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October 8, 2019

MEMORANDUM

TO: Council Members

FROM: Gillian Charles, John Shurts

SUBJECT: Follow-up on methodology for quantifying the environmental costs and benefits of new resources for the 2021 Power Plan

BACKGROUND:

Presenter: Gillian Charles, John Shurts

Summary: At the September Council Meeting, staff presented a proposed methodology for quantifying the environmental costs and benefits of new resources for the 2021 Power Plan. The proposal for the 2021 Plan is largely unchanged from previous plans, and recommends:

1. Account for the financial costs of compliance with **existing regulations** in the cost of new resources.
2. Recognize that adverse **residual and unregulated** environmental effects from resources exist but are hard or impossible to quantify in any systematic and consistent way. Instead, describe them qualitatively in the narrative of the plan and consider them when determining a resource strategy.
3. Address and consider the costs of compliance with **proposed environmental regulations** on a case-by-case basis.
4. Do not attempt to include **quantifiable environmental benefits** in new resource costs beyond a few historic examples, but recognize and emphasize in the resource strategy in other ways the value of certain resource choices in helping to mitigate other harmful environmental effects.

Staff emphasized that since the adoption of the Seventh Power Plan, there have been new reports and data made available that attempt to quantify environmental benefits, and that the Council would need to be thoughtful in its consideration of this new information and if/how it changes the approach for the 2021 Power Plan. However, for a number of reasons outlined at the September meeting, the staff recommendation is that the new studies do not provide a useful, systematic and consistent basis for changing our conclusion - the Council should not attempt to include some quantified environmental benefits in some new resource and measure costs, beyond a very small set of historic examples.

Staff asked for feedback on the proposed methodology from Council Members and other staff, as well as a reminder to the public that stakeholder feedback is always welcome for this and any topic before the Council. In addition, staff presented the proposed methodology to stakeholders at the Generating Resources Advisory Committee (GRAC) meeting on September 25.

As of October 8 (packet day), staff has received feedback from one stakeholder regarding the Washington investor owned utility studies on the health benefits of wood smoke emissions displaced by the installation of ductless heat pumps. Council staff has been diligent in reviewing the studies and considering the input. For reasons staff will describe at the meeting, we do not believe we have a basis for changing our conclusions about the difficulties and inadvisability in this instance of trying to quantify environmental benefits and include them to reduce these measure costs.

At the October Council Meeting, staff will review feedback it has received, discuss any changes to the staff proposal, and seek an agreement from Council Members for staff to proceed with implementing the proposed methodology in the analysis for the draft 2021 Power Plan - recognizing that the methodology should not be considered "final" until 2021 Power Plan is up for adoption and that this is not an official decision.

Relevance: The development of the 2021 Power Plan is well underway and staff is working with its advisory committees to develop and vet inputs and assumptions to use in the analysis. An understanding of the methodology for quantifying the environmental costs and benefits of new resources is necessary now in order to apply the methodology to the resource cost assumptions.

Workplan: A.4.2 Develop environmental methodology, existing system, transmission availability, renewable portfolio standards, emissions and other datasets for the 2021 Plan

Background: When developing the new resource strategy for the power plan, the Northwest Power Act requires that the Council compare the

incremental system costs of different generating and conservation resources and give priority to those resources which the Council determines to be cost-effective. In estimating the system cost of a particular resource, the Council must include any quantifiable environmental costs and benefits directly attributed with that resource over its effective life. The Act directs the Council to develop a methodology to determine and apply these quantifiable environmental costs and benefits as part of the overall system cost of a new resource or measure.

More Info: See the September Council Meeting packet materials for the full proposed methodology, background and context - https://www.nwcouncil.org/sites/default/files/2019_0917_6.pdf

Follow-up on Methodology for quantifying the environmental costs and benefits of new resources for the 2021 Power Plan

September Council Meeting – Seattle, WA

Gillian Charles, John Shurts

October 15, 2019



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Today's Purpose

- **September Council Meeting:** Presented the staff-proposed methodology for quantifying the environmental costs and benefits of new resources for the 2021 Power Plan
 - Proposed methodology largely unchanged from previous power plans
 - ★ Focus on environmental benefits
 - New studies released that attempt to quantify environmental benefits require Council consideration on if/how it changes approach for 2021 Power Plan
- **October Council Meeting:** Review feedback, discuss considerations, and seek agreement to move forward with proposed methodology in development of draft 2021 Power Plan



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Environmental effects and the Power Plan process

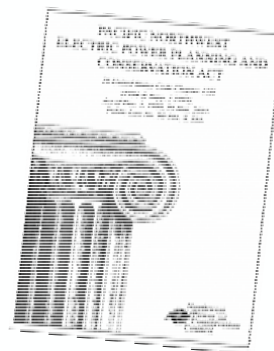
The Council considers a **wide array of environmental effects** related to the power system and integrates these effects into its analysis in a variety of ways

- The methodology for quantifying the environmental costs and benefits of new resources is only one “slice of the pie”
- Other examples include fish & wildlife measures on the hydro system capability and dispatch and state clean energy standards on existing system operations and future resource development



What is the methodology for quantifying environmental costs and benefits of new resources?

- The Northwest Power Act requires the Council (1) develop and (2) apply a “methodology for determining [the] quantifiable environmental costs and benefits” of **new** electric generating and conservation resources §4(e)(3)(C)
- The environmental methodology is to
 - Consider **costs and benefits** to the **environment**...
 - And, for those costs and benefits to be **quantifiable**, recognizing that not all environmental effects can be reduced to quantified costs and benefits...
 - And, the costs must be **directly attributable** to the resource, not incidental or indirect



Terms not defined in the Act: Council uses common sense understanding, as guided by context of the Act and discussions in legislative history




2021 Power Plan

Summary: Proposal for methodology for quantifying the environmental costs and benefits of new resources

Staff Proposal for 2021 Plan:

1. Account for the financial costs of compliance with existing regulations in the cost of new resources.
2. Recognize that residual and unregulated environmental effects from resources exist but are hard or impossible to quantify in any systematic and consistent way; describe them qualitatively in the narrative of the plan and consider them when determining a resource strategy.
3. Address and consider costs of compliance with proposed regulations on a case-by-case basis.
4. Do not attempt to include quantified environmental benefits in new resource costs beyond the few historic examples, but recognize and emphasize in the resource strategy in other ways the value of certain resource choices in helping to mitigate other harmful environmental effects.




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Since the September Council Meeting...

- Presented proposed methodology to the Generating Resources Advisory Committee (GRAC) on 9/25
- Communicated with Council state staff regarding any feedback from Council Members and stakeholders
- Welcomed comments and feedback from stakeholders on this (as with any other issue before the Council)
- ❖ Received feedback from one stakeholder – David Nightingale, Senior Regulatory Engineering Specialist, Washington Utilities and Transportation Commission (WUTC)
 - Re: WA IOU studies on quantifying the health benefits of wood smoke displacement from ductless heat pumps



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Quantifiable environmental benefits: WA IOUs studies on displaced wood smoke

Stakeholder Feedback (summary): The Council should consider including the monetary health benefits of reduced wood smoke from the installation of DHPs, as outlined in the Washington IOU reports. In addition, the Council should consider using the same approach outlined in the studies to quantify and apply the wood smoke benefits to additional wood-reducing energy efficiency measures (e.g. weatherization measures.)

Staff Response: Reviewed the IOU reports and had further staff discussions. Conclusion remains regarding the difficulties and inadvisability of trying to quantify these environmental benefits and include them to reduce the costs of these measures.



Seeking agreement* from Council Members to implement staff-proposal in draft 2021 Power Plan analysis

2021
Power Plan

Summary: Proposal for methodology
for quantifying the environmental
costs and benefits of new resources

Staff Proposal for 2021 Plan:

1. Account for the financial costs of compliance with existing regulations in the cost of new resources.
2. Recognize that residual and unregulated environmental effects from resources exist but are hard or impossible to quantify in any systematic and consistent way; describe them qualitatively in the narrative of the plan and consider them when determining a resource strategy.
3. Address and consider costs of compliance with proposed regulations on a case-by-case basis.
4. Do not attempt to include quantified environmental benefits in new resource costs beyond the few historic examples, but recognize and emphasize in the resource strategy in other ways the value of certain resource choices in helping to mitigate other harmful environmental effects.



* thumbs up



Additional Slides



Quantifiable environmental benefits: WA IOUs studies on displaced wood smoke

Staff Response: Staff has been diligent and thorough in reviewing the three WA studies and considering the feedback received.

- The reports utilized the same methodology as the RTF staff report, and thus have the same limitations
- No new data was used, other than housing specifics for the utility service territories

Therefore, the staff recommends that the Council continue its approach and not attempt to include **quantified environmental benefits** in new resource costs



Review of
Issue

Quantifiable environmental benefits: WA IOUs studies on displaced wood smoke

Puget Sound Energy, Avista, and PacifiCorp were directed by the Washington UTC staff to conduct studies in their service territories to quantify and monetize the health benefits of wood smoke emissions displaced by the installation of a new ductless heat pumps. These studies were based off of 2014 report by the Council's Regional Technical Forum (RTF) staff, using the same methodology, tools, and data*.

- While new location-specific information is available to quantify these benefits since the last power plan, there remains the same issues the Council contended with before:
 - Difficult to say to what extent reductions in wood smoke are **directly attributable** to the **installation** of efficiency measures, as required by the Act.
 - Also difficult to **quantify** the benefits in a way that applies to this measure (or other measures) across its various uses and across the region, when the benefits are so location-specific and context-specific.
 - By applying quantified benefits to the cost of *some* efficiency measures to account for this one environmental effect, we **skew the resource cost comparison** with measures that have environmental benefits that are not quantified. This is something the Act might allow in the appropriate circumstances, but is also a consideration to be concerned about and ward against in most situations.
 - Are there efficiency measures that can lead to an **increase** in wood smoke?



*Utility specific data was limited to analyzing only counties in the utility service territory and using utility counts of number of homes.

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Review of
Issue

Quantifiable environmental benefits: WA IOUs studies on displaced wood smoke

Given the remaining considerations regarding “directly attributable” quantification of benefits and risk of skewing measures inequitably, staff proposed that the Council continue to handle this particular issue of quantifying displaced wood smoke as in the past, by:

- Recognizing and qualitatively describing that particulate emissions from wood burning are a well-documented health concern and the installation of new electrical energy efficiency measures in the right circumstances can correlate to reductions in the burning of wood, and thus less harmful particulate emissions.
- In addition, the Council could include language in the power plan to recognize that states, local governments, and utilities are more than justified in pursuing these measures based on the societal and health benefits, even if they are not explicitly used in the comparison of resource and measure costs



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Council and RTF: Historical decisions and discussions regarding quantification of health benefits for wood smoke displacement (1)

Purpose and results from the **2014 RTF staff report**:

- To examine whether there was a methodology for analyzing and quantifying health benefits from reduced wood smoke directly attributed to EE program activity
- Investigation focused on one EE measure as an example – ductless heat pumps (DHP) – that had a robust dataset from an existing RTF analysis demonstrating that at least some of the energy savings resulted in a reduction of supplemental fuel use - including wood - after installation of a DHP



Council and RTF: Historical decisions and discussions regarding quantification of health benefits for wood smoke displacement (2)

Findings from the RTF staff report:

- **Changes in wood use** could be quantified, at a cost and with limitations, using methods informed by the RTF
- The health effects from the **changes in wood smoke emissions** *could be quantified* using the best practice methodology that the EPA and air regulators rely on
 - Range of estimates have wide error bounds, but even at the low end the impacts on cost-effectiveness on certain measures was significant
- ❖ RTF staff concluded that these changes and resulting impacts **had not been sufficiently quantified** at the time (2014)





Council and RTF: Historical decisions and discussions regarding quantification of health benefits for wood smoke displacement (3)

Limitations and recommendations from the RTF staff report:

- Reduction in wood use cannot be generalized across efficiency programs
 - Uncertainty in how much of the wood use savings are directly attributable to the installation of a DHP
 - Dedicated studies for other programs would be required to estimate measure-specific wood smoke reductions
 - Different program designs might result in different levels of wood use savings
- More sophisticated dispersion modeling tool is required to accurately estimate the health effects
- Value of health impacts should be analyzed as a range, not a single value, limiting the ability to include in supply curve development

RTF PAC agreed with these limitations and cautioned the Council on the resource requirement to adequately value these benefits across all relevant measures



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Council and RTF: Historical decisions and discussions regarding quantification of health benefits for wood smoke displacement (4)

Council decision for Seventh Plan: Agreed with the RTF and RTF PAC findings that the installation of DHPs resulted in reductions in harmful wood smoke pollutants, but to properly quantify these benefits would require significant research, modeling improvements, and funding

- Seventh Power Plan recommended that state agencies,

“...should consider such impacts [health benefits from wood smoke reduction], whether quantified or described in model language, when setting cost-effectiveness limits for measures and programs, recognizing that it may not be appropriate for the utility system to pay for non-energy benefits that do not accrue to the power system.” (Action Plan, ANLYS-8)



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