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March 31, 2015

MEMORANDUM

TO: Council Members

FROM: Tom Eckman, Director of Power Planning
Gillian Charles, Energy Policy Analyst
John Shurts, General Counsel

SUBJECT: Seventh Power Plan: treatment of environmental compliance costs for existing generating resources

Presenters: Tom Eckman and John Shurts

Summary Presentation and discussion as to how staff is proposing, for the draft power plan, to treat the estimated costs of compliance with environmental regulations for *existing* generating resources. The staff is not seeking a formal decision by the Council, just general guidance from the members as to whether (or not) you are comfortable with the approach proposed.

Relevance Environmental costs and environmental quality considerations are elements of the power plan's resource analysis and resource strategy.

Workplan: 2015 Council Workplan, Section 1B: Develop Seventh Power Plan and maintain analytical capability and update generation resource database.

Background: This is the latest in a line of discussions with the Council as to the approach to take in the draft power plan with regard to the environmental costs of resources and other issues of environmental quality. In December 2014, the Council approved (informally) a methodology for quantifying environmental costs and benefits of new resources, an approach for considering environmental costs of existing resources, and an approach for considering other matters of environmental quality outside of costs. This is a follow-on discussion of the specifics with regard to the costs of compliance with environmental regulations by existing resources.

On the agenda for the April Council meeting is a discussion of how staff is proposing, for the draft power plan, to treat the estimated costs of compliance with environmental regulations for *existing* generating resources. The staff is not seeking a formal decision by the Council, just general guidance from the members as to whether (or not) you are comfortable with the approach proposed.

This is the latest in a line of discussions with the Council as to the approach in the draft power plan for quantifying environmental costs and otherwise considering issues of environmental quality. And to remind the Council: the Council's task under the Northwest Power Act is to determine and compare the costs – including environmental costs -- of *new* resources in order to recommend a strategy of least-cost resources to add to the system. The task is *not* to determine and compare the environmental costs of *existing* system resources and make decisions about those resources. Even so, the Council needs to estimate the incremental costs of the existing system resources in order to assess how the existing resources might operate and dispatch, and thus what new resources might be needed and how they might be used in coordination with the existing system and at what costs. Understanding how compliance with environmental regulations will affect the existing system – in terms of both costs and operational effects – is part of that assessment.

The task is made more complicated for this power plan in that there has been extensive development of new, evolving and proposed environmental regulations in the last five years, much of it (but not all) affecting the production of electricity from fossil-fueled and especially coal-fired power plants. The list is extensive, including:

- Clean Air Act/national ambient air quality standards: Adoption of more stringent standards for NO₂, SO₂, and particulates, and proposed revisions for ozone
- Continuing assessments and modifications to meet the implementation requirements of the regional haze rule under the Clean Air Act
- Compliance with the new mercury and air toxics rule under the Clean Air Act
- New final regulation for handling coal combustion residuals, including boiler bottom ash, fly ash (ash carried in the flue gas), boiler slag and products of flue gas desulfurization, under the Resource Conservation and Recovery Act
- Final regulations under the Clean Water Act that establish new requirements for cooling water intake structures to protect aquatic organisms
- Proposed revisions to the standards for effluent from steam electric power generation, under the Clean Water Act -- to strengthen existing controls and reduce wastewater discharges of toxic materials and other pollutants, including mercury, arsenic, lead and selenium, from especially coal-fired generation
- Proposed limits on carbon emissions that will affect existing power plants, under Section 111d of the Clean Air Act
- Upgrades to existing nuclear power generating facilities required by the Nuclear Regulatory Commission to cope with external events beyond ordinary design criteria (in the wake of the Fukushima accident in Japan)
- Regulations under development to reduce fugitive methane emissions from the production and transportation of natural gas

- Developing regulatory environment to protect eagles and other migratory birds from threats posed by the development and operation of wind and solar generating facilities

Not all of these do or will affect existing resources in the northwest system. With the assistance of many on staff and Nate Larsen, our legal intern, Jeff King has been working on a comprehensive paper describing the regulatory environment affecting existing (and new) generating resources in the region. The paper will include what information Jeff and the staff can find on the possible costs of complying with these regulations and also any operational effects that might occur (e.g., changes in plant output or efficiency). The paper is not quite finished as packet day arrives, and may not be finished by the time of the Council meeting. We do expect to have a draft table to be able to share with the Council that includes estimated costs of compliance with final regulations that obviously apply to existing resources in the Pacific Northwest. The table may also include estimates of costs to comply with proposed regulations that are likely to become final in the near future. Preliminary conclusions from this work to discuss with the Council:

- The region's plant owners are making significant strides already to comply with many of these new regulations. This includes, for example, incurring the capital and operating costs to comply with the new mercury and air toxics standards.
- The existing system costs that are important for the Regional Portfolio Model are the estimated incremental operation and maintenance costs, especially the variable operation and maintenance costs. This includes the estimated operation and maintenance costs associated with compliance with environmental regulations. We will have estimated costs that we can put into the RPM that reflect these regulations. The additional operation and maintenance costs for environmental compliance do not appear to be significant in terms of whether and when the existing plants will operate.
- The capital costs to comply with *some* of these regulations may be significant enough that the owners likely will have a decision point at some time in the future as to whether to incur those costs (others not so significant). New potential capital costs for existing resources – and the investment decisions that those costs raise for the owners -- are not a factor, an input, or an outcome in the RPM. Any considerations of this sort, such as an assumption for the sake of planning that an owner might choose not to incur the capital costs and instead retire the plant, will have to be made outside the model through scenario planning, wherein the model is told that a retirement is simply forced at a certain date.
- The Council is already on a path to do this type of scenario analysis in any event, in order to assess the possible impacts of proposed new limits on carbon emissions. The coal plant retirement scenarios can be seen as standing not just for the effects of compliance with carbon emission regulations, but also for a decision by plant owners not to incur new capital costs for other environmental regulatory reasons as well.