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August 6, 2019

MEMORANDUM

TO: Power Committee

FROM: Gillian Charles

SUBJECT: Power Plan Process Review – Environmental Methodology

BACKGROUND:

Presenter: Gillian Charles, John Shurts

Summary: In preparation for the 2021 Power Plan, staff will be providing the Power Committee a series of presentations on different aspects critical to developing the Plan. This presentation will focus on the development and application of the methodology for determining quantifiable environmental costs and benefits.

When developing the new resource strategy for the power plan, the Northwest Power Act requires that the Council compare the incremental system cost 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 resource or measure.

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

Power Plan Process Review: Environmental Methodology

Gillian Charles, John Shurts
Power Committee, 8/13/19



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Today's Discussion

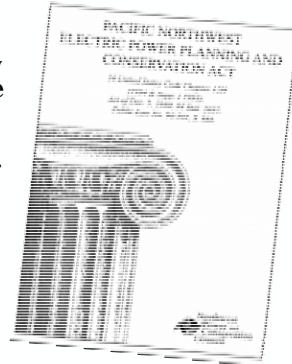
- **What it is:** A review of the Power Act's requirement to include an environmental methodology in the power plan, and how it fits into the power plan development process
- **What its not:** We will not be discussing the proposed methodology for the 2021 Power Plan
 - Staff will bring a proposal for the 2021 Power Plan to the full Council at the September Council Meeting



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What is the Environmental Methodology?

- In estimating the overall **system cost** of a particular **new** resource or measure, the Council must include **quantifiable environmental costs and benefits** directly attributed to the resource as determined by the environmental methodology
- The Northwest Power Act requires the Council (1) develop and (2) apply a “**methodology** for determining [the] quantifiable environmental costs and benefits” of 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



System Cost

“System Cost” as defined by the Act:

“... an estimate of all **direct costs of a measure or resource over its effective life**, including, if applicable, the cost of **distribution and transmission** to the consumer and, among other factors, **waste disposal costs, end-of-cycle costs, and fuel costs** (including projected increases), and such **quantifiable environmental costs and benefits as the Administrator determines**, on the basis of a methodology developed by the Council as part of the plan, or in the absence of the plan by the Administrator, are directly attributable to such measure or resource.”

[Northwest Power Act, §3(4)(B), 94 Stat. 2698-9.]

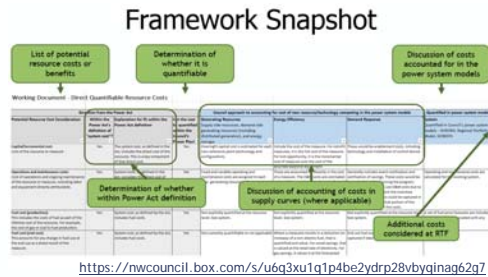




Treatment of Quantifiable Resource Costs

- Staff developed a framework to support consistent quantification of costs and benefits – including environmental - across new generating resources, energy efficiency measures, and demand response products
 - Avoid/eliminate any potential double counting
 - Increase transparency

Reminder: This is nothing “new”! The framework merely provides an explicit way to capture the Council’s long-standing approach on quantification of resource costs.



Due Consideration

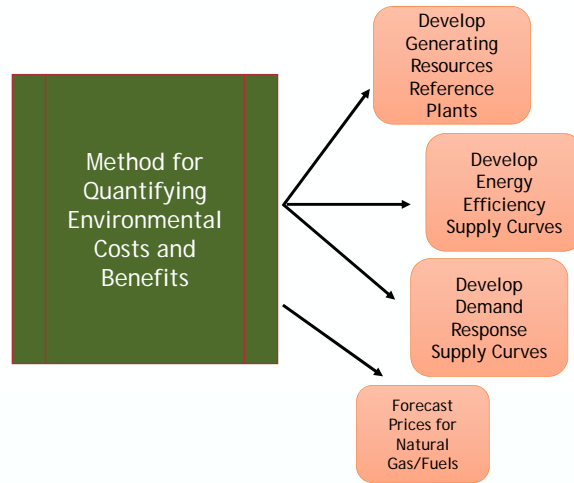
- What if an environmental effect cannot be quantified as a cost or benefit?
 - Still taken into consideration through the Act’s due consideration provision
- Section 4(e)(2) calls for the Council to develop the scheme for implementing conservation measures and developing generating resources “with due consideration” for environmental quality, fish and wildlife, and compatibility with the existing system in developing a resource strategy

Examples of due consideration from the Seventh Plan

- Thorough analysis of the effects of new and existing resources on the environment and fish and wildlife (see Ch. 9, 13, App I)
- Analysis and scenarios on effects of carbon emissions from existing resource fleet



How does this fit into the power plan process?



Developing the Methodology

The following are the main topics that have been considered in the past power plans* when developing the environmental methodology:

1. Costs of compliance with existing environmental regulations
2. Residual environmental effects beyond regulatory controls
3. Costs of compliance with proposed regulations
4. Quantifiable environmental benefits

* This does not limit the considerations for the 2021 Power Plan; however it serves as a useful starting point in developing the next plan's methodology



1. Costs of compliance with existing environmental regulations

- Council’s planning assumes all generating and conservation resources will meet existing federal, state, tribal, and local environmental regulations
- Therefore, the estimated costs of compliance – when quantifiable – are included as part of the total system cost of a resource
- Primary method to capturing and quantifying environmental costs and benefits in past plans

Examples: Costs of complying with fuel extraction and production, air and water emissions, land-use siting protections, waste disposal, fish and wildlife protection and mitigation.



2. Residual environmental effects beyond regulatory controls

- Regulations control or mitigate *some* portion of the targeted effects from a new resource on the environment, but not *all*
- Residual effects can be hard to quantify due to insufficient information available
 - Could also argue that residual effects should not be considered damage costs because they were excluded from regulation
- In past plans, Council has decided not to try and quantify the cost of these residual effects and instead acknowledge the qualitative effects in the narrative and consider them when determining a resource strategy

Examples: Not all bird kills from wind turbine operations are prevented by regulations aimed at reducing bird kills; not all emissions from a fossil-fuel plant are controlled by regulations aimed at curbing them



3. Costs of compliance with proposed regulations

- Quantifying compliance costs with existing regulations is a primary method; an additional consideration is how to capture and quantify effects not yet subject to regulatory controls
- Typically dealt with on a case-by-case basis, depending on the environmental effect and the quantitative data available

Example: Potential federal carbon policy in the early development of the Seventh Power Plan. While the EPA issued a final §111(b) of the Clean Air Act prior to the Seventh Plan's adoption, staff had to determine if/how to capture compliance costs. This was done through new resource capital and operating costs.



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4. Quantifiable environmental benefits

- In addition to costs, the Act calls for a methodology to determine environmental **benefits** as well
- Historically, information and data on quantifiable benefits has not always been sufficient or well understood
- Risk of applying a cost and benefit attributed to the same environmental effect, thus double counting
 - Ex: Attributing a benefit to a new resource that reflects the idea that the region could avoid investments in another new resource that has an environmental cost
- Risk of skewed resource cost comparisons when applying quantified benefits “piecemeal”; applying benefits to a few resources with quantified data available, but not for others

Example: An energy efficient dishwasher or washing machine that in addition to the amount of energy saved, reduces the amount of water used



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What about climate change and carbon emissions? (1)

- Carbon emissions and climate change are big issues for the power system and the power plan, but...
- Most of these issues relate to the carbon emissions from *existing* system plants, especially coal plants. The Council has to factor in how carbon policy will change the output of these plants, but that is not relevant to the “environmental methodology” for estimating the environmental costs and benefits of *new* resources.
 - In the Seventh Plan, the Council included the cost of compliance with existing environmental regulations as part of the overall total existing power system cost (e.g. equipment and capital investments, O&M)
- Another set of issues concern how climate change will have direct effects on demand (such as temperature changes) or on system generation (such as precipitation and temperature changes that affect hydropower generation). Again, these are important considerations in the power plan, but have nothing to do with the environmental methodology and the costs of new resources.



What about climate change and carbon emissions? (2)

- Even with regard to *new* resources, state and local policies and laws (such as RPS standards; coal prohibitions; etc.) have focused on constraining the continued operation and new development of carbon-emitting resources and requiring the addition of new non-carbon emitting resources.
 - These are again important power plan considerations, in which we limit new thermal potential and assume the build out of renewable resources to meet standards based on state laws and policies, but these considerations mostly do not affect how the Council estimates the cost of new resources – which is what the environmental methodology is about.
- In effect, the “environmental methodology” called for by the Act is relevant in this context largely only to whether and how to assign costs to the carbon emissions from new natural gas plants. Here, the same considerations apply as apply to any question of environmental costs, as described above.



Next Steps

- **September Council Meeting:** Staff to bring a proposed environmental methodology to the full Council for discussion
- **October Council Meeting:** Staff to incorporate any feedback and bring a “final”^{*} methodology for “approval”^{**}

As always, the Council welcomes all comments and feedback from stakeholders regarding this or any issue

^{*} Of course nothing is ever “final” until the plan is adopted, but we need an understanding of the methodology ahead of time in order to apply it in the analysis.



^{**} thumbs up



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