

## Oregon Global Warming Commission – Public Comments

### November 17<sup>th</sup>, 2022

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**From:** M McCallum <mmccallumusa@gmail.com>  
**Sent:** Sunday, October 30, 2022, 7:45 AM  
**To:** Oregon GWC \* ODOE <Oregon.GWC@energy.oregon.gov>  
**Subject:** I am curious...

I noticed your board has no equal representation of work class or non-management, nor students? If people making under \$90,000 are not at the table who will hear their voices?

Thank you,  
Sincerely Mike McCallum

The one unchangeable certainty is that nothing is unchangeable or certain.”

President John F. Kennedy

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**From:** Squarespace <form-submission@squarespace.info>  
**Sent:** Tuesday, November 1, 2022, 11:24 AM  
**To:** Oregon GWC \* ODOE <Oregon.GWC@energy.oregon.gov>  
**Subject:** Form Submission - New Form - Missing from the TIGHGER Action List

**Name:** Sandra Ericson

**Email Address:** [sandra@HumanEcologyEdu.com](mailto:sandra@HumanEcologyEdu.com)

**Subject:** Missing from the TIGHGER Action List

**Message:** Hello.

Having chaired a municipal Climate Task Force for eight years, I understand the importance of infrastructure and the effect of the commercial built environment on emission reduction. However, having taught Consumer Science for thirty years, I know that no amount of change to those community elements can match the effect of consumer decision making.

So, it seems an educational element is missing on the Action List. Universal human life education is critical to changing the thinking of consumers, not only in purchasing, but in health effects, economic equity, household adaptation practices, child development, and more. Human Ecology education guides the thinking, the cultural intelligence, and the values that people must acquire early to imbue adaptive care for people into their later professional lives -- whether they build canals, farm, or are nurses. It is long-term daily human life education.

Please see the Framework for Human Ecology education ([www.HumanEcologyEdu.com](http://www.HumanEcologyEdu.com)) and consider adding it to your Action List.

Best wishes, Sandy Ericson.

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

**ROSS Linda \* ODOE**

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**From:** Squarespace <form-submission@squarespace.info>  
**Sent:** Thursday, November 3, 2022 1:44 PM  
**To:** Oregon GWC \* ODOE  
**Subject:** Form Submission - New Form - Information about & person to speak with about Marginal Abatement Cost Curves?

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

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

**Name:** Chuck Willer

**Email Address:** chuckw@coastrange.org

**Subject:** Information about & person to speak with about Marginal Abatement Cost Curves?

**Message:** I'd like more information about the Marginal Abatement Cost Curves and the person to speak with if I have questions. Thank you.

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

**ROSS Linda \* ODOE**

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**From:** Eric Strid <ericwstrid@gmail.com>  
**Sent:** Sunday, November 13, 2022 9:33 PM  
**To:** Oregon GWC \* ODOE  
**Subject:** Comments re: Nov. 3 memo on draft recommendations for Roadmap to 2035  
**Attachments:** OGWC comments 221113 PowerOregon.pdf

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Dear Chair Macdonald and members of the Commission:

Thank you for the opportunity to provide comments on the draft recommendations for Oregon Global Warming Commission's (OGWC) Roadmap to 2035. Please let me know if you have any questions. We appreciate your consideration.

Thanks,

Eric Strid

Co-founder and retired CEO, Cascade Microtech, Beaverton  
Director, Power Oregon  
Director, npArbor  
Hood River County Energy Council  
Co-convener, Columbia Gorge Climate Action Network

To: Oregon Global Warming Commission

*Submitted via email to oregon.GWC@energy.oregon.gov*

November 13, 2022

**RE: Draft Recommendations for Oregon Global Warming Commission's Roadmap to 2035**

Dear Chair Macdonald and Commission members,

Thank you for this opportunity to provide comments on the Oregon Global Warming Commission's (OGWC) ongoing "Roadmap to 2035" (TIGHGER) project. OGWC has an important role in informing the state's climate policy agenda, and the Commission has made significant progress in engaging representative stakeholders, gathering public inputs, and educating all parties about the need to quantify future policy impacts.

The following comments are offered in response to the November 3 memo soliciting public inputs on the draft recommendations. The first two sections of these comments reflect on past and current issues relevant in Oregon energy/emission policy development, and the third section contains specific comments on the draft recommendations.

**I. A brief history of Oregon climate policy development and why this matters**

*A. Carbon pricing*

When a well-run organization has a setback, they carefully analyze what went wrong and why and what lessons can be learned. This is a basic tactic for continuously improving and adapting. Any competitive company does this by habit—not to find out who to fire, but rather to consider whether appropriate processes were followed and how those could be improved.

In politics it can be toxic to admit that you've ever made any errors. So missteps are often denied, hidden, or distracted by other topics. Quantitative performance metrics are avoided. Learning is impeded, or at best, hidden and not widely communicated.

Ten years ago, many stakeholders agreed that applying a modest price on greenhouse gas (GHG) emissions would be an effective policy to address Oregon emissions. But the evidence of efficacy for carbon taxes or cap-and-trade systems was inconclusive and the impact of these policies is very difficult to separate from other interacting policies. In 2013 the emission and economic impacts of a \$60/MTCO<sub>2e</sub> carbon tax were [analyzed by NERC](#), finding a roughly 10% GHG reduction and little economic impact. Then both the proponents and opponents of the resulting cap-and-trade legislation lined up political support and increasingly diverged on their talking points. Lacking accurate data, both the Republicans and Democrats began citing increasingly inaccurate predictions when debating carbon pricing.

Republicans adopted crazy overestimates of the costs of clean energy (often provided by oil and gas companies.) For example, Senator Bentz displayed graphs proclaiming that it will cost Oregonians 112 billion dollars to replace Oregon's 3.2 million vehicles with electric vehicles (with a disclaimer, "Slide prepared by Senator Bentz's office—calculations & estimates should be verified before being quoted.") Actually, \$100 billion is the right order of magnitude, but we'll save ~\$100 billion, not lose it. Oregonians routinely buy around \$6 billion of new vehicles every year, electric vehicles (EVs) will continue to get cheaper, and most capital-cost crossovers will occur in this decade. Thus, Oregonians will soon save on the capital (up front) costs of vehicles, and already massively save on fuel costs because the equivalent EV fuel cost is about \$1 per gallon. Back when gasoline was \$3 per gallon Oregon imported about \$5 billion of gasoline annually, averaging around \$3000 per household.

Democrats wildly exaggerated the emissions impact of carbon pricing policies. (Oil and gas companies also [promote carbon taxes](#) to confuse the debate.) There is [no evidence](#) that a politically feasible price on carbon has had any significant impact on emissions, and today it's obvious that even an extra \$2 per gallon has little impact on consumption. In Oregon the 2020 BEAR report prominently omitted the assumptions of sector-specific policies necessary to do the heavy lifting in emission reductions, supporting the fantasy that a price corresponding to 20 to 50 cents per gallon of gasoline or diesel will dramatically cut emissions per the cap chosen. (This [new book](#) explains how cap-and-trade systems maintain price stability by flooding the market with free allowances. Thus, cap-and-trade effectively functions like a carbon tax. Washington state's new cap-and-trade system is designed to reduce GHG emissions by less than 0.4% annually, as hidden in Table 88 on page 193 of the [Preliminary Regulatory Analyses](#).)

### *B. What can be learned from this history?*

This history is important because a residual impact of these errors is that now neither party trusts the other's data, and that distrust still impedes progress. At this point state policies that will both save money and cut greenhouse gas emissions are resisted by both parties because neither party has sufficiently embraced accurate data. As a result Oregonians spend billions extra for gasoline and diesel and emit another ton of CO<sub>2</sub> with every 100 gallons they use, while China and multiple European countries are adopting electric vehicles much faster than Oregon and reaping the associated savings and pollution reductions.

[These major errors were reported in 2019](#), but both parties were too busy warring over cap-and-trade to notice that fundamental technology cost tipping points were happening. Too many parties still believe that clean energy is an economic sacrifice—as oil and gas companies loudly proclaim—when the opposite is true. We need to embrace [gain not pain](#).

Both parties want to save Oregonians money, so cleaning up our energy has become a bipartisan opportunity to leverage the clean-energy revolution. If we focus on adopting clean energy to save money the discussion shifts to how to best accelerate adoptions, because *a large majority of the benefits are local and immediate*. Oregon should thusly facilitate making energy cheaper and more resilient, not more expensive. How do we facilitate financing options? How do we include everyone and best help disadvantaged communities? We needn't consider glaciers melting somewhere someday, although that is existentially important. Economists still touting "free-rider" arguments need to go learn about production learning rates for clean energy technologies.

Oregon stakeholders need to discuss and decide what went wrong in the carbon pricing debates and why, and learn many lessons from it. Companies in rapidly changing markets look for errors because they can quickly learn new insights from their mistakes. Players can be excused for their past performance, but those who won't commit to seeking and using reliable data in the future should be reassigned.

## **II. Building trust with reliable data**

### *A. The Oregon Energy Policy Simulator*

Until early 2020 the economic analyses associated with decarbonization scenarios were not concluding that accelerated decarbonization would result in significant savings. (Some of those results could be traced to obsolete estimates of EV battery costs.) Then [Energy Innovation](#)

published [an example of savings from increased decarbonization](#) with their Energy Policy Simulator (EPS) for California. That was the genesis of the [Oregon Energy Policy Simulator](#).

The EPS is open-source and very well documented, so that users can see and inspect the data and calculations, or add custom calculations as desired. The data and calculations are non-partisan—historical data is easily verified, and forecast data is confirmed with various forecasters. The EPS has been vetted by national labs and universities. Best of all, the EPS is [free and online](#). Anyone can jump in and learn about business-as-usual projections and various policy scenarios for other countries or ten US states (models of countries comprising [56% of global emissions](#) are supported), and anyone can select hundreds of policy options to understand sensitivities and create their own scenarios. Video tutorials and full documentation are available [here](#). Energy Innovation experts also [provided policy analyses](#) for the Inflation Reduction Act and for the [House Select Committee on the Climate Crisis](#). No longer do serious policy analyses cost thousands of dollars for someone else to enter, run, and interpret a few scenarios. Policy analysis power has come to the people.

In March 2022 the [Oregon EPS was released with a research note](#) describing five vetted public scenarios. Beyond the specific numerical results documented in that work, the Oregon EPS has provided other general insights about Oregon policies:

- Carbon pricing has relatively weak impacts on emissions. The user can specify which sectors get a carbon tax and specify the price per MTCO<sub>2e</sub>. (\$60/MTCO<sub>2e</sub> for all sectors decreases emissions 6.5% by 2050, including HB 1547.) Even at \$150/MTCO<sub>2e</sub> the impacts are relatively small, and even smaller when applied with HB2021, because HB 2021 is doing the heavy lifting to decarbonize electricity.
- Large emission reductions and savings accrue from transportation electrification. After trying dozens of policy sliders, one finds that policies which accelerate EV adoptions save many billions of dollars on annual operating costs. This makes perfect sense, given that EVs are about four times as energy-efficient as gasoline or diesel vehicles, and Oregon's gasoline imports are now around \$8 billion a year.
- Open-source data and modeling can provide a common language for stakeholders. Both sides of the cap-and-trade debates can see the misconceptions on both sides. All stakeholders can quantify the massive economic savings and reductions of climate and toxic emissions from policies like the Clean Trucks Rule and Advanced Clean Cars II, along with job creation, GDP growth, health impacts, and more.

### *B. GEI Policy Pathway Study*

The Green Energy Institute at Lewis and Clark College (GEI) recently used the Oregon EPS to aid in the creation of the [first comprehensive, long-term plan for Oregon greenhouse gas emissions](#). There have been prior decarbonization studies that show physical feasibility scenarios for Oregon, but this 6-month study is the first to analyze and optimize the specific policies necessary to equitably, effectively, and economically implement emission reductions that reach and exceed state targets. Headline numbers of this pathway scenario include:

- Reduce emissions by 45.2 million metric tons carbon dioxide equivalent (MMTCO<sub>2e</sub>) by 2035 and **reduce emissions by 55.3 MMTCO<sub>2e</sub> by 2050**, achieving Oregon's GHG reduction goals (and achieving the EO 20-04 2035 goal by 2028);
- Equity analyses by major policy (qualitative);
- Create nearly **\$200 billion in total cost savings** by 2050, with annual cost savings averaging **\$7.46 billion per year** between 2025 and 2050, from a total investment of about **\$12 billion through 2028**;
- Increase Oregon GDP by **\$68.5 billion** between 2022 and 2050;
- Create more than **12,000 new jobs** for Oregonians;

- Prevent dozens of premature deaths each year;
- Avoid 20,000 asthma attacks between 2022 and 2050;
- Avoid 346 non-fatal heart attacks between 2022 and 2050; and
- Avoid 105,000 lost workdays between 2022 and 2050.

For each major policy recommended, the study analyzes 1) Oregon's existing policy and regulatory framework, and any policy changes currently under consideration; 2) the specific policy action needed for Oregon to achieve emissions reductions in a cost-effective and equitable manner; 3) the type of action needed (legislative, regulatory, or administrative); 4) when policy action is needed; and 5) the key benefits that are projected to occur as a result of the specific policy action, including emissions benefits, equity benefits, and economic benefits.

The policy inputs and results of this scenario are public at [this link](#). GEI ran hundreds of simulations in the process of exploring and optimizing this scenario. They point out that this is only one possible pathway, and other scenario variations can optimize economics vs equity vs emissions. It is unclear how such a thorough study could be performed without direct access to the modeling inputs and outputs.

### *C. TIGHGER modeling*

The team who developed the Oregon adaptation of the EPS (Power Oregon, Energy Innovation, GEI, and NERC at PSU) engaged ODOE multiple times and sought their support of the EPS for Oregon. In 2020 ODOE contributed some baseline data for the EPS but showed no further interest. In 2021 the Oregon EPS beta version was demonstrated to ODOE analysts three times, but ODOE provided neither reviews nor any indication of interest. Given that ODOE simultaneously proceeded to spend \$250,000 on a consultancy plus ODOE hours to recreate a weak subset of the Oregon EPS, ODOE obviously perceived some sort of value in such modeling capabilities. At the time, the Oregon EPS and public scenarios had not been released, although the final functions were available for testing.

ODOE's lack of interest in the open-source EPS is baffling. Any real business would never imagine developing their own software tool when it's already free and supported.

- A fundamental, major weakness of the TIGHGER software is that it's not open-source. Oregon's recent history of dysfunction resulting from poor data teaches that open-source, non-partisan information is efficient and can be necessary. For policy simulations, how many stakeholders will believe the baseline numbers, the business-as-usual calculations, the scenario inputs, or the results, when none of the numbers or calculations are visible to anyone but a few analysts at ODOE? What are the biases and assumptions of those analysts, and how can a stakeholder know what biases have been intentionally or unintentionally applied to the model's baseline data, policy specifications, or result interpretations? To make the TIGHGER software open-source would require significant person-years of documentation — and more fundamentally, require SSG (the software developer) to completely change the proprietary software business model by which they make money.
- The Commission has requested, and ODOE has featured with TIGHGER, the ability to calculate policy impacts at the county level. However, very little of the data used in a state simulator is available with county granularity. For example, the initial inventory development for the [Hood River County Energy Plan](#) found major inadequacies in county-level data for transportation, the largest emissions sector. The reliable state-level EIA data for transportation fuels is not tracked and would not even be relevant at a county level; ODOT does not provide vehicle weight-class data or vehicle miles traveled at a county level; and even the definition of Scope 1 transportation emissions is somewhat irrelevant for most

counties. Aviation emissions caused by county residents is not tracked anywhere. Additionally in the electricity sector, no one tracks the imports or exports of electricity between counties. And no one reports capital costs by the county in which the infrastructure is used. Etc. Thus, any modeling of emissions or economic impacts at a county level is a relatively crude approximation, often calculated from per capita data at the state level. The EPA does provide health impact data at the county level, which in the EPS is aggregated to calculate state-level impacts. Thus, the TIGHGER graphs of county information could be implemented much easier as open-source Python scripts for the Oregon EPS, at a small fraction of the cost of developing and supporting proprietary TIGHGER software. (The 2017 Hood River County inventory evolved into an Excel workbook for Oregon counties that is easily adapted to another county's data. The Oregon County-Level Energy Action Planner, or OCLEAP, gathers county inventory data or scales per capita state-level data, scales vehicle trend outputs from the Oregon EPS and Oregon energy trends, projects the inventory through 2050 for a business-as-usual scenario, and calculates relatively simple scenario options with salient policy inputs for transportation and buildings. OCLEAP is free and open-source.)

- Another major weakness of the TIGHGER software is the lack of access. Anyone can jump onto the [Oregon EPS](#) and investigate a variety of verified scenarios, do sensitivity analyses, or modify any scenario to create their own; and doing so provides extremely quick and useful insights into which policies move the needle or not, and how they may interact. To develop a web-based user interface like Energy Innovation has optimized for years would require another major development—to duplicate what is already publicly available for free.
- The TIGHGER simulator apparently has some significant bugs. In recent OGWC meetings ODOE explained that modeled policy interactions can depend upon the order of data entry. This is clearly a bug, and SSG could fix it by implementing the [open-source EPS documentation on calculating policy interactions](#) for wedge and abatement cost charts. Given such a major bug, how much can the TIGHGER data be trusted to properly assess interacting policies? Has this bug been fixed yet?

A buggy, proprietary modeling tool with very limited access does little to build trust between Oregon stakeholders.

### **III. Specific comments on the Draft Recommendations for Roadmap to 2035** **[memo of Nov. 3](#)**

The above topics relate to questions in the Nov. 3 memo. Comments on selected sections in colored text:

#### **1. Support continued implementation of climate programs and regulations adopted and under development.**

*The Commission will need to decide if we should confine the Roadmap recommendations to just the TIGHGER analyzed PRAUD programs and regulations, or include other important existing policies and programs called out in ODOE's 2022 Biennial Energy Report, the Commission's 2020 Biennial Report to the Legislature, and Executive Order 20-04.*

A general note on simulators: no simulator does everything. Multiple commenters have asked for modeling of various new policies or topics, and ODOE needs to be careful in setting expectations around which policies can be modeled accurately vs approximately vs poorly in their simulator or in any simulator. For example, the Advanced Clean Cars II policy is simple to accurately model for battery electric vehicles (BEVs) and hydrogen fuel cell electric vehicles, but only approximately for pluggable hybrids. The Climate Protection Plan (CPP) cap could be



satisfied in a variety of ways, so an illustrative modeling of the CPP could choose one example pathway but not all the possible pathways. Oregon's Charge Ahead EV rebate and most of the EV incentives in the Inflation Reduction Act cannot be reasonably modeled because the details of buyer income levels or behaviors, US supply chain buildouts, and other rebate requirements would be guesses; in such cases, a range of impacts can sometimes be bracketing by modeling highest and lowest cases.

Some of the modeling requests are not applicable for the policy simulation framework of the EPS or the TIGHGER subset. Examples include modeling energy resilience, adaptation options, climate migration, electricity transmission, grid load peaks, vehicle-grid integration (VGI), integration of hydrogen hubs or pipelines, etc.

In all these cases, some stakeholders will want to know exactly how a policy is being modeled; ergo the power of open-source data and calculations.

## **2. Adopt updated state greenhouse gas reduction goals.**

- a) The Commission could consider recommending that the legislature update the state's statutory GHG emission reduction goal to include an interim goal before 2050 by either:*
- (i) Adopting the EO 20-04 2035 goal;*
  - (ii) Accelerating achievement of the EO 20-04 2035 goal by 2030; or*
  - (iii) Strengthening the EO 20-04 2035 goal*

The 2030 goal should be 50% reduction, per the IPCC.

- b) Some of the ways the Commission could consider recommending that the legislature update the state's 2050 statutory GHG emission reduction goal, include but are not limited to:*
- (i) Adopting the EO 20-04 2050 goal;*
  - (ii) Accelerating achievement of the EO 20-04 2050 goal to 2040;*
  - (iii) Strengthening the 2050 goal to at least 90 percent; or*
  - (iv) Establishing a net zero goal (consistent with federal government and other states)*

Net-zero implies carbon offsets, most of which are currently fraudulent. The 2030 goal is far more important than the 2050 goal, since there will be unpredictable and dramatic evolutions of technologies and governance in the coming decades.

## **3. Recommend a set of actions for legislative or executive branch action (e.g., authorization and funding) that helps the State meet the accelerated greenhouse gas reduction goal.**

- a) The Commission could consider recommending:*
- (i) One of the specific scenarios (the Electrification or Hybrid scenario);*
  - (ii) Only the actions common to both scenarios;*
  - (iii) A mix of common and unique actions from each scenario; or*
  - (iv) All of the actions from both scenarios*

The Commission should consider none of the above, since none of these consider solutions outside of the two limited scenarios in the proprietary, limited-access TIGHGER box. As multiple public comments have noted, the TIGHGER scenarios assume that all the planned

policies will be successfully implemented, but that is not at all certain. Oregon does not have a good record of successful emission reductions, and ongoing implementation risks include inadequate execution, unforeseen legal proceedings, changes in political leadership, changing market forces, new technologies evolutions, etc. Thus, we need scenarios that model the impacts of HB 2021 and other recent policy developments (such as the EPS public scenarios provide.) And there is no public documentation of the TIGHGER data and calculations.

The GEI policy pathways study is an obvious alternative or superior starting draft, which uses modeling that is open-source, online, and offers a much richer menu of policy and scenario options. For each sector the study analyzes 1) Oregon's existing policy and regulatory framework, and any policy changes currently under consideration; 2) the specific policy action needed for Oregon to achieve emissions reductions in a cost-effective and equitable manner; 3) the type of action needed (legislative, regulatory, or administrative); 4) when policy action is needed; and 5) the key benefits that are projected to occur as a result of the specific policy action, including emissions benefits, equity benefits, and economic benefits. If any stakeholder wants to question or modify any EPS scenario, they can enter the simulator and explore or modify scenarios as desired.

*b) Should the Commission consider carrying forward relevant recommendations from our [2020 Biennial Report](#) to the Legislature (See Recommendations 6-9, 11-15, 17-19, 22-23, 26-27, and 29). While some of these recommendations relate to actions in the TIGHGER scenarios, others do not (e.g., establishment of a state-sponsored Green Bank; a study of climate migration).*

#### **4. Fund future studies to continue to guide climate action over time.**

*a) To make sure there is up-to-date data and analysis to ensure the state is staying on track to meet its GHG emission reduction goals, the Commission could consider recommending that the TIGHGER analysis is funded and updated each biennium. The OGWC could then use the updated analysis to inform its ongoing biennial reports to the Legislature and agency rulemaking.*

No, the legislature should not fund any modeling work unless it is open-source, online, and free.

*b) The Commission could consider including recommendations for funding more extensive public engagement – ideally in partnership with community-based organizations – to inform the program design and implementation of actions in this Roadmap as well as future iterations of the Roadmap.*

The TIGHGER process has helped some stakeholders to understand that policy impacts need to be quantified, that some policies affect emissions much more than others, that some policies can save a lot of money, and that funneling all policy or scenario ideas and requests through ODOE is vague and frustrating at best. Most stakeholders would learn much more from exploring the impacts of their favorite policies and interactions between policies by using an online simulator. Then comparing many scenarios created by stakeholders would be far more participative and educational than ODOE designing two scenarios with little documentation and an undefined scoring system that is supposed to result in the Commission's best recommendations.

*c) The Commission could consider recommending expanding the analysis of, and public engagement around the county level data provided by the model to inform Legislative actions and/or agency rulemaking.*

See the above comments on the very limited availability of basic county-level data. Lacking objective data, inventorying or modeling at a county level is triangulated, at best. In the OCLEAP modeling it is clear that the main county-level energy and energy emission impacts will be due to state-level policies like HB 2021, Advanced Clean Cars II, and the Clean Trucks Rule. The OCLEAP workbook is available for Oregon counties; it does not include agricultural or forestry emissions or sequestration, or the transmission or generation buildouts required by HB 2021 (because those are all TBD.)

Renewable energy companies are well aware of the distribution of wind and solar resources all over the state and along the coast, but what is lacking is a state energy plan for where the new generation will be located and how the power will be transmitted to the state's main population centers. Thus, the main county-level impacts of the buildouts required by HB 2021 are dependent on a state energy plan. The OGWC should recommend that some agency facilitate a state energy plan, and stop thinking that county-level insights are possible or even useful with more TIGHGER software.

*d) The Commission could consider recommending that more work be done to quantify, consider, and incorporate the state's consumption-based emissions. This could mean including related Commission 2020 Biennial Report recommendations 23 (framework for measuring embodied carbon), 33 (DEQ reuse and repair grants), and 34 (GHG emissions reductions in state procurement) into the Roadmap.*

While it's true that our consumption-based emissions are very high, there is no infrastructure to track embodied emissions in supply chains down to individual product lines (except for Apple products.) [Consumption inventories](#) are typically prorated from industry totals or estimates and there's no way for buyers to choose between competing products. We have plenty of fish to fry, and this one isn't even caught yet. The Commission could recommend that the federal government incentivize or mandate the development of carbon tracking through supply chains, but even that is unlikely to sufficiently affect global supply chains.

## **5. Strengthen governance and accountability for Oregon climate action.**

*a) The Commission could consider recommending additional resources for the Commission as well as specific resources to contract with experts to update the TIGHGER modeling every biennium [also noted in recommendation 4(a)], to conduct other studies, to conduct additional public engagement, and to advance our natural and working lands proposal. These resources would allow us to gather additional input to inform legislative and executive branch action and agency rule making.*

The legislature should not fund any modeling or tracking work unless it is open-source, online, and free. Now that ODOE has developed an alpha-level software tool, they are learning that ongoing updates, debugging, documentation, and marketing are not cheap. Now is the best time to cut the TIGHGER software losses and move on. If government agencies want features beyond the EPS platform, these could be implemented with Python scripts that are open-source and well documented; or ODOE could develop other tools for tracking or simulation, as long as these are open-source, online, free, and not available in the market.

*b) The Commission could consider recommending that the Legislature update the statutory list of OGWC ex-officio non-voting members to include all or some of the agencies listed above.*

*c) The Commission could consider recommending that the Legislature include a requirement for agencies to report on their climate work and progress to the Commission to help the Commission carry out its mandate. This was also mentioned in the Commission's 2020 Biennial Report (Recommendation 3).*

*d) The Commission could consider recommending funding for the Commission to create a state climate action dashboard as part of our statutory tracking and education responsibilities.*

*e) The Commission could consider recommending that the Legislature put these directives in statute as well. (See also Recommendations 3 and 4 of the 2020 Biennial Report suggesting reinforcing this direction through legislation and protecting funding for this work, respectively.)*

*f) The Commission could consider recommending the Legislature, via statute, reinforce these equity provisions included in the EO 20-04 and recommended by the 2020 Biennial Report.*

## **6. Position the state to take full advantage of federal investments in climate action.**

*The Commission could consider recommending that the state position itself to apply for and maximize the use of those funds – and to ensure the funds are being used to engage and serve communities most in need.*

*Of course.*

Again, thank you for the opportunity to express our thoughts and priorities. Hopefully these comments are helpful.

Eric Strid  
Director, Power Oregon

Josh Bratt  
Director, Power Oregon



To: Oregon Global Warming Commission  
November 13, 2022

**RE: Oregon Global Warming Commission's Roadmap to 2035 draft recommendations**

Dear Chair Macdonald and Commission Members,

We, Climate Reality Project Portland, applaud the work of the Oregon Global Warming Commission and appreciate the opportunity to comment on the draft recommendations for the Roadmap to 2035:

**On Recommendation 6** (Position the state to take full advantage of federal investments in climate action):

- We agree it is essential for legislators and state agencies to keep in mind the Commission's statement that the potential funding provided by the federal Infrastructure Investment and Jobs Act and the Inflation Reduction Act were *not incorporated into the TIGHGER analysis and therefore reaching or increasing the state's GHG emissions reduction goals may cost the state and state residents even less than modeled* and prioritize making those federal investments serve the public.
- We encourage the Commission to change the draft wording "maximize the use of those funds" to something like "**maximize the community benefits** available from those funds." The following example explains why: Oregonians will benefit far more from funds that help them increase home energy efficiency, and heat pumps vs gas, propane or wood space or water heating than from a fuel producer being granted the same amount of money for a carbon capture and storage project. Without even considering whether CCS will succeed in sequestering the CO2 long term, the home based projects reduce utility cost and provide health benefits from reduced indoor and outdoor air pollution while the CCS project fails to mitigate health harms from air pollutants other than CO2 and does not deliver energy cost reductions to the consumer. In addition, a CO2 pipeline explosion can have devastating effects\*. The state of Oregon should prioritize utilizing the programs which have the most benefits for residents, especially in those communities most in need.

We support the items in **Recommendations 4 and 5** (Fund future studies to continue to guide climate action over time and Strengthen governance and accountability for Oregon Climate Action), and want to emphasize that:

- climate change is the most society-wide, economy-wide, and complex challenge that must be addressed by this generation, so

- achieving effective climate action requires breaking down silos and having all government agencies communicate with each other and with the public about what to do and how to do it.
- recommendations **5c** and **5e** in particular are crucially important to the success of Oregon's climate goals: agency coordination and reporting requirements on GHG emissions in statute underpins all other measurement and management initiatives, and the funding and data for this effort should not be at the whim of shifting executive branch priorities.

On **Recommendation 3** (Recommend a set of actions for legislative or executive branch action...)

- We **strongly support electrification** only and common actions.
- We **have reservations** about the hybrid only actions due to public health, safety, and equity concerns.
- We **strongly oppose** the hybrid only action of "15% hydrogen injection into the pipeline by 2035." This action would only increase costs to consumers because hydrogen delivers only half the amount of energy that was needed to produce it, could potentially increase emissions if the hydrogen were produced with natural gas, and would reduce availability/increase costs for necessary uses of hydrogen. Hydrogen use should be limited to hard to electrify sectors and potentially as electrical capacity storage (during periods where solar and wind are producing more than needed by the grid, excess capacity could usefully be turned into green hydrogen and reserved to shore up peak demand on the grid.) In addition, adding hydrogen to the natural gas pipeline would prolong the health, safety, and climate hazards of natural gas.

We also **support Recommendations 1 and 2** (Support continued implementation of climate programs and regulations adopted or under development and adopt updated state greenhouse gas reduction goals), and emphasize the importance of **community input and public health, safety, and equity considerations** in deciding how these are achieved. Results for residents on the ground matter more than the numbers on the page.

We are copying below our previous letter to the commission which includes additional recommendations for future OWGC studies including:

- modeling the climate and health costs of leaks from all fuels
- considering the significant food security and indirect land use change impacts from increases in biofuel and biomass use
- our support for Commissioner Magnera's request during the 8/18 meeting to model displacement costs and displacement prevention as one of the critical co-benefits in updates to the Roadmap to 2035 cost-benefit calculations.

Thank you,

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

[\\*https://www.desmoinesregister.com/story/money/agriculture/2022/09/11/here-minute-details-2020-mississippi-co-2-pipeline-leak-rupture-denbury-gulf-coast/8015510001/](https://www.desmoinesregister.com/story/money/agriculture/2022/09/11/here-minute-details-2020-mississippi-co-2-pipeline-leak-rupture-denbury-gulf-coast/8015510001/)

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(attached previous letter)  
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. 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 facilities<sup>3</sup>, 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 research<sup>4</sup> shows troubling short term impacts from hydrogen leaks—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.<sup>5</sup> 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.<sup>6</sup> 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.<sup>7</sup>

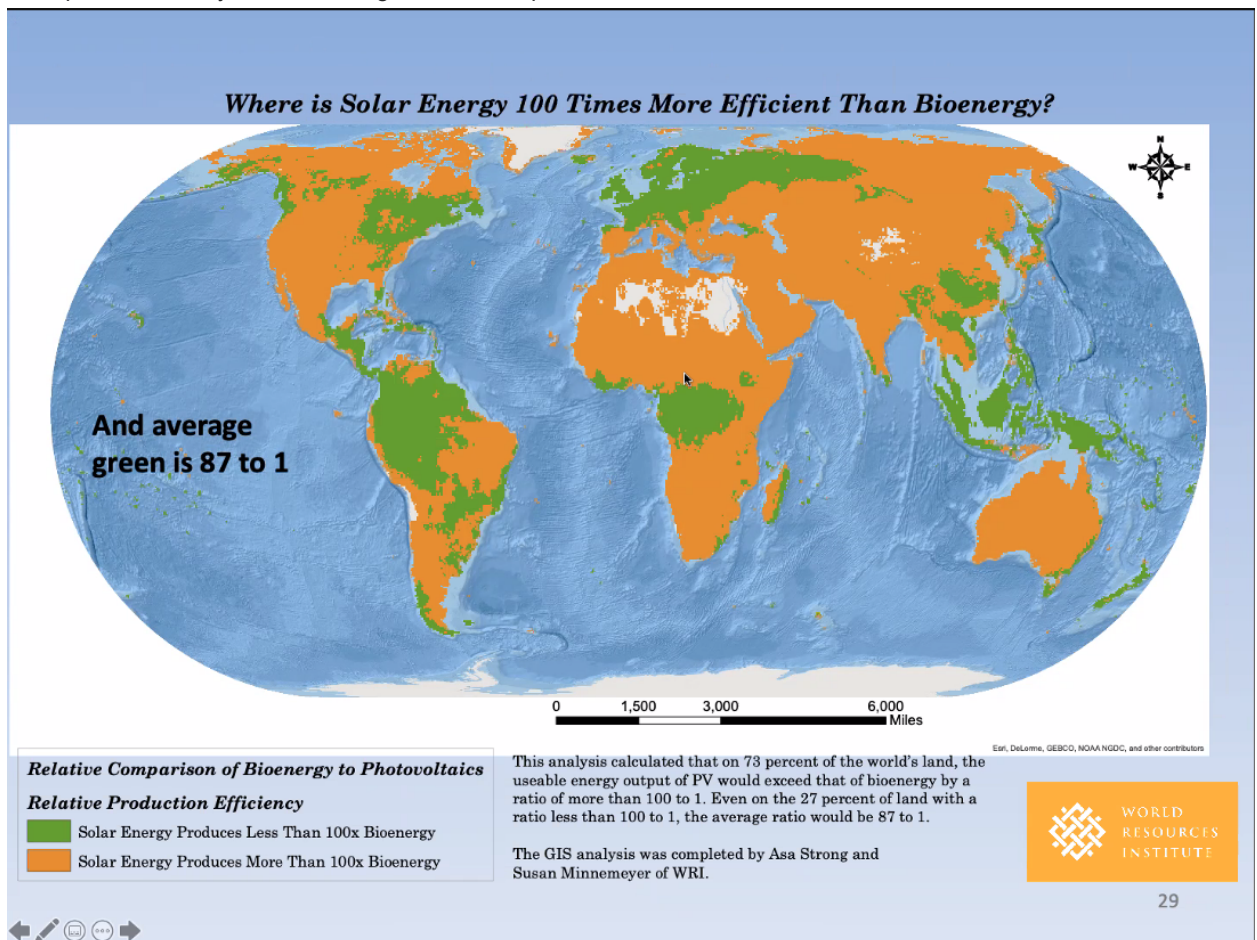
- **Factor in the differing costs of displacement due to climate disasters like wildfire:** We strongly support Commissioner Oriana Magnera's request during the 8/18 meeting to model displacement costs and displacement prevention as one of the critical co-benefits in the Roadmap to 2035 cost-benefit 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.<sup>8,9</sup>
  - 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 Project<sup>10</sup> as additional resources for this investigation, in particular Climate Change and Displacement in the U.S: A review of the Literature.<sup>11</sup> "
  
- **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<sup>1</sup> communities from grid reliability. For instance, how can Oregon benefit from the up to 50% reductions in costs for micro-grids<sup>2</sup>, 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 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-micro-grid-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-outrstrip-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](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.

**From:** League of Women Voters of Oregon <lwvor@lwvor.org>  
**Sent:** Monday, November 14, 2022 2:55 PM  
**To:** ODF\_DL\_Board of Forestry <BoardofForestry@odf.oregon.gov>  
**Cc:** Oregon GWC \* ODOE <Oregon.GWC@energy.oregon.gov>  
**Subject:** LWVOR Supports HCP Habitat Conservation Plan Alternatives 2&3

Hello,

Please see the attached testimony sent from Peggy Lynch, Natural Resources Coordinator, and Becky Gladstone, President, on behalf of the League of Women Voters of Oregon.

Staff

**League of Women Voters of Oregon**

Phone: [503-581-5722](tel:503-581-5722); Email: [lwvor@lwvor.org](mailto:lwvor@lwvor.org); Web: [www.lwvor.org](http://www.lwvor.org)



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*The League of Women Voters of Oregon is a 102-year-old grassroots nonpartisan political organization that encourages informed and active participation in government. We envision informed Oregonians participating in a fully accessible, responsive, and transparent government to achieve the common good. LWVOR Legislative Action is based on advocacy positions formed through studies and member consensus. The League never supports or opposes any candidate or political party.*

Nov. 16, 2022

To: Oregon Board of Forestry  
Jim Kelly, Chair  
Members of the Board

Email: [boardofforestry@odf.oregon.gov](mailto:boardofforestry@odf.oregon.gov)

Cc: Oregon Global Warming Commission ([Oregon.GWC@Oregon.gov](mailto:Oregon.GWC@Oregon.gov))

Re: Agenda Item 6: Habitat Conservation Plan Alternatives 2&3– **Support**

**The League of Women Voters of Oregon Supports Alternatives 2 & 3 of the Western Oregon State Forests Habitat Conservation Plan.**

The League of Women Voters of Oregon supports Oregon’s statewide land use planning program. Specifically, we support Goal 4 that promotes the management of forest lands for both economic development and their value as natural resources. We believe that the state should have the prime responsibility for establishing statewide planning goals and for supervising and coordinating comprehensive land use plans, with participation by the public, implemented by local and regional governments. Full accounting of all costs, including cumulative ecological impacts, of timber harvests and other forest uses must be considered in forest activity decisions.

We support both the tenets and the recently approved rules of the Private Forest Accord and believe that the second and third alternatives of [The Western Oregon State Forests Habitat Conservation Plan \(HCP\)](#) best represent the intent of the negotiations and the purpose of an HCP in protecting endangered species as required by federal law. As part of the National Environmental Policy Act (NEPA) process, an [Environmental Impact Statement \(EIS\)](#) is required. Five versions of the HCP were modeled and analyzed for their environmental impact in 12 topic areas ranging from impacts on soils, water, and wildlife to socioeconomic, environmental justice and carbon storage impacts. We believe that Alternatives 2 and 3 will accomplish the best outcomes for most Oregonians, including those who rely on timber production.

The LWVOR recently adopted [positions on forestry](#) stating “...all benefits of the forests—ecological, human and economic—are inextricably interconnected. Healthy forests are essential to habitat for a diversity of plant and animal life, to the hydrologic cycle, and to carbon storage to mitigate global warming. In addition, healthy forests are essential to a forest products industry with the jobs and goods they provide, and to the economic and aesthetic values of their recreational opportunities.” Additionally, we believe that “Riparian zones are an integral part of the forest ecosystem and must be regulated adequately to protect the streams and the wildlife dependent upon the streams.” Also, we appreciated that the HCP development process allowed for ample public input and engagement in all of the HCP alternative plans.

The Habitat Conservation Plan (HCP) presents a balanced approach to satisfying the federal requirement for protecting endangered species while permitting timber harvests on ODF-managed lands. The reasons we support the plan are:

**For the timber industry, it provides:**

- Clear maps delineating what areas can be logged in the future. That will allow for better planning of future operations and revenue expectations for 70 years.
- A degree of legal assurance for the timber industry that they will be less likely to be subjected to future costly lawsuits for accidental takes.
- An ample number of acres of land that is available for harvest (about half the land) without concern about shrinking permit areas or additional endangered species in the future.
- Financial stability for counties dependent on timber revenues with better volume and revenues than the current Western Forest Management Plan (FMP).
- The comparative analysis points to more land permitted for future timber harvests going forward in the Habitat Conservation Areas (HCAs) than the current plan.
- Streamlined timber sale process to improve time to market and capture high market prices.
- New tax credit provisions and an agency office responsive to small forest owners to partially compensate them for timber sale losses due to new stream buffer requirements.

**For Oregonians concerned with the conservation of wildlife and high-quality drinking water sources, it provides:**

HCAs preserve more contiguous areas (fewer patch areas) for the habitat protection for endangered species as required by federal law:

- Assures protection for streams, with wider buffers to keep streams silt-free and cool enough for fish, including the non-bearing streams that feed into them
- Elimination of costly land surveys prior to timber sales and forest operations, which should free up ODF resources for monitoring and other adaptive management projects
- More assured funding for ODF management through more consistent harvest volume and revenue
- Additional carbon sequestration to mitigate CO2 emissions as a bonus
- Helps with cleaner drinking water resources, improved soils and reduced algae blooms.

The plan lives up to ODF's obligation to manage for Greatest Permanent Value for all Oregonians. The EIS report provides tables comparing the plan alternatives, and we conclude that Alternatives 2 and 3 will provide the best outcomes and overall benefits to most Oregonians as we face future climate conditions.

We appreciate the opportunity to submit our comments and hope they will be helpful.



Rebecca Gladstone  
LWVOR President



Peggy Lynch  
LWVOR Natural Resources Coordinator

**From:** Laura Tabor <laura.tabor@TNC.ORG>

**Sent:** Monday, November 14, 2022 4:56 PM

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

**Subject:** Public Comments on Draft Recommendations Framework

Hello,

Please find attached comments on the draft recommendations framework memo for the Roadmap to 2035.

Thank you!

Laura

**Laura Tabor**

Climate Action Director | *she/her*

The Nature Conservancy in Oregon

999 SW Disk Drive, Suite 104 | Bend, OR 97702

[laura.tabor@tnc.org](mailto:laura.tabor@tnc.org) | 541.241.1734



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

November 14, 2022

Oregon Global Warming Commission

Public Comment on Draft Recommendations for Roadmap to 2035

Submitted by Laura Tabor, Climate Action Director

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Chair MacDonald and Members of the Commission,

Thank you for the opportunity to provide comments on the proposed recommendations framework for the Oregon Global Warming Commission (OGWC) Roadmap to 2035 report.

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.

In considering the six overarching strategy recommendations, we encourage the OGWC to prioritize recommendations that will ensure a combination of sustained policy progress and effective, equitable implementation of existing policies. The draft recommendations can align with these priorities as follows:

- Recommendation 1 is critical for continuing to advance nation-leading policies to get on track toward existing state greenhouse gas emission reduction goals and an emissions reduction trajectory aligned with limiting global temperature change to 1.5°C.
- While we support formalizing increased climate ambition as outlined in Recommendation 2, this should only be done in conjunction with, not in place of, specific policy actions that advance implementation towards climate goals.
- We strongly support OGWC developing actionable recommendations based on the TIGHGER analysis scenarios and the other relevant reports referenced in the memorandum which identify a holistic approach to climate action in Oregon. We look forward to future opportunities to comment on these potential actions.
- We encourage the OGWC to prioritize recommendations that support extensive public engagement and other activities which can inform program development details (e.g., the "how" to build on the "what" identified in TIGHGER modeling). Studies and modeling may still provide value, but it will be important to focus on what efforts will be most useful in program

design and implementation—some of which may need to happen through individual agency processes.

- Recommendations 5 and 6 are both critical for effective climate action in Oregon. They are also linked in that strong governance, coordination, and shared vision across agencies on how to implement programs to equitably reach climate and energy goals will greatly increase the state’s ability to proactively take advantage of federal climate investments. We encourage OGWC to develop more specific recommendations as to how the state can position itself to leverage federal investment to make this area as actionable as possible.



**From:** Arthur Stamoulis, Trade Justice via ActionNetwork.org <arthur@tradejusticefund.org>  
**Sent:** Tuesday, November 15, 2022 6:51 AM  
**To:** Oregon GWC \* ODOE <Oregon.GWC@energy.oregon.gov>  
**Subject:** Stop trade attacks on green jobs initiatives!



Dear Friend,

Officials from the U.S. and Europe are meeting in Washington, DC next month for a round of trade negotiations that could have a major impact on future green jobs initiatives.

**[Please join us in urging the U.S. Trade Representative to use these talks to propose a "Climate Peace Clause" that ends trade attacks on green jobs programs and other climate policies.](#)**

At this very moment, the EU and other governments are using trade pacts to attack the electric vehicle tax credits and other climate provisions of the United States' recently-passed Inflation Reduction Act (IRA).

The provisions under attack represent the type of programs that must be improved and expanded in order to create good-paying green jobs and to accelerate the transition to a clean energy economy. Instead they're being undermined by outdated trade agreements.

Trade challenges like the ones threatened against us by the EU are an obstacle to ambitious climate action and a livable future.

As negotiators meet to discuss the terms of U.S.-EU Trade and Technology Council (TTC) agreements, we're asking the lead U.S. trade official to propose and adopt a Climate Peace Clause under which all parties agree to stop using the dispute resolution mechanisms of any trade and investment pacts to challenge other countries' climate initiatives.

We'll be delivering thousands of comments from people like you while there's still time to make a difference in the TTC talks and other pending trade negotiations.

**[TAKE ACTION: Please sign our petition urging the U.S. Trade Representative to end trade attacks on climate policies by advancing a Climate Peace Clause in upcoming trade negotiations.](#)**

***Want to learn more about Climate Peace Clause proposals?*** Join us this Wednesday evening for a webinar on **["Stopping Trade Attacks on Climate Policy."](#)** You can **[RSVP here.](#)**

Many thanks!

Arthur Stamoulis  
Executive Director  
Trade Justice Education Fund



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# Feedback on draft list of actions

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## General Comment from Ben Sias 11/15/2022 on Roadmap

Given the state of Oregon goal to achieve 100% fossil free energy by 2040 and given the fact that CAPACITY based resources are needed to supply electric energy needs when there is no available energy from wind and solar resources (which are intermittent resources only), does the Department Energy consider using more nuclear power to fulfill this need in the future. There are no carbon emissions from nuclear generation. Capacity based resources are needed because we can't rely totally on wind and solar. Given this fact, is there any consideration for incorporating nuclear power in future resource planning? I appreciate your comments.