EPA’s Clean Power Plan: Implications for Washington State
Energy Use is our Source of Carbon – Transportation Dominates

State Target (1990 emission level)

Source: EIA SEDS, EPA, Kyoto Protocol
Washington’s Three Energy Strategy Goals
(RCW 43.21F.010)

1. Maintain competitive energy prices that are fair and reasonable for consumers and businesses and support our state’s continued economic success

2. Increase competitiveness by fostering a clean energy economy and jobs through business and workforce development

3. Meet obligations to reduce greenhouse gas emissions
Washington State Electricity Fuel Mix 2013

- Hydropower: 63.6%
- Natural Gas: 13.1%
- Coal: 14.8%
- Nuclear: 4.7%
- Wind: 3.1%
- Other: 0.04%
- Petroleum: 0.07%
- Landfill Gases: 0.07%
- Waste: 0.24%
- Biomass: 0.29%
U.S. Electricity Generation by Region

Clean Power Plan
Clean Power Plan Overview

Sets state specific carbon pollution limits for existing power plants

Interim limits for 2022 through 2029

Final limit in 2030

Source: Dept. of Ecology, Aug 2015
State Plan

State develops plan to comply with limits

Considerable flexibility in how to comply

State Plan Timeline

<table>
<thead>
<tr>
<th>WHEN</th>
<th>What</th>
<th>Who</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 2015</td>
<td>Clean power plan final rule released</td>
<td>EPA</td>
</tr>
<tr>
<td>September 2016</td>
<td>Initial plan due</td>
<td>All states</td>
</tr>
<tr>
<td>September 2018</td>
<td>Final plan</td>
<td>All states</td>
</tr>
</tbody>
</table>

Source: Dept. of Ecology, Aug 2015
Stakeholder’s Priority Issues for CPP

1. Mass or Rate Based Goal
2. Crediting/Trading Renewable Energy and Energy Efficiency
3. Early Action (Clean Energy Incentive Program)
4. Single or Multi-State Plan
5. Emissions Standards Plan or State Measures Plan
## Electricity Generating Units (EGU)

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Plant Owner</th>
<th>Fuel Type</th>
<th>Elec. Gen. (MWh)</th>
<th>CO2 (tons)</th>
<th>lb. CO2 / MWh</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>River Road Gen Plant</td>
<td>Clark County PUD</td>
<td>Natural gas</td>
<td>1,451,728</td>
<td>609,965</td>
<td>840</td>
<td>Vancouver</td>
</tr>
<tr>
<td>Grays Harbor Energy Facility</td>
<td>Invenergy, dba Grays Harbor Energy</td>
<td>Natural gas</td>
<td>1,752,369</td>
<td>715,980</td>
<td>817</td>
<td>Elma</td>
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<tr>
<td>Chehalis Generating Facility</td>
<td>PacifiCorp</td>
<td>Natural gas</td>
<td>2,670,622</td>
<td>1,169,354</td>
<td>876</td>
<td>Chehalis</td>
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<tr>
<td>Encogen</td>
<td>Puget Sound Energy</td>
<td>Natural gas</td>
<td>158,729</td>
<td>116,340</td>
<td>1,466</td>
<td>Bellingham</td>
</tr>
<tr>
<td>Ferndale Generating Station</td>
<td>Puget Sound Energy</td>
<td>Natural gas</td>
<td>510,861</td>
<td>366,906</td>
<td>1,436</td>
<td>Ferndale</td>
</tr>
<tr>
<td>Frederickson Power LP</td>
<td>Puget Sound Energy</td>
<td>Natural gas</td>
<td>708,343</td>
<td>299,124</td>
<td>845</td>
<td>Tacoma</td>
</tr>
<tr>
<td>Goldendale Generating Station</td>
<td>Puget Sound Energy</td>
<td>Natural gas</td>
<td>1,035,540</td>
<td>426,500</td>
<td>824</td>
<td>Goldendale</td>
</tr>
<tr>
<td>Mint Farm Generating Station</td>
<td>Puget Sound Energy</td>
<td>Natural gas</td>
<td>1,298,504</td>
<td>560,105</td>
<td>863</td>
<td>Longview</td>
</tr>
<tr>
<td>Sumas Power Plant</td>
<td>Puget Sound Energy</td>
<td>Natural gas</td>
<td>322,767</td>
<td>230,369</td>
<td>1,427</td>
<td>Sumas</td>
</tr>
<tr>
<td>March Point Cogeneration</td>
<td>Shell Puget Sound Refinery</td>
<td>Natural gas</td>
<td>1,003,103</td>
<td>695,887</td>
<td>1,387</td>
<td>Anacortes</td>
</tr>
<tr>
<td>Transalta Centralia Generation</td>
<td>TransAlta USA, Inc.</td>
<td>Coal</td>
<td>7,142,588</td>
<td>8,143,658</td>
<td>2,280</td>
<td>Centralia</td>
</tr>
</tbody>
</table>
## Region Power Plants Significantly Affected by the CPP

### Table 1 - 2: Pacific Northwest electric generating units potentially significantly affected by recent and prospective environmental and safety rulemaking compliance requirements

<table>
<thead>
<tr>
<th>Plant</th>
<th>Type</th>
<th>Location</th>
<th>Capacity (MW&lt;sub&gt;net&lt;/sub&gt;)</th>
<th>Year of Service</th>
<th>Existing Air Pollution Controls and Principal Target Pollutants</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boardman</td>
<td>Coal-steam</td>
<td>Boardman, OR</td>
<td>585</td>
<td>1980</td>
<td>New generation low-NOx burners and overfire air (NOx) Low-sulfur coal (SOx) Dry sorbent injection (SOx) Activated carbon injection (Hg) ESP (Particulates, SOx, Hg)</td>
<td>Scheduled to cease coal-firing by end of 2020.</td>
</tr>
</tbody>
</table>
| Centralia (TransAlta Centralia) | Coal-steam | Centralia, WA       | Unit 1 - 670
Unit 2 - 670 | Unit 1 - 1973
Unit 2 - 1975 | Low-NOx burners, overfire air, SNCR (NOx)
Coal blending (SOx)
Activated carbon injection (Hg)
FGD (SOx, Hg) | One unit to retire in 2020; second unit to retire in 2025. |
| Colstrip               | Coal-steam | Colstrip, MT        | Unit 1 - 307
Unit 2 - 307
Unit 3 - 740
Unit 4 - 740 | Unit 1 - 1973
Unit 2 - 1975
Unit 3 - 1976
Unit 4 - 1984 | U1 & U2 Low-NOx burners (NOx) U3 & U4 Low-NOx burners w/overfire air (NOx) Bromine coal treatment (All units); Activated carbon injection (all units); FGD additive (U3 & U4) (Hg) Wet FGD (all units) (SOx, Hg) | |
| J. E. Corette          | Coal-steam | Billings, MT        | 153                          | 1968            | Low-sulfur coal (SOx) Activated carbon injection (Hg) ESP (Particulates, Hg)                                                                 | Scheduled to retire in August 2015                                   |
| Jim Bridger            | Coal-steam | Point of Rocks, WY  | Unit 1 - 531
Unit 2 - 523
Unit 3 - 527
Unit 4 - 530 | Unit 1 - 1974
Unit 2 - 1975
Unit 3 - 1976
Unit 4 - 1979 | Low-NOx burners (NOx) SCR (NOx) ACI (Hg) Wet FGD (SOx, Hg) ESPs (Particulates) | |
| North Valmy            | Coal-steam | North Valmy, NV     | Unit 1 - 254
Unit 2 - 268 | Unit 1 - 1981
Unit 2 - 1985 | Low-NOx burners (NOx) Dry FGD (U2) SOx Fabric filters (Particulates) | |
| Columbia Generating Station | Boiling Water Reactor | Richland, WA      | 1,140                         | 1984            |                                                                                                                                  | |

Source: NW Power and Conservation Council, 7th Plan DRAFT
Washington’s Three Big Compliance Components

1. Scheduled retirement of the Centralia Generation facility
   1. Half in 2020
   2. Full retirement in 2025

2. Acquisition of all cost-effective electricity efficiency by utilities (Energy Independence Act)

3. 15% “new” renewables by 2020 (Energy Independence Act)
NW Power Council’s 7th Plan Resources

Seventh Plan Resource Portfolio

Average resource development across all 800 futures tested in the Regional Portfolio Model. Actual development, particularly of non-energy efficiency resources, will depend on actual future conditions.

Source: NW Power and Conservation Council, 7th Plan DRAFT
Clean Air Rule Concept

Ecology’s Clean Air Rule will set limits on carbon pollution in Washington.

The rule concept looks like this:

- Carbon pollution is capped
- Carbon is lowered over time
- Ecology verifies reductions
- We do our part to slow climate change
Major Industries Covered by the Clean Air Rule

• Facilities with 100,000 tons CO$_2$ equiv.
• About 60% of state emissions
  – Natural gas distributors
  – Petroleum fuel producers
  – Factories
  – Power plants
  – Waste facilities
  – Metal manufacturers
• Draft Rule – December 2015
• Final Rule – June 2016
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