Northwest **Power** and **Conservation** Council

August 4, 2015

MEMORANDUM

TO: **Council members**

FROM: **Tom Eckman and Sandra Hirotsu**

SUBJECT: **Update on Clean Power Plan Final 111(d) Rule**

BACKGROUND:

Presenter: Sandra Hirotsu and Tom Eckman

Summary: On August 3rd, the Environmental Protection Agency released its final rules setting carbon dioxide emission limits for both new and existing power generation facilities. Collectively these rules are referred to by the Obama Administration as the Clean Power Plan. Staff will provide the Council with a high level summary of the final rule.

Relevance: In the development of the draft Seventh Plan, staff assessed whether alternative resource portfolios would satisfy the proposed emission limits draft rules which were issued in June of 2014. Staff will now use the final rule for purposes of comparison.

Workplan: 1. B. Develop Seventh Power Plan and maintain analytical capability.

Background: EPA issued the final rule under Clean Air Act 111(d) for existing power plants on August 3, 2015. The rule is aimed at reducing CO2 emissions by 32% from 2005 levels by the year 2030 compared to the draft rules emission reduction target of 30%. Under separate dockets, EPA also issued on August 3, 2015, the final rule under

851 S.W. Sixth Avenue, Suite 1100
Portland, Oregon 97204-1348
www.nwcouncil.org

Steve Crow
Executive Director

503-222-5161
800-452-5161
Fax: 503-820-2370

Clean Air Act 111(b) for new power plants and the proposed federal plan and model rules that would combined the two emissions limits.

Rule sets emissions performance rates and deadlines

Rule establishes two CO2 emissions performance rates – one for existing coal plants and one for existing natural gas plants. The standards are the same for each source category regardless of what state the plants are located in.

Rule also sets CO2 emissions goals for individual states to reach by 2030. EPA sets rate-based (pounds per kilowatt hour) and mass-based (total tons of CO2) emission targets for each state. In the development of the draft plan, the staff is using the mass-based emission limits set by EPA that include both new and existing power generation facilities for purposes of analysis.

To ensure the 2030 emissions goals are met, the rule requires states begin reducing their emissions no later than 2022 which is the start of an 8 year compliance period. During the compliance period, states have to achieve progressively increasing reductions in CO2 emissions. The 8 year interim compliance period is further broken down into three steps, 2022-2024, 2025-2027, and 2028-2029, each associated with its own interim goal.

What the rule requires of states

Every state must file a state implementation plan (SIP) with the EPA no later than September 6, 2016. Under certain circumstances and with EPA' approval, a state will be allowed until September 6, 2018 to submit a plan.

A SIP sets forth how a state is going to achieve, by 2030, the CO2 emission level set by the EPA for that particular state. The SIP can place the burden of meeting the state goal solely on the power plants in the state. Or, the SIP can include state-enforceable measures that rely on entities other than just the power plants to achieve the state goals. If the plan relies on state measures to achieve emissions compliance, the plan must include federally enforceable measures as a backstop. Under either approach, the state plans must ensure that the power plants located in their state—either individually, together or in combination with other measures—achieve the interim (years 2022-2029) and final (year 2030) emission performance rates set by the EPA.

States can work together and submit a joint plan instead of an individual plan. Multi-state plans would replace individual state performance goals with an equivalent multi-state performance goal.

EPA will evaluate and approve the SIP if the SIP adequately demonstrates the state emissions standards of performance reflect the highest limit achievable applying the BSER taking into account cost, non-air quality health and environmental impacts and energy requirements. The EPA has twelve months to review and approve/disapprove a SIP. The EPA will allow for public comment on the plans submitted.

If a state does not file a plan or a state files a plan that is not approved by the EPA, EPA will implement a federal plan for that state. In states where a federal plan is put in place, the state retains the ability to submit a state plan which, if approved, allows the state to exit the federal plan.

How the EPA determined the state emissions goals:

State emissions goals represent EPA's determination of CO2 emission rates achievable by 2030 collectively by the state's affected plants--all power plants located within the state that meet certain threshold criteria regardless of whether the plants service load inside or outside the state. The state goals are largely a function of technology-specific emissions rate reduction capability and total installed natural gas combined cycle capacity.

The state goals are based on EPA's calculation of the "best system of emission reduction" (BSER) adequately demonstrated. BSER includes consideration of technical feasibility, cost, size of emissions reductions, and whether system promotes further development of technology.

The EPA determined that the BSER comprises three building blocks which are not in and of themselves legal requirements for each state to follow, but which can be used by a state in its SIP as a way to "adequately demonstrate" to the EPA that the plan is on track to meet the targets. The three building blocks are:

- Building block 1: heat rate improvements at power plans to reduce CO2 emissions. EPA anticipates 2.1 percent to 4.3 percent improved efficiency at all coal plants can result from this building block.
- Building block 2: shift dispatch from coal to natural gas plants.
- Building block 3: increased use of renewable generation. Nuclear plants under construction will count under building block 3 and can be used by states to meet their emissions goals.

Key changes from the draft plan released in 2014:

- Addition of mass-based state goals in addition to rate-based goals to make it easier for states to adopt mass-based programs and to make it easier for utilities operating across several states to enter into emissions trading regimes.

- Addition of emission performance rates for coal and natural gas plants that are uniform across the states.

- Elimination of energy efficiency as one of the building blocks for compliance. A state may use EE to meet the state emission goals but EE was not included as part of the final BSER determination. This was apparently due to EPA's concerns over whether inclusion of EE as a foundation for an emission guideline is permissible under the Clean Air Act section 111. If a state does use EE as an element of their compliance strategy, EE will be treated as functionally

interchangeable with other forms of generation for planning and operational purposes by EPA.

- Creation of a Clean Energy Incentive Program to encourage early reductions in emissions. State participation is voluntary in this incentive program. The program is designed to incentivize investment in certain renewable and energy efficiency projects in low income communities that commence construction after the submission of a final state plan to the EPA and that generate or produce verifiable energy savings during 2020 and/or 2021. EPA will address design and implementation details of the Clean Energy Incentive Program in a subsequent action.

- Renewed emphasis on maintaining reliability of the power system.

Other Responses to Critiques of the Draft Rule

The input EPA received from FERC, DOE and many others focused heavily on the extent of the reductions required at the beginning of the interim compliance period which the draft plan had starting in 2020. EPA moved the start of the compliance period to 2022 in part to address those concerns. EPA reduced the pace of required emissions reductions from what was proposed in the draft plan.

States are required to provide documentation demonstrating they have considered system reliability in developing their plans. States also now have the ability to propose amendments to approved plans in the event that “unanticipated and significant” electric system reliability challenges arise and compel power plants to generate at levels that conflict with their compliance obligations under the state plan.

The final rule provides for a reliability safety valve for individual plants where there is a conflict between the state plan and the maintenance of electric system reliability in the face of extraordinary and unanticipated event that presents substantial reliability concerns. Moreover, EPA, DOE and FERC have prepared a memorandum reflecting their joint understanding of how they will work together to monitor implementation, share information, and to resolve any difficulties that may be encountered.

Northwest Emission Limits

The draft and final rule state emissions limits for the Pacific Northwest are shown in the Table 1 below. The values shown in this table include emissions from both existing and new power generation facilities. As can be seen from this table, the final rule is less stringent for all Northwest states, except Montana. Overall, the regional emission limit was increased from just over 26 million metric tons per year to 30.8 million metric tons per year.

Table 1 – Pacific Northwest State Clean Power Plan Draft and Final Rule CO2 Emissions Limits

State	**2012 Emissions (MMTE) (EPA Estimate)**	**Draft Rule 2020-2029 Standard (MMTE)**	**Draft Rule 2030 Standard (MMTE)**	**Final Rule 2022-2029 Standard (MMTE)**	**Final Rule 2030 Standard (MMTE)**
Idaho	0.6	0.9	1.0	1.5	1.5
Montana	16.3	15.4	15.2	12.0	10.8
Oregon	6.9	5.3	5.3	8.3	8.0
Washington	6.7	4.4	4.8	11.1	10.5
Region	30.5	25.9	26.2	32.8	30.8

More Info: The EPA website, www.epa.gov/cleanpowerplan, includes the final rule, technical support documents, and other background information.

EPA Final CO2 Emission Limits for New and Existing Power Plants

	2012 Emissions (Million Metric Tons)	Draft Rule 2020-2029 Standard (Million Metric Tons)	Draft Rule 2030 Standard (Million Metric Tons)	Final Rule – 2022-2029 Standard (Million Metric Tons)	Final Rule – 2020 Standard (Million Metric Tons)
Idaho	0.6	0.9	1.0	1.5	1.5
Montana	16.3	15.4	15.2	12.0	10.8
Oregon	6.9	5.3	5.3	8.3	8.0
Washington	6.7	4.4	4.8	11.1	10.5
Region	30.5	25.9	26.2	32.8	30.8

Clean Power Plan

Power Committee

August 11, 2015

Final Rule

- Goal: reduce CO^2 emissions by 32% from 2005 levels by the year 2030

- Sets emissions guidelines for existing power plants (CAA 111(d))
  - Plant in operation or which commenced construction as of January 8, 2014

Establishes Emissions Performance Rates and Goals

- Nationwide standard CO^2 emissions performance rates for existing coal plants (1305 lbs. per net MWh) and for existing gas plants (771 lbs. per net MWh)

- Individual state emissions goals to be achieved by year 2030
  - State emission goals are expressed 2 ways
    - Rate-based (pounds per kilowatt hour)
    - Mass-based (total short tons of CO^2 emitted)
    - State decides which approach to take.

State Implementation Plans

- Due to EPA September 6, 2016
- Sets forth concrete roadmap for how state is going to achieve the emissions goals by 2030 and the interim compliance goals for years 2022-2029
- Lots of details required—including considerations of reliability, monitoring, verification, enforcement, etc.
- EPA approves/disapproves SIP

Multistate Implementation Plans

- States can work together and submit one joint plan and replace individual state performance goals with an equivalent multi-state performance goal.

- Rule allows for a variety of multi-state collaboration approaches:
  - States could retain their individual state goals and submit individual state plans but coordinate plan implementation with other states i.e. emissions trading regime
  - States can participate in more than one multi-state plan

EPA Set State Emissions Goals Based on 3 Building Blocks

- Building blocks are not legal requirements
- Building blocks demonstrate the "best system of emission reduction" per EPA
  - Building block 1: heat rate improvements at power plants to reduce emissions
  - Building block 2: shift dispatch from coal to natural gas
  - Building block 3: increased use of renewables

EPA Final CO2 Emission Limits for New and Existing Power Plants

	2012 Emissions (Million Metric Tons)	Draft Rule 2020-2029 Standard (Million Metric Tons)	Draft Rule 2030 Standard (Million Metric Tons)	Final Rule – 2022-2029 Standard (Million Metric Tons)	Final Rule – 2020 Standard (Million Metric Tons)
Idaho	0.6	0.9	1.0	1.5	1.5
Montana	16.3	15.4	15.2	12.0	10.8
Oregon	6.9	5.3	5.3	8.3	8.0
Washington	6.7	4.4	4.8	11.1	10.5
Region	30.5	25.9	26.2	32.8	30.8