

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.

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

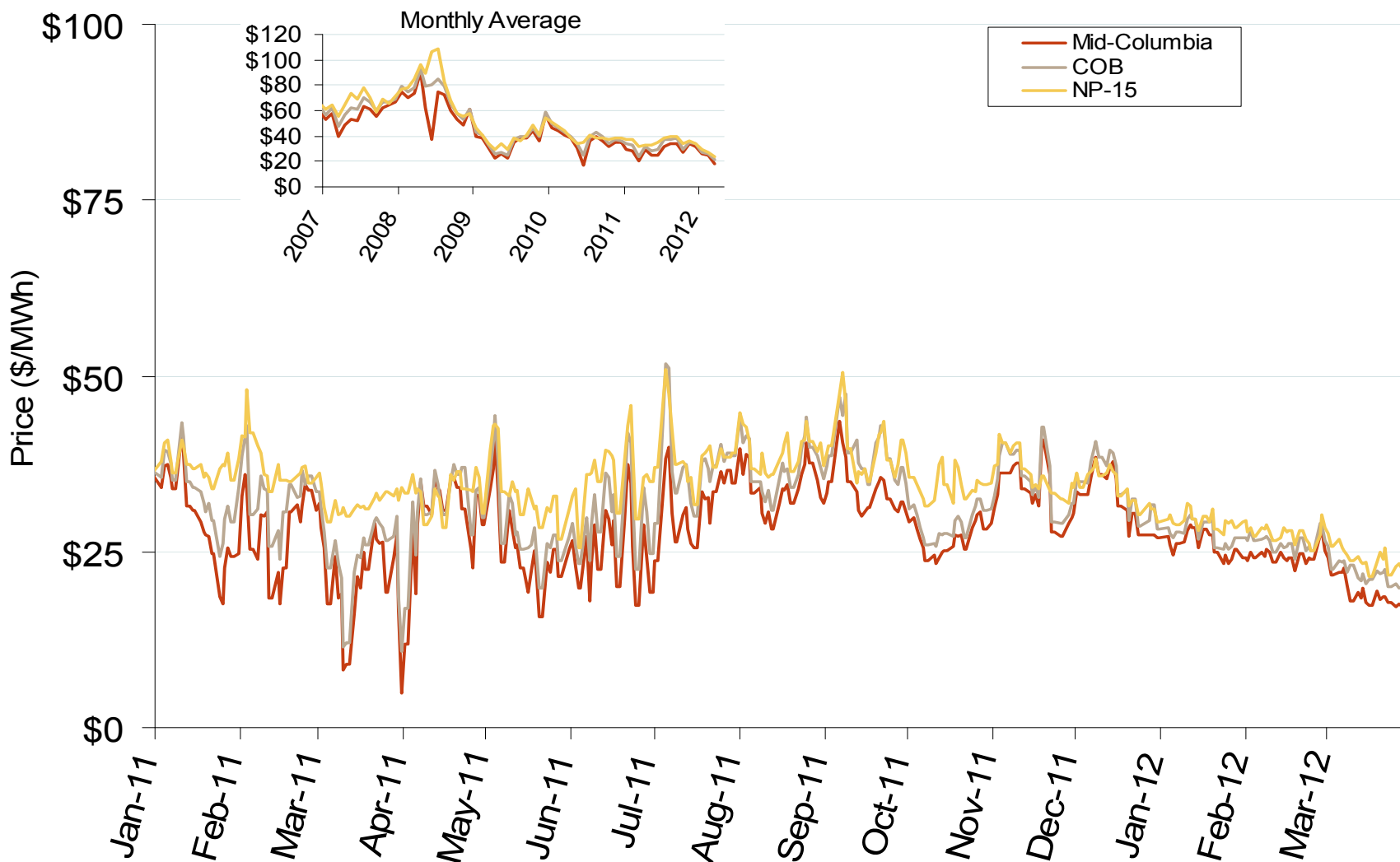
NERC Acronym

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

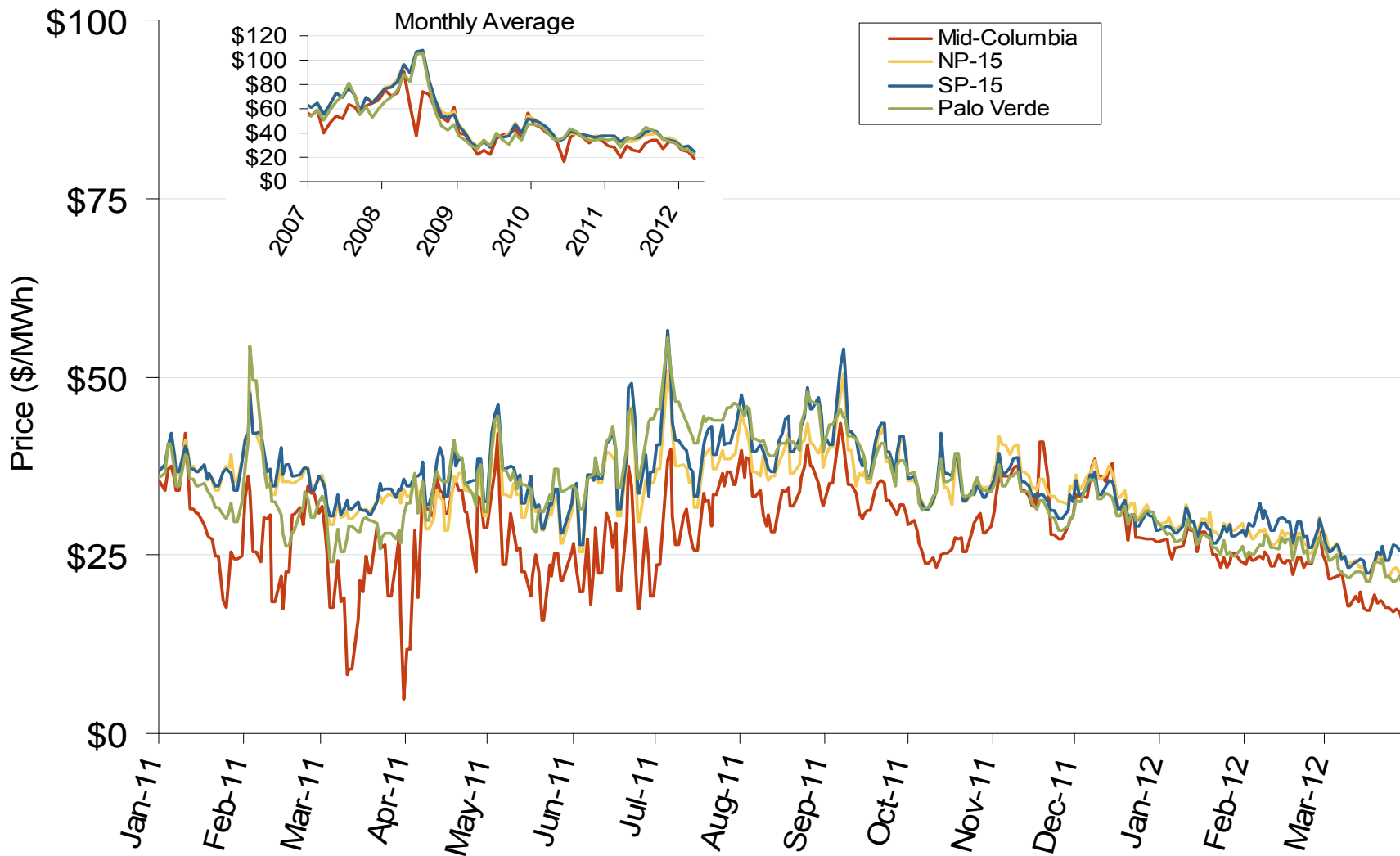
Northwest Annual Average Bilateral Prices

Annual Average Day Ahead On Peak Prices (\$/MWh)						
	2007	2008	2009	2010	2011	5-Year Avg
Mid-Columbia (Mid-C)	\$56.57	\$65.00	\$35.66	\$35.90	\$29.11	\$48.67
California-Oregon Border (COB)	\$62.14	\$73.86	\$38.02	\$38.84	\$32.57	\$53.70

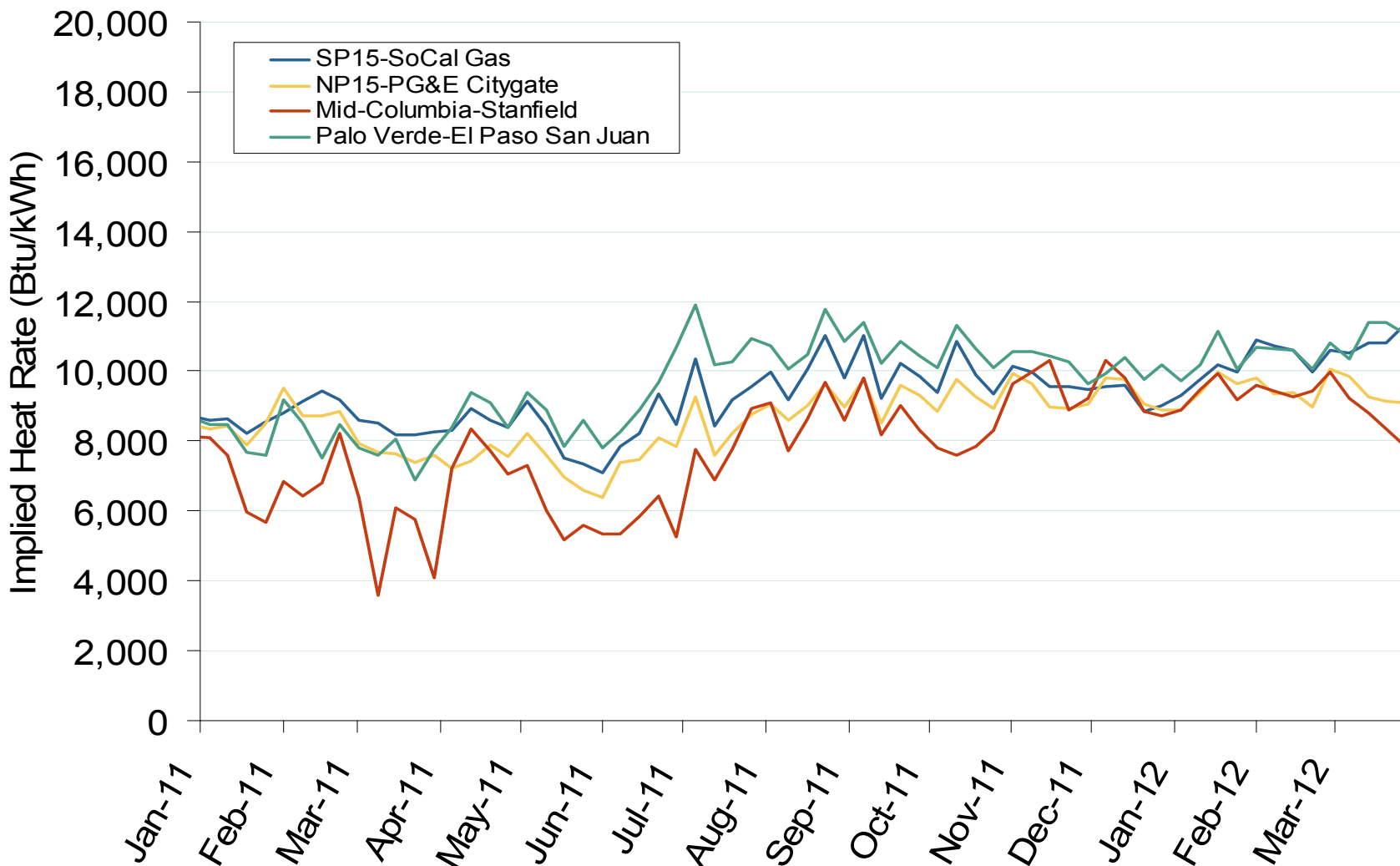
Northwestern Daily Index Day-Ahead On-Peak Prices



Western Daily Index Day-Ahead On-Peak Prices



Implied Heat Rates at Western Trading Points - Weekly Avgs.



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

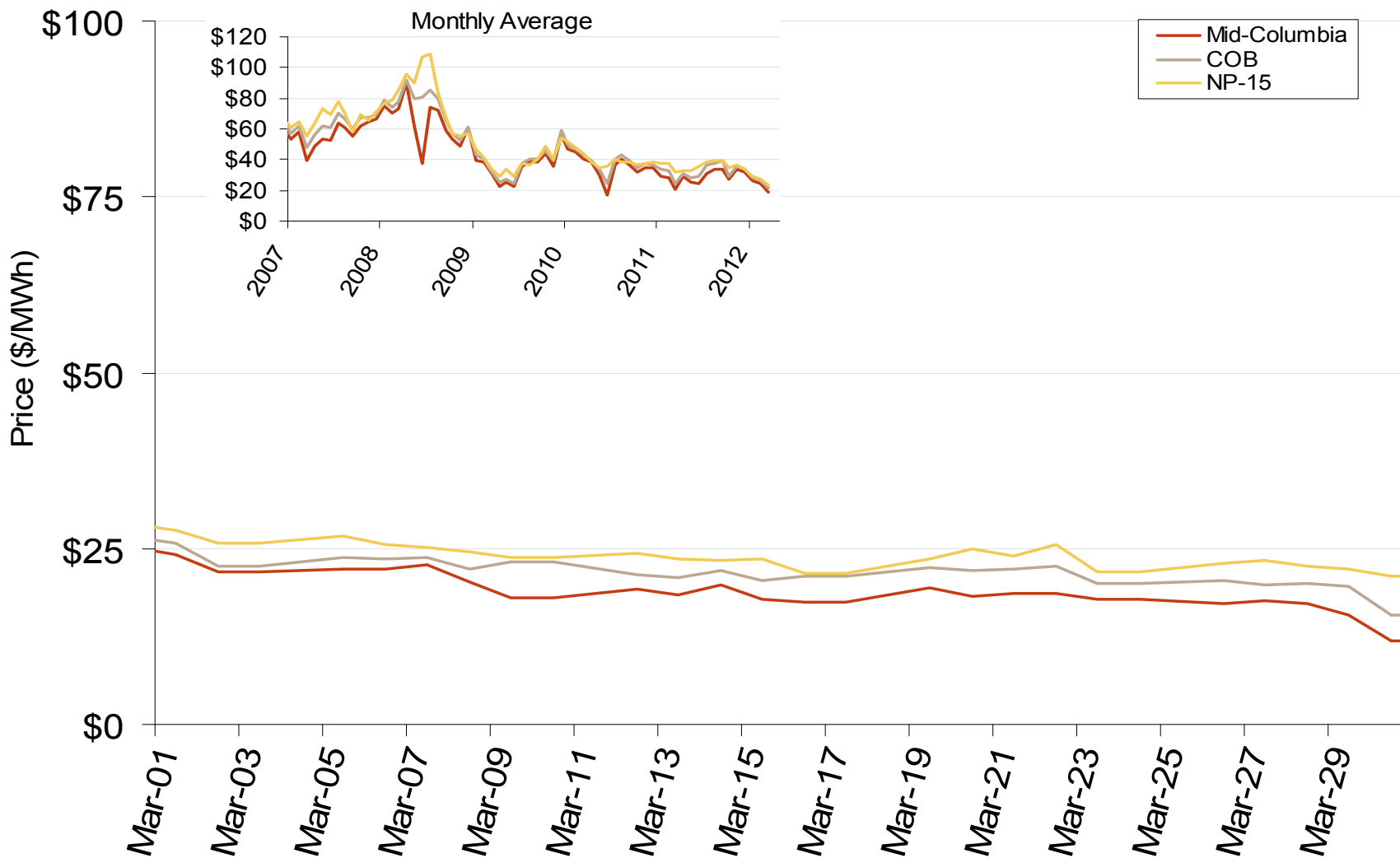
April 2012

Updated: April 06, 2012

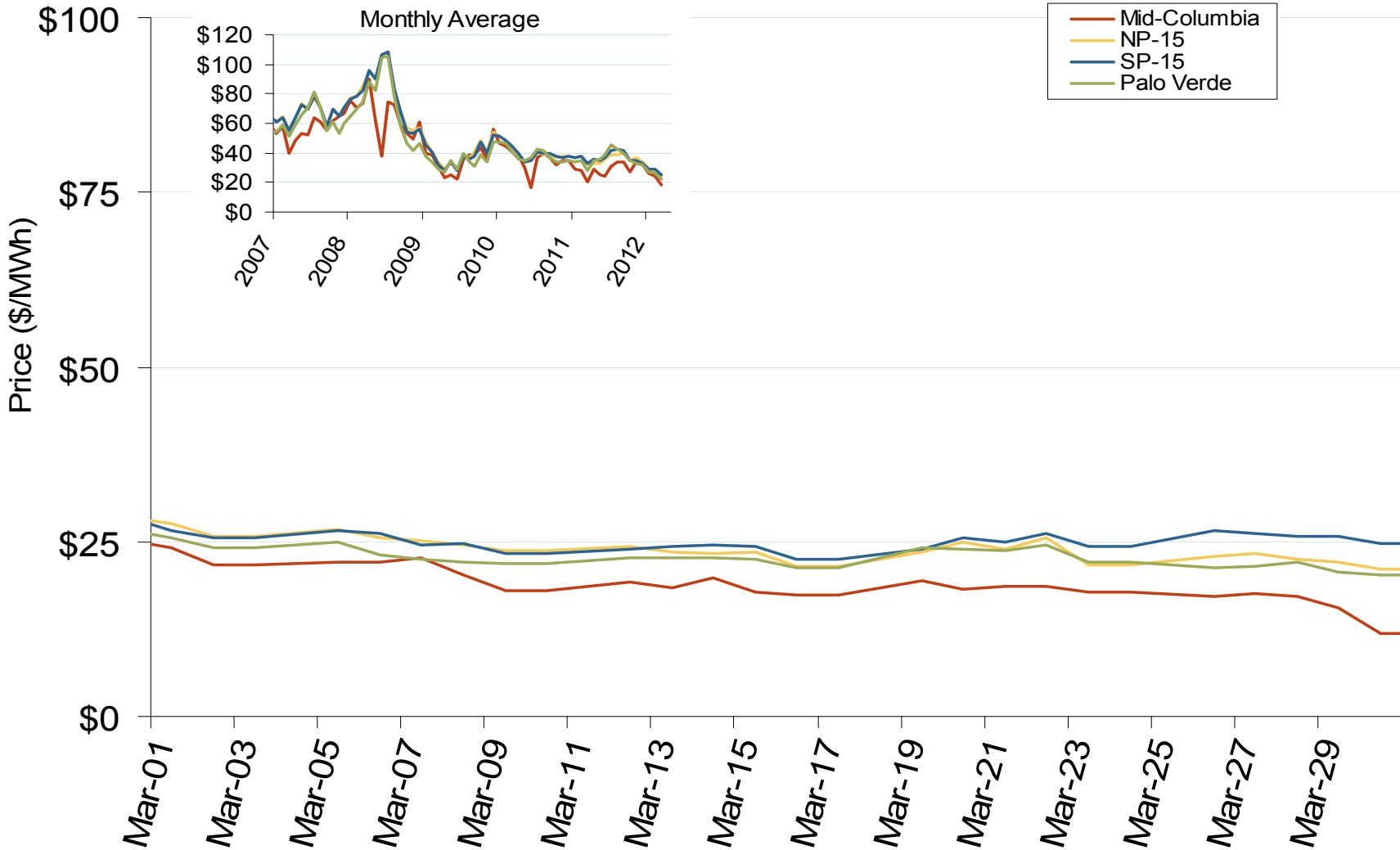
Northwest Electric Market: Last Month's Northwestern Index Prices

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Northwestern Daily Index Day-Ahead On-Peak Prices



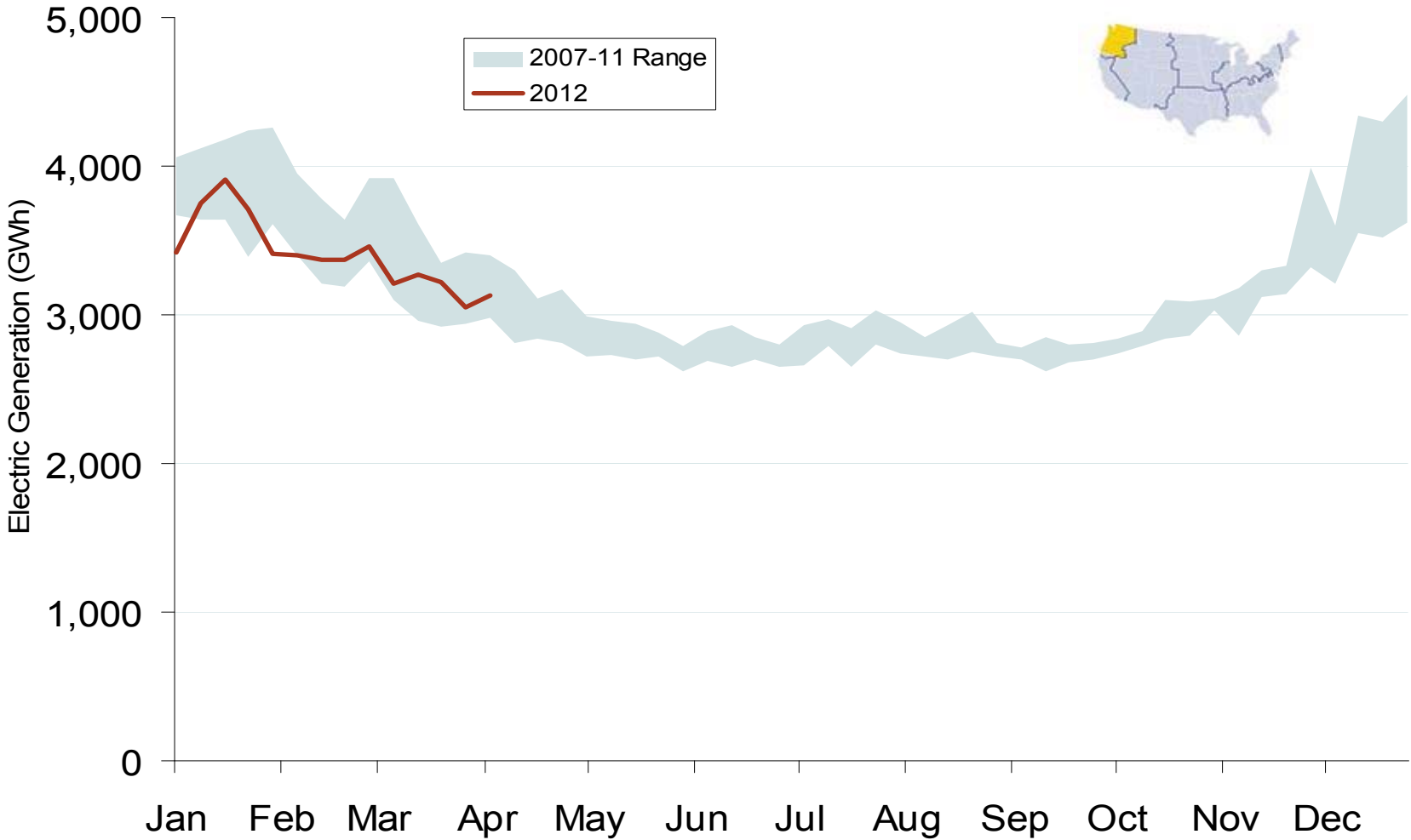
Western Daily Index Day-Ahead On-Peak Prices



Source: Derived from Platts data
April 2012

Updated: April 06, 2012

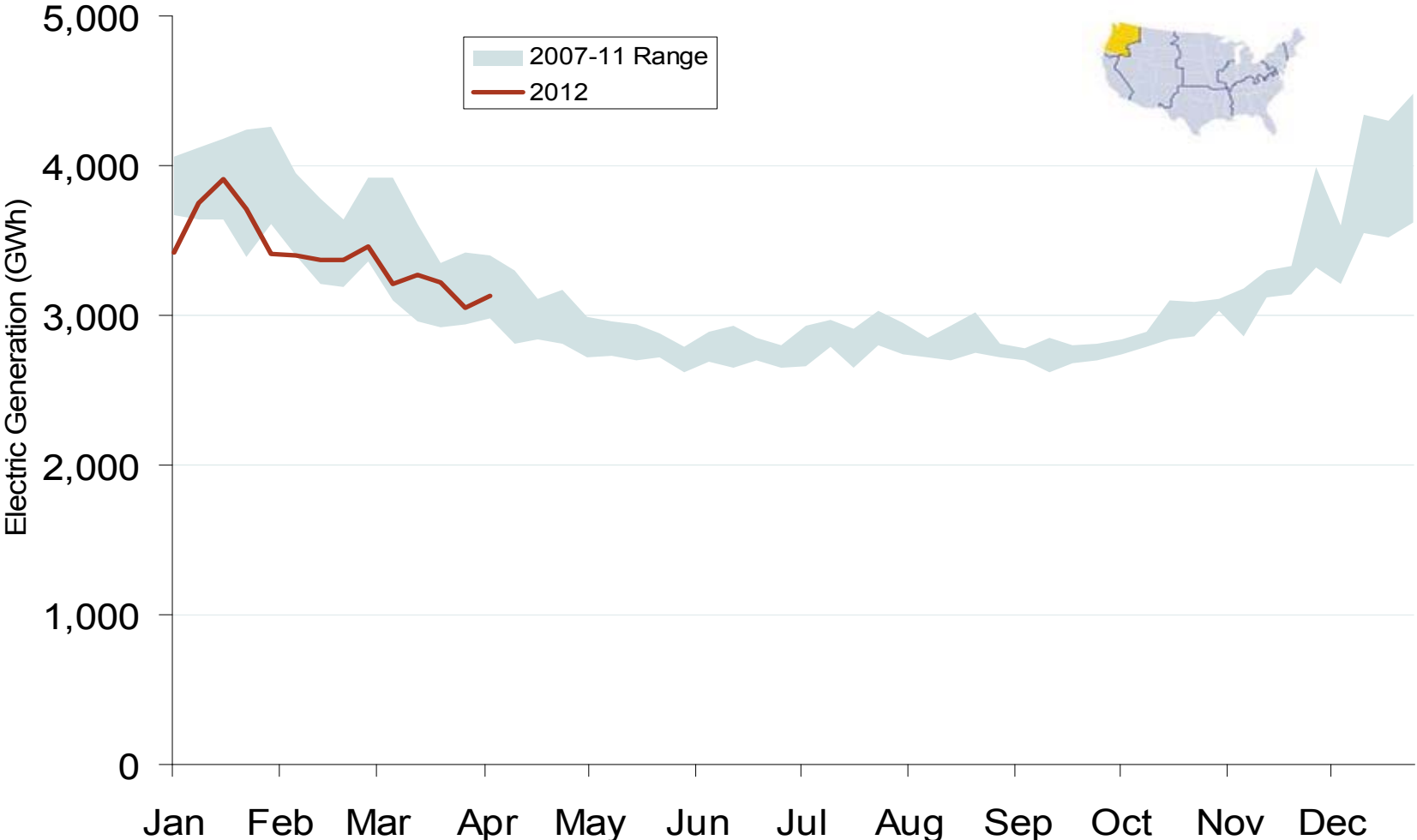
Weekly Generation Output - Pacific Northwest



Source: Derived from *EEI* data
April 2012

Updated: April 19, 2012

Weekly Generation Output - Pacific Northwest



Source: Derived from EEI data
April 2012

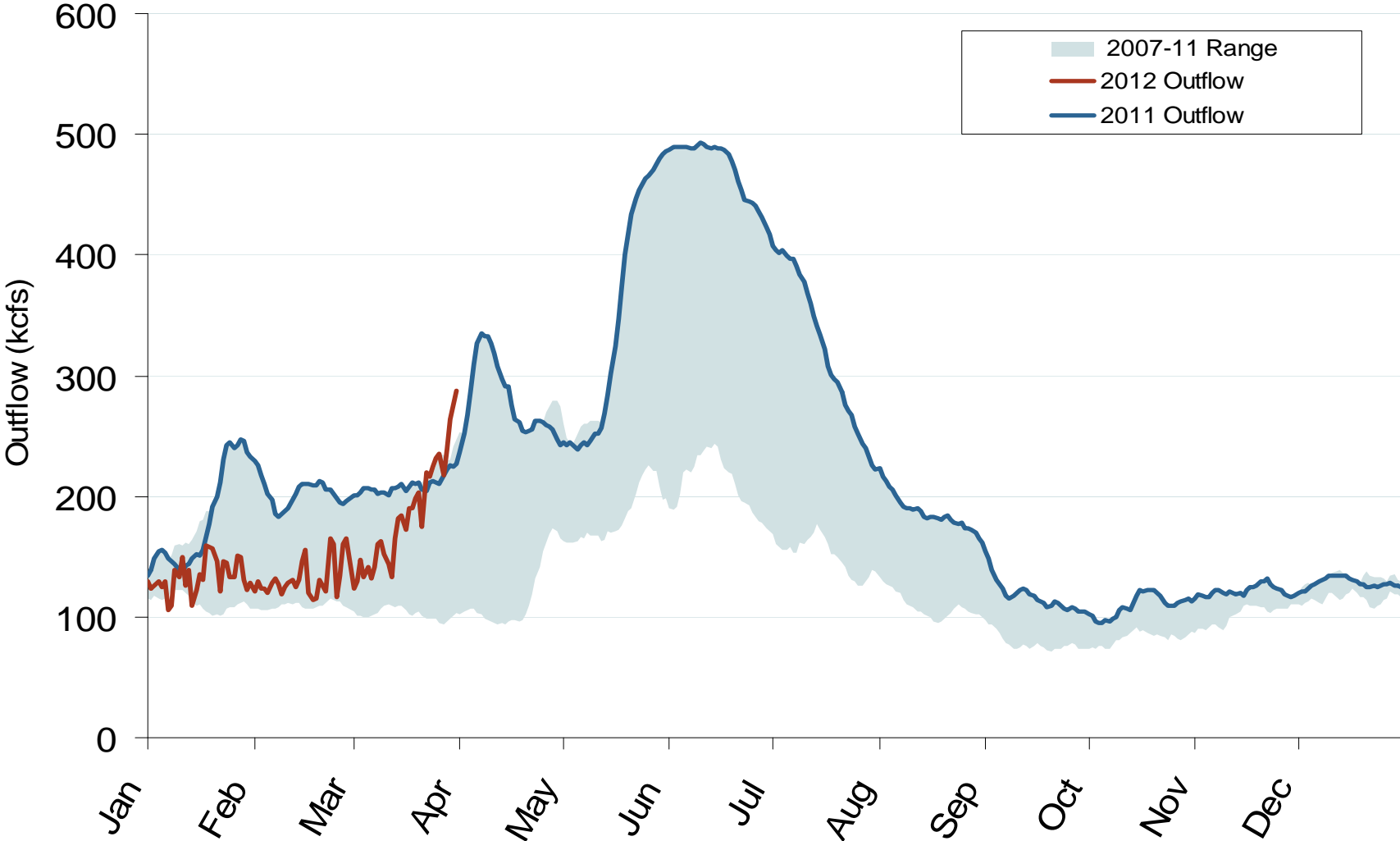
Updated: April 19, 2012

Pacific/Northwest Hydro and Snowpack Levels

	Hydro Generation		Snow Water Equivalent ³		
	In-State Capacity (MW) ¹	Additional Capacity Created Downstream (MW) ²	One Month Ago (3/30/11) (% of historical average)	Current (4/28/11) (% of historical average)	% Change from One Year Ago
Washington	21,500	0	112%	148%	+36%
Oregon	9,100	0	130%	172%	+42%
California	10,400	0	166%	171%	+5%
Idaho	2,700	19,700	116%	153%	+37%
Montana	2,700	16,200	119%	151%	+32%
British Columbia	10,000	16,200	106%	131%	+25%

- 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).

Stream Flows at the Dalles Dam



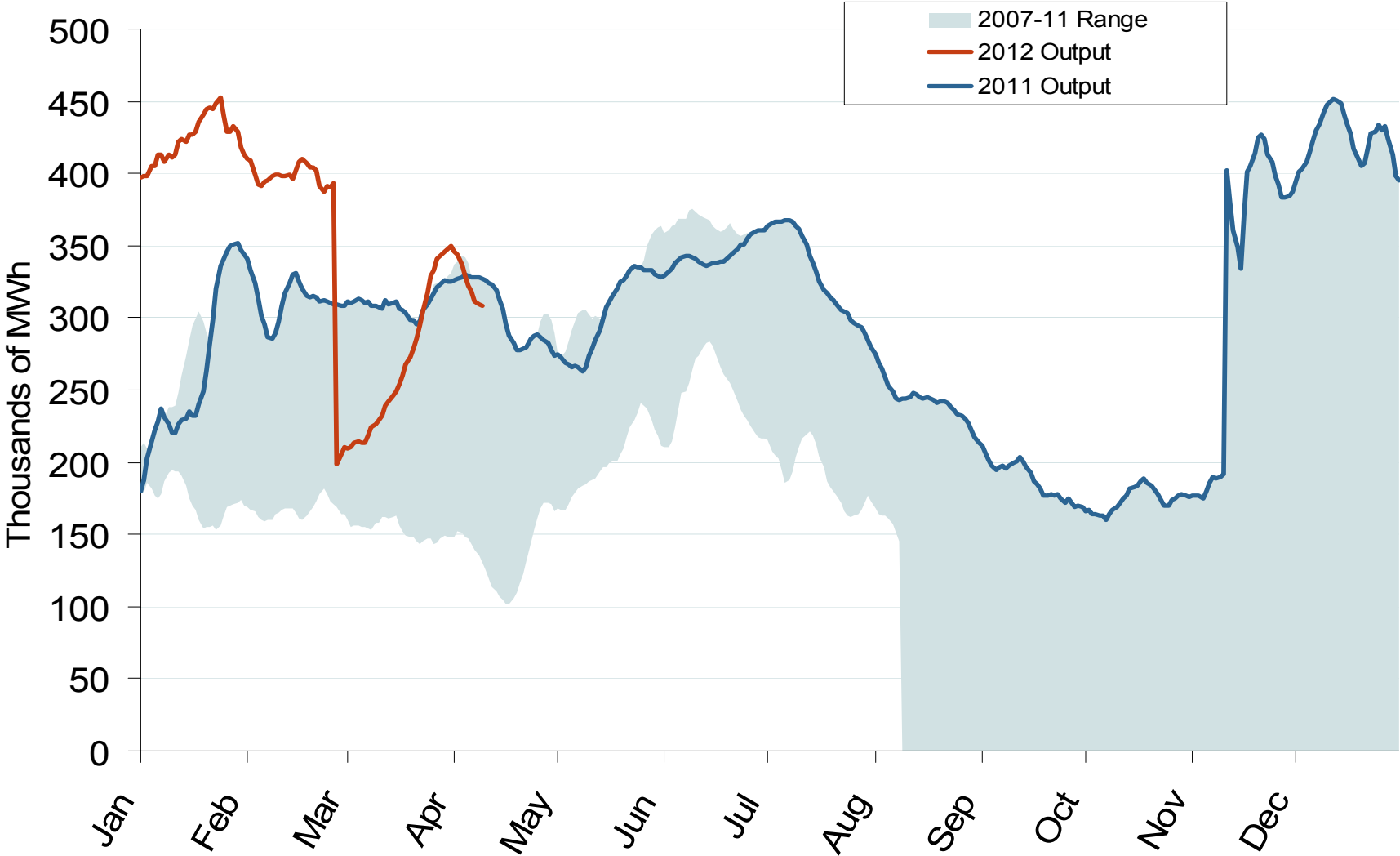
Notes: Trend lines are 7-day moving averages

Source: Derived from USACE data

April 2012

Updated: April 12, 2012

Pacific Northwest Hydroelectric Production



Notes: Trend lines are 7-day moving averages

Source: Derived from USACE data reflecting the output of the 24 largest facilities

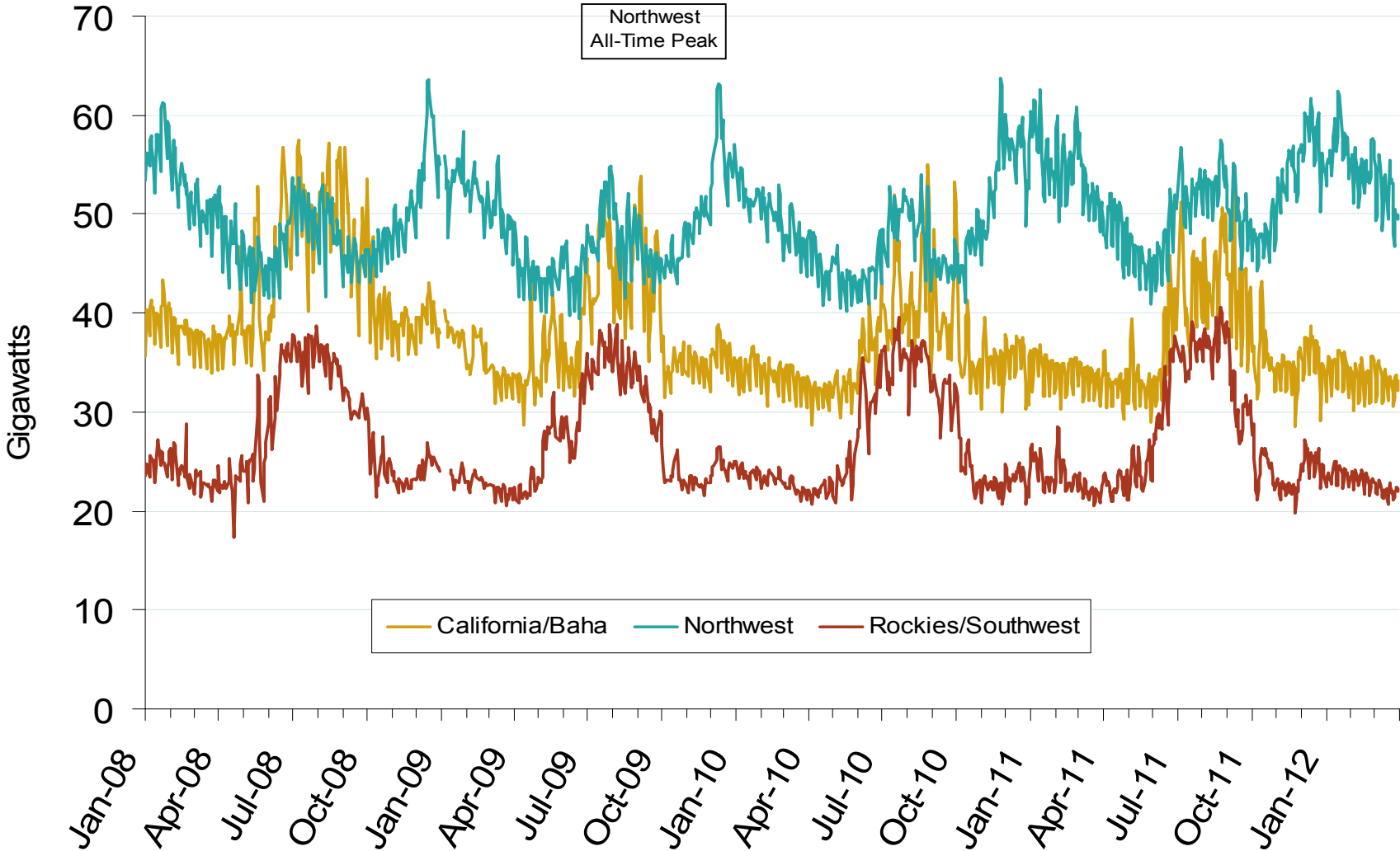
April 2012

Updated: April 17, 2012

Northwest Electric Market: Daily Peak Demand

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Western Daily Actual Peak Demand



Notes: Data 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>