

Re: Docket No. UM 2178, Natural Gas Fact Finding / Regulatory Tools

October 27, 2021

To: Kim Herb, Oregon Public Utility Commission via email: <u>kim.herb@puc.oregon.gov</u> and <u>PUC.filingcenter@state.or.us</u>

Dear Ms. Herb,

With apologies for the late submission, Renewable Northwest has attached to this letter our comments to the Oregon Department of Environmental Quality ("DEQ") regarding DEQ's Climate Protection Program rulemaking. While we have not been active in Docket No. UM 2178 to date, our comments to the Public Utility Commission ("Commission") last year regarding implementation of Gov. Brown's Executive Order 20-04 ("EO 20-04") emphasized the importance of the investigation housed in this docket. For example, in our October 28, 2020 comments to the Commission, we "highlight[ed] the importance of avoiding unnecessary investments in GHG-intensive resources that may meet short-term needs but are likely to become obsolete quickly, leaving utility customers responsible for their costs for decades to come."¹

Our comments to DEQ earlier this week offered some perspective on the importance of electrification toward meeting Oregon's science-based greenhouse gas emission reduction goals and of setting reasonable sideboards on the use of lower-carbon fuels where electrification cannot or does not occur. It is our understanding that our comments to DEQ might be germane to this proceeding, so we hope you find them helpful. We appreciate the opportunity to provide comment in this docket and the Commission's work to decarbonize Oregon's energy system.

Sincerely,

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Max Greene Regulatory & Policy Director max@renewablenw.org

¹ Comments of Renewable Northwest on EO 20-04 Draft Work Plans at 7 (Oct. 28, 2020), *available at* <u>https://www.oregon.gov/puc/utilities/Documents/EO20-04-Comments-RNW.pdf</u>.



October 25, 2021

Office of Greenhouse Gas Programs Department of Environmental Quality 700 NE Multnomah St., Suite 600 Portland, OR 97232

RE: Notice of Proposed Rulemaking Greenhouse Gas Emissions Program 2021 Rulemaking Climate Protection Program

Dear DEQ's Office of Greenhouse Gas Programs,

Renewable Northwest respectfully submits these comments in response to the Department of Environmental Quality's ("DEQ") draft rules establishing a new Climate Protection Program ("CPP"). Renewable Northwest is a regional, non-profit renewable energy advocacy organization based in Oregon, dedicated to decarbonizing the region by accelerating the transition to renewable electricity. Our members are a combination of renewable energy businesses and environmental and consumer groups.

We write first in general support of the comments submitted by a broad coalition of environmental, community, and climate organizations ("Coalition Comments"), and second to provide some additional perspective based on our work throughout the western energy sector. Specifically, we support the recommendation from the Coalition Comments that the CPP accelerate the reduction of its emissions cap in line with the best available science and tie the Coalition's recommendations to climate science more broadly. We then support including fossil-fuel electricity generators in the CPP, we discuss research that points to electrification of fossil-based end uses as the best means of achieving deep decarbonization and supports maintaining a robust program with limited flexibility, and we recommend stricter sideboards on use of alternative fuels such as biomethane for achieving the greenhouse gas emission limitations established by the CPP.

Before moving on to those CPP-specific comments, however, we note up front the urgency of this work and the importance of getting it right. Back in 2018, the Intergovernmental Panel on Climate Change ("IPCC") issued a special report on limiting warming to 1.5°C in order to

mitigate the impacts of global warming.¹ The IPCC assessment found that "limiting global warming to 1.5°C … would require rapid and far-reaching transitions in energy,"² including "clear emissions reductions by 2030."³ Since then, the IPCC has been working on its Sixth Assessment Report, a more comprehensive exercise than the 2018 special report. IPCC Working Group I released its contribution to the Report -- The Physical Science Basis -- in August 2021.⁴ This Report section asserts that human influence has unequivocally warmed the atmosphere, ocean, and land through increased greenhouse gas ("GHG") emissions associated with human activities.⁵ As we know in Oregon, climate change attributable to GHG emissions is causing unprecedented heat spells, droughts, and wildfires, among other impacts.⁶ The IPCC observes that "reaching net zero anthropogenic CO₂ emissions is a *requirement* to stabilize human-induced global temperature increase at any level" (emphasis added).⁷ We have waited longer to act than science tells us we should have, which means our actions now to curtail GHG emissions must be all the more robust.

COMMENTS

1. The Coalition Comments Reflect Changes Needed To Align the CPP with Science

The Coalition Comments address three main points: (1) the CPP needs a lower GHG emissions cap and an accelerated emissions reduction timeline to align with climate science; (2) the CPP should ensure large stationary sources are covered under the emissions cap; and (3) the CPP's proposed Community Climate Investments ("CCIs") should support environmental justice practices and outcomes. Included with the Coalition Comments are proposed redlines, including recommended changes to proposed OAR 340-271-9000 Table 2, the CPP's overall emissions caps. Renewable Northwest supports the Coalition Comments, and we underline that all three of the Coalition Comments' main points are necessary to align the program with the best available

https://www.worldweatherattribution.org/wp-content/uploads/NW-US-extreme-heat-2021-scientific-report-WWA.pd f ("Based on observations and modeling, the occurrence of a heatwave with maximum daily temperatures (TXx) as

¹ Intergovernmental Panel on Climate Change, Special Report on Global Warming of 1.5°C (Oct. 8, 2018), *available at* www.ipcc.ch/report/sr15/.

² Intergovernmental Panel on Climate Change, Special Report on Global Warming of 1.5°C, Summary for Policymakers, SPM-21 (Oct. 8, 2018), *available at* <u>http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf</u>. ³ *Id*, at SPM-24.

⁴ Available at https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/.

⁵ See IPCC, 2021: Summary for Policymakers at SPM-5. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press.

⁶ See, e.g., Sjoukje Y. Philip et al, Rapid attribution analysis of the extraordinary heatwave on the Pacific Coast of the US and Canada June 2021, *available at*

observed in the area 45–52 °N, 119–123 °W, was virtually impossible without human-caused climate change."). ⁷ AR6, Physical Science Basis, Summary for Policymakers at SPM-36.

climate science -- including the GHG-reduction timeline necessary for effective climate change mitigation and the social science of climate change as reflected in the IPCC's work.

The Coalition Comments focus on DEQ's proposed baseline and the 2030 GHG reduction target; in these comments, we will focus instead on DEQ's proposed 80% by 2050 target. We recognize that this target comes from EO 20-04,⁸ but climate science suggests that a stronger target is necessary. In our introduction, we discussed the IPCC's 2018 special report and its 2021 AR6 physical science basis report. While the need for dramatic near-term reductions is clear from both, on one point both are clear on one point: the need for net-zero emissions by 2050. The special report says "[i]n model pathways with no or limited overshoot of 1.5°C, global net anthropogenic CO_2 emissions decline ... reaching net zero around 2050."⁹ This year's report features only one modeled scenario that keeps global temperature increase below 2.0°C --SSP1-1.9 -- and that scenario features net zero emissions around 2050.





⁸ Arguably, though, the program's 2017-2019 baseline makes the program inconsistent with EO 20-04, which called for reductions of **at least** 80% **below 1990 levels** by 2050 -- the CPP does not achieve 80% below 1990 levels, let alone "at least" that much.

⁹ Special Report, Summary for Policymakers at SPM-12.

¹⁰ AR6 Physical Science Basis, Summary for Policymakers at SPM-16.

While some carbon capture may be possible to help achieve net zero by 2050, it is highly unlikely that cost-effective carbon capture will be able to remove the emissions that would remain from Oregon's economy if we were to achieve only an 80% reduction. An 80%-by-2050 GHG target is not compatible with the IPCC's consistent conclusion that we must achieve net zero emissions by 2050.

The Coalition Comments support a 90% reduction target by 2050, and other commenters recommend 95%. The latter figure would be consistent with Washington state law, which directs that "[t]he state shall limit anthropogenic emissions of greenhouse gases to achieve the following emission reductions for Washington state: ... By 2050, reduce overall emissions of greenhouse gases in the state to five million metric tons, or ninety-five percent below 1990 levels."¹¹ Washington law adds that "[i]n addition to the emissions limits specified in (a) of this subsection, the state shall also achieve net zero greenhouse gas emissions by 2050."¹² In 2021, Washington passed the Climate Commitment Act, applying those limits across the state economy.¹³ Renewable Northwest recommends that DEQ use the CPP to accomplish the same result in Oregon, in line with the IPCC's analysis.

The importance of the other two Coalition recommendations is perhaps more straightforward: First, the more emitters are covered by an emissions-reduction program such as the CPP, the closer that program gets to achieving what is necessary to avoid the worst impacts of climate change. Any gaps in regulation mean the potential for unchecked emissions, making it harder to achieve climate stability. Second, the IPCC's analysis includes robust social science as well as physical science, and consistently points to the need for equitable investments and meaningful community engagement -- for example, "[e]ducation, information, and community approaches, including those that are informed by indigenous knowledge and local knowledge, can accelerate the wide-scale behaviour changes consistent with adapting to and limiting global warming to 1.5°C ... approaches [that] are more effective when combined with other policies and tailored to the motivations, capabilities and resources of specific actors and contexts."¹⁴

All of which is to say that if DEQ were to adopt the recommendations of the Coalition Comments, it would be moving much closer to what the IPCC tells us is necessary based on extensive research and vetting. Moving to a 95% reduction by 2050 would bring the rules still closer to science-based targets and provide the added benefit of aligning with Washington.

¹¹ RCW 70A.45.020(1)(a)(iv).

 $^{^{12}}$ RCW 70A.45.020(1)(c).

¹³ See Washington SB 5126 (2021).

¹⁴ Special Report, Summary for Policymakers at SPM-22.

2. The CPP Should Regulate Fossil Electricity Generators

The CPP has its roots in Governor Kate Brown's March 10, 2020 Executive Order 20-04 ("EO 20-04"), which directs state agencies to "exercise any and all discretion and authority" to reduce Oregon's GHG emissions 45% below 1990 levels by 2035 and 80% below 1990 levels by 2050.¹⁵ While even stronger targets are likely necessary to align with science (as discussed above), EO 20-04 explains in a "whereas" clause why achieving emission-reduction targets is so important:

[G]iven the urgency and severity of the risks from climate change and ocean acidification, and the failure of the Legislature to address these immediate harms, the executive branch has a responsibility to the electorate, and a scientific, economic, and moral imperative to reduce GHG emissions and to reduce the worst risks of climate change and ocean acidification for future generations, to the greatest extent possible within existing laws[.]¹⁶

Following EO 20-04, earlier this year the Oregon Legislature passed HB 2021, establishing mandatory greenhouse gas emission reduction targets for electricity suppliers of 80% below baseline by 2030, 90% by 2035, and 100% by 2040.¹⁷ In addition to its binding standards, HB 2021 also establishes that "[i]t is the policy of the State of Oregon" to "eliminate greenhouse gas emissions associated with serving Oregon retail electricity consumers by 2040.^{"18} Collectively, EO 20-04 and HB 2021 establish a strong state policy on aggressively reducing GHG emissions from the electricity sector. That policy could be frustrated if state agencies do not use the regulatory tools at their disposal to drive down GHG emissions from all sources, including power plants that generate electricity from combustion of fossil fuels but sell that electricity for users other than those Oregon retail electricity consumers that are currently covered by HB 2021's mandatory GHG targets.

In their current form, the draft CPP rules cover stationary sources, but "do not include ... [e]missions from an air contamination source that is an electric power generating plant with a nominal electric generating capacity greater than or equal to 25 megawatts."¹⁹ While these facilities will be covered under HB 2021 to the extent they fall under that law's regulatory construct, HB 2021 does not cover one of the state's investor-owned utilities or any of the state's public utilities, and it similarly does not cover out-of-state sales of electricity from Oregon facilities. To reduce emissions attributable to Oregon sources will require bringing these facilities under an emissions cap.

¹⁵ EO 20-04, sections 2 & 3(A).

¹⁶ *Id.* at p. 3.

¹⁷ HB 2021, section 3.

 $^{^{18}}$ Id., section 2(1).

¹⁹ Draft Rules at OAR 340-271-0110(5)(b)(B)(viii).

An overall emissions cap that includes declining annual emissions caps on fossil electricity generating facilities is an approach that has been implemented elsewhere. In Massachusetts, for example, 310 CMR 7.74 establishes a declining annual cap on GHG emissions attributable to power plants writ large²⁰ and individual limits for Massachusetts power plants,²¹ and it brings those plants into an allowance trading program.²² Renewable Northwest recommends that Oregon look to this Massachusetts program as a way to ensure emissions reductions from Oregon's gas generating fleet.

3. Deep Decarbonization Studies Show Electrification Is the Primary Pathway to Cost-Effective Emissions Reductions

The IPCC's 2018 special report included a conclusion that "1.5°C pathways with no or limited overshoot include a rapid decline in the carbon intensity of electricity and an increase in electrification of energy end use (high confidence)."²³ To put it more simply, the path to achieving needed GHG emission reductions is eliminating the carbon intensity of electricity and then electrifying other energy end-uses. That this is the calculus required for deep decarbonization counsels against flexibility in DEQ's CPP rules.

The call to "electrify everything" -- or at least as much as possible -- is the conclusion of most deep decarbonization studies that we are aware of. For example, a 2017 report by the National Renewable Energy Laboratory "find[s] that electrification of end uses, when coupled with power sector decarbonization, has the potential to substantially reduce economy-wide emissions of carbon dioxide (CO2) associated with fossil fuel combustion."²⁴ Saul Griffith and collaborators have launched a series of technical and policy papers using modeling to conclude that electrification can meet science-based GHG emission-reduction targets and result in new efficiencies and saving for U.S. households.²⁵ A group of Princeton researchers plus outside collaborators have concluded that key actions for the 2020s include coupling investment in renewable generation with "[e]lectrification of end uses, including vehicles and building heat."²⁶

https://content.rewiringamerica.org/reports/households-technical-white-paper.pdf.

²⁰ 310 CMR 7.74(5)(a).

²¹ 310 CMR 7.74(5)(b), Table B.

²² 310 CMR 7.74(6).

²³ Intergovernmental Panel on Climate Change, Special Report on Global Warming of 1.5°C at 46 (Oct. 8, 2018), available at www.ipcc.ch/report/sr15/.

²⁴ Daniel Steinberg et al, Electrification & Decarbonization: Exploring U.S. Energy Use and Greenhouse Gas Emissions in Scenarios with Widespread Electrification and Power Sector Decarbonization, Technical Report NREL/TP-6A20-68214 (July 2017), *available at* https://www.nrel.gov/docs/fy17osti/68214.pdf.

²⁵ See, e.g., Saul Griffith, PhD & Sam Calisch, PhD, No Place Like Home: Fighting climate change (and saving money) by electrifying America's households (Oct. 23, 2020), *available at*

²⁶ Eric Larson et al, Net-Zero America: Potential Pathways, Infrastructure, and Impacts at 335 (Dec. 15, 2020), *available at* <u>https://netzeroamerica.princeton.edu/img/Princeton_NZA_Interim_Report_15_Dec_2020_FINAL.pdf</u>.

Another leading energy modeler, Evolved Energy, has reached a similar conclusion in a number of different modeling efforts. Earlier this year, Renewable Northwest worked with the Clean Energy Transition Institute, Gridlab, and Evolved Energy to do a deep decarbonization analysis for Oregon.²⁷ This study looked at pathways to achieving economy-wide emissions reductions of 80% and 100% below 1990 levels by 2050. Most pathways assumed aggressive electrification efforts, but one -- the "Low Transformation" case -- assumed a slower pace. As shown in Figure 1 below, all pathways except the Low Transformation case resulted in net benefits to Oregonians by the end of the study timeframe; the Low Transformation case results in "significant cost increases" relative to the other cases.²⁸

Figure 2:



The main conclusion to take away from these studies is that the CPP can help drive cost-effective decarbonization *if* it helps to accelerate the transition to electrification by posing strict requirements on end users of fossil fuels, including those supplying energy to the building and industrial sectors.

²⁷ Available at

https://renewablenw.org/sites/default/files/Reports-Fact%20Sheets/OR_CEP_Final%20Report%20.pdf.

²⁸ *Id.* at 49.

4. Rather than Exempting All Emissions from Biomethane, DEQ Should Consider Exempting Only Emissions Consistent with Green-E's Renewable Fuels Standard

The draft CPP rules currently apply to gas utilities but exclude "[e]missions that are from the combustion of biomass-derived fuels including biomethane."²⁹ Renewable Northwest recommends that this provision be revised to exclude only emissions from Green-e certified renewable fuels.

DEQ is already familiar with Green-e, as earlier this year the agency adopted rules requiring Green-e certification for certain purposes in its Clean Fuels Standard.³⁰ Also earlier this year, the Green-e Governance Board adopted a new standard for renewable fuels.³¹ This new Renewable Fuel Standard "is only applicable to biomethane" and is designed to "provide consumers a meaningful mechanism through which they can express demand for renewable options and greenhouse gas (GHG) reductions."³² More specifically, the Standard states:

This Standard strives to promote renewable fuel resources that, on a total life cycle basis, decrease atmospheric greenhouse gas concentrations in time frames that are meaningful in addressing global climate change. An analysis is required to account for the upstream emissions (emissions from leakage, extraction, production, and processing operations) of a given renewable fuel pathway. Each pathway is required to undergo a third-party analysis from a CRS-approved verifier, and the CI of the renewable fuel must be at least 10% lower than the CI of fossil natural gas up to the point of injection into the pipeline system.

For a program such as the CPP whose purpose is to drive down GHG emissions in line with climate science, the Green-e Renewable Fuel Standard offers DEQ the opportunity to ensure that any biomethane used for CPP compliance is actually resulting in meaningful GHG reductions. Just as Green-e has long been a reliable source for ensuring that claims on the emission-free attributes of renewable electricity generation are meaningfully accounted for -- as DEQ has reflected in its rules -- so we recommend here that DEQ use Green-e certification to ensure that claims on the emissions attributes of biomethane are meaningfully accounted for.

²⁹ Draft OAR 340-271-0110(4)(b)(B)(1).

 $^{^{30}}$ OAR 340-253-0470(5)(a) & (b) & (7)(c).

³¹ Green-e Renewable Fuels Standard, version 1.0 (Sept. 16, 2021), available at

https://www.green-e.org/programs/renewable-fuels/documents. One of the signatories to this letter, Max Greene, sits on the Green-E Governance Board.

³² Green-e Renewable Fuels Standard at 3.

5. Renewable Northwest Encourages Thoughtful Accounting for the GHG Impacts of Hydrogen

Despite the promise of renewable or green hydrogen and its suitability to replace fossil fuels to some extent in some applications, at this point in time it cannot be considered a 1:1 substitute for fossil fuels -- neither technologically nor economically. Instead, it is one of several possible decarbonization alternatives that should be carefully weighed when setting policy programs and priorities, a calculus that may need to be tweaked as a state or a region's decarbonization pathway unfolds. Due to its current end-to-end efficiency challenges, hydrogen cannot currently compete with other electricity sector decarbonization technologies. The cost of electricity delivered to the electrolyzer remains the most important limiting factor in hydrogen production followed by the capital cost of the electrolyzer. The region is working toward producing electrolytic hydrogen from renewable or non-emitting electricity, but until we get there hydrogen's climate picture is complicated. As part of that, over the past couple of years, stakeholders including state agencies, private corporations and environmental NGOs in the region have collaborated to develop an action plan³³ to scale up renewable hydrogen deployment in the region through research and development, industry collaborations and policy proposals.

In the meantime, there is an inherent risk that even electrolytically produced hydrogen may not be completely renewable or carbon-free since electricity supplied to the electrolyzer can't be definitively assigned a particular level of carbon intensity without policy guardrails. As regions decarbonize their electric grids in the future, it will likely become increasingly techno-economically viable to produce hydrogen using low-cost wind and solar resources, but policy guardrails may also be necessary to ensure that renewable energy is not being diverted from meeting customer demand to serve hydrogen. Recent interest in blending hydrogen with methane gas may reduce the resulting fuel's carbon intensity but comes at an added cost since current research³⁴ suggests that a blend ratio of only 15% is feasible in some cases³⁵ with modest modifications to the gas infrastructure. Thus, when DEQ determines how to account for the GHG impacts of hydrogen, it should both consider the source of the hydrogen -- is it electrolytic or steam-reformed? If electrolytic, is it produced from renewably generated electricity? Burning or steam-reforming gas to generate hydrogen may result in direct GHG emissions or inefficiencies that result in a worse GHG intensity for hydrogen than for the underlying gas. Additionally, the selection of the supporting policies and regulatory structures should weigh the relative costs and benefits of green hydrogen compared to other contemporary decarbonization solutions for specific end-uses, especially given continuing progress in competing technologies like battery

³³ Pacific Northwest Renewable Hydrogen Action Plan.

https://www.sustaininfrastructure.org/renewable-hydrogen-action-plan

³⁴ Hydrogen Pipelines. <u>https://www.energy.gov/eere/fuelcells/hydrogen-pipelines</u>.

³⁵ A recent proposal by SoCalGas intends to utilize surplus renewable energy to generate hydrogen gas which will then be injected into the natural gas pipeline. The initial blend will only contain 1% hydrogen with plans to increase the blend as high as 20% depending on testing results.

storage, electric vehicles, and building electrification. As noted above in the "deep decarbonization" section, in many cases, direct electrification using renewable energy, along with energy efficiency and demand management, may be a faster and more economically viable solution to decarbonizing the energy system than using green hydrogen. To the extent DEQ considers the GHG intensity of hydrogen in the future as part of CPP implementation, we recommend the agency take care to consider the full picture of hydrogen production and use.

CONCLUSION

Renewable Northwest appreciates DEQ's work to establish a robust program to cap and reduce emissions from sectors that have proven difficult to regulate. We hope these comments will prove helpful as DEQ moves from draft to final rules, and we would welcome the opportunity to respond to any questions these comments may raise with agency staff. All in all, we remain encouraged by Oregon's statewide efforts to achieve deep, economy-wide greenhouse gas emission reductions. However, we feel compelled to reiterate the IPCC's conclusion in 2018 that "[p]athways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems ... transitions [that] are unprecedented in terms of scale, but not necessarily in terms of speed, and imply deep emissions reductions in all sectors."³⁶ Since 2018, we have not yet been moving fast enough. But the CPP offers a unique opportunity to put Oregon on the right track -- if and only if it is designed in accordance with the best available research on how to achieve deep decarbonization in the region.

Respectfully submitted,

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³⁶ Intergovernmental Panel on Climate Change, Special Report on Global Warming of 1.5°C, Summary for Policymakers, SPM-15 (Oct. 8, 2018), *available at* <u>https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf</u>.