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RE: Sierra Club comments on the Northwest Power and Conservation Council's issue paper: Methodology for Determining Quantifiable Environmental Costs and Benefits.

Dear Mr. Crow:

We appreciate the opportunity to comment on the Northwest Power and Conservation Council's (Council) Environmental Methodology issue paper that was released on September 10, 2014. We commend the Council on its forward-looking consideration of environmental costs and benefits related to the provision of electric power.

The continued progress and innovation in the clean energy sector will allow the Northwest to carry on with its transition to an electric system that provides safe and reliable electric service with dramatically lower emissions. The Northwest's progress toward a clean electric grid will benefit public health, create local jobs, and decrease air and water pollution.

We remain concerned, however, with the continued operation of coal generation facilities in the Northwest. The expected retirements of the Centralia and Boardman coal plants are large steps in the right direction, but the Northwest continues to rely on dirty coal power. Specifically, the Colstrip plant in Montana, the Jim Bridger plant in Wyoming, and the North Valmy plant in Nevada produce a disproportionate amount of greenhouse gas pollution as well as other harmful local air pollutants and water contamination.

Costs of compliance with environmental regulations

In section II of the issue paper – Costs of compliance with environmental regulations – the Council states that "The primary element in the Council's methodology for including quantifiable environmental costs in power planning has been to incorporate the estimated costs of compliance with existing environmental regulations in the capital and operating costs of conservation and generating resources."

Upon discussions with Council staff about cost of compliance for the coal-fired power plants, it is not clear which environmental regulations are incorporated into the capital and operating costs, nor the

cost of compliance for each regulation. It is our further understanding that the assumptions of compliance may come from larger regional, or more likely, national assumptions about compliance.

We are concerned that these assumed environmental compliance costs are vague and incomplete. In addition, in the time since the Sixth Power Plan was released, we know that there are new implementation requirements under existing regulations for existing plants. Information on the costs to comply with these regulations are both "direct" and "quantifiable." In some cases, a range of potential implementation costs is provided when s final compliance plan is still being determined or litigated.

In many cases across the country, the Sierra Club has found that the full cost of compliance – with all current and likely near-term environmental regulations taken into account, including the pending cost of carbon – makes continued expenditure on and operation of coal plants no longer economically justifiable. Before the Council examines likely near-term environmental regulations such as the pending federal coal ash or carbon rules, it must ensure that the assumptions it has for compliance costs for existing regulations are complete, transparent and specific.

The first step in this process is to provide a more refined analysis than the previously relied upon national assumptions about compliance costs. Of the Council's estimated 2,800 megawatts (MW) of coal-based power that services the Bonneville Power Administration (BPA) service territory, the overwhelming majority of that power comes from just five coal plants that are listed in Council's database on "Power Plants in the Pacific Northwest." The TransAlta plant in Washington and the Portland General Electric plant in Oregon are slated to retire. However, the costs of the continued operation of the Colstrip Generation Facility in Montana, the Jim Bridger facility in Wyoming, and North Valmy facility in Nevada must be fully examined to determine the efficacy of their continued operation.

There is extensive information about the environmental costs and risks associated with these three plants, and in particular for Colstrip and Jim Bridger which constitute the vast majority of the remaining coal-based electricity for the Northwest. The utility commissions across the four Northwest states have already been provided with much of this information. They are using this information in their assessment of Integrated Resource Plans for Northwest utilities. Of note, the Washington and Oregon utility commissions are in the midst of establishing even stronger precedents in how they assess the true costs of continued operation of coal-fired power.

The next step is to identify the specific environmental regulations that are likely to create additional financial risks beyond any business-as-usual assumptions. These are costs will be direct costs as environmental regulations become final.

<u>Colstrip</u>

For the Colstrip Generation Facility, we recommend the Council examine the actual and likely compliance costs for the following areas of concern:

- Federal Regional Haze Rule, Best Available Retrofit Technology (BART). The final implementation standard for this federal standard is yet to be determined pending litigation on

the final rule. Nonetheless, the range of possible costs is fairly well known. There will be near-term implementation costs for 2017, and the entire plant will likely be assessed again in the near future as state's prepare the plans for reasonable progress on Regional Haze. Sierra Club and National Parks Conservation Association's experts prepared a detailed cost analysis for this federal haze requirement. These assessments and others will be provided in supplemental comments to the Council.

- Sulfur Dioxide (SO2), National Ambient Air Quality Standards. Air dispersion modeling performed on behalf of Montana Environmental Information Center (MEIC) and Sierra Club demonstrates, based on 2011 emissions reported by the company in EPA's Clean Air Markets Database, that Colstrip's current 99th percentile hourly emissions (for Units 1-4) violate the 1-hour SO2 NAAQS by a significant margin. Even under EPA's newly established 30-day rolling average SO2 emission limits for Units 1 and 2, peak hourly emissions are almost certain to cause violations of the 1-hour SO2 NAAQS. The Council should analyze the costs of the installation and operation of control technology necessary to reduce SO2 emissions to comply with the 1-hour NAAQS .
- Particulate Matter (PM). Updated particulate matter controls will be necessary at Colstrip Units 1 through 4 to meet EPA's PM limit for non-mercury metal hazardous air pollutants. Specifically, EPA adopted a PM limit of 0.03 lb/MMBtu as a surrogate for non-mercury metal hazardous air pollutants. Colstrip Units 1 and 2 already emit filterable PM at rates close to twice that of the EPA's proposed 0.03 lb/MMBtu total PM limit (at 0.047 and 0.058 lb/MMBtu, respectively) and also are currently subject to a PM limit more than three times the Maximum Achievable Control Technology (MACT) limit (0.10 lb/MMBtu). Likewise, Colstrip Units 3 and 4 are currently subject to a PM limit (0.05 lb/MMBtu) greater than the new MACT limit. Consequently, improved PM controls will be necessary to meet a total PM MACT limit of 0.03 lb/MMBtu. The Council should analyze the costs of the installation and operation of control technology necessary to comply with EPA's surrogate PM limit for non-mercury metal hazardous air pollutants.
- Acid Gases: – National Emission Standards for Hazardous Air Pollutants (NESHAP). NESHAP for coal and oil-fired electric generating units establish an acid gas limit for HCl of 0.002 lb/MMBtu or, alternatively, utilities can elect to comply with a surrogate limit on SO2 of 0.20 lb/MMBtu. Although Colstrip Units 1 and 2 may be able to comply with the SO2 surrogate MACT limit through pollution-control upgrades necessary to achieve the units' regional haze limit of 0.08 lb/MMBtu, Colstrip must comply with the new MACT limit by or before the NESHAPs effective date of April 2015.
- Coal Combustion Residuals (CCR). The federal government will be issuing its final regulations on December 19, 2014. The final mitigation requirements are not known. On a parallel track, the Montana Department of Environmental Quality has entered into an Administrative Order on Consent (AOC) for a management plan and cleanup requirements for Colstrip's CCRs. Just last week, DEQ issued a 130-page notice of deficiency to the Colstrip owners, requesting greater detail on how they will achieve the remediation requirements in the AOC. Regardless of whether the federal rule provides strong remediation requirements, it is clear the state agency is demanding that Colstrip come up with an adequate remediation plan. The cost of this plan

has not yet been developed. Further, the AOC is currently being appealed in Montana district court to force a more adequate and speedy cleanup criteria. What is clear is that the Colstrip owners have under-valued the potential financial risk from the spreading toxic plume. National assumptions that may be embedded in the Council's previous assumptions about capital and operating costs for coal plant likely do not capture the level of risk associated with this growing problem.

In addition to these pending implementation costs due to existing regulations, there are additional costs from the increased cost of fuel. Colstrip's fuel costs are increasing due to increasing strip ratios (the amount of overburden that must be removed per ton of coal produced). Colstrip owners have indicated that Colstrip currently projects using 100% of the adjacent coal from the Rosebud mine – as currently required by the facility's operating permit – for the next ten years. Sierra Club requests that the Council address the outlook for the future cost of coal from the Colstrip mine, or for the cost of replacement coal should the mine become unavailable or unduly costly. Cost estimates for replacement coal sources should include capital costs for fuel delivery infrastructure and any boiler modifications likely to be required.

Increasing cost of mining are not limited to increasing overburden levels. There is currently a pending lawsuit against the Rosebud mine to force compliance with pollution discharge requirements at the mine. The outcome of this lawsuit may impose additional operating costs for the mine operator. Under the "cost plus" contract between the mine owner and Colstrip, additional costs from mining may be passed on to the Colstrip owners.

The Colstrip mine is not the only case where pending litigation may drive up capital and operating costs. The Council should review and assess the potential financial exposure from current litigation against the Colstrip plant for violations of the federal Clean Air Act's new source review (NSR) permitting requirements. If the court finds that Colstrip must obtain a new permit as a result of having made "major modifications" then Colstrip may have to install up-to-date emissions control equipment. The cost of this compliance and possible civil penalties would likely cost hundreds of millions of dollars.

<u>Jim Bridger</u>

For the Jim Bridger coal plant, we recommend the Council examine the actual and likely compliance costs for the following areas of concern:

- Federal Regional Haze – EPA approved Wyoming's Regional Haze SIP, which would require selective catalytic reduction (SCR) technology on all four Jim Bridger units. The Wyoming Public Service Commission estimated that those costs could exceed $800 million.[1] The Wyoming Regional Haze Plan is the subject of ongoing litigation.
- Mercury Air Toxic Standards (MATS) – Jim Bridger will face some level of capital costs to comply with MATS. Upgrades or replacement of SO2 scrubbers may be necessary.

[1] http://psc.state.wy.us/pscdocs/dwnload/ChairmansLetter-JanetMcCabe.pdf

- Water Contamination – Jim Bridger owners have acknowledged past incidents of seepage from coal ash ponds. This type of discharge can lead to surface water and/or groundwater contamination and creates a potential liability for Clean Water Act violations and cleanup costs. Continued operation of facilities or delay of remediation activities could lead to high ultimate cleanup costs.
- Cooling Water Intake Rule - Clean Water Act 316(b) – Jim Bridger pulls its water from the Green River, which could implicated Jim Bridger.
- Coal Ash Disposal – Jim Bridger's coal ash disposal ponds may face additional cost due to environmental regulations. Plant owners have identified costs for landfill closures and new pond construction for solid waste disposal as areas of possible future costs.

North Valmy

Idaho Power Company is a one-third owner of the North Valmy coal plant in Northern Nevada. NV Energy is the other owner. The plant's current depreciation schedule identifies a closure date of 2021-2025 for units 1 and 2, respectively. The following environmental costs may also be applicable:

- Future SCR Costs – North Valmy does not have SCR NOx controls, and therefore may be subject to future regulations such as Regional Haze reasonable progress requirements to reduce harmful NOx emissions.
- Future Scrubber Costs – North Valmy does not have wet FGD (flue gas desulfurizers). Tighter SO2 regulations and/or Regional Haze reasonable progress requirements could trigger the installation of these controls.

Using these local, specific and transparent cost assumptions will provide a much clearer picture of the true capital and operating costs for coal plants serving the Northwest. Even though some of the costs will have a range of estimates associated with different possible compliance pathways, the information that is specific to Colstrip, Jim Bridger and North Valmy will provide a much clearer picture of the financial risk of these coal plants. Accounting for higher regulatory risks and environmental costs of coal facilities will also affect the value of the alternative conservation and efficiency measures. If the true costs of existing resources are greater than expected, then the amount of "cost-effective" efficiency increases. Similarly, as the true cost of coal becomes clearer, new alternative resources will be needed sooner than currently anticipated.

Residual environmental effects beyond regulatory controls

The Council poses two specific questions about residual environmental effects at the end of this section of the issue paper. We respond to each in turn.

1. Should the Council also consider, in crafting the methodology, the residual effects a resource might have on the environment after compliance with environmental regulations?

Yes. The costs discussed above are direct costs of compliance that would result from the installation of pollution control measures. Those costs result in direct costs to the plant owners, and in turn to

ratepayers. However, even after emissions are controlled, there are still residual costs from emissions. Social and environmental impacts still occur as a result of pollution. For example, a plant may assert that its emissions do not exceed federal standards, but excess SO2 or NOx will still contribute to overall health problems such as asthma and heart disease. In turn, there are social costs attributable to lost productivity and missed days of work.

2. Are there reasonable methods for quantifying the costs of such effects?
Yes. As one example, a recent review of the Martin Drake coal plant in Colorado conducted by HDR Engineering at the request of Colorado Springs incorporated these social and environmental costs as part of an overall assessment of the coal plant.[2] The report considered residual environmental costs: "HDR maintains a database of valuation metrics for many environmental and social considerations. These values are sourced from peer reviewed literature and from the work of established federal committees and working groups that study these concepts."[3]

The HDR study included two sets of conclusions. The first was the financial return on investment (FROI), which assessed direct costs such as pollution controls, fuel, maintenance, and capital expense. The second set considered the estimated social and environmental costs of residual pollution after pollution controls were installed. HDR combined the financial costs with the social/environmental costs to get a comparison of various alternative supply options. The Council should follow a similar practice. This method of accounting for the social and environmental costs gives appropriate credit to energy sources that reduce emissions per megawatt of the system beyond what may be required by applicable environmental laws or regulations on a particular plant. Combing the social/environmental costs with the direct financial costs gives a more complete picture of the benefits and costs of different alternatives.

<u>Environmental effects of resources not yet subject to regulatory control, especially carbon dioxide emissions.</u>
The Council has already completed extensive analysis of carbon pollution. We applaud the effort in the Sixth Power Plan. Now carbon impacts have become an even greater concern for our states, utilities and citizens. We know that quantifying carbon costs will require a significant effort and that this is a priority for the Council.

We offer a preliminary recommendation which we hope can be considered a minimum cost consideration for carbon: the federal Social Cost of Carbon (SCC). EPA issued a proposed rule this year to regulate greenhouse gases from power plants (the Clean Power Plan). The details and implications of this rule are still in flux as various states and stakeholders submit comments to EPA. Since we do not yet have a final rule for the proposed Clean Power Plan, to the Council must ensure that it can establish some estimate of carbon costs for long-range planning. In the absence of specific detail on the costs to

[2]Study of Alternatives Related to the Potential Decommissioning of the Martin Drake Power Plant, HDR Engineering, Dec. 23, 2013. Available at: http://www.draketaskforce.net/yahoo_site_admin/assets/docs/12-23-13_Drake_Alternatives_Final_Report.35794610.pdf
[3] Id. at p. 11.

comply with the Clean Power Plan, the federal social cost of carbon provides an adequate proxy for the time being. While we believe the federal social cost of carbon estimate is likely much less than the actual social cost of carbon, it is the best surrogate we have today. We believe this cost should represent the minimal cost of carbon for the Seventh Power Plan. When details of the Clean Power Plan are available, those direct costs can be incorporated into a future plan.

Relying on the social cost of carbon is consistent with other planning methodologies. The federal government is using the social cost of carbon to assess the value of new technologies. In May 2013, the federal government used the updated social cost of carbon to help evaluate the benefit of new energy efficiency standards for microwave ovens. Shortly thereafter, other federal agencies were instructed to use this cost standard to evaluate the carbon implications for their agencies' operations. This requirement applies to BPA, the primary agency for which the Seventh Power Plan will be provided. If BPA is already required to use carbon cost, it would consistent for the Council to ensure this cost standard is the minimum used in the Seventh Power Plan.

In closing, existing and pending regulations will create real, direct, and quantifiable costs for existing coal plants. The Council should work to quantify those expected and possible direct costs that are specific to the coal plants in the Northwest. In addition, ongoing contamination and pollution further contributes to unknown levels of cost liability linked to future cleanup costs and health impacts. The Council should endeavor to identify and measure in the Seventh Power Plan these social and environmental costs.

We will work with Council staff to provide all documentation necessary for a thorough assessment of costs and liabilities. We appreciate the diligence that the Council has demonstrated for decades and we are confident they can provide greater accountability.

Sincerely,

Doug Howell
Senior Campaign Representative
Sierra Club