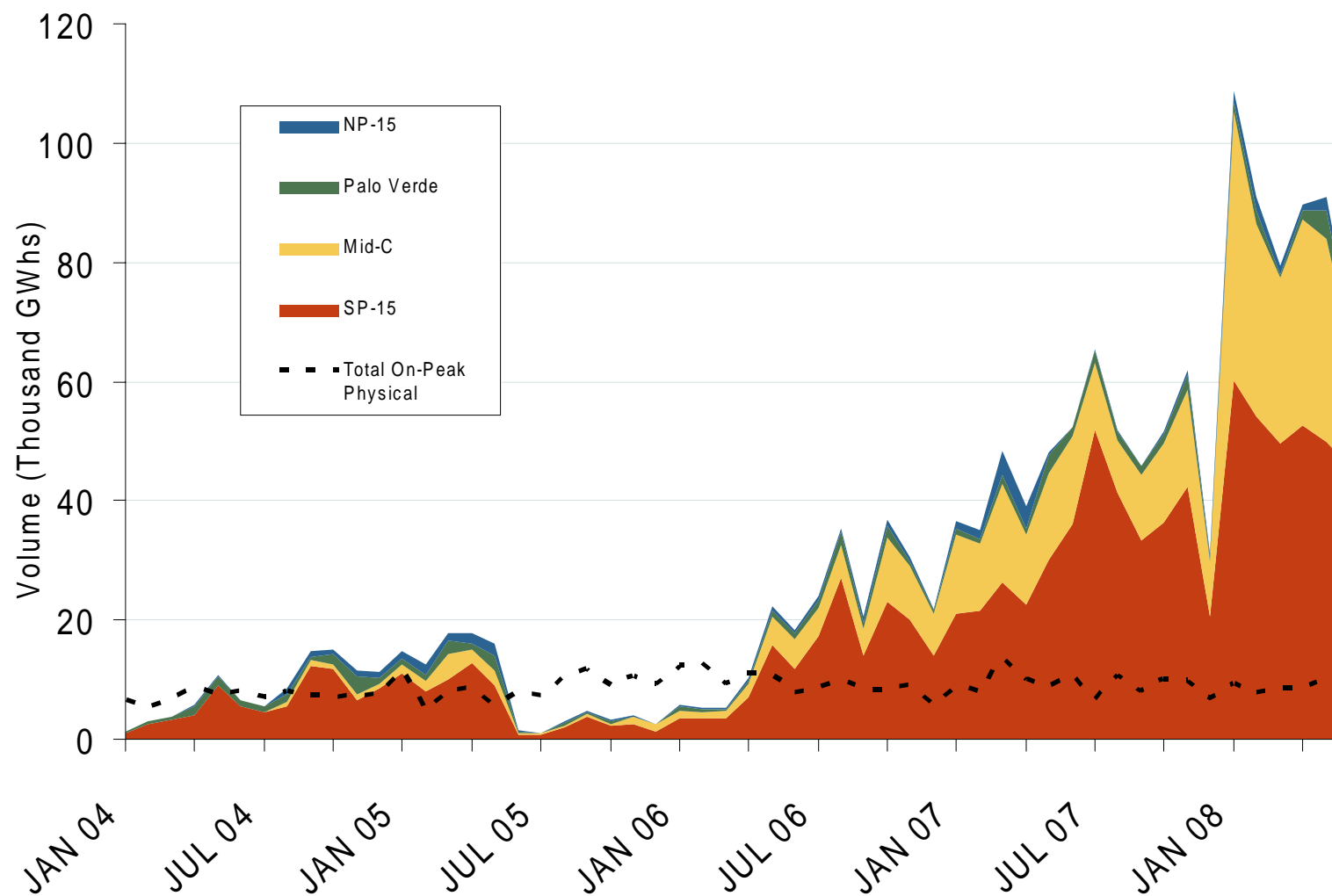
Updated August 14, 2008

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Northwest Electric Market: ICE Financial Volumes

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Western Financial On-Peak Products Traded on ICE by Hub



Source: Derived from ICE data.

Updated August 14, 2008

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