

Oregon Global Warming Public Comment - Roadmap 2035 Modeling Framework
Oct.4, 2022

From: Nick Keenan <nick@gameflowinteractive.com>

Sent: Monday, August 22, 2022 4:38 PM

To: Oregon GWC * ODOE <Oregon.GWC@energy.oregon.gov>

Cc: Karen Harrington <karenjo.harrington@gmail.com>

Subject: Comments on OGWC Roadmap to 2035 Modeling Framework and Preliminary Results

Dear Chair Macdonald and Commission Members,

Thank you for the opportunity to provide comments on the Oregon Global Warming Commission's (OGWC) Roadmap to 2035 modeling framework and preliminary results presented at the Commission's July 13 meeting. We, Climate Reality Project Portland, with over 300 members from across Oregon, recognize the important and challenging role of the OGWC in informing Oregon's climate policy agenda, and we applaud that the commission works towards the same goals our organization holds dear: a just transition to clean energy, zero-carbon transportation, climate justice and healthy, green communities, and fair decision-making that meets the present and future needs of Oregonians.

In this spirit, we ask you to consider the following four issues as you move forward with the Roadmap to 2035 process. The following recommendations and references are in addition to the letter on the same topic we co-signed with Climate Solutions and additional civic, business, and environmental organizations concerned about climate impacts on Oregon's future.

- **Model the climate cost of leaks from all fuels with GWP impacts, including renewable fuels and hydrogen.** The IRA now adds a fee on methane leaks from large oil and gas facilities³, but that does not prevent the climate impact of those leaks and leaves out many other uncounted externalities, including from biogas, biomass, biofuels, and hydrogen. New research⁴ shows troubling short term impacts from hydrogen leaks— which would be a continuous problem in a future that relied significantly on hydrogen— even green hydrogen— for fuel. What counts for Oregonians lives and livelihoods is the sum-total of all emissions, whether they are accidental or part of the business plan— please use due diligence to estimate and include impacts that may previously have been omitted from calculations because they are hard to quantify.
- **Include likely food price increases and food security impacts in the cost/benefits of modeled biofuel and biomass use.** As biofuel production rapidly expands and is subsidized, it competes with food crops for a finite amount of cropland. US agriculture analysts are concerned that by 2024 the increased demand for soy from proposed renewable diesel alone could displace all of US corn and wheat crops.⁵ Those are staple foods for millions of Oregonians. Even if the nascent industries of cellulosic biofuels were to become cost effective, this land use choice is inefficient in comparison to solar energy. Throughout Oregon, it takes 100 times less land to produce the same amount of energy with solar arrays as compared to with biomass.⁶ It is worth noting that a study from the Oregon State University finds that solar arrays on cropland may improve yields of some high value food crops, pointing to additional potential co-benefits from a pathway that emphasized energy from solar.⁷

- **Factor in the differing costs of displacement due to climate disasters like wildfire:** We strongly support Commissioner Oriana Magnera's request during the 8/18 meeting to model displacement costs and displacement prevention as one of the critical co-benefits in the Roadmap to 2035 cost-benefit calculations. Climate-related displacement due to extreme heat, wildfire, and flooding is already increasing as an impact to Oregonian families, laborers, renters, and frontline communities. It is therefore essential to consider how different interventions can erode or alternatively strengthen the economic and environmental resilience of frontline communities.
 - A simple real-world example is that electricity can be shut off as danger approaches, whereas natural gas and propane remains in tanks, pipelines, and homes exacerbating the home and business destruction caused by wildfires.^{8,9}
 - In terms of proactive planning, 1) affordable housing climate resiliency standards and investments, 2) alternative interventions for drought, extreme heat, wildfire, and affordable housing supply, and 3) the relative environmental impacts of fuel development in nearby communities would all have impacts that could drive or reduce displacement costs and impacts to the household affected. We'd like to refer staff to the published research of the Urban Displacement Project¹⁰ as additional resources for this investigation, in particular Climate Change and Displacement in the U.S: A review of the Literature.¹¹ "

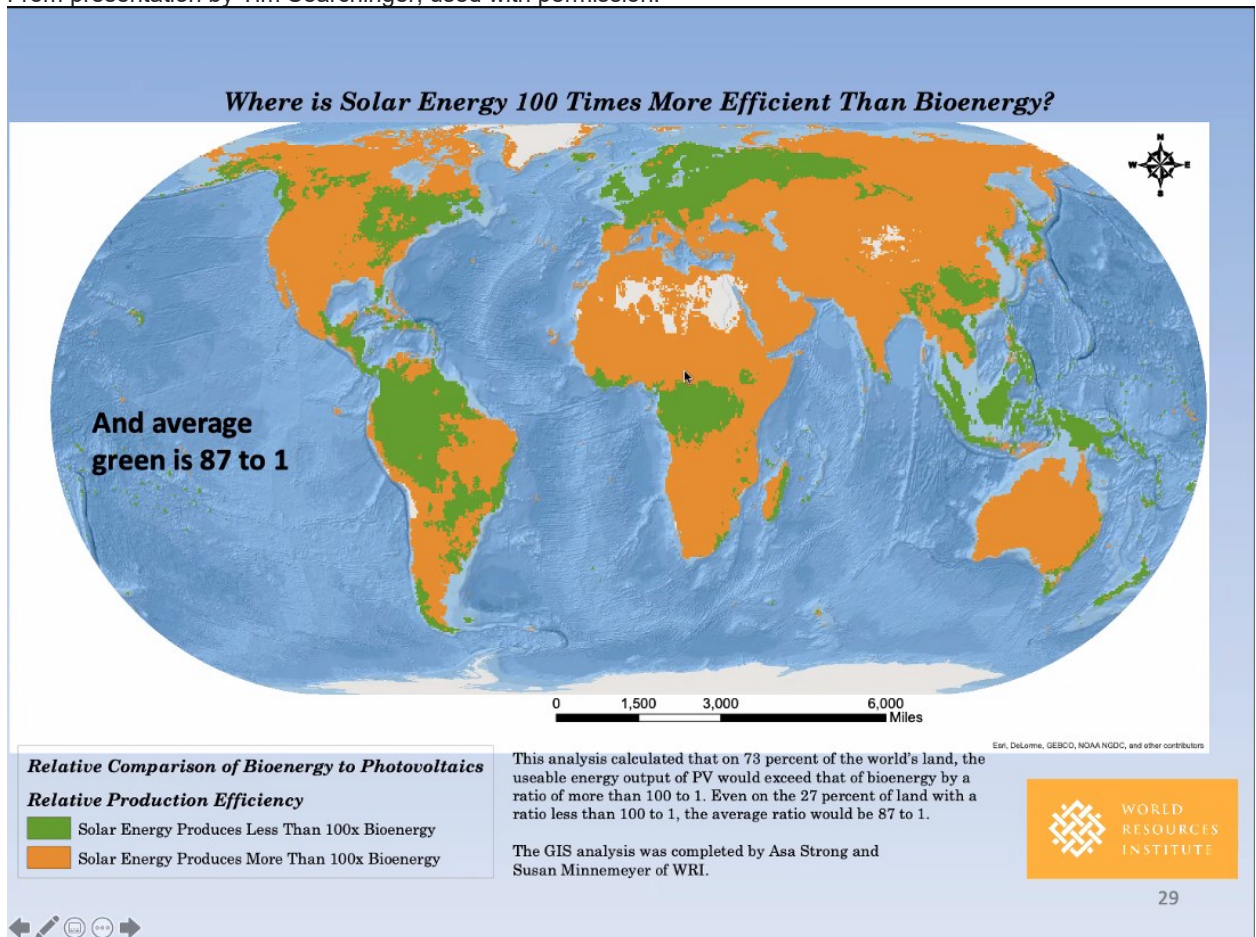
- **Add modeling of the clean energy benefits and cost reductions provided by the Inflation Reduction Act (IRA):** Thank you for confirming at the 8/18/22 meeting that you plan to include these in your final report. We would like to highlight not only the tax and rebate monetary benefits to Oregonians, but also the potential to Oregon communities from grid reliability. For instance, how can Oregon benefit from the up to 50% reductions in costs for micro-grids², and other enhancements to the availability and reliability of electric power that IRA provisions enable?

We sincerely thank OGWC for the work you are doing to provide guidance to state officials on climate policy, and we look forward to continuing to work with you to meet Oregon's climate goals. We hope you'll consider the above recommendations, and convey the urgency of additional, equitable climate action to policymakers across the state.

Helena Birecki, Legislative Committee Researcher, Climate Reality Project Portland
 Nick Keenan, Renewable Energy Working Group Chair, Climate Reality Project Portland
 Karen Harrington, Legislative Committee Co-Chair, Climate Reality Project Portland

1. Whitehouse.gov summary of affordable clean energy benefits for Oregon: <https://www.whitehouse.gov/wp-content/uploads/2022/08/Oregon.pdf>
2. IRA could cut microgrid costs by up to 50%: <https://www.tdworld.com/renewables/article/21248837/biden-signs-inflation-reduction-act-350b-plus-in-microgrid-ev-clean-energy-incentives>
3. IRA methane fee on larger oil and gas facilities omits 60% of methane emitters: <https://www.nationalgeographic.com/environment/article/climate-bill-has-plan-to-slash-methane-emissions>

4. Climate impacts of Hydrogen leaks: <https://acp.copernicus.org/articles/22/9349/2022/acp-22-9349-2022.pdf>
5. "Soybeans would basically wipe out corn and wheat acres in the U.S. just to produce enough oil for [renewable diesel]." — Steve Nicholson, Senior Grains and Oilseed Analyst at Rabobank <https://www.dtnpf.com/agriculture/web/ag/news/business-inputs/article/2021/12/16/renewable-diesel-plans-outstrip-soy> and "By 2023, U.S. soybean oil demand could outstrip U.S. production by up to 8 billion pounds annually if half the proposed new renewable diesel capacity is constructed, according to BMO Capital Markets." <https://www.reuters.com/article/us-global-oil-biofuels-insight/renewable-diesel-boom-highlights-challenges-in-clean-energy-transition-idUSKBN2AV1BS> ‘
6. From presentation by Tim Searchinger, used with permission:



Also see pg. 4 of https://files.wri.org/d8/s3fs-public/avoiding_bioenergy_competition_food_crops_land.pdf

7. "Agrivoltaics provide a rare chance for true synergy: more food, more energy, lower water demand, lower carbon emissions, and more prosperous rural communities," said [Chad Higgins](#), an associate professor in Oregon State's College of Agricultural Sciences and the senior author of the paper published in the journal Sustainability. <https://today.oregonstate.edu/news/combining-solar-energy-and-agriculture-mitigate-climate-change-assist-rural-communities>
8. We recognize that electric power line malfunctions have been responsible for starting disastrous wildfires. Therefore, electric power line safety is also key to climate protection. Still, as you have so clearly modeled already, our choices are between an all electric and a hybrid scenario. There is no equitable option for a "no electricity" scenario given that the basic needs of Oregon businesses and residents, including internet connectivity and lighting, require the provision of electricity across the state. Therefore we agree with you that it is unnecessary and unrealistic to model a separate scenario without electricity.
9. Liquid fuels pose risk to firefighters and structures: <https://www.fireengineering.com/leadership/natural-gas-hazards/#gref>

10. <https://www.urbandisplacement.org/topic/climate-mitigation-and-displacement/>
11. [Climate Change and Displacement in the U.S. – A Review of the Literature](https://www.urbandisplacement.org/wp-content/uploads/2021/08/climate_and_displacement_lit_review_6.19.2020.pdf) (https://www.urbandisplacement.org/wp-content/uploads/2021/08/climate_and_displacement_lit_review_6.19.2020.pdf), Strong, Prosperous, and Resilient Communities Challenge (SPARCC), Urban Displacement Project and the UC Berkeley Center for Community Innovation.
- 12.
- 13.
- 14.



August 23, 2022

RE: Oregon Global Warming Commission's Roadmap to 2035 Modeling Framework and Preliminary Results

Dear Chair Macdonald and Commission Members,

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In this spirit, we ask you to consider the following four issues as you move forward with the Roadmap to 2035 process. The following recommendations and references are in addition to the letter on the same topic we co-signed with Climate Solutions and additional civic, business, and environmental organizations concerned about climate impacts on Oregon's future.

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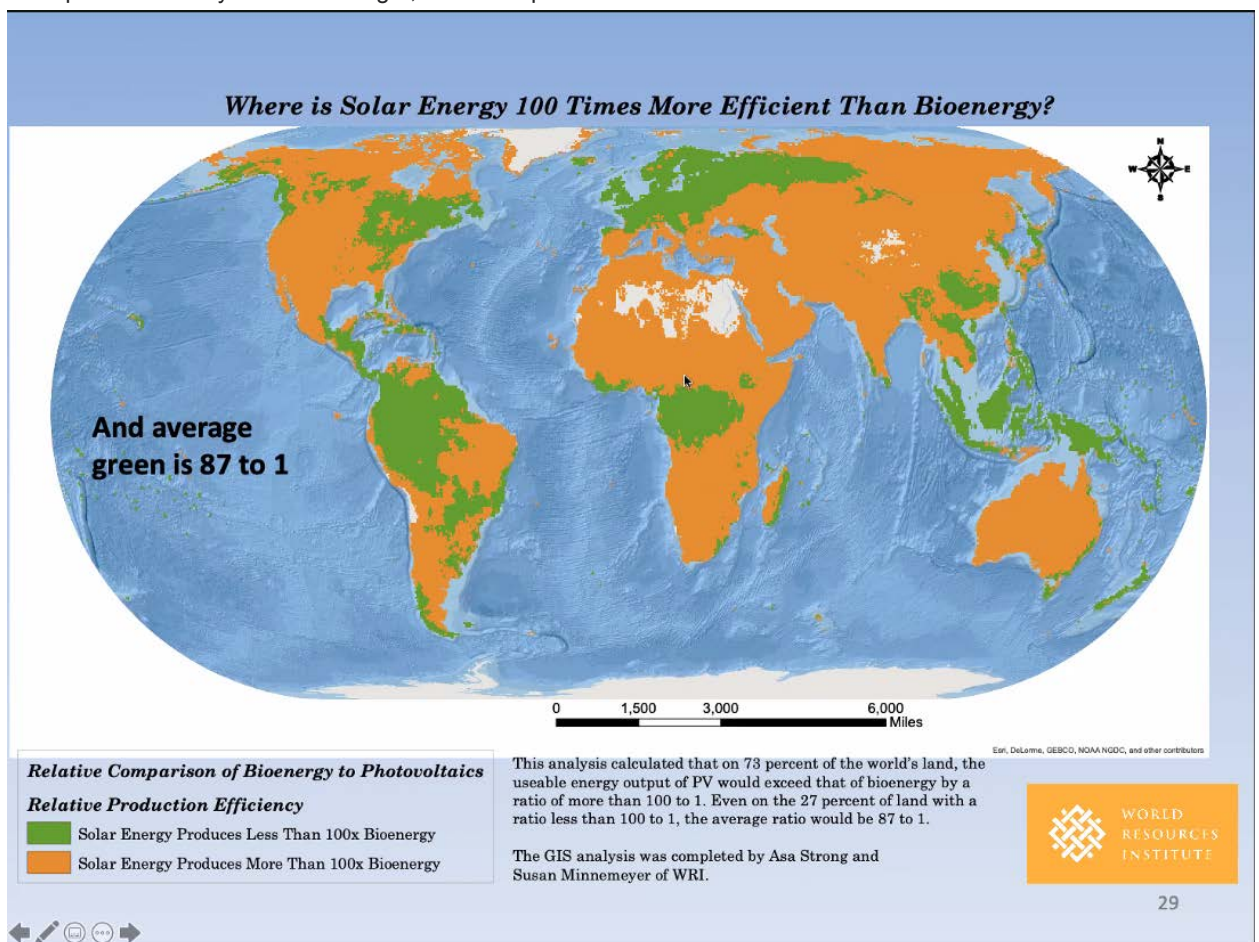
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3. IRA methane fee on larger oil and gas facilities omits 60% of methane emitters:
<https://www.nationalgeographic.com/environment/article/climate-bill-has-plan-to-slash-methane-emissions>
4. Climate impacts of Hydrogen leaks: <https://acp.copernicus.org/articles/22/9349/2022/acp-22-9349-2022.pdf>
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<https://www.reuters.com/article/us-global-oil-biofuels-insight/renewable-diesel-boom-highlights-challenges-in-clean-energy-transition-idUSKBN2AV1BS>
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11. [Climate Change and Displacement in the U.S. – A Review of the Literature](#)
(https://www.urbandisplacement.org/wp-content/uploads/2021/08/climate_and_displacement_-_lit_review_6.19.2020.pdf), Strong, Prosperous, and Resilient Communities Challenge (SPARCC), Urban Displacement Project and the UC Berkeley Center for Community Innovation.

From: Greer Ryan <greer.ryan@climatesolutions.org>

Sent: Wednesday, August 24, 2022 8:43 AM

To: Oregon GWC * ODOE <Oregon.GWC@energy.oregon.gov>

Subject: Joint comments re: Roadmap to 2035 Modeling Framework and Preliminary Results

Chair Macdonald and members of the Commission,

Thank you for the opportunity to provide comments on the Oregon Global Warming Commission's (OGWC) Roadmap to 2035 modeling framework and preliminary results presented at the Commission's July 13 meeting. Attached, please find joint comments from 22 organizations across Oregon. Please let me know if you have any questions. We appreciate your consideration.

Thanks,
Greer

Greer Ryan | Clean Buildings Policy Manager
[Climate Solutions](https://www.climatesolutions.org) - Accelerating Clean Energy Solutions to the Climate Crisis
greer.ryan@climatesolutions.org

Oregon Global Warming Commission
Submitted via email to oregon.GWC@energy.oregon.gov

August 23, 2022

RE: Oregon Global Warming Commission's Roadmap to 2035 Modeling Framework and Preliminary Results

Dear Chair Macdonald and Commission members,

Thank you for the opportunity to provide comments on the Oregon Global Warming Commission's (OGWC) Roadmap to 2035 modeling framework and preliminary results presented at the Commission's July 13 meeting. As climate, environmental justice, public health, and buildings experts representing 22 organizations dedicated to supporting the state of Oregon in achieving its greenhouse gas reduction goals, we recognize the important role of the OGWC in informing the state's climate policy agenda.

Although we support many of the existing and new mitigation actions included in the modeling framework, the state of Oregon must go further to meaningfully address the climate emergency and ensure an equitable transition to a healthy climate future. Oregonians across the state are suffering from climate-exacerbated extreme weather events and poor air quality. Last summer, nearly 100 Oregonians tragically died due to extreme heat and a lack of safe housing and other basic protections. This year, dozens more have died or become seriously ill due to extreme heat. The climate emergency is upon us, and we have to do all we can to both mitigate greenhouse gas emissions and build more resilient communities. We offer the following comments for consideration as the Commission moves forward with the Roadmap to 2035 process.

First, we urge the Commission to underscore that emissions reductions in Oregon are not guaranteed without additional policy development and implementation. The legislature and state agencies look to the OGWC for guidance to ensure we are on a path to meet our state climate goals. As it is currently framed, the Roadmap to 2035 modeling framework and preliminary results may inadvertently signal that there is no additional policy needed to achieve state goals, when that is far from the case.

As an example, the Roadmap to 2035 modeling incorporates the Advanced Clean Car II and Clean Fuels Program rules – two programs that are critical to reducing transportation sector emissions – yet these rules have yet to be officially adopted. The Commission should make clear that as a baseline, the EQC must adopt these two programs this year. The modeling also assumes that state implementation of existing policies and regulatory processes related to utilities and other large polluters will go perfectly and as planned, without acknowledging the very real threat that some industries and fossil fuel companies are posing to these processes. For instance, the modeling assumes that methane gas companies will reach a 50% reduction in emissions by 2035 under the Climate Protection Program (CPP) and that large stationary sources covered under the CPP will actually achieve a 50% cut in process emissions by 2035. But there is no guarantee the affected companies will comply with these policies. For one, the CPP sets targets – but not mandatory emissions reductions – for large stationary sources with emissions above 25,000 metric tons of carbon dioxide equivalent. Given that there are no other greenhouse gas regulations

on major industrial emitters in Oregon, it is critical that the state strongly enforce the existing CPP targets for stationary sources and take additional actions to hold these sources accountable in the near-term for their significant pollution. At the same time, the state's major gas utilities,¹ oil companies, and related business interests are all suing to rollback the CPP. The OGWC's Roadmap to 2035 must underscore how critical it is that 1) these programs are protected from rollbacks; 2) these programs are effectively implemented and enforced; and 3) additional policy mechanisms are enacted to ensure that emissions reductions happen at the pace and scale necessary and to support an equitable transition to a clean energy future.

Second, we strongly support the Commission's decision to develop a scenario for meeting our 2035 goal by 2030, a target which is more in-line with the best available climate science. As the OGWC knows, Oregon's current emissions reduction targets are outdated and not aligned with the best available science. Whereas our current state goals target a 45% emissions reduction by 2035 emissions reduction target, the United Nations' Intergovernmental Panel on Climate Change (IPCC) has concluded that global emissions must fall by nearly 50% by 2030 to limit global warming to 1.5 degrees C and avoid further catastrophic and irreversible climate impacts. As the US is the world's second-largest greenhouse gas emitter, and largest historical record emitter, this country and its constituent states should arguably exceed the IPCC 2030 target. The OGWC should therefore identify policy recommendations for the state to achieve 50% emissions reductions by 2030. Further, as the Commission moves to considering co-benefits, we urge you to emphasize that as the climate crisis worsens, it only becomes harder to mitigate emissions quickly enough to avoid additional harms, so the earlier we act to curb emissions, the better it will be for all. This is especially true for Black, Indigenous, and other communities of color that are the first and worst harmed by the climate crisis.

Finally, we strongly urge the Commission to consider a variety of co-benefits in its analysis of potential policies to ensure that communities – particularly BIPOC, rural, low-income, renter, and frontline communities – reap the most benefits from our state's clean energy transition. We look forward to continuing to engage in the next part of the process to ensure that the Roadmap to 2035 prioritizes policies that optimize these critical co-benefits – including public health, affordability, local job creation, and resilient infrastructure benefits. The OGWC can help provide direction to the legislature and agencies by highlighting potential co-benefits and encouraging the policymakers to take these into account when considering scenarios.

With the goal of maximizing co-benefits, we strongly urge the OGWC to emphasize the model's electrification scenario over its hybrid scenario to ensure maximum co-benefits from clean tech solutions like high-efficiency electric appliance solutions (e.g., heat pumps), electrification of transport vehicles, and community-owned renewables. Electrifying and improving the efficiency of existing buildings – especially those powered by distributed solar and storage – can help to reduce harmful indoor and outdoor air pollution, reduce home energy burdens, improve resiliency, and provide life-saving heating and cooling services, particularly for low-income homes. These recommendations should be expanded to

¹ Meanwhile, the three regulated gas utilities have put forth “decarbonization” strategies that include, among other things, *increasing* the number of gas customers on the system and investing heavily in “renewable” natural gas, or biomethane, in buildings (see the Oregon Public Utility Commission's Natural Gas Fact-finding Investigation (UM 2178)).

ensure that priority is given to providing co-benefits for low-income, rural, and BIPOC communities -- including renters -- with electrification and efficiency upgrades and ratepayer protections. To that end, we recommend de-prioritizing – or better yet, removing – specific actions related to the expansion of renewable natural gas (RNG) and hydrogen for use in buildings. It has been well established that these actions focused on decarbonizing buildings, rather than other niche areas, will likely result in higher costs for Oregonians while delaying critical electrification efforts.

Ultimately, we are grateful to the OGWC for the work you have done to provide guidance to state officials on climate policy and look forward to continuing to work with you on meeting Oregon’s climate goals. We hope you’ll consider the above recommendations to ensure the urgency of additional climate action is communicated clearly to policymakers across the state.

Thank you for your consideration,

Greer Ryan, Clean Buildings Policy Manager, Climate Solutions

Jairaj Singh, Climate Resilience and Environmental Justice Director, Unite Oregon

Diane Hodiak, Executive Director, 350 Deschutes

Catherine Thomasson, MD, Chair, DPO Environmental Caucus

Karen Harrington, Co-Chair Legislative Committee, Climate Reality, Portland Chapter

Brian Stewart, Founder, Electrify Now

Thor Hinckley, Member, Metro Climate Action Team

Professor Hal T. Nelson, CEO of Res-Intel

Lauren Anderson, Forest Climate Policy Coordinator, Oregon Wild

Angus Duncan, PNW Consultant to Natural Resources Defense Council and Chair Emeritus, OGWC

Brad Reed, Campaign Manager, Renew Oregon

Julia DeGraw, Coalition Director, Oregon League of Conservation Voters

Tim Miller, Director, Oregon Business for Climate

Ashley Haight, Program Manager, ZERO Coalition

Metro Climate Action Team Steering Committee: Brett Baylor, Rick Brown, Linda Craig, Pat DeLaquil, Dan Frye, Debby Garman, KB Mercer, Michael Mitton, Rich Peppers, Rand Schenck, Jane Stackhouse and Catherine Thomasson

350 Salem OR: Philip H. Carver, Ph.D. OR Dept. of Energy and OR Public Utility Commission Staff
1980 to 2017

Wendy Woods, Ph.D., Co-founder of Electrify Corvallis

Samantha Hernandez, Climate Justice Organizer, Oregon Physicians for Social Responsibility

Stuart Liebowitz, Douglas County Global Warming Coalition

Nora Lehmann, Board Member, Families for Climate

John Seng, Policy Manager, Spark Northwest

Lisa Arkin, Executive Director, Beyond Toxics

From: Squarespace <form-submission@squarespace.info>
Sent: Wednesday, August 31, 2022 9:34 AM
To: Oregon GWC * ODOE <Oregon.GWC@energy.oregon.gov>
Subject: Form Submission - New Form - Landfills

Name: Nancy Whitcombe

Email Address: nwhitcombe@gmail.com

Subject: Landfills

Message: Hi, I'm wondering, especially with the renewed emphasis on methane release by the Biden Administration, if the Commission has a position on landfill emissions. I am from Benton County, which contains the second-largest landfill in Oregon, Coffin Butte landfill, and the for-profit landfill operator is proposing to expand this facility, which would result in the elimination of the cap on yearly waste intake (which is already enormous, at 1.1 million tons/year). Much of the waste being imported into the county could be diverted to landfills East of the Cascades that receive much less precipitation, and thus generate much less methane (approximately 25% of the methane this is generated when waste is imported and landfilled in Benton County).

I have been appointed to a working group that is tasked with making recommendations to our Commissioners about next steps with our landfill, and I would appreciate any resources that you could share with us.

Thank you very much,

Nancy Whitcombe
541-745-2056

Sent via form submission from [Keep Oregon Cool](#)

Name: Nancy Whitcombe

Email Address: nwhitcombe@gmail.com

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Thank you very much,

Nancy Whitcombe
541-745-2056

Does this submission look like spam? [Report it here.](#)

From: Amelia Porterfield <a.m.porterfield@TNC.ORG>
Sent: Thursday, September 8, 2022 5:44 PM
To: Oregon GWC * ODOE <Oregon.GWC@energy.oregon.gov>
Cc: Laura Tabor <laura.tabor@TNC.ORG>
Subject: TNC Comments on Roadmap to 2035 following August 18th OGWC meeting

Hello,

Please accept the attached comments from The Nature Conservancy in Oregon regarding the Roadmap to 2035 following the Global Warming Commission's August 18th discussion of the report.

Thank you,
Amelia

Amelia Porterfield
Director of Government Relations
(503) 803-5863 (Mobile)
a.m.porterfield@tnc.org

The Nature Conservancy
Oregon Conservation Center
821 SE 14th Ave
Portland, Oregon 97214
nature.org





The Nature Conservancy in Oregon
821 SE 14th Avenue
Portland, OR 97214-2537

tel 503 802-8100

fax 503 802-8199

[nature.org/oregon](https://www.nature.org/oregon)

September 8, 2022

Oregon Global Warming Commission

Public Comment on August 18 Commission Meeting

Submitted by Laura Tabor, Climate Action Director

Chair MacDonald and Members of the Commission,

Thank you for the opportunity to provide comments on the modeling and analysis contributing to the Oregon Global Warming Commission (OGWC) Roadmap to 2035 report. We appreciate the OGWC's use of rigorous analysis to guide climate change mitigation policy recommendations.

The Nature Conservancy in Oregon (TNC) is a science-based, non-partisan organization with 80,000 supporters and members in every county. Based in communities around the state, we manage lands and waters in varied ecosystems and partner with tribes, ranchers, farmers, fishers, timber, and environmental interests on some of the most challenging conservation issues facing people and nature. Addressing the climate change crisis is a core component of TNC's work to create a world where people and nature can thrive, and we strongly believe that Oregonians have a responsibility to enact policies to reduce greenhouse gas emissions and help our communities adapt to climate change.

Oregon faces two challenges in continuing its nation-leading climate work:

- 1) **Make sure we're on track:** We need to enact additional policies, both to align with existing state greenhouse gas emission reduction goals and to get on an emissions reduction trajectory aligned with limiting global temperature change to 1.5°C—a more ambitious path than our current targets.
- 2) **Getting implementation right:** We have more work to do to remove barriers to successful policy implementation and to ensure the benefits and costs of climate action and the clean energy transition are allocated equitably across our state. These actions are critical to both achieving the emissions reductions we're aiming for and ensuring the benefits of climate action materialize for all Oregonians.

The analysis OGWC has shared to date is well-positioned to help address the first challenge by identifying both the remaining planned policies needed to meet existing GHG goals and additional actions to accelerate meeting those goals, which would be more in line with trajectory needed to limit global temperature rise to 1.5°C. We look forward to the availability of more granular modeling outputs to inform policy recommendations—for example, it is difficult to evaluate the differences between the electrification and hybrid scenarios without sector-level data illustrating where levels of electrification

and associated costs and benefits differ. While it is widely recognized that alternative fuels may have an important role in decarbonizing hard-to-electrify sectors, the most respected national, regional, and state-level climate mitigation models clearly identify electrification of space and water heating as the most cost-effective way to decarbonize buildings at scale.

The Roadmap to 2035 will only be effective in rising to the second challenge if the OGWC uses its co-benefits analysis and critical consideration of factors not directly modeled in this analysis to include recommendations on actions that enable equitable implementation paths for existing policies. This may be challenging because OGWC is not including detailed modeling for alternative paths to existing policy compliance, but cannot be overlooked in a comprehensive set of recommendations for continued climate action in Oregon. How, for example, covered entities reach Climate Protection Program emissions reduction targets, will affect who benefits from or pays for climate action. How utilities reach the targets of HB 2021 affects not just ratepayers, but communities and landscapes statewide where new renewable energy develops. We understand that there are many ongoing processes at various agencies investigating these implementation questions. However, the OGWC's analysis of its modeling, expertise within the Commission, and public testimony may have valuable insights for these processes, especially in areas that cross jurisdictions and require interagency or public-private collaboration to find the best solutions for Oregonians.

We encourage the OGWC to both maintain its focus on ambitious new policy needed to reduce emissions in line with climate science and take a forward-looking mindset on how our state can lead not only in ambition, but also in implementation that cultivates a cleaner, more equitable, and more resilient Oregon.

From: Squarespace <form-submission@squarespace.info>

Sent: Wednesday, September 14, 2022 9:48 AM

To: Oregon GWC * ODOE <Oregon.GWC@energy.oregon.gov>

Subject: Form Submission - New Form - Climate Change policy and the CEI Hub seismic risk

Name: Jay Wilson

Email Address: srpntn@yahoo.com

Subject: Climate Change policy and the CEI Hub seismic risk

Message: Dear Commissioners,

Has the safe and secure storage of over 90% of Oregon's liquid petroleum at the Critical Energy Infrastructure (CEI) Hub been a consideration for 2035 and 2050 GHG modeling assumptions? Recent findings from ECONW that a systemic failure of these decades-old facilities during a damaging earthquake would cause an environmental catastrophe and have severe economic consequences.

I urge you to bring the CEI Hub into the context of your vision for long-term climate policy. There can be multiple wins for seismic and environmental safety if we leverage the reduction of fossil fuel use into less need for oil storage and decommissioning the worst offenders of the vulnerable storage tanks to initiate a positive feedback loop for supporting climate policies.

The CEI Hub is uniquely poised to rally a number of different constituents for a creative opportunity to support GHG reductions, promote green energy, and avoid a foreseeable environmental disaster.

Thank you,

Jay Wilson - Portland, OR

Past Chair, Oregon Seismic Safety Advisory Commission

Former Resilience Fellow, National Institutes of Standards and Technology

-----Original Message-----

From: Nancy Mauter <nanmauter@gmail.com>

Sent: Wednesday, September 21, 2022 4:41 PM

To: Oregon GWC * ODOE <Oregon.GWC@energy.oregon.gov>

Subject: Question regarding County climate Action Plans

To Whom it May Concern:

I am a resident of Linn County and I recently found out that Linn County does not have a Climate Action Plan. I was curious if the State is requiring the counties to develop an action plan or is it completely voluntary?

I was also wondering if the State plan puts any form of demand on the counties to do anything towards local efforts to be part of the solution?

Thank you for your reply.

Nancy Mauter

Lebanon, Oregon

From: Greer Ryan <greer.ryan@climatesolutions.org>
Sent: Friday, September 30, 2022 2:08 PM
To: Oregon GWC * ODOE <Oregon.GWC@energy.oregon.gov>
Subject: Joint comments re: Roadmap to 2035 (Scenarios, Financial Results, and Co-benefits)

Chair Macdonald and members of the Commission,

Thank you for the opportunity to provide comments on the Oregon Global Warming Commission's (OGWC) Roadmap to 2035's scenarios, financial results, and co-benefits discussion at the Commission's August 18 and September 15 meetings, attached. Please let me know if you have any questions. We appreciate your consideration.

Thanks,
Greer

Greer Ryan | Clean Buildings Policy Manager
[Climate Solutions](#) – Accelerating Clean Energy Solutions to the Climate Crisis
greer.ryan@climatesolutions.org

Oregon Global Warming Commission
Submitted via email to oregon.GWC@energy.oregon.gov

September 30, 2022

RE: Oregon Global Warming Commission's Roadmap to 2035 Scenarios, Financial Results, and Co-Benefits

Dear Chair Macdonald and Commission members,

Thank you for the opportunity to provide comments on the Oregon Global Warming Commission's (OGWC) ongoing "Roadmap to 2035" (TIGHGER) project, including the modeling assumptions outlined at the Commission's August 18 and September 15 meetings. As organizations dedicated to supporting the state of Oregon in achieving its greenhouse gas reduction goals, we recognize the important role of the OGWC in informing the state's climate policy agenda. We offer the following comments for consideration as the Commission moves forward with the Roadmap to 2035 process.

First, we applaud the Commission's decision to model an electrification scenario that would enable the state to achieve its emissions reduction targets by 2030. However, to best ensure the usefulness and accuracy of the modeling results, we urge the Commission to incorporate the cost *benefits* that come from avoiding investments in RNG and other risky alternatives. For example, avoided costs of health harms from continued methane gas use in buildings – since RNG is primarily methane – should be considered.¹ There is no shortage of studies outlining the indoor air quality and health risks associated with burning methane for use in home appliances, and therefore no reason why these avoided health costs should be excluded from the Roadmap's financial analysis.

The Roadmap to 2035's financial assessment should also include cost savings from avoided stranded assets resulting from large investments in nascent technologies and fuel sources such as RNG. Without considering these potential cost savings in the electrification scenario – or cost impacts in the hybrid scenario – we will not have a clear comparison of the potential ratepayer impacts of these different pathways.

Likewise, we urge the Commission to incorporate the cost benefits resulting from the transition to clean energy and electrified buildings and transportation, which will help protect Oregonians from current gas price volatility and future price fluctuations. The extreme high oil and gas prices afflicting Oregon families and consumers today are not merely a blip, nor do they happen in a

¹ The use of methane gas in buildings – including renewable natural gas (RNG), which is largely chemically indistinguishable from methane – causes significant public health harms, including increased likelihood of asthma symptoms in children. See Lin, W., et al., "Meta-analysis of the effects of indoor nitrogen dioxide and gas cooking on asthma and wheeze in children," *International Journal of Epidemiology* (2013), available at <https://academic.oup.com/ije/article/42/6/1724/737113> ("Our metaanalyses suggest that children living in a home with gas cooking have a 42% increased risk of having current asthma[.]")

vacuum. The economic assessment should therefore reflect the benefits of protecting consumers from future oil and gas price fluctuations.

Second, we are concerned that the Commission's current modeling around alternative fuels, particularly for use in buildings, is based on unrealistic assumptions around both supply and cost. RNG and Hydrogen are both significantly limited and costly to produce, making them an unrealistic fit for space and water heating in buildings as we decarbonize in the coming decades. The highest and best uses of the limited RNG and renewable hydrogen resources will likely be in hard-to-electrify sectors such as aviation fuels and specialized industrial uses, not for the vast majority of energy uses. These cost and supply risks have been outlined in energy and climate justice advocates' comments throughout the Oregon Public Utility Commission's Natural Gas Fact-finding Investigation docket (UM 2178, also known as "Future of Gas").²

Third, we hope the Commission will consider the significant investments in electric heat pumps and related clean energy technologies from the Inflation Reduction Act (IRA) and how these investments may drive down the upfront costs of electrification for Oregonians. There was no way to know that Congress would pass such a critical investment bill just over a month ago, and we are still working to understand its full scope and impact, but it is clear that there will be a large influx of federal dollars to Oregon communities to help spur electrification and energy efficiency in buildings. In particular, households making less than 80% of the Area Median Income should qualify for free electric heat pumps – which could be a gamechanger in overall heat pump deployment and should be seriously considered in any cost analyses from here on out.³

Even without these investments, the Commission should take note of recent studies highlighting how much more affordable electrification and efficiency are than previously thought. As an example, according to a recent study by Synapse Energy Economics, a rapid transition to highly efficient electric heat pumps for heating and cooling in Oregon homes and buildings would lower household energy bills, and generate \$1.1 billion in system-wide savings by 2050.⁴ Similarly, a recent analysis done by RMI on the potential cost savings of electrification in Eugene and Milwaukie showed that all-electric new construction could cost, on average, approximately \$3,500 less than building with gas.⁵ A report by E3 commissioned by the California Energy Commission in 2019 found that electrification of buildings – particularly the use of electric heat pumps for space and water heating – leads to lower energy bills over the long term compared to the use of renewable natural gas. The California Energy Commission also found that the lowest-cost pathway to eliminate direct emissions from commercial and residential buildings is to electrify appliances. According to the analysis, in 2050 an electric heat pump would cost \$34 to

² See [um2178hac162937.pdf \(state.or.us\)](#).

³ ReWiring America's IRA calculator, available at <https://www.rewiringamerica.org/app/ira-calculator>

⁴ [Oregon Building Electrification Report \(Final\).pdf \(sierraclub.org\)](#)

⁵ See [2022-0906-rs_packet_revised_2_exhibits.pdf \(milwaukieoregon.gov\)](#) at 106.

\$44 per month to operate, while a gas furnace fueled by RNG would cost five times as much, \$160 to \$263 per month, to operate.⁶

Finally, as we expressed in our previous comments, **we still strongly support the Commission's decision to develop a scenario for meeting our 2035 goal by 2030, a target which is more in-line with the best available climate science.** As the Commission begins to consider co-benefits of decarbonization, we urge members to take into account the justice benefits and potential health savings of rapid emission reductions. Taking action early may prevent compounding harms that will be experienced first and worst by Black, Indigenous and communities of color across our planet. The sooner we act to curb emissions, the better it will be for all. This is especially true for Black, Indigenous, and other communities of color that are the first and worst harmed by the climate crisis.

We remain very grateful to the OGWC for the work you have done to provide guidance to state officials on climate policy and look forward to continuing to work with you on meeting Oregon's climate goals. We hope you'll consider the above recommendations to ensure the urgency of additional climate action is communicated clearly to policymakers across the state.

Thank you for your consideration,

Greer Ryan, Clean Buildings Policy Manager, Climate Solutions

Linda Kelley, coordinator, 350 Eugene

Dineen O'Rourke, Campaign Manager, 350PDX

Lenny Dee, President, Onward Oregon

Brian Stewart, Founder, Electrify Now

Ashley Haight, Program Manager, ZERO Coalition

Debra Higbee-Sudyka, Chair, Oregon Chapter Sierra Club

Danny Noonan, Climate and Energy Strategist, Breach Collective

Ron Hess, Interfaith EarthKeepers of Eugene/Springfield

Nora Lehmann, Families for Climate

Mark Gamba, Mayor of Milwaukie

⁶ See, Dan Aas et al., The Challenge of Retail Gas in California's Low-carbon Future: Technology Options, Customer Costs, and Public Health Benefits of Reducing Natural Gas Use, Energy and Environmental Economics, Inc. & University of California, Irvine (2019), <https://www.energy.ca.gov/sites/default/files/2021-06/CEC-500-2019-055-F.pdf>.



September 29, 2022

VIA OGWC Portal

Maya Buchanan, Senior Climate Policy Analyst
Oregon Global Warming Commission
Oregon Department of Energy
550 Capitol St NE
Salem, OR 97301

RE: Comments on the TIGHGER modeling and Roadmap to 2035 Evaluation Criteria Straw Proposal

Dear Maya:

The Renewable Hydrogen Alliance (RHA) appreciates the opportunity comment on the TIGHGER Evaluation Criteria Straw Proposal and hope our comments are helpful to the continued development of the Roadmap to 2035.

RHA is a non-profit trade association based in Portland, Oregon that advocates for and promotes the use of renewable energy to produce hydrogen and other carbon neutral fuels. Our scope is the Pacific Northwest and we advocate in both Olympia and Salem. RHA's membership includes hydrogen production and fuel cell equipment manufacturers, light, medium and heavy duty vehicle manufacturers, electric and natural gas utilities, fueling station developers, independent power producers, renewable hydrogen project developers and other members with an interest in the renewable and electrolytic hydrogen (hydrogen produced using electrolysis) sector.

RHA welcomes and appreciates the Oregon Global Warming Commission's balanced consideration of various decarbonization efforts utilizing hydrogen. Realizing the state's goal of reduction carbon emissions 45% by 2035 will require as many low and zero carbon technologies and pathways as we can possibly acquire.

General Comments

Unfortunately, RHA has not had the capacity to follow the TIGHGER process as closely as we would have liked over the last year, but we would be happy to connect with OGWC staff to answer questions or provide more information on hydrogen technologies, projects and other activities happening in Oregon and the Pacific NW at your convenience.

At first glance, the criteria and the weightings appear to be appropriate for the actions proposed. The highest weight for "cost effectiveness" could disadvantage renewable/clean hydrogen actions initially for the same amount of GHG emission reductions or avoidance as an electrification action, however, the recently enacted federal Inflation Reduction Act with its

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favorable tax treatment of hydrogen production will likely bring those costs down over the next few years. This would make hydrogen pathways competitive with electrification pathways where a zero emission fuel is more suitable than using electricity in a particular application.

Comments on the List of Actions

With regard to the List of Actions to be evaluated, RHA has the following comments:

100% of new sales are EVs by 2035 – Oregon is in the middle of a rule making process to adopt California’s Advanced Clean Cars II Rule (ACC II) which is explicitly technology neutral with regard to **zero emission vehicle technology**, i.e., either battery or hydrogen fuel cell electric vehicles (both technologies are “electric vehicles”). We would like to see this action modified to replace the term “EV” with “ZEV”.

50% of off-road vehicle sales are EVs by 2035 – Replace “EVs” with “ZEVs”. Electrification of certain types of off road equipment is not feasible, specifically wildland firefighting equipment due to remote locations of service where fuel often has to be brought along to the site. Also, agricultural equipment such as combines, tractors with balers, etc., cannot be taken out of service for several hours during harvest season to recharge due to the need to bring in crops like hay as quickly as possible within dry weather windows to avoid moisture and mold in the event of rain. In these examples, hydrogen fuel cell technology is the most feasible and appropriate zero emission vehicle technology due to long operating times and quick refueling.

100% of new buses are EVs by 2035 – This action needs some more specificity to distinguish what types of buses are being referred to: school, public transit, interstate long distance? And again, “EV” should be replaced with “ZEV”. In the case of public transit, it is not feasible to promote all electric fleets as different transit agencies in different areas of the state have different range needs and those agencies should not be locked into one type of zero emission technology. TriMet and Lane Transit District have some routes that are over 150 miles and both agencies are struggling with the limitations of their electric bus fleets to serve these routes and the customers who rely on that service. As a result, they are actively pursuing the purchase of hydrogen fuel cell electric buses that have longer range and can be fueled in minutes. In most cases with short routes that are “back to base”, charging overnight is sufficient, but the charging infrastructure is expensive and the fleet has to have two electric buses for every route so one can charge while the other one is out to ensure continuity of scheduled service.

As the goal is ultimately decarbonization and GHG emissions reduction, Roadmap actions should not favor one decarbonization technology over another. If the evaluation criteria is robust enough and is applied within certain parameters (i.e., non fossil technologies) it should ultimately determine the best choices of actions. Further, it is important that consumers and businesses have a choice of zero emission transportation and machinery technology that works best for them and their specific circumstances.

100% of diesel backup power replaced with electric battery storage by 2035 – RHA does not believe this is a reasonable or feasible choice for reliability and safety reasons. We would recommend 50% diesel backup power replaced with electric battery storage and 50% replaced with hydrogen fuel cell

backup power by 2035. Fuel cell backup (or “standby” power as it is currently defined in Oregon statutes and regulations) power units are available on the market today in all power capacity ranges from 1 kilowatt to several megawatts. Given that the need for power backup is because of a power grid failure or a Public Safety Power Shutoff, it seems incongruous that emergency shelter facilities and other critical infrastructure would have to rely on backup batteries that would need to be charged by that very same (non operating) grid.

Thank you again for the opportunity to provide our feedback on this very important work.

Sincerely,

A handwritten signature in blue ink, appearing to read "Michelle Detwiler", is placed on a light blue rectangular background.

Michelle Detwiler

Executive Director

m.detwiler@renewableh2.org

971-727-9423