Gloria D. Smith
Managing Attorney
Sierra Club Environmental Law Program
2101 Webster Street, Suite 1300
Oakland, CA 94612
(415) 977-5532
gloria.smith@sierraclub.org

BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON

In the Matter of PACIFICORP, dba PACIFIC POWER, 2019 Integrated Resource Plan	Docket LC 70

SIERRA CLUB'S FINAL COMMENTS

March 4, 2020

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1. INTRODUCTION AND SUMMARY

These comments build upon Sierra Club's initial comments on PacifiCorp's 2019 Integrated Resource Plan (IRP), and were prepared with the assistance of Synapse Energy Economics. Here Sierra Club largely responds to inaccurate, misleading, and controversial statements contained within PacifiCorp's reply comments. It also re-iterates Sierra Club's recommended next steps.

Generally, PacifiCorp's reply comments do not adequately address the concerns raised in Sierra Club's opening comments. First, PacifiCorp's transmission Action Plan items and decision to continue operating Jim Bridger Units 3 and 4 through 2037 are not adequately supported by the Company's IRP. In addition, the IRP's reliance on a poorly supported "reliability resource" modeling approach, a major Bridger coal mine capital cost assumption error, understated Bridger coal price assumptions, understated coal unit environmental compliance cost risks, and overstated solar cost assumptions are problematic.

Accordingly, Sierra Club reiterates its initial recommendation that the Commission not acknowledge any transmission construction items in PacifiCorp's action plan unless such acknowledgment is made contingent on the Company's all-source request for proposals (RFP) process identifying these transmission investments as part of a least-cost resource plan. In addition, Sierra Club believes that the Commission should require that the Company's future IRPs incorporate a sound RFP process, a revised "reliability resource" methodology, rigorous economic evaluations of remaining coal units, correct and well-justified fuel cost assumptions, reasonable resource cost assumptions, and quantitative analyses of risks associated with potential selective catalytic reduction (SCR) investments.

2. RFP PROCESS CONCERNS

As PacifiCorp has acknowledged, several key stakeholders substantively critiqued the Company's transmission Action Plan items.[1] Specifically, Sierra Club's and other parties' opening comments questioned the reasonableness of acknowledging plans to construct specific transmission projects that were justified by possible new generation resources that may never be built. PacifiCorp responded by stating that acknowledgment of a transmission Action Plan item does not constitute pre-approval of that item.[2] Although PacifiCorp appears to understand the disconnect between its generation and transmission action items, the Company reiterated its position that acknowledgment of its transmission project action items, including the construction of the Gateway South project, is appropriate.[3]

Of course acknowledgment is not pre-approval; still, it would be inappropriate for the Commission to acknowledge PacifiCorp's transmission Action Plan items as written. What is needed are action items that enumerate the necessary preparatory steps that would clear the construction of Gateway South should PacifiCorp's modeling of all-source RFP responses support that step. Alternatively, the Commission could make acknowledgment of PacifiCorp's transmission action items contingent on the Company's RFP modeling supporting the development of the proposed transmission projects. But full acknowledgment of the construction of proposed transmission lines, including Gateway South, that are only justified by speculative generation resource additions is inappropriate at this time.

To the extent that PacifiCorp believes that the development of Gateway South is too time-sensitive to postpone full acknowledgment of its construction, the extension of the wind production tax credit (PTC) will buy the Company more time. PacifiCorp's IRP presented the timing of the Gateway South investment as driven by the 2023 in-service deadline for wind project PTC eligibility.[4] As the Company's reply comments describe, in December 2019 the federal government passed legislation extending the PTC by one year.[5] This should help ensure that the Company is able to complete its all-source RFP process prior to committing to building Gateway South.

3. PACIFICORP'S "RELIABILITY RESOURCE" MODELING APPROACH

Sierra Club's opening comments raised significant concerns with the "reliability resource" modeling approach employed in PacifiCorp's 2019 IRP. The Company's reply comments defend

[1] PacifiCorp's Reply Comments at 31.
[2] *Id.* at 32.
[3] *Id*.
[4] PacifiCorp 2019 IRP, Volume I at 74-75.
[5] PacifiCorp's Reply Comments at 46.

its modeling approach, including the addition of 500 megawatts (MW) of incremental firm capacity to its preferred portfolio. However, Sierra Club finds PacifiCorp's presented justifications for its reliability modeling approach to be misleading and unconvincing. Sierra Club continues to have serious concerns with the nature of PacifiCorp's reliability resource modeling and the impact of that modeling on the Company's IRP conclusions.

A. PacifiCorp misleadingly conflates its 500 MW "uncertainty" requirement with resources needed to address shortfalls identified in modeling runs.

PacifiCorp's reply comments argue that if Sierra Club were correct that the Company's application of a 500 MW "uncertainty requirement" is unnecessary, then the Company's Planning and Risk (PaR) modeling runs would not have identified meaningful deficiencies among the initial portfolios developed using System Optimizer (SO).[6] This argument is incorrect and misleading.

As described in the IRP, and as summarized in Sierra Club's opening comments, the "reliability" SO run that lies at the heart of the Company's modeling approach adds two blocks of incremental resources to the resources selected in initial, "pre-reliability" SO runs.[7] First, PacifiCorp adds resources to cure the deficiencies identified in the Company's deterministic PaR runs. Then, **PacifiCorp adds an *additional 500 MW*. These 500 MW are *not* added to address any specific shortfalls identified in modeling runs** (those shortfalls are addressed by the first block of resource additions) but are instead justified with general and vague references to "uncertainty."

PacifiCorp's argument that its 500 MW requirement does not constitute double-counting of reliability is misleading. According to PacifiCorp, the 500 MW are not double-counted because SO does not account for the need to meet hourly contingency and reserves requirements.[8] While it is true that SO does not account for these requirements, the Company's deterministic PaR runs do. In the absence of the 500 MW requirement, the Company's "reliability" SO run would still add sufficient incremental resources to meet those contingency and reserve requirements. Again, the 500 MW are incremental to any identified planning reserve margin, contingency, or reserves requirement.

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[6] *Id.* at 12-13.
[7] PacifiCorp 2019 IRP, Volume II, Appendix R at 609-611; Sierra Club's Opening Comments at 8-9.
[8] PacifiCorp's Reply Comments at 11.

B. PacifiCorp's addition of 500 MW in incremental resources is inadequately supported.

PacifiCorp's reply comments vaguely assert that the Company's 500 MW incremental requirement is "data-driven, conservative, and demonstrably necessary."[9] But PacifiCorp provides no evidence to justify the need for the 500 MW of incremental resources. As described in greater detail in Sierra Club's opening comments, the data that the Company has presented in support of its 500 MW requirement are sparse, backward-looking, duplicative, and inconsistent with the Company's more rigorous analyses of its reliability requirements.[10] Further, there is no basis for the Company's claim that the incremental 500 MW are "demonstrably necessary." As discussed above, the 500 MW are incremental to all requirements identified through PacifiCorp's extensive modeling exercises.

If by "conservative," PacifiCorp means that the 500 MW requirement ensures an excess of available capacity, then Sierra Club would agree with that characterization. Any arbitrary addition of greater capacity requirements will contribute to marginally greater assurance of meeting resource needs. But this benefit must be weighed against the costs of developing excess capacity. PacifiCorp's extensive modeling process included numerous steps to identify an appropriate planning reserve margin and to ensure an adequate supply of resources to meet system requirements while accounting for uncertainty. The 500 MW appear to represent an unnecessary and unjustified addition on top of identified requirements.

C. PacifiCorp's addition of 500 MW was not adequately vetted or approved through the IRP stakeholder process.

PacifiCorp's reply comments assert that the analysis underlying the Company's 500 MW "uncertainty requirement" was developed over the course of its public input process and reflects "ongoing stakeholder participation."[11] Sierra Club is surprised by this characterization. Sierra Club participated in each of the Company's stakeholder meetings and cannot recall ever receiving a clear explanation of or justification for the analysis underlying the 500 MW requirement. The first time Sierra Club recalls PacifiCorp identifying the new 500 MW requirement was at an April 2019 stakeholder meeting. In May 2019, Sierra Club submitted comments expressing concern with the 500 MW increment and requesting a clear explanation for this addition.[12] No clear analytical justification was provided in response. Sierra Club was only able to review and understand the analyses underlying the 500 MW increment through the

[9] *Id.* at 10.
[10] Sierra Club's Opening Comments at 10-12.
[11] PacifiCorp's Reply Comments at 10.
[12] Sierra Club's Comments on PacifiCorp Stacked Coal Retirement Analyses at 8.

discovery process following PacifiCorp's IRP filing. After reviewing those analyses, Sierra Club concluded that the 500 MW "requirement" was not well supported.

4. JIM BRIDGER COAL MINE CAPITAL COST AND FUEL PRICE ASSUMPTIONS

Sierra Club's opening comments raised two concerns regarding PacifiCorp's Jim Bridger fuel supply assumptions. First, Sierra Club identified a substantial error in the Bridger mine capital cost assumptions applied to the Company's Preferred Portfolio.[13] Second, Sierra Club raised the concern that PacifiCorp may be under-projecting delivered coal prices at the Bridger plant.[14] PacifiCorp's reply comments partially address these concerns but are not satisfactory. The mine capital cost error still supports selection of a different preferred portfolio, and the Company's mid-term Bridger fuel price assumptions are likely over-stated.

A. PacifiCorp's Bridger coal mine capital cost error has substantial implications for its preferred portfolio.

PacifiCorp's reply comments acknowledge the Bridger coal mine capital cost error identified in Sierra Club's opening comments.[15] PacifiCorp accepts that correcting this $29 million error would shift its preferred portfolio from least cost to third least cost under medium scenario assumptions but asserts that this correction doesn't impact its Action Plan.[16]

Sierra Club recognizes that correcting the Bridger mine capital cost error does not by itself have major implications for the Company's Action Plan. However, it does affect the selection of a preferred portfolio. After this correction, the portfolio labeled P-48CP is about $16 million lower-cost than the preferred P-45CP portfolio under medium gas price and carbon dioxide (CO_2 price) assumptions in addition to being far super to P-45CP under both high gas/CO_2 price assumptions and social cost of carbon assumptions.[17] Under P-48CP, Jim Bridger Units 3 and 4 retire in 2033 whereas under P-45CP those units retire in 2037.[18] This four-year acceleration in planned retirement dates may not be sufficient to alter the Action Plan, but it does materially affect the preferred portfolio and related planning considerations, such as the setting of depreciation schedules. These updated, earlier retirement dates should be reflected in PacifiCorp's preferred portfolio and in the reference portfolio that PacifiCorp uses as the baseline in its 2021 IRP process.

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13 Sierra Club's Opening Comments at 15-17.
14 *Id.* at 17-19.
15 PacifiCorp's Reply Comments at 13.
16 *Id.* at 13-14.
17 PacifiCorp 2019 IRP, Volume I at 232-235.
18 PacifiCorp IRP, Volume II, Appendix M at 334.

Furthermore, when combined with appropriate corrections to the other errors and concerns discussed in these comments and Sierra Club's opening comments, correcting the Bridger mine capital cost error could be sufficient to affect a decision to retire the entire Jim Bridger plant by 2025. This would certainly have a material impact on the Company's Action Plan.

B. PacifiCorp has not justified its assumption of long-term declines in delivered Bridger fuel costs.

In response to Sierra Club's concerns regarding PacifiCorp's near-term Bridger fuel price assumptions, the Company explained that the delivered fuel prices included in its IRP model exclude non-cash expenses such as depreciation, depletion, and amortization.[19] Sierra Club appreciates this clarification and recognizes that this may explain much of the discrepancy between recent historical delivered prices at the Bridger plant and PacifiCorp's projected near-term prices. However, PacifiCorp's explanation does not address Sierra Club's concern with the Company' assumption that delivered coal prices will decline in nominal terms over the next decade. Even if PacifiCorp's 2019 and 2020 delivered coal price assumptions are reasonable, the Company's projected price growth rates beyond 2020 may not be.

5. SCR RISKS AT PACIFICORP COAL PLANTS

PacifiCorp's reply comments defend the Company's IRP assumptions regarding cost risks associated with existing and potential requirements to install SCR systems on Jim Bridger, Hunter, and Huntington coal units. However, SCR requirements at Hunter and Huntington constitute reasonably foreseeable risks that should be accounted for in PacifiCorp's IRPs. In addition, Sierra Club agrees with CUB that PacifiCorp's treatment of Bridger SCR requirements in this IRP process was internally inconsistent and inappropriate.

A. SCR requirements at Hunter and Huntington are a reasonably foreseeable risk.

PacifiCorp's reply comments argue that SCR requirements at Hunter and Huntington were not reasonably foreseeable at the time of the Company's IRP coal unit analyses or its IRP filing.[20] In support of this claim, the Company notes that a regional haze federal implementation plan (FIP) requiring SCR at Hunter and Huntington had been stayed by a federal court at the time of PacifiCorp's coal unit analyses.[21]

Sierra Club recognizes that there may be uncertainty regarding the nature and timing of any SCR requirements at Hunter and Huntington. However, the mere existence of a technically defensible

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[19] *Id.* at 15.
[20] *Id.* at 9.
[21] *Id.* at 9.

FIP requiring SCR at Hunter and Huntington clearly shows that those units are at risk of having to install SCRs within the foreseeable future. Therefore, it was reasonable for PacifiCorp to assume no SCR requirements at the Hunter and Huntington plants in some scenarios, including in assessments of the economic value of those units in the absence of environmental compliance requirements. However, it is also critical that the Company's IRP evaluate the economic risk posed by potential SCR requirements at these plants. For the reasons described in greater detail in our opening comments, Sierra Club continues to believe that PacifiCorp should quantify this risk in its next IRP.

B. PacifiCorp did not model Bridger SCR risks consistently in its IRP process.

In response to CUB, PacifiCorp asserted that the Company's modeling of SCR requirements at the Bridger plant was reasonable, "consistent throughout the IRP analysis and based on current legal requirements"[22] Sierra Club disagrees. As PacifiCorp itself described, the Company's coal study assumed that SCR would be required at Bridger Units 1 and 2 whereas its subsequent IRP portfolio modeling assumed that SCR would *not* be required at those units.[23] Sierra Club believes the evidence shows that Bridger Units 1 and 2 are uneconomic on a forward-going basis regardless of whether they face SCR requirements; still, this mid-course change in assumptions was unnecessary and inappropriate. Sierra Club agrees with CUB that PacifiCorp should have maintained an internally consistent base assumption regarding SCR requirements at the Bridger units. In future IRP coal unit analyses, the Company must establish consistent, well-supported assumptions regarding base case SCR requirements at the outset.

6. RENEWABLE RESOURCE AND QF ASSUMPTIONS

PacifiCorp's reply comments defend the Company's assumptions regarding solar resource costs and contracts with qualifying facilities (QF) under the Public Utility Regulatory Policy Act of 1978. Sierra Club continues to believe that PacifiCorp's IRP solar operation and maintenance (O&M) cost assumptions are far too high. In addition, Sierra Club agrees with Staff and the Renewable Energy Coalition (REC) that PacifiCorp's IRP QF assumptions are unreasonable. Both sets of assumptions should be corrected and improved in the Company's next IRP.

A. PacifiCorp's IRP solar O&M cost assumptions are unreasonably high.

Sierra Club's opening comments highlighted that the $22 per kilowatt-year solar O&M cost assumption used in PacifiCorp's IRP is about twice as high as estimates from publicly available, industry standard sources such as Lazard's levelized cost of energy reports and National

[22] *Id.* at 9.
[23] *Id.* at 8.

Renewable Energy Laboratory's (NREL) Annual Technology Baseline (ATB) reports.[24] According to PacifiCorp's reply comments, the Company is "confident that its O&M costs for solar were within industry standards."[25] However, PacifiCorp provides no evidence or sources to support its claim. The Company comments that the low end of Lazard's solar O&M cost range is associated with fixed-tilt designs whereas PacifiCorp only modeled single-axis tracking resources, But the Company does not provide any justification for the nearly two-fold difference between PacifiCorp's assumptions and Lazard's high-end cost estimates, which are explicitly associated with single-axis tracking systems. Furthermore, NREL ATB's solar O&M estimates are explicitly tied to single-axis tracking resources. Like Lazard, NREL ATB estimates 2019 O&M costs for single-axis tracking resources to be about $13 per kilowatt-year. Sierra Club notes that it is particularly disingenuous that PacifiCorp used solar O&M assumptions so much higher than NREL's, given the Company's stated reliance on NREL ATB for many other renewable resource cost assumptions.[26]

B. PacifiCorp's assumption of no QF contract renewals is unreasonable.

In response to criticism from Staff and REC, PacifiCorp defends its IRP assumption that no existing QF contracts will be renewed.[27] The Company argues that since "PacifiCorp cannot require a QF to renew (or execute a new agreement)," accounting for future QF contracts would be "problematic from a planning perspective."[28] Sierra Club **strongly disagrees** with PacifiCorp's assertion that a lack of Company control or certainty justifies excluding potential QF contracts from planning consideration. PacifiCorp similarly lacks control or certainty with respect to load growth, demand for customer preference resources, and numerous other factors that affect its resource planning. Nonetheless, the Company still makes the effort to come up with reasonable, middle-of-the-road assumptions for these parameters, while testing more extreme assumptions as sensitivities. Sierra Club agrees with Staff that PacifiCorp should adopt a similar approach regarding QF contracts. Rather than adopt the extreme and unlikely assumption of no QF contract renewals or new contracts, PacifiCorp should incorporate a middle-of-the-road assumption based on a reasonable forecast for its base case. The Company could then test bookend assumptions, such as zero QF renewal, through sensitivities. PacifiCorp's current QF forecasting approach almost certainly overstates the need for new, Company-owned resources.

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[24] Sierra Club's Opening Comment at 23.
[25] PacifiCorp's Reply Comments at 16.
[26] PacifiCorp Response to Sierra Club Data Request Nos. 3.1(a), 3.2(a)
[27] PacifiCorp's Reply Comments at 38-40.
[28] *Id.* at 39.

7. THE CLIMATE CRISIS, OREGON'S PUBLIC INTEREST, AND THE SOCIAL COST OF CARBON

Oregon has established that a substantive requirement of the IRP as accepted by the Commission is that "the plan must be consistent with the long-run public interest as expressed in Oregon and federal energy polices."[29] PacifiCorp acknowledges this requirement in reply comments, but then claims that the long-run public interest is met by the provision of adequate and reliable electricity supply at a reasonable cost.[30] Sierra Club disagrees with PacifiCorp's characterization, because the provision of adequate and reliable electricity supply at a reasonable cost is a threshold matter for a public utility, and is not the exclusive metric by which the public interest or the policies of the state of Oregon are evaluated.

In 2017, the federal government released the Fourth National Climate Assessment (NCA4), as mandated by the Global Change Research Act of 1990. That report identified that the impacts of climate change are now apparent and rapidly increasing, including the incidence of tidal flooding due to thermal expansion of the oceans, persistent and repeating heatwaves, large-magnitude forest fires, reduced snowpack, and chronic long-duration drought[31] – all impacts which can, and are, being experienced in Oregon. The report clearly identified that the primary driving factor of global climate change are anthropogenic emissions of carbon dioxide, stating

> The magnitude of climate change beyond the next few decades will depend primarily on the amount of greenhouse gases (especially carbon dioxide) emitted globally. Without major reductions in emissions, the increase in annual average global temperature relative to preindustrial times could reach 9ºF (5ºC) or more by the end of this century.[32]

The NCA4 notes that temperatures today are already 1.8ºF above average temperatures of the last century, and projects that by 2050, average global temperatures will rise another 2.5ºF above those experienced over the last forty years.[33]

Oregon recognizes the threat of climate change. The governor's office has established policies around energy and climate change, stating that "climate change poses one of the most significant

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[29] Order 07-002, *In the Matter of Public Utility Oregon Investigation Into Integrated Resource Planning*, Docket No. 1056 (Jan. 8, 2007); Errata Order 07-047, *In the Matter of Public Utility Oregon Investigation Into Integrated Resource Planning*, Docket No. 1056 at Guideline 1(d) (Feb. 9, 2007).
[30] PacifiCorp's Reply Comments at 4.
[31] D.J. Wuebbles et al., *Climate Science Special Report: Fourth National Climate Assessment, Volume I*, U.S. Global Change Research Program, Executive summary at 12-34 (2017), *available at* https://www.globalchange.gov/browse/reports/climate-science-special-report-fourth-national-climate-assessment-nca4-volume-i ("NCA 4, 2017").
[32] NCA 4, 2017 at 11.
[33] NCA 4, 2017 at 10.

threats to Oregon's economy, environment, and way of life."[34] The statement identifies that "these impacts will affect all Oregonians, but **will hit low-income communities, communities of color, and rural communities the hardest**. Mitigating the impacts of climate change and achieving Oregon's greenhouse gas reduction goals are key priorities for Governor Brown."[35] Specifically, the policy identifies that the governor is "focused on meaningfully reducing greenhouse gas emissions to combat climate change while keeping energy reliable and costs affordable to benefit Oregonians and the state economy." Oregon policy clearly distinguishes that there is a public interest mandate in meaningfully reducing greenhouse gas emissions.[36]

At nearly 43 million tons, **PacifiCorp is the second largest utility emitter of carbon dioxide in the United States,** trailing only Tennessee Valley Authority. On an Oregon-jurisdictional basis, PacifiCorp is still amongst one of the largest utility emitters at nearly 11 million tons, with emissions on par with Oklahoma Gas and Electric, Tri-State, and Northern Indiana Power Company. To reach palatable emissions, PacifiCorp needs to make substantial emissions reductions, and quickly.

PacifiCorp's IRP is a long-run plan, and is a key planning document in envisioning how electric utilities can meet the burden of reducing greenhouse gas emissions, and reducing the net overall harm that will be realized through climate change. The 2019 IRP describes a gradual reduction in emissions due to reduced dispatch of existing coal plants in the near term, then retirement of those plants over the longer term, so that the overall pace of reduction – and the commitments to that reduction – are relatively slow. Only the expedient removal of the Company's high emissions units, and replacement with clean energy resources on an expedited schedule will begin to address the climate crisis, or meet Oregon's public interest.

Under a mandate by the Washington Utilities and Transport Commission (WUTC),[37] PacifiCorp ran its preferred portfolio ("P-45CNW") with a social cost of carbon (SCC), and created a rapid phase out coal retirement schedule (P-15), which was also tested with a social cost of carbon assumption. Under the preferred portfolio, emissions drop by 45% by 2031, although nearly half of those emissions reductions are not achieved until 2027. Under the rapid retirement schedule, emissions drop by 73% by 2031, with a nearly straight line emissions reduction year-on-year from 2023 to 2031.

[34] Policy Offices, Energy and Climate Change, Oregon Office of the Governor, *available at* https://www.oregon.gov/gov/policy/Pages/energy_climatechange.aspx (last accessed March 4, 2020).
[35] *Id.* (emphasis added).
[36] *Id*.
[37] Acknowledgement Letter Attachment, *In the Matter of Pacific Power & Light Company 2017 Integrated Resource Plan*, Docket UE-160353 at 10-11 (Wash. Util & Transp. Comm'n May 7, 2018) ("WUTC Acknowledgment").

Even without a social cost of carbon constraint, the rapid retirement P-15 scenario is not substantially more expensive than the preferred portfolio with no deep carbon constraint, despite its dramatically different envisioned future, costing 2.3% ($508 million) more than the preferred portfolio when run through the System Optimizer model.[38]

PacifiCorp also developed a scenario, similar to the rapid retirement scenario that it termed the "social cost of carbon" scenario ("P-18"), with a similar cost to P-15. Not surprisingly, when the social cost of carbon is priced into operations, the rapid retirement scenarios are much better than the preferred portfolio. In fact, PacifiCorp estimates that the rapid retirement of its coal units would save 4.5%, or $1,658 million relative to the preferred portfolio.[39] If the costs of meeting a social cost of carbon standard were rebated back to customers, it is likely that a lower emissions scenario would not only protect the public interest, but protect ratepayer interests as well, continuing to provide adequate and reliable electricity supply at a reasonable cost.

We strongly encourage this Commission to assess the IRP not only the basis of the traditional least-cost, least-risk framework, but from the lens where decisions made today and in the next few years will be critically important to protecting the public interest—not only from unreasonable investments, but from high emissions outcomes.

We urge the Commission to protect the public interest by adopting a mandate, similar to that of WUTC that PacifiCorp "should incorporate the cost of risk of future greenhouse gas regulations" pinning the estimated cost of those regulations to "comprehensive, peer-reviewed estimate of the monetary cost of climate change damages, produced by a reputable organization," such as "the Interagency Working Group on Social Cost of Greenhouse Gases estimate with a three percent discount rate." [40]

We thank the Commission for its consideration of our comments in this matter, and its continued support for a robust public participation process in IRP planning at the Oregon Commission.

Dated: March 4, 2020

Respectfully submitted,

/s/ Gloria D. Smith

Gloria D. Smith

[38] PacifiCorp 2019 IRP, Volume II. Tables K.1 and K.4.

[39] PacifiCorp 2019 IRP, Volume I. Tables 8.10 and 8.11.

[40] WUTC Acknowledgement at 10-11.

Managing Attorney
Sierra Club Environmental Law Program
2101 Webster Street, Suite 1300
Oakland, CA 94612
(415) 977-5532,
gloria.smith@sierraclub.org

Attorney for Sierra Club