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.
Northwest Electric Market: Overview and Focal Points

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:
  - 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

<table>
<thead>
<tr>
<th>Balancing Authority</th>
<th>NERC Acronym</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alberta Electric System Operator</td>
<td>AESO</td>
</tr>
<tr>
<td>Avista Corp.</td>
<td>AVA</td>
</tr>
<tr>
<td>Bonneville Power Administration</td>
<td>BPAT</td>
</tr>
<tr>
<td>British Columbia Transmission Corporation</td>
<td>BCHA</td>
</tr>
<tr>
<td>Idaho Power Company</td>
<td>IPCO</td>
</tr>
<tr>
<td>NorthWestern Energy</td>
<td>NWMT</td>
</tr>
<tr>
<td>PacifiCorp-East</td>
<td>PACE</td>
</tr>
<tr>
<td>PacifiCorp-West</td>
<td>PACW</td>
</tr>
<tr>
<td>Portland General Electric Company</td>
<td>PGE</td>
</tr>
<tr>
<td>PUD No. 1 of Chelan County</td>
<td>CHPD</td>
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<tr>
<td>PUD No. 1 of Douglas County</td>
<td>DOPD</td>
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<tr>
<td>PUD No. 2 of Grant County</td>
<td>GCPD</td>
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<td>Puget Sound Energy</td>
<td>PSEI</td>
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<td>Seattle Department of Lighting</td>
<td>SCL</td>
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<td>Sierra Pacific Power Company</td>
<td>SPPC</td>
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<tr>
<td>Tacoma Power</td>
<td>TPWR</td>
</tr>
<tr>
<td>Western Area Power Administration - Upper Great Plains West</td>
<td>WAUW</td>
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</table>

Source:  [NERC (www.tsin.com)](http://www.tsin.com)  
April 2011
Northwestern Daily Bilateral Day-Ahead On-Peak Prices

Source: Derived from Platts data.

Updated April 8, 2011
Western Daily Bilateral Day-Ahead On-Peak Prices

Source: Derived from Platts data.
Northwest Electric Market: Western Implied Heat Rates

Implied Heat Rates at Western Trading Points Weekly Averages

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

Updated April 8, 2011
Northwestern Daily Bilateral Day-Ahead On-Peak Prices

Source: Derived from Platts data.

Updated April 8, 2011
Phase-I Capacity Market

Source: Derived from Platts data.
Western Daily Actual Peak Demand

Weekly Electric Generation Output and Temperatures
Rocky Mountains Region

Source: Derived from EEI and NOAA data.

Updated April 8, 2011
Weekly Electric Generation Output and Temperatures
Pacific Northwest Region

Source: Derived from EEI and NOAA data.
April 2011

Updated: March 08, 2011
# Pacific/Northwest Hydro and Snowpack Levels

<table>
<thead>
<tr>
<th></th>
<th>Hydro Generation</th>
<th>Snow Water Equivalent&lt;sup&gt;3&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In-State Capacity (MW)&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Additional Capacity Created Downstream (MW)&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Washington</td>
<td>21,500</td>
<td>0</td>
</tr>
<tr>
<td>Oregon</td>
<td>9,100</td>
<td>0</td>
</tr>
<tr>
<td>California</td>
<td>10,400</td>
<td>0</td>
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<tr>
<td>Idaho</td>
<td>2,700</td>
<td>19,700</td>
</tr>
<tr>
<td>Montana</td>
<td>2,700</td>
<td>16,200</td>
</tr>
<tr>
<td>British Columbia</td>
<td>10,000</td>
<td>16,200</td>
</tr>
</tbody>
</table>

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 Flow at The Dalles Dam

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

Updated April 8, 2011
Pacific Northwest Hydroelectric Production

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

Note: Trend lines are 7-day moving averages.
Mid-Columbia Forward and Swap Volumes

Source: Derived from ICE and Nymex ClearPort data.

Note: 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 8, 2011