

Received 11/20/2020

Dear Oregon Global warming commission,

Global warming is a direct indictment on our totally unsustainable lifestyles, nothing less, as global warming was hardly an issue 3-4 generations ago. It's critically important to understand the human time frame of global warming verses geological time frames.

Today manifestations are everywhere so it is critically important you understand where the biggest threats are coming from and where the biggest opportunities might be.

There are two critically important aspects I wish to address 1) Forestry and 2) Energy conservation as they both play a critically important role in climate change. I have included a paper I gave for the National Roundtable on Sustainable forests and a presentation I made to the Northwest power planning council as references – above.

First, I'd suggest you clean up the top management of ODF as they all have been hand maiden's for the for the timber industry. it's obvious and has been for as long as I have attempted to communicate with ODF for over 3 decades now. Let me share just a couple direct experiences that illuminate my claims.

- 1) The history of Quartz Creek off the McKenzie river just west of Blue River. This was privately owned and thus under the auspices of the Forest practices act. The Finn rock camp provided housing and a community for many of the loggers before 1990. The land was totally clear cut and ODF recorded 562 designations of high risk areas, high risk sites and Northern spotted owl sites. There was NO mitigation or CONSEQUENCES for ignoring those designations. The foxes guarding the chickens. Then in 1996 with the two flood events (FEB and NOV) the EWEB water intake read 2200 NTU units (2/6/1996) with most of the silt/soil coming from Quartz Creek. So how does ODF deal with my inquiries over these decades? Well recently they told me they only keep records for 7 years now. How convenient, ignorance is bliss.
- 2) The second issue is the continual reluctance or inability to discuss or debate the foundation principal of the forest practices act – 'greatest permanent value'. I believe Industrial forestry is akin to killing the buffalo for it's tongue or skin with massive wasting of Earth's resources that leads to extinction of culture's. Forestry is just one resource that we exploit and ignore the consequences environmentally, economically and socially. Today in the heart of the most productive soft wood forest on the planet there are NO thriving rural forested communities. Industrial forestry is a short boom followed by protracted bust, EVERY TIME. It represents the greatest good for the fewest number for the shortest time, no exceptions. When does anyone hold anyone accountable?

Clear cut Industrial forestry with short rotations IS THE PROBLEM in spades whether we are talking about carbon sequestration, ecosystem services, boom busted economic cycles (every time) or how plantations have totally exasperated catylsmic wildfires. The consequences are everywhere but not accounted for in any 'official' study or documentation. With ODF the foxes are truly guarding the

chickens and extinction will eventually follow. You have direct responsibility for your children and mine in this matter. I hope you will take it as seriously as I do and stop all Industrial forestry, period.

To put it in perspective, the Willamette National forest where I live the last 46 years has 110 years of history. If one looks at the harvest per generation (20 years per generation) the 2 generations between 1950 and 1990 cut 25.5 BILLION board feet. The other 3 ½ generations (2 before 1950 and 1 ½ after) they cut around 4 billion board feet, mostly old growth. This should put the overcutting into clear perspective. Old big trees sequester vast mounts of carbon among many ecosystem services they provide. Plantations are the opposite both in terms of carbon sequesters and well as undermining all ecosystem functions as well as the economic and social dysfunction that follows the short boom and protracted bust, every time. When do we learn?

Secondly we have a deeply dysfunctional approach and effort toward Energy conservation the number 1 regional priority for the last 40ty years under the Northwest power planning act of 1980. Conservation provides the most cost effective and immediate path to reduce energy usage that drives global warming. There are 4 key areas I believe must be addressed to ensure we follow the wisdom of the Act.

- 1) All rate structures must embody the wisdom of conservation or be denied preferential tiered rates. Currently 96% of BPA's residential sales (Consumer owned utilities – COU's) are NOT regulated (2018 BPA facts sheet) and many have increased their basic charges 3-4-5 fold in the last decade, directly undermining conservation.
- 2) Most energy conservation programs operate under 'deemed or projected' savings with very little if any verification after implementation. Pay for performance programs are different but a very small % of the mix, directly undermining the 3rd area – conservation ethics.
- 3) When REA and rural electrical cooperatives were created in the mid 1930's the ethic of 'public good and benefit and waste not want not' was fundamental to the times. My utility of 49 years, Lane Electric has 81 years of history. The first 40ty years there were NO rate increases, since the late 1970's there have been 21 rate increases. I use to pay 12 dollars a year in basic charges, today it's 408 dollars a year, over 60% of my total energy bill per month.
- 4) Perhaps most draconian is that current rates do not identify or hold accountable 'excessive consumption' where historically the projection of energy shortfalls lead to WPPSS and continual rate increases. There are still some utilities with inverted rates where the more one uses the less one pays.

The fact that 90 plus percentage of conservation measures have 'deeded or projected saving', not verified at the end user meter over time. Deemed or projected saving is can be totally irrelevant to conservation and energy savings without verification over time.

Energy conservation has been the REGIONAL #1 energy priority for 40ty years now, but what have we really achieved? No one knows for sure but it's a far cry from those bogus projected numbers. Meanwhile energy conservation holds the greatest promise to show down global warming if it's legitimate, effective and verifiable. Given the retirement of Boardman and the possible breaching of some hydro dams, it's critical that we make conservation (which is always the less cost and most effect source) our first priority, with verification to back it up.

I would be happy to answer or address any and all relevant questions regarding this testimony, if there are any. I request a response back. Thank you.

Stay safe,
Craig Patterson

Attachment: NWPPC presentation

Energy conservation – revisited

Forty years ago, the Northwest Power Planning Council established 'Conservation' as the number one priority of the Region through the Northwest Power Planning Act. Looking back from 47 years of involvements, I have concerns about the practice, accounting, learning and application of past lessons.

Carl Jung once said, "Enlightenment isn't about imaging figures of light, but about making the darkness conscious".

Perhaps a corollary in Energy conservation might be:

Energy conservation isn't ONLY about new technologies and projected savings but about learning the lessons of the past and specifically the conservation ethic from which the Rural Electrification Administration grew.

To not learn these lessons condemns us to repeat them. I would submit we have not yet learned the lessons of the past and we have forgotten the ethic.

I came to Oregon in the summer of 1971 after graduating from college with a job as a river guide on the Rogue. I never left. I

have been a customer of Lane Electric for 48 years now, first in Lorane and now in McKenzie Bridge.

When I started with Lane Electric, electricity cost 1 cent a KWH and 1 dollar monthly. In fact, that rate had been maintained for ½ of Lane's 80-year history (the first forty years) until the projected energy shortfalls and taking the nuclear path with the Washington Public Power Supply System affectionally known as WPPSS. That path has forever changed the present and future with indebtedness that will last for generations. Nuclear power advertised as 'too cheap to meter' has become 'too expensive to comprehend' with 5.5 Billion dollars of indebtedness through BPA while providing 4% of its power and no end in sight for permanent storage.

Adding fish and wildlife costs, closing coal generation and perhaps removing dams, coupled with distributed generation where wind and solar are costing 2 and 3 Cents/KWH (less than current wholesale) all point to many changes ahead. How we address those will depend upon how we learn from our past and understand consequences into the future.

In my 48 years of being a Lane cooperative customer I have experienced many changes. The first years were stable and consistent. Then after my 6th year the rate increases began. I've been involved in energy issues since arriving here, starting with questioning the need or wisdom for Nuclear power to the Direct Service Industries subsidizes to my direct involvements and research in energy conservation and renewable since the late 1970's. I have focused on the comprehensive inter-

relationships, consequences and trends and their implications forward.

In the 1930's the Rural Electrification Authority was established to bring electricity to rural communities all over the county. It was special time of hard work, determination and sacrifice. The adage 'waste not, want not' grew out of those times as conservation was an 'ethic' throughout the initial history of public power. As testimony to that ethic, there were **no rate increases** for the first 40 years in my cooperative – Lane Electric. Imagine developing a utility from nothing and keeping the rate flat as many rural cooperatives did back then. It was an embedded value and 'ethic' which seems to be largely gone today.

Since 1970, Lane Electric has seen 20 increases beginning with the 3 major increases in the WPPSS years. However, this recent decade has brought by far the most significant increases as our basic charge almost tripled (12.50 to 31.50). Salaries have increased where the general manager makes (Salary and benefits) around 300K and top employees average 125 - 175K. Even the board of directors increased their 'compensation' 10-fold all of which speak to their real priorities and lack of conservation ethic.

Meanwhile the rural communities they serve have experienced serious economic downturns as rural jobs disappear in droves. In the 1980's, wood products employment in Lane county was above 70%, today it's 3-4% as one metric. Another is the

McKenzie school district that had 1200-1400 students, today has 200 in 13 grades.

All of this points to the fact we have taken the wrong path relative to energy and specifically conservation for three important reasons.

First when energy conservation isn't universally embodied in rate structures, it directly and indirectly undermines conservation. Consumer owned utilities - COU's are not regulated by the PUC and they have taken advantage and raised basic charges through the roof. Lane Electric is at 31.50, Blachy-Lane at 53, West Oregon at 42 a month compared to regulated PP&L at 9.50 and PG&E at 10. It's almost like this is the new 'gold rush' as there is no oversight. I will compare different Utilities and how their rates effect different use patterns; 170 KWH/month and the average at 1000 KWH a month for a universal comparison = \$/KWH.

While there are many things alarming trends about non-regulated utilities what is most egress is that 96% of BPA's public power sales in Oregon go to utilities which are NOT regulated. One might think this renders the Public Utility Commission ineffective, but not those involved as they have essentially ignored my requests to discuss this. Thus, I bring these questions and concerns to you.

Second reason is that current rate structures do not embody conservation nor learn the past lessons of projected shortfalls

and rate increases. Understanding how our past choices have dramatically affected rates and trends is essential. Today 'excessive consumption' is ignored and even encouraged through rates. Privatizing the benefits and socializing the liabilities is not a sustainable path. I heard one Utility customer had used over 22,000 KWH/month paying the same as everyone, with no consequences. Where is the learning of the past?

Third, reason and perhaps the biggest difference between 40 years ago and today is Ethics or a lack there of. The 'ethic' of the cooperative focusing on public good is largely gone when view from rate structures and current board decisions. This is manifest in several different ways including:

- 1) Punishing both energy conservers and those on fixed energy budgets (poor and elderly) by exorbitant rates, taking away individual control over their bills. Lane's board arbitrarily decided to change the 'maturity' of capital credits (the mechanism for returning 'profits' to maintain their tax-exempt status) from the historical 20 years to 30 years.
- 2) Conservation programs where 80% of the benefits go to 20% of the customers. Energy savings which are 'projected or deemed' but never verified over time after implementation. Thus, the opportunity to instill the 'ethic' of conservation is lost.

3) The lack of openness and transparency today in cooperatives is most disconcerting as they fast track down this path of higher basic fees.

What is a model conservation rate structure?

A model “**conservation**” **rate structure** would reflect a low basic charge (historically to cover meter reading and billing) and perhaps 10 tiers increasing by .008 cents per tier with 200 KWH between tiers. The first 400 KWH (Lifeline rate) would be at wholesale cost then increasing blocks where the last one is 20 cents/KWH. That would quickly send the message of conservation while identifying areas needing attention (low income - high users) providing additional revenues to address those issues. The last tier is more than double many utilities KWH charge now, so if that doesn't get attention about conservation then either they don't care about the cost or they take serious steps to conserve. A win-win.

There is need for many tiers so that conservation is 'achievable' for a family or individual to voluntarily meet that next lower tier/rate through instilling the 'ethic' and savings of conservation, allowing households to have maximum control over their bill, encouraging conservation and building upon that ethic.

It's time to recognize that our energy problems/issues can't be solved on the same level of thinking that created THEM. We

have accepted far too many externalities and unintended consequences without integrating them into our learning and financial analysis. We have many major challenges ahead not the least of which is ensuring that our energy foundation embodies and requires conservation. It doesn't today. While renewables and new technologies are compelling, they are also undermined by bad rate structures. Focusing on them before exhausting all conservation benefits is putting the cart before the horse. One study by the NW Energy coalition showed that most of the conservation benefits from Lane's 1000.00 conservation rebate program is nullified by the high 31.50 basic charges over time. Penny wise and pound foolish seems to be our current path, can we do better?

When I compare different Utilities rates by my usage (170 KWH) and the average resident (1000 KWH) then take the total bill and divide by 30 days both \$ amount and KWH used. At 170 KWH a month I'm using 5/KWH/day and at 1000 KWH – 33/KWH/day so dividing usage into \$ amount/day I get a universal cost of KWH. **Universal rates \$/KWH** per different usages/Utilities - bold.

Lane Electric Cooperative – advertised Basic 31.50 - .0895 KWH Usage: 170KWH- Cost/KWH % of basic 1000KWH-Cost/KWH- % of basic

\$46.72 - **.28/KWH** - 68%
26%

\$121 - **.12/KWH** -

Blachy-Lane Cooperative – advertised Basic \$53 - Increasing
.0937KWH after 1500 - .13 KWH

Usage: 170KWH- Cost/KWH % of basic 1000KWH-Cost/KWH- %
of basic

\$68.93 - **.46/KWH** - 78% \$146.70 - **.15/KWH**
– 36%

West Oregon Cooperative – Advertised Basic \$42 – decreasing
rate .1543 for first 1500KWH then .1191

Usage: 170KWH- Cost/KWH % of basic 1000KWH-Cost/KWH- %
of basic

\$68.23- **.45/KWH** – 62% \$196.30 - **.20/KWH**
– 21%

Harney Electric Cooperative - Advertised Basic \$31.50 includes
150KWH and 9 cents KWH.

Usage: 170KWH- Cost/KWH % of basic 1000KWH-Cost/KWH- %
of basic

\$ 33.30- **.22/KWH** – 54% \$108.00- **.11/KWH**
– 17%

Emerald PUD – Advertised Basic \$28.75 and .0796 KWH

Usage: 170KWH- Cost/KWH % of basic 1000KWH-Cost/KWH- %
of basic

\$42.28- **.28/KWH** – 68% \$108.35- **.11/KWH**
– 26%

Investor Owned Utilities

PG&E Advertised Basic \$10 - .13 KWH

Usage: 170KWH- Cost/KWH % of basic 1000KWH-Cost/KWH- % of basic

\$32.10 - **.21/KWH** – 31% \$140.00- **.14/KWH**
– 7%

PP&L Advertised Basic \$9.50 - Increasing rate .0955 first 1000KWH then .1159.

Usage: 170KWH- Cost/KWH % of basic 1000KWH-Cost/KWH- % of basic

\$25.74- **.17/KWH** – 37% \$105.00 - **.11/KWH**
– 9%

This graphically shows how high basic charges **undermine conservation**. Blachly-Lane and West Oregon's (NOT REGULATED) costs are almost 3 times higher than Investor owned utilities (REGULATED) for a conserver like me. It also shows how **consumption is rewarded** as a small basic % of bill diminishing as the volumetric increases with no consequences for excessive consumption. Notice how Blachly-Lanes average usage (1000 =15 cents per KWH) is one third my low usage rate (170 = .46 cents per KWH) undermining both the intent and consequences of conservation. This need addressing. These trends have happened most aggressively in the last 10 years and there is no end in sight as I'd heard talk of 60, 70 even 80 dollars a month/Basic.

In contrast, Springfield Utility board which has the lowest rates in the State compares as follows:

Springfield Utility Board Basic is 14.00 Increasing rate -seasonal from .0575 KWH to ,0676KWH

Usage: 170KWH- Cost/KWH % of basic 1000KWH-Cost/KWH- % of basic

\$23.78 - **.16/KWH** – 59% \$71.50 - **.07/KWH** – 19.5%

How can we disregard CONSERVATION as our regional priority? How can the Northwest power planning council seek ways remedy these undermining inequities as you are the ‘rudder’ of BPA. Don’t you have a responsibility to ensure compliance with the Act given that COU’s are now acting so far outside the mandate of energy conservation? Perhaps some of the responsibility belongs to BPA and the Public Utilities commission as well. However, given the gravity and trends it seems it is no longer time to ignore them as they both directly and indirectly undermine conservation.

I am not paid for this work and analysis. I am motivated out of my lifelong commitment to energy conservation and my concern that future generations have benefits and not just liabilities of our choices and decisions. It is toward that end that I offer these thoughts and reflections.

I trust that you will give this some consideration as you move forward.

In closing, I will quote Dr. Gus Speth author and educator who said:

“I used to think that top environmental problems were biodiversity loss, ecosystem collapse and climate change. I thought that thirty years of good science could address these problems. I was wrong. The top environmental problems are selfishness, greed and apathy, and to deal with these we need a cultural and spiritual transformation. And we scientists don’t know how to do that.”

Thus, the importance and need of including “ethics” into our discussions and analysis.

Thank you for your consideration of these interwoven and complex issues and perspectives. I hope you will consider them and respond to me. If there is interest in pursuing this further, I am available.

Many Regards,

Craig Patterson
91949 Taylor road
McKenzie Bridge, Oregon 97413
craigmpatterson@msn.com

Received 12/1/2020

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

Name: Dave White

Email Address: research@cctruth.org

Subject: Plant native trees and shrubs is the only way to lower atmospheric CO2

Message: The Intergovernmental Panel on Climate Change reports are science fiction!
<http://leftmedialies.com/video06122020a.mp4> or cctruth.org/ipcc.pdf
Science is never settled! Climate Change Conference where I schooled a IPCC WG II Ph. D.
<http://leftmedialies.com/Dave-white-presentation.mp4>
Residence time with covid-19 http://leftmedialies.com/residence_time_with_COVID.pdf

Received 12/1/2020

Our goal for 2021 is to cause more than 2.5 billion native trees and shrubs planted. I have commitments for 2 billion more already.

I will be presenting at the AGU Fall Conference. Other presentations are on the climate change page on leftmedilies.com Climate Change Conference zoom.
<https://lnkd.in/dc5XR66>

On Netflix please watch “kiss the ground” movie. I clearly explains why we can’t lower atmospheric CO₂ by working on emissions of CO₂.

These are scientific facts:

Atmospheric CO₂ is not an emissions issue. It’s a loss of photosynthesis. The residence time is 150 years!

Our experiment on US 26E in Portland Oregon Clearly shows we can plant native shrubs and trees

The Intergovernmental Panel on Climate Change reports are science fiction!
Cctruth.org/ipcc.pdf

I review their reports just like I review manuscripts for the journal where I am now promoted to editor because of my expert reviewability.

For example: would you take your car to be fixed by a mechanic who said they could fix it 50-66% of the time? Of course not. However we have given the IPCC 30 years and \$2.8 trillion and they have no effect on atmospheric CO₂ or anything. If this would have been a college class they would have scored an F.

The global sea rise is 1.1 mm/yr and not accelerating!

COVID-19 is not a pandemic. Open the world now! Please donate on
<https://donate.kindest.com/963466-climate-change-truth-general-funds> **Even \$5 a month helps!**

HCQ and Zinc are a treatment. Once there is a treatment this is no longer an emergence and therefore you can’t call it a pandemic! We only have 9700 deaths

due to COVID-19 not the 220000 the CDC is lying about. No one needed to die. The CDC broke federal laws. https://cf5e727d-d02d-4d71-89ff-9fe2d3ad957f.filesusr.com/ugd/adf864_411c766e79174b17b8911fcae08722b1.pdf

We have all the data from every state, most of Europe and Asia since March
http://leftmedialies.com/Grand_Jury_Petition.pdf
<http://www.leftmedialies.com/index.php/covid-19/>

Thanks

Dave White

Chemical Engineer with Masters level study in Statistics research@cctruth.org 971-409-7199
Climate Change Truth Inc. [The Intergovernmental Panel on Climate Change reports are science fiction](#)
More than 5 billion trees have been planted due to the science I presented. 7 billion scheduled in the next four years. Cctruth.org

A 501-3c non-profit scientific research group. Limited funding at this time.

We have no agenda except the scientific truth about Climate Change and all research.

[Google Scholar](#)

[Facebook](#)

[Researchgate](#) pver 800 reads

[Acta Scientific agriculture Journal editor](#) and Board Member

<https://studio.youtube.com/channel/UCMs4YNKinCkmq8N3s1NmB4A>

Learn the correct unbiased science about Climate Change and Covid-19. Science is never settled!

Leftmedialies.com-> Climate Change page.

Keynote address at Climate Change Conference 9/22/2020 we have only 9680 deaths due to COVID-19.

Video from another conference where I schooled an IPCC Scientist.

Magazine article with video of my expert review of The Intergovernmental Panel on Climate Change reports which are science fiction!

Residence time document, which explains it.

State of Oregon sanctioned experiment.

Four more conference links

Leftmedialies.com -> COVID-19 page. 8 medical doctors and two attorneys on our team.

Video of Dr. H and I speaking at Open up Oregon

Another Doctor warns us not to take the COVID-19 vaccine

Our 4th manuscript shows the CDC broke the law when they threw out their standard pandemic book and used staff to write the guidance we are under. We only have 9700 deaths from COVID-19.

COVID-19 is not airborne transmitted. 5 proofs.

COVID-19 treatment is Hydroxychloroquine and zinc!

Children pose zero risk to spread COVID-19.

Three other published manuscripts.

Packet Overview

COVID-19 DATA: CDC VIOLATED FEDERAL LAW TO INFLATE CASES & FATALITIES

CDC Goes Rogue, Millions of Americans Suffer as a Result

ATLANTA October 15, 2020 – New research published this week alleges that the Centers for Disease Control & Prevention (CDC) willfully violated multiple federal laws regarding COVID-19 case and fatality data. In doing so, the research alleges that the CDC intentionally acted to defraud the United States, her elected officials, and her citizens. ([Click Here To Read COVID-19 Data Collection, Comorbidity & Federal Law: A Historical Retrospective](#))

Published on October 12th in the peer-review journal, *Institute for Pure and Applied Knowledge* (IPAK) within their *Public Health Policy Initiative* (PHPI) division, the research paper asserts that the CDC willfully violated multiple federal laws including the Information Quality Act, Paperwork Reduction Act, and Administrative Procedures Act at minimum.

Most notable in the author's findings is that the CDC adopted two key documents creating new rules for data collection and reporting exclusively for COVID-19. The authors demonstrate that the CDC failed to apply for mandatory federal oversight or open a mandatory period for public scientific comment essential for ensuring transparency in government. As a result, the author's assert that CDC willfully compromised the accuracy and integrity of all COVID-19 case and fatality data beginning on March 24th, 2020.

On March 24th the CDC published the **NVSS COVID-19 Alert No. 2** document that instructed medical examiners, coroners and physicians to deemphasize underlying causes of death by recording them in Part II of death certificates as "...the underlying cause of death are expected to result in COVID-19 being the underlying cause of death more often than not." This was a major rule change for death certificate reporting from the CDC's 2003 **Coroners' Handbook on Death Registration and Fetal Death Reporting** and **Physicians' Handbook on Medical Certification of Death**, which have instructed death reporting professionals nationwide to report underlying conditions in Part I for the previous 17 years.

On April 14th, the CDC outsourced data collection rule development to the Council of State and Territorial Epidemiologists (CSTE), a non-profit entity. On April 5th the CSTE published a position paper **Standardized surveillance case definition and national notification for 2019 novel coronavirus disease (COVID-19)** listing 5 CDC employees, including Director Robert Redfield, as subject matter experts. This key document created new rules for counting probable cases as actual cases without definitive proof of infection (section VII.A1 - pages 4 & 5), new rules for contact tracing which allow contact tracers to practice medicine without a license (section VII.A3 - page 5), and yet refused to define new rules for ensuring that the same person could not be counted multiple times as a new case (section VII.B - page 7).

By implementing these new rules exclusively for COVID-19 and without oversight or public scientific comment, the research alleges that the CDC willfully compromised the accuracy and integrity of all COVID-19 case and fatality data. These acts resulted in significantly inflated data that has been used by elected officials and public health officials, in conjunction with unproven projection models from the Institute for Health Metrics and Evaluation (IHME), to justify extended closures for schools, places of worship, entertainment, and small businesses leading to unprecedented emotional and economic hardships nationwide.

Received 12/3/2020



ROCPAC REPORT



Aerial view of the Almeda Fire, which was one of several Climate Fires that devastated communities throughout rural Oregon in September, 2020. (KDRV)

What a Year

Hello fellow ROCPACKERS!

I think it is safe to say that 2020 has been a year that none of us will ever forget. From a pandemic that shut down our country, crippled the global economy and is still raging, to a Presidential election that, mercifully finally seems to be ending. In the middle of those unprecedented events, state agencies have continued to lay the groundwork for implementing the Oregon Climate Action Plan (OCAP), the Governor's Executive Order on climate action, and ROCPAC has been there, representing the rural voice on Zoom meetings, town hall calls, and with written testimony.

In early September, an existentially challenging, stressful year became catastrophic for thousands of rural Oregonians when climate fires ripped across the state, obliterating

homes, businesses and entire communities. From the Holiday Farm fire in Lane and Linn Counties, to the Slater fire in Josephine County, to the Alameda Fire here in Jackson County that came within 50 feet of destroying the home of our Director, Hogan Sherrow the last half of the fire season reaffirmed that climate chaos is here. In the wake of tragedy, ROCPAC stepped up and partnered with the City of Talent, Rogue Climate and the Rogue Action Center to provide relief for victims of the fires and begin to chart a course for recovery. For all of the communities impacted by the fires, rebuilding in a smart, resilient, efficient way will be critical. The Climate fires of this season showed us all how important it is to have climate champions in positions of leadership in Oregon and across the nation.

The November 3rd elections provided Oregonians, and Americans the opportunity to make clear choices for climate action. From County Commissioner candidates, to the top two jobs in the country, climate voters had better options than ever before. ROCPAC helped voters know who the climate champions in Oregon are with our first [endorsements](#) during a general election. We also endorsed Measure 107, which passed with a large margin and will help begin to rein in campaign spending across Oregon. While not all of our endorsed candidates won their races, we added important allies at the state level, and helped to make sure climate was a top campaign issue throughout Oregon. ROCPAC also partnered with the Democratic National Committee, Council on the Environment & Climate Crisis to help make climate a national issue. While ROCPAC continues to be staunchly non-partisan, the Democratic Party has shown that it is the major party willing to listen to the science of climate change and to formulate policies to solve the climate crisis.

As we move beyond the election and begin to consider what is next, there are opportunities for ROCPAC to help move climate action forward in our state, but we need your help! Please take a few moments and [DONATE!](#) today to keep us working on the one issue that impacts all of us, climate change.

[DONATE!](#)

ROCPAC Moving Forward

As we enter our second year as an organization, we are planning for a Legislative Session, the likes of which Oregon has never seen. We don't know yet how much work will be done

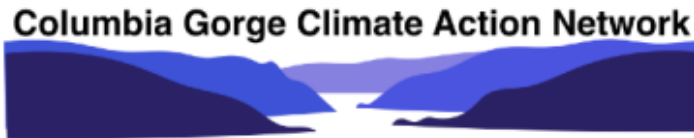
remotely and in person, but we know from our partners in the legislature, the statewide coalition, and beyond that climate will once again be on the agenda during the 2021 Legislative Session, and that ROCPAC will be needed. We will be helping to draft legislation and then move it through the legislature during the session.

If there is anything the past year has taught us it's that ROCPAC fills an important role in statewide efforts to pass meaningful climate legislation and we could not do that without all of you!

Sincerely,

Hogan M. Sherrow, Ph.D.
Director
Rural Oregon Climate Political Action Committee (ROCPAC)

Received 12/7/2020



To: Oregon Global Warming Commission, oregon.GWC@Oregon.gov
From: Eric Strid, Columbia Gorge Climate Action Network
Subject: The electric vehicle transition in the Final Draft 2020 Biennial OGWC Report 1117 2020-2
Date: Dec. 7, 2020

Summary:

- The Final Draft Report misrepresents median business-as-usual forecasts for electrification of the transportation sector.
- Transportation is the largest GHG emission sector and one of the largest toxic emission sources, and is by the far the largest energy expenditure for Oregonians.
- The drivers, scale, and timing of the electric vehicle (EV) transition are not discussed in the Final Draft Report, and yet the EV transition is the largest emission reduction opportunity, the largest opportunity for economic savings, demonstrably the quickest GHG reduction opportunity, and by far the largest electric load growth in the next 20 years.

The Final Draft Report misrepresents median business-as-usual forecasts for electrification of the transportation sector.

In recent years, EV forecasts have ranged from oil companies saying that there'll be fewer EVs in 2040 than existed on the road in 2018, to technology thinkers saying that all new cars will be EVs by 2023. Reality will be somewhere between these, paced mainly by production capacity, cost trajectories, charger networks, and government policies. [Bloomberg's 2020 EV forecast](#) is a believable, median business-as-usual global forecast. Even some oil companies have endorsed it. It forecasts EV battery pack prices of \$93/kWh by 2024 and \$61/kWh by 2030, less than half of today's average price. It also (conservatively) predicts 40% electrification of the US fleet by 2040, on a trajectory toward 100% by 2050. That would collapse most of the transportation emissions by 2050 in Figure 1 of the draft report, instead of growing to 24 MMTCO_{2e} in 2050.

There are multiple reasons to expect that EV adoptions will occur faster than the Bloomberg 2020 forecast (see below). Figure 1 was probably realistic when it was created, but the EV disruption has now forced every automaker (and truck maker) in the world into the race to develop EV models.

While no forecast is likely to be correct, a realistic baseline is far more useful for planning than assuming that nothing will change. Oregon has lacked a [comprehensive, long-term plan](#) for GHG emissions, and there is still no effort for creating one. At this point, [any plan would be better than no plan](#).

Transportation is the largest GHG emission sector and one of the largest toxic emission sources, and is by far the largest energy expenditure for Oregonians.

As the large majority of the largest emissions sector, vehicles must be addressed in EO 20-04 planning. The good news is that EV operating costs are so attractive that automakers will have to electrify their offerings to remain competitive. The lower operating costs of EVs will be a powerful driver of EV adoption. Even now before purchase prices have equalized, [EVs are significantly cheaper to own](#).

[According to the EIA, Oregon](#) spent \$14.2 billion on energy in 2018, or about 5.8% of state GDP. Of that, \$7.7 billion, or 3.1% of GDP, was spent on transportation energy, the vast majority for vehicle fuels. If those vehicles were all electrified, Oregon would spend more like \$3 billion annually for fuels, in addition to much lower maintenance costs than gas/diesel vehicles.

Of any decarbonized sector, the electrification of transportation will surely dominate the savings for Oregonians, with \$5 billion of savings possible annually. The increased annual electricity cost of roughly \$2.5 billion will fund the grid buildout for the increased load (overall load increases roughly 50%, and more than 50% for residential districts), as well as charger networks. Every new EV added to the fleet will use around \$10,000 of electricity during a 300,000 mile lifetime; and the increased load will [make the grid more efficient](#) and thus lower the average rates per kWh. (EVs have the opposite effect on grid costs that energy efficiency or distributed solar have.) Thus, OPUC should consider optimal incentives for utilities to serve EV owners (and compete with other companies when possible).

The drivers, scale, and timing of the electric vehicle (EV) transition are not discussed in the Final Draft Report, and yet the EV transition is the largest emission reduction opportunity, the largest opportunity for economic savings, demonstrably the quickest GHG reduction opportunity, and by far the largest electric load growth in the next 20 years.

The EV transition is a classic technology disruption, where increasing sales, market presence, and manufacturing cost experience reinforce each other to feed exponential growth. Supply chains for battery packs and raw materials are ramping up. The production learning rate for battery costs imply capital cost crossovers for mid-market electric cars around 2024 and for light trucks before 2030.

Factors accelerating the EV transition include:

- *The virtuous cycle of plummeting costs increasing sales*, which further lowers production costs. After Tesla “crossed the chasm” with its Model 3 success, the actual costs have become top-secret in the industry. But since higher volumes enable production efficiencies and learning, many EVs will be [sold at a loss](#), just to keep a place in the game.
- *All automakers are now competing for EV market share and survival*. When a new technology disrupts an industry, the market share of all players is reset to zero. As early adopters and the early majority decide which suppliers they prefer, market share is liquid; and as the late majority adopt, market share becomes nearly frozen again, with new winners and losers. Thus, the race for market share is absolutely critical for all players, and those who fall behind will be sold for pennies on the dollar. In this race, Wall Street has already famously bet on the [head start](#) that Tesla has demonstrated. [China](#) sees EVs as another market they can dominate, while benefiting from job creation, cleaning up their air, and reducing their dependence on imported oil. China already produces more EVs than any other country.

- *Supportive EV policies.* Norway is the only country on track for cutting vehicle emissions 45% by 2030, the IPCC target. [Their policies](#) focus on equalizing the purchase costs of EVs vs gas/diesel vehicles, largely by charging for the lifetime emissions of a new vehicle at the point of sale. Charging for the future emissions upon purchase fairly affects the party responsible for locking in the emissions of a new vehicle; and that avoids the market failure where consumers ignore all but a couple years of fuel costs. Oregon has about the same population, average income, vehicle fleet, and land area as Norway, and [could implement similar fees](#) to accelerate adoptions like Norway does.

Factors slowing EV adoptions include:

- *Higher capital costs and market failures.* Most EVs are still more expensive to purchase than a comparable gas/diesel vehicle, and it is well known that auto buyers consider only two or three years of operating expenses (except fleet managers, who do consider lifetime costs of ownership.) Rebates help to close the purchase-price gap, but rebates are very expensive as volume ramps up. Registration fees are unpopular, although this could be mitigated by charging a new gas/diesel vehicle only if there are comparable EV options available.
- *EV production capacity* is ramping up, but still less than 5% of global auto maker capacity. Debugging new models and expanding supply chains for batteries takes longer than ramping up production for a new smart phone. But supportive EV policies, ala Norway, can be highly effective at the scale of a state.
- *EV chargers, charging networks, and awareness of those.* Norway's biggest challenge lately has been building enough chargers, both for residences and fast chargers along freeways. If buyers perceive that charging will be a hassle or they have range anxiety, they won't adopt. So a vigorous program to plan, fund, and implement chargers is necessary. By 2025, those states that install enough charging infrastructure will experience high percentages of EV sales, limited only by vehicle models or production capacities.
- *Policies that resist EV adoptions.* Oil-producing states are likely to be the last to adopt EVs.

Recommendations

Figure 1 should be corrected for a likely EV business-as-usual adoption trajectory. Or the caption should describe this discrepancy.

Instead of two paragraphs describing a minimal role for EVs, the report should describe the exponential EV growth coming, and how to make the most of it. The faster Oregon electrifies transportation, the more money Oregonians will save. Norway is the existence proof that we can decarbonize Oregon's vehicles at the IPCC rate. Or maybe even faster, to compensate for other sectors which don't have any technologies ready to ramp up.

Technology disruptions are... disruptive. Gone is the old paradigm of supplying new power requirements through increased efficiencies. Gone is sending \$7.7 billion out of the state annually to fuel vehicles. Gone are costly repairs for transmissions, catalytic converters, timing belts, water pumps, mufflers, head gaskets, etc. Instead of gas station stops, you'll wake up to a full tank every morning and enjoy superior vehicle performance at 1/3 the fuel cost.

Thank you for all your decarbonization efforts. Hopefully these suggestions will be helpful.

Eric Strid
Columbia Gorge Climate Action Network
PowerOregon.org
Cofounder and retired CEO, Cascade Microtech, Inc.

Received 12/8/2020

(Sent to Oregon Transportation Commission, cc:ed to Oregon Global Warming Commission)

Hello,

Please see the attached comments on the proposed funding distribution for the 2024-2027 Statewide Transportation Improvement Program (STIP). These comments are submitted on behalf of Julie Chapman, LWVOR Climate Emergency Advocacy team member and Rebecca Gladstone, LWVOR President.

Thank you,

--

Sarah Andrews
League of Women Voters of Oregon
Office Coordinator

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



The League of Women Voters of Oregon is a 101-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.

December 8, 2020

To: Chair Van Brocklin and Commission Members
Oregon Transportation Commission (OTC), OTCAdmin@odot.state.or.us

Re: Distributions for the 2024-2027 Statewide Transportation Improvement Program – Oppose

Concern: Funding distribution for the 2024-2027 Statewide Transportation Improvement Program (STIP) does not reflect Oregon's urgent need to accelerate equity-focused, emissions-reduction policies.

Because the League of Women Voters of Oregon believes that climate change is an existential threat facing our nation and planet, LWVOR supports climate goals and policies that are consistent with the best available science and that will ensure a stable climate system for future generations.

Governor Brown's Executive Order 20-04 directs ODOT to 1) prioritize "GHG emissions reductions in a cost-effective manner; 2) prioritize actions to help vulnerable populations and impacted communities adapt to climate change impacts; and 3) consult with the Environmental Justice Task Force when evaluating climate change mitigation and adaptation priorities and actions." ODOT's Strategic Action 2021-2023 Plan calls for similar priorities and goals including electrifying Oregon's transportation system, implementing a social equity engagement framework and transformative technologies, and improving active and public transportation access. Both call for significant emissions reductions, focusing on social equity.

What role can STIP investments play to reach ODOT and state goals? Funding for any capital investment project should have to justify its adoption based on social equity and focused through the vaunted "climate lens." These considerations cannot be tacked on as an afterthought.

In looking at what are presented as the final choices for Scenario selection, scheduled for OTC adoption on Dec 11, Scenarios 2A, 2B and 3B each total \$1,267,000. The total STIP budget has been reported as roughly \$2.2 billion. What projects account for the remaining \$1 Billion? Are there restrictions on projects that can be developed with this federal and state funding?

Certainly, "Fix-it" and "Safety" are the basics. There are sound fiscal reasons to protect existing infrastructure and to use the data you have to address dangerous road conditions and fatal crashes. Definitely, install ADA curb cuts. But the jockeying for primacy among the "lesser silos" is a competition for scarce resources. We're told that it is an accomplishment that the "non-highway" component has risen by 50% this year. It now accounts for 10 to 12% of the proposed STIP budget.

The conversation seems to revolve around a false choice of stealing from one small pot to enrich another, instead of viewing the whole STIP budget in light of transportation's 40% share of state greenhouse gas emissions. When it comes to "enhancing" highways, we recommend enhancing options to transition from ICVs to ZEVs, walking, biking and public transit. (Please refer to our November 20, 2020 Comments.)

Please go back to the drawing board and make this plan responsive to the intent of the EO, the priorities and goals of ODOT, and the imperatives of the climate crisis facing all of our communities. Climate change is not a footnote, it's the main character in this next chapter of our century.

Rebecca Gladstone
LWVOR President

Julie Chapman
LWVOR Climate Emergency Portfolio

Received 12/28/2020

As a compliment to the information you are gathering via the Natural and Working Lands survey, I thought you might be interested in this recent report on [Barriers to Adopt Regenerative Agriculture](#). The author interviewed hundreds of farmers, ranchers and other stakeholders and the report is extensive! 192 pages long. I haven't reviewed the entire report yet, but the sections on Trusted Technical Assistance and also Financial Capital and Incentives are probably most relevant to the OGWC and state agencies' current work on climate solutions on natural and working lands.

There's going to be a webinar on the report on January 20th from 10-11:30. I imagine the webinar will be recorded and shared with those who register. Here's a [link](#) to the webinar registration.

I hope this is helpful.

Megan Kemple, Co-Director, Oregon Climate and Agriculture Network (OrCAN)
Director of Policy Advocacy, Operations and Fundraising
541-342-1537 (home office)
megan@oregonclimateag.org
www.oregonclimateag.org

Received 12/28/2020

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

Name: Rouanna Garden

Email Address: rouanna@yahoo.com

Subject: Your 2020 Recommendations

Message: Overall your list of recommendations is impressive with it's width. I especially want the current stock of multi-family housing to get assistance/incentive to retrofit for EV charging. I've found my local government to make a number of climate related statements/recommendations and then ignore them when doing their work. The city council never requires or enforces the departments under them to take climate issues into account when doing their work. Lots of lip service and then business as usual.

The state needs to pass laws and make every governmental department (city, county & state) follow GHG reducing guidelines. They then need to monitor and followup. Business as usual is killing us.

Thank you,

RB Garden

Eugene

Received 12/30/2020

(Sent to Board of Forestry, cc: Oregon Global Warming Commission)

Hello,

Attached is a copy of written testimony for the Board meeting to be held on January 6th. I have cc'd the OGWC for their awareness as well. Please let us know if you have any questions.

Cheers,

--

Lauren Anderson

she/her/hers

Forest Climate Policy Coordinator

Oregon Wild's Portland Office

la@oregonwild.org

TO: Oregon Board of Forestry
CC: Oregon Global Warming Commission, Oregon Department of Forestry Staff
DATE: 1/30/2021
RE: Written Testimony
 Agenda Item: No. 2
 Work Plan: Strategic Planning / Work Plan
 Revision of climate change work plan
 Topic: 2020-2022 Board Work Plans Review and Revision
 Presentation Title: Division Work Plan Review
 Date of Presentation: January 6, 2021

Thank you for the opportunity to submit written testimony ahead of the Board of Forestry (Board)'s January 6, 2021 meeting. We, the undersigned organizations, are participants in the Oregon Climate Action Plan (OCAP) coalition's forest policy sub-table, tasked with coordinating stakeholder advocacy around implementation of Governor Brown's Executive Order 20-04 (EO 20-04). Our submission therefore focuses on Agenda Item No. 2 of this meeting, regarding the Board's work plan.

Specifically, this testimony focuses on the following aspect of the Board's work plan:

"Commensurate with the work plan item relating to the analysis of statutory authority, the plan entails a review and revision of Goal G in the Forestry Program for Oregon. Goal G reflects the Board's carbon and climate interests through the Forestry Program for Oregon. Revisiting this goal allows for the integration of new scientific information and contemporary values of the Board to guide the analysis of Departmental policies."¹

Background

The devastation wreaked by last September's wildfires is only the latest sign that the climate crisis is deepening in our forests, lands, waters and communities. While wildfire is an important component of many ecosystems, climate change, old-growth logging, and a century of misguided fire suppression have superseded natural factors in increasing the drying of our landscapes and communities making them more susceptible to extreme fire conditions. It is critical that Oregon do everything it can to slow the direst impacts of climate change and safeguard against ongoing climate impacts. This requires a re-thinking of many of our land-management practices, especially the management of our carbon rich temperate forest ecosystems.

¹ Agenda item 2. See, e.g. attachment 2, page 2 of 5. <https://www.oregon.gov/odf/board/bof/20210106-bof-agenda.pdf>

The Oregon Department of Forestry's (ODF) response to the directives in EO 20-04 could enable the state to harness the globally significant carbon sequestration and storage potential of Oregon's forests, and restore the ecological health and climate resiliency of our state's landscapes, the fate of which is intertwined with that of our forests and climate. It is essential that the greenhouse gas (GHG) emissions reduction targets stipulated in EO 20-04, as well as the directive to "Prioritize actions that will help vulnerable populations and impacted communities adapt to climate change impacts,"² are embedded in all aspects of agency planning. This necessarily includes revision of the Forestry Plan and specifically Goal G.

Revision of Goal G, however, is not and should not be a substitute for meaningful policy. While an updated climate change goal can set an intention for Oregon to be a world leader in climate-smart forest management and carbon sequestration, this must be followed-up with concrete agency actions to protect our forest ecosystems and communities for present and future generations of Oregonians.

The Best-available Science: How Oregon's Forests Can Address Climate Change

The two biggest steps Oregon can take to confront the global threat of climate change are to protect and grow its forests to sequester and store more carbon on the landscape, and reduce its greenhouse gas emissions from logging — its largest source of carbon emissions.

A growing scientific consensus has developed around two aspects of Oregon's ecosystems: (1) that they have an incredible potential for sequestering and storing atmospheric carbon; (2) that this potential is being significantly underutilized due to outdated forest management practices.

In its draft biennial report, the Oregon Global Warming Commission cites several of the leading studies in support of these propositions, which we summarize and supplement below:

- [Diaz et al. 2018](#): Expanded riparian protections, increased green tree retention, and the extension of rotation ages can translate into substantially higher carbon storage than contemporary common practice for Douglas-fir management in the Pacific Northwest. The combination of forest practices required for FSC certification always stored more carbon than business-as-usual.
- [Fain et al. 2018](#): On private forest lands west of the Cascades, extending harvest rotations,³ maximizing utilization of harvested biomass, focusing on production of durable and long-lived wood products, and altering harvest practices to retain more live trees on-site, all could result in significant net carbon gains.

² EO 20-04. https://www.oregon.gov/gov/Documents/executive_orders/eo_20-04.pdf

³ 80-120 years depending on assumptions about product longevity and substitution.

- [Law et al. 2018](#): Reforestation, afforestation, lengthened harvest cycles on private lands, and restricting harvest on public lands in Oregon is projected to increase net ecosystem carbon balance by 56% by 2100, with the latter two actions contributing the most.
- [Harmon 2019](#): Half of harvested carbon is emitted to the atmosphere almost immediately after logging.
- [Hudiberg et al. 2019](#): 65% of the forest carbon removed by logging Oregon's forests in the past 115 years has been returned to the atmosphere, just 19% is stored in long-lived products and 16% is in landfills.
- [Houghton and Nassikas 2018](#): Letting forests grow and halting land conversions would bring carbon dioxide removal rates closer to current emission rates globally
- [Graves et al. 2020](#): Changes in forest-based activities including deferred timber harvest, riparian reforestation, and replanting after wildfires have the highest GHG reduction potential (76 to 94% of the overall potential annual reductions) among natural climate solutions (i.e., changes in land management, ecosystem restoration, and avoided conversion of habitats) in Oregon.
- [Mildrexler et al. 2020](#): Large-diameter (≥ 21 " dbh) trees in eastside Oregon forests store disproportionately large amounts of carbon.

Based on a review of these studies and others, we have established a set of principles for developing climate-smart forest policy.

OCAP Forest Table's Guiding Principles for Climate-Smart Forest Policy

1. Use the best available science⁴ for all forest management decisions, and focus on climate solutions that are durable and within each agency's control. Agencies should ensure all studies referenced during the decision-making process come from reputable academic and research institutions, have been subject to rigorous peer review, and that the funding for referenced studies remains independent of timber industry interests.
2. Ensure that vulnerable, disadvantaged and other impacted communities, including communities from geographic regions with a population largely composed of individuals who are low income, very low income, or persons of color, are given fair and equal access to the decision-making process.
3. Ensure that equity, justice and inclusion are considered alongside desirable environmental outcomes in any forest policy, and that agencies apply a climate and equity lens to budget and resource allocation requests.

⁴ To achieve high-quality science, scientists should conduct their studies using what is known as the scientific process, which includes the following elements: a clear statement of objectives; a conceptual model, which is a framework for characterizing systems, making predictions, and testing hypotheses; a good experimental design and a standardized method for collecting data; statistical rigor and sound logic for analysis and interpretation; clear documentation of methods, results, and conclusions; and peer review. See, e.g. <https://www.fws.gov/wafwo/fisheries/Publications/Fisheries3109.pdf>

4. Ensure forest management policies account for lifecycle greenhouse gas emissions. For example, policymakers have argued in the past that biomass is a carbon neutral fuel source, but the scientific literature demonstrates that near-term emissions from burning biomass undercut the validity of this argument, and can directly hinder climate change mitigation efforts.⁵
5. Ensure forest management policies promote both near-term and long-term ecological health. Climate-smart forest management⁶ should not be adopted as “one-size-fits-all” practices, but should be tailored for each climate and geographic sub-region. For example, some management, such as ecologically appropriate prescribed fires and thinning of small-diameter trees in Oregon’s dry forests may result in near-term emissions, but if done correctly could ensure ecological health⁷ and better climate resilience in the long-term.
6. Ensure that the carbon benefits of any policy recommendation are quantifiable and account for both direct and indirect impacts to the carbon pool, including soil carbon, carbon in dead biomass, carbon in wood products and waste material from logging and processing.
7. Ensure that forest management practices optimize net carbon sequestration, storage, and stocks. Efforts to enhance carbon sequestration and grow Oregon’s forest carbon sinks should be compatible with other ecological values, such as clean water, watershed protection and biodiversity conservation. Management practices must also benefit public health values such as clean drinking water, clean air and community safety from landslides and flooding. Agency cost-benefit analyses and other decision-making processes should incorporate a social cost of carbon that reflects Oregon’s high

⁵ See, e.g. Mark Jacobson, 2014. Effects of biomass burning on climate, accounting for heat and moisture fluxes, black and brown carbon, and cloud absorption effects. *Journal of Geophysical Research-Atmospheres*.
<https://doi.org/10.1002/2014JD021861>

⁶ Climate-smart forest management integrates the challenges and opportunities of climate change mitigation and adaptation into forest policy, planning and practices, aiming to optimize carbon storage and sequestration in a manner that accounts for the worsening impacts of climate change. See, e.g. Stein, B.A., P. Glick, N. Edelson, and A. Staudt (eds.). 2014. *Climate-Smart Conservation: Putting Adaptation Principles into Practice*. National Wildlife Federation, Washington, D.C.
https://www.nwf.org/~media/PDFs/Global-Warming/Climate-Smart-Conservation/NWF-Climate-Smart-Conservation_5-08-14.pdf, David D. Diaz, Sara Loreno, Gregory J. Ettl and Brent Davies 2018 Tradeoffs in Timber, Carbon, and Cash Flow under Alternative Management Systems for Douglas-Fir in the Pacific Northwest. *Forests* 9 (8) 447 <https://www.mdpi.com/1999-4907/9/8/447>. OGWC 2018 Forest Carbon Accounting Project Report 2018. Keep Oregon Cool, Oregon Global Warming Commission.
<https://static1.squarespace.com/static/59c554e0f09ca40655ea6eb0/t/5c2e415d0ebbe8aa6284fdef/1546535266189/2018-OGWC-Biennial-Report.pdf>

⁷ Although ecosystem health cannot be defined precisely, ecologists have identified a number of specific components that are important in this concept. These include the following indicators: (1) an ability of the system to resist changes in environmental conditions without displaying a large response (this is also known as resistance or tolerance); (2) an ability to recover when the intensity of environmental stress is decreased (this is known as resilience); (3) relatively high degrees of biodiversity; (4) complexity in the structure and function of the system; (5) the presence of large species and top predators; (6) controlled nutrient cycling and a stable or increasing content of biomass in the system; and (7) domination of the system by native species and natural communities that can maintain themselves without management by humans.

vulnerability to climate change (i.e., assume both a social cost of carbon at the high-end of estimates and a low-range discount rate).⁸

These principles are consistent with Governor Brown’s Executive Order 20-04 and emphasize an equity and science based-decision making framework as the Board develops near-term policy solutions to the threat of climate change. The following section offers specific policy recommendations for the Board as it moves forward with revision of Goal G.

Policy Recommendations for Revision of Strategy G

As noted in the Board’s “Report on Proposed Actions for Executive Order No. 20-04,” the Board intends to focus on revising the specific objectives within Goal G with opportunities for public engagement.⁹

Currently, Goal G states that ODF will work to: “*Improve carbon sequestration and storage and reduce carbon emissions in Oregon’s forests and forest products.*”¹⁰ While this is a promising starting point, the Board is missing a broader opportunity to protect and expand upon Oregon’s globally significant carbon stores in a manner that positions the state as a world leader in science-based natural climate solutions. Instead, the goal should read “*Establish the state of Oregon as a world leader in climate-smart forest management and significantly increase carbon storage and sequestration¹¹ in Oregon’s forests.*” If defined correctly, climate-smart forest management¹² can encompass the full scope of challenges and opportunities associated with climate change mitigation and adaptation. The Board should update forest policy, planning and practices to optimize carbon storage and sequestration in a manner that accounts for the worsening impacts of climate change and enables Oregon’s forest managers to grow the state’s natural carbon sinks as much as possible in order to maximize sequestration in an ecologically appropriate manner.

⁸ See, e.g. Institute for Policy Integrity 2020. https://policyintegrity.org/documents/Policy_Integrity_EO_20-04_report_comments_2020.06.15.pdf

⁹ See, e.g. Oregon Department of Forestry 2020. Report on Proposed Actions for Executive Order No. 20-04. <https://www.oregon.gov/gov/Documents/2020%20ODF%20EO%2020-04%20Implementation%20Report.pdf>

¹⁰ See, e.g. Oregon Board of Forestry 2011. Forestry Program for Oregon — A Strategy for Sustaining Oregon’s Public and Private Forests. https://www.oregon.gov/ODF/Board/Documents/BOF/fpfo_2011.pdf

¹¹ See, e.g. USGS What is carbon sequestration? Excerpt: “Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide.” https://www.usgs.gov/faqs/what-carbon-sequestration?qt-news_science_products=0#qt-news_science_products

¹² Climate-smart forest management integrates the challenges and opportunities of climate change mitigation and adaptation into forest policy, planning and practices, aiming to optimize carbon storage and sequestration in a manner that accounts for the worsening impacts of climate change. See, e.g. Stein, B.A., P. Glick, N. Edelson, and A. Staudt (eds.). 2014. Climate-Smart Conservation: Putting Adaptation Principles into Practice. National Wildlife Federation, Washington, D.C. https://www.nwf.org/~media/PDFs/Global-Warming/Climate-Smart-Conservation/NWF-Climate-Smart-Conservation_5-08-14.pdf

David D. Diaz, Sara Loreno, Gregory J. Ettl and Brent Davies 2018 Tradeoffs in Timber, Carbon, and Cash Flow under Alternative Management Systems for Douglas-Fir in the Pacific Northwest. *Forests* 9 (8) 447 <https://www.mdpi.com/1999-4907/9/8/447>, OGWC 2018 Forest Carbon Accounting Project Report 2018. Keep Oregon Cool, Oregon Global Warming Commission. <https://static1.squarespace.com/static/59c554e0f09ca40655ea6eb0/t/5c2e415d0ebbe8aa6284fdef/1546535266189/2018-OGWC-Biennial-Report.pdf>

Currently, the objectives outlined in Goal G call for the Board to:

1. Encourage maintaining and increasing Oregon's forestland base and promote the maintenance and expansion of urban forests.
2. Promote increased public and forest landowner understanding of the potential contributions of trees, forests, and forest products in sequestering and storing carbon.
3. Ensure that carbon-offset markets as well as emerging markets for other ecosystem services provide easily accessible sources of revenues and do not discriminate against forest landowner participation based on regulatory requirements exceeding those for other land uses.
4. Encourage greater consumer awareness of the environmental advantages of using Oregon forest products and their use as substitutes for more energy intensive building materials.
5. Advocate for public and private forestland biomass to be considered on an equal basis with other renewable energy sources and as a key component of Oregon's strategy for meeting state greenhouse gas reduction and renewable energy portfolio standard policy goals.
6. Continue to support research and develop policies and incentives that will drive the growth of the biomass/ bioenergy/ bio-based products industry in the state.
7. Promote research and innovation towards increasing energy efficiency and reducing the use of fossil fuels in the Oregon forest sector.

These objectives may have been useful for framing the conversation in the past, but they are insufficient to inform the specific policy outcomes the Governor is seeking in EO 20-04. There are also several key considerations that either misrepresent the carbon benefits of certain policy outcomes, such as the efficacy of biomass as a climate solution, or are otherwise missing from the list of objectives. Decades of scientific study — including research from world leaders in forest climate science from Oregon State University¹³ — demonstrates the need for action. While some climate-smart¹⁴ opportunities will be more challenging and time-consuming to fully implement, the Board has the authority to act quickly on other fronts even as it continues to facilitate further research.

The following policy opportunities represent “low-hanging fruit” for the Board and ODF to adopt as the Oregon’s decisionmakers work to “*prioritize actions that reduce GHG emissions in a cost-effective manner,*” and “*prioritize actions that will help vulnerable populations and impacted communities adapt to climate change impacts*” as directed in EO 20-04.¹⁵

¹³ See, e.g. Terrestrial Ecosystem Research and Regional Analysis group (TERRA-PNW) publications: <http://terraweb.forestry.oregonstate.edu/publications>

¹⁴ Refer to footnote 12.

¹⁵ EO 20-04. https://www.oregon.gov/gov/Documents/executive_orders/eo_20-04.pdf

1. **Lengthen logging rotations** (*EO 20-04, ss. 3.A, 3.C.(1), 12.A*). The best available science¹⁶ has made clear that current standard logging rotations (often as short as 35 years) undermine the ability of forests to maximize carbon stored.¹⁷ By allowing trees to grow for longer time periods, managers can improve carbon stocks while also increasing timber yield and timber quality. Studies suggest that rotations of 80 years in Coastal Douglas fir may provide optimal carbon storage benefit, depending on assumptions about product longevity and substitution.¹⁸
2. **Increase green tree retention on the land during harvest and promote diversity of species as opposed to monoculture plantations** (*EO 20-04, ss. 3.A, 3.C.(1)-(3), 12.A*). Greater retention of standing trees (especially bigger and older trees) after logging will keep more carbon on site, help to make regrowing forests more resilient to natural disturbance, increase availability of native seed stock for future restoration efforts, and provide for more higher-quality habitat for native species.
3. **Eliminate logging in biologically significant, carbon-rich mature and old growth forests, and in forests with the highest carbon sequestration potential** (*EO 20-04, ss. 3.A, 3.C.(1), 12.A*)
Mature and old growth forests store and sequester immense amounts of carbon. Wherever native stands of large trees exist, they should be protected as climate reserves. Further, decisionmakers should work to identify additional areas of the highest carbon storage potential that should also be protected as part of this carbon reserve. These same stands also provide high quality habitat for salmon and other at-risk wildlife, helping managers achieve two objectives at once.
4. **Manage forests for clean water as a climate adaptation tool.** (*EO 20-04, s. 3.C.(2)*)
Healthy forests protect clean water resources for people and wildlife. Clearcuts increase the risk of mudslides and sediment runoff, negatively impacting Oregon's rivers and streams. Further, pesticide spraying can also pose a risk to local communities. As the impacts of climate change worsen (including drought, heat waves, and more extreme precipitation events), Oregon's forests need to also be managed for clean water quality and quantity, and flood prevention as an adaptation tool.
5. **Seek climate-smart provisions in the upcoming Habitat Conservation Plan (HCP) process** (*EO 20-04, ss. 3.A, 3.C.(1), 12.A*). Upcoming negotiations based on the passage of SB 1602 in 2020 will focus on modernizing the Oregon Forest Practices Act in order to benefit aquatic and riparian-dependent species. These negotiations should also

¹⁶ See, e.g. Beverly E. Law, Tara W. Hudiburg, Logan T. Berner, Jeffrey J. Kent, Polly C. Buotte, Mark E. Harmon 2018. Land use strategies to mitigate climate change in carbon dense temperate forests. Proceedings of the National Academy of Sciences DOI: 10.1073/pnas.1720064115

<https://web.archive.org/web/20180727130028/http://www.pnas.org/content/pnas/115/14/3663.full.pdf>

¹⁷ See, e.g. Mark E. Harmon, 2019. Have product substitution carbon benefits been overestimated? A sensitivity analysis of key assumptions. Environmental Research Letters <https://doi.org/10.1088/1748-9326/ab1e95>

¹⁸ See, e.g. Stephen J. Fain, Brian Kittler, Amira Chowyuk, 2018. Managing Moist Forests of the Pacific Northwest United States for Climate Positive Outcomes. Multidisciplinary Digital Publishing Institute. DOI: 10.3390/19100618. https://www.researchgate.net/publication/328229114_Managing_Moist_Forests_of_the_Pacific_Northwest_United_States_for_Climate_Positive_Outcomes

optimize potential climate co-benefits outlined in EO 20-04, along with other key environmental concerns including science-based standards for riparian buffers, chemical-based vegetation management, steep slope logging, and cumulative impacts.

6. Ensure better incentives for small family forest owners to implement climate-smart forestry on their lands (EO 20-04 s. 3.C(1))

- a. Agencies should prioritize promoting stronger incentives and market development for small family forest owners willing to implement climate-smart forest management¹⁹ on their lands (such as protection of larger stream buffers and late successional characteristics), including better state incentives for the production of FSC certified wood products.
- b. Small family forest owners should be allowed to aggregate small acreage into larger more impactful projects.
- c. Agencies should develop accountability standards to ensure incentives are awarded to forest owners who are currently practicing verifiable climate-smart forestry or will adopt verifiable, high standards of climate-smart forestry.

7. Focus wildfire defense investments on preparing communities for increased risk, and ensure post-fire recovery efforts account for equity concerns.²⁰ (EO 20-04, ss. 3.C(2)-(3))

- a. Increase emergency planning and preparedness for rural communities located in and near forested areas,
- b. Increase fire-wise home hardening and retrofitting (i.e., application of construction design and materials that are fire resistant),
- c. Reduce fuels in the home ignition zone,
- d. Limit new development in high-risk areas, and
- e. Ensure disadvantaged communities have equal access to resources.

8. Elevate best practices in post-disturbance recovery efforts, focused on ecological restoration (EO 20-04, s. 3.C(2))

- a. Reduce aerial and ground pesticide spraying. Longer rotations, greater tree retention and promoting biodiverse tree species are practices that will immediately reduce the need for chemical-based vegetation management and will help maintain the groundcover needed to retain soil carbon.

¹⁹ Climate-smart forest management integrates the challenges and opportunities of climate change mitigation and adaptation into forest policy, planning and practices, aiming to optimize carbon storage and sequestration in a manner that accounts for the worsening impacts of climate change. See, e.g. Stein, B.A., P. Glick, N. Edelson, and A. Staudt (eds.). 2014. Climate-Smart Conservation: Putting Adaptation Principles into Practice. National Wildlife Federation, Washington, D.C. https://www.nwf.org/~media/PDFs/Global-Warming/Climate-Smart-Conservation/NWF-Climate-Smart-Conservation_5-08-14.pdf, David D. Diaz, Sara Loreno, Gregory J. Ettl and Brent Davies 2018 Tradeoffs in Timber, Carbon, and Cash Flow under Alternative Management Systems for Douglas-Fir in the Pacific Northwest. *Forests* 9 (8) 447 <https://www.mdpi.com/1999-4907/9/8/447>, OGWC 2018 Forest Carbon Accounting Project Report 2018. Keep Oregon Cool, Oregon Global Warming Commission. <https://static1.squarespace.com/static/59c554e0f09ca40655ea6eb0/t/5c2e415d0ebbe8aa6284fdef/1546535266189/2018-OGWC-Biennial-Report.pdf>

²⁰ See, e.g. National Fire Protection Association 2020. <https://www.nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Preparing-homes-for-wildfire>

- b. Ensure post-fire salvage logging is focused on trees that pose a high risk to infrastructure, such as power lines and roadways.
 - c. Reduce slash burning in industrial timber lands and increase R&D investment into alternatives to slash burning. Slash burning immediately releases carbon to the atmosphere and puts significant quantities of smoke into local airsheds, exposing nearby residents to fine particulate matter and air toxics for multiple days. Incentivize projects to turn slash into biochar or soil nutrients.
- 9. Establish new partnerships with Tribes, indigenous communities, and tribal climate activists.** (*EO 20-04, ss. 3.C.(2)-(3), 3.E*) Incorporate tribal climate mitigation and adaptation practices that can support increased carbon storage and sequestration in Oregon's forests, and seek to build bridges between western (conventional) and indigenous practices, including through use of prescribed fire in Oregon's eastern and southern forests.
- 10. Establish a new Diversity, Equity and Inclusion (DEI) office within ODF** (*EO 20-04, ss. 3.B, 3.C(3)*). Climate-smart forest policy should also account for diversity, equity, and inclusion across all decisions the Board and ODF makes. A dedicated staff person will help ensure this need is met.

In addition to reframing the current list of objectives, the Board should also strive to ensure priorities are accurately focused on true carbon and climate benefits. For instance, most if not all commercial biomass facilities are not carbon neutral within a meaningful time frame for climate action. While fuel from wood is technically renewable (trees can be regrown), emissions from burning this product are released all at once, while the benefits of new sequestration can take decades, or even hundreds of years, to pull that same amount of carbon back out the atmosphere.²¹ Development of woody biomass for energy production is likely to increase logging since waste from thinning operations and logging is insufficient to provide a significant power source for the state. Biomass facilities also have significant direct air pollution impacts for neighboring communities.²² A climate strategy that promotes the use of biomass is therefore counterproductive and inconsistent with EO 20-04, insofar as it runs counter to the need for

²¹ See, e.g. Mark Jacobson, 2014. Effects of biomass burning on climate, accounting for heat and moisture fluxes, black and brown carbon, and cloud absorption effects. *Journal of Geophysical Research-Atmospheres*. <https://doi.org/10.1002/2014JD021861> and see, e.g. Searchinger, T. D, Beringer, T., Holtzmark, B., et al. 2018. Europe's renewable energy directive poised to harm global forests. *Nature communications*. Excerpt: "Unlike wood wastes, harvesting additional wood just for burning is likely to increase carbon in the atmosphere for decades to centuries. This effect results from the fact that wood is a carbon-based fuel whose harvest and use are inefficient from a greenhouse gas (GHG) perspective. Typically, around one third or more of each harvested tree is contained in roots and small branches that are properly left in the forest to protect soils but that decompose and release carbon. Wood that reaches a power plant can displace fossil emissions but per kWh of electricity typically emits 1.5x the CO₂ of coal and 3x the CO₂ of natural gas because of wood's carbon bonds, water content (Table 2.2 of ref. 17) and lower burning temperature (and pelletizing wood provides no net advantages) (Supplementary Note1)." <https://www.nature.com/articles/s41467-018-06175-4>

²² See, e.g. Gilman, J.B, Lerner, B.M., Kuster, W.C. et al. 2015. Biomass burning emissions and potential air quality impacts of volatile organic compounds and other trace gases from fuels common in the US. *Atmos. Chem. Phys.* <https://acp.copernicus.org/articles/15/13915/2015/acp-15-13915-2015.pdf> and Jayarathne, T., Stockwell, C.E, Yokelson R., et al. 2014. Emissions of Fine Particle Fluoride from Biomass Burning. <https://pubs.acs.org/doi/full/10.1021/es502933j>

urgent and immediate action to reduce GHG emissions and mitigate near-term climate impacts to the greatest extent possible, and creates direct pollution risks for already vulnerable populations and impacted communities.²³

We hope that the Board and ODF will strive to implement near-term policy solutions that position Oregon as a world leader in climate-smart forest management and carbon sequestration. In order to confront the threat of climate change, we must ensure the scope and scale of our solutions match the magnitude of the challenge and are sufficient to contribute substantially to meeting the interim target and final goal of Governor Brown's Executive Order 20-04.

Sincerely,

Danny Noonan
Climate Policy and Legislative Affairs Manager
Beyond Toxics

Lauren Anderson
Forest Climate Policy Coordinator
Oregon Wild

Alan Journet Ph.D.
Co-facilitator
Southern Oregon Climate Action Now

Rand Schenck
Member
OLCV Metro Climate Action Team (MCAT)

Joseph Vaile
Climate Program Director
Klamath-Siskiyou Wildlands Center

Catherine Thomasson, MD
Vice-Chair Environmental Caucus
Democratic Party of Oregon

Felice Kelly, Ph.D.
Co-lead, Forest Defense Team
350PDX

²³ We will submit additional policy recommendations on biomass in a forthcoming letter to support better practices around this source of energy.

Received 1/3/2021

(Sent to Board of Forestry, cc: Oregon Global Warming Commission)

Hello,

Please see the attached comments submitted on behalf of LWVOR Forestry Portfolio Josie Koehne and LWVOR President Rebecca Gladstone.

Thank you,

--

Sarah Andrews

League of Women Voters of Oregon
Office Coordinator

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



The League of Women Voters of Oregon is a 101-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.

January 6, 2021

To: Board of Forestry, Tom Imeson, Chair
Oregon Department of Forestry

Email: BoardofForestry@oregon.gov

Re: Agenda Item 5 – ODF Climate Change Carbon Plan and EO 20-04 – **Comments**

The League of Women Voters of Oregon has set its top priorities for the 2021 legislative session. Among them is this statement: “address the climate emergency by supporting Governor Kate Brown’s 2018-2020 Carbon/Climate Executive Orders, (EO 20-04) requiring net zero greenhouse emissions before 2050 while ensuring environmental justice with a just transition for workers and impacted communities.” The League recognizes that we are already experiencing a climate emergency with extreme wildfires, severe drought, rising temperatures and the astronomical costs associated with present and future climate disasters. The climate emergency must be addressed by strong and immediate changes in state forestry policy. We support climate goals and policies that are consistent with the best available climate science that will ensure a stable climate for future generations.

The best-available science on climate change is consistent and clear that one of the best and most cost-effective ways to reduce greenhouse gas emissions (GHG) to prevent rising global temperature is through carbon sequestration in forests, and some of the world’s best trees for sequestering carbon grow in Oregon. 2018 research studies by [Beverly E. Law](#), [Tara W. Hudiburg](#) and [Rose Graves](#), and Oregon Global Warming Commission Chair [Cathy Macdonald in the recent Biennial Report](#) all agree that increasing carbon sequestration, especially in forests, will have the greatest global impact by absorbing and storing atmospheric carbon compared to other more costly methods.

The last Board of Forestry meeting focused on various steps ODF has taken on climate issues to prepare for its report due this June on the specific efforts it will take to address climate change. Modifying the Forestry Goal G is a good place to start. But the LWVOR is concerned that the language of “working to improve carbon sequestration and storage” does NOT convey the urgency of the climate situation since we are just 8-10 years away from reaching irreversible tipping points before irrevocable damage to the global climate according to [recent studies](#). It is urgent that we reduce emissions to protect the world’s precious natural resources and all the economies that rely on those resources.

ODF has to do more than just “demonstrate best practices” for forest management on its own state-managed forest lands. It needs to revise the Forest Practices Act and improve our laws to align with best climate-smart forest practices as is being done by our neighbors in Washington, California and British Columbia or better. This might include selective and patch harvesting of smaller plots as opposed to large clear-cuts, leaving more trees, and retaining older trees in wider buffers along both fish-bearing and non-fish bearing streams and on steep slopes. We must protect not only water for fish but drinking water sources in local communities as the atmosphere heats up and reduces stream flows.

The science on sequestration also indicates that the single most effective and efficient way to reduce atmospheric carbon is to move to longer harvest cycles of 80 years instead of 40-50 years, since older trees up to and beyond that age continue to sequester carbon, while more frequent timber harvests and logging operations actually add to CO₂e emissions. Other climate-smart practices are variable density thinning with light impact machinery and promoting Forest Stewardship Council (FSC) certified wood products. These steps would reduce emissions while providing value timber. Other ecosystem services are also negatively impacted when laws regulating, and

enforcement of forest practices for harvest and pesticide spraying are too weak. These ecosystem elements include soil, air, and water quality that affect human health in nearby communities, as well as fish and wildlife. As reported in an article by Tony Schick (OPB) and Rob Davis (Oregonian) last week on the Jan. 1, "[Timber tax cuts cost Oregon towns billions. Then clear-cuts polluted their water and drove up the price](#)" Oregon's current logging practices are not protecting the drinking water and watersheds in communities located adjacent to harvested privately owned forestland. Sediment run-off in upstream waters cause costly damage to local water sources that must be paid for by local taxpayers with scant resources. These timber owners are abiding by current forest practice regulations that are no longer adequate as this climate crisis increases.

The League also realizes there are important economic factors that must be considered so that the burden of implementing climate-smart practices and longer rotations does not fall entirely on the timber industry. It is important that Oregon find creative ways to ensure that lost revenue from reduced timber extraction be considered for both ODF's own department resources and private timber owners. The economic structure is a regional problem that the Western State Governors are currently working on which requires a good understanding of market forces and incentives. With the new federal administration's focus on climate, there is an opportunity for strong federal leadership to solve this difficult problem of carbon cost accounting in all industry plans and practices to assure a fair and level playing field. We need to ensure that one group's profits do not become someone else's costs.

The Oregon Forest Resources Institute (OFRI) publication, "Carbon in Oregon's Managed Forests" cites three examples of carbon offset projects currently in place in Oregon implemented by a few public and private Oregon forest landowners, one in Astoria, one near Klamath Falls and one by the Confederated Tribes of Warm Springs that are using a carbon credit system. The European Union uses carbon offsets and might offer ideas on how carbon offsets can be designed. Our hope is that the Board of Forestry and ODF will seriously consider such programs, and take aggressive actions to implement critical improvements in practices and enforcement now that it is clear from the Dept. of Justice (DOJ) and recent legislation that you have the authority to do so.

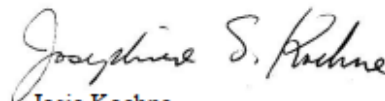
LWVOR acknowledges the difficulty ODF faces to meet these goals through carbon sequestration since it competes with the necessity of generating its own revenue through timber sales on state lands to fund its own department operations and to keep up its revenue payments to the counties. Funding for department operations is an issue that must be solved. The Legislature, the Board of Forestry and Oregon citizens need to address this unsustainable situation so that global climate is not impacted by inaction and disfunction. Private timber owners must also provide some of the answers. Too much is at stake. A new funding mechanism for the department and a serious review of timber taxation must be part of the conversation.

We urge ODF and the Board of Forestry to make their priorities very clear with aggressive plans about what must be done to increase carbon sequestration to reduce CO2 emissions and to suggest the changes in rules and incentives needed to achieve increased sequestration. It is important to clearly identify the legislative changes needed. Revisions to the Forest Practices Act must also be made to meet these targets. With carbon sequestration a top priority, ODF can meet the governor's goal of "establishing Oregon's leadership in climate-smart forestry and greater accountability toward achievement of goals."

We appreciate the opportunity to submit our comments and hope they will be helpful. We look forward to working with all parties to find solutions for the good of all Oregonians.



Rebecca Gladstone
LWVOR President



Josie Koehne
LWVOR Forestry Portfolio

Cc: Oregon Global Warming Commission (Oregon.GWC@Oregon.gov)
Peter Dougherty, State Forester (Peter.dougherty@oregon.gov)
Liz F. Dent, State Forest Division Chief (Liz.F.Dent@oregon.gov)
Justin Butteris, ODF Policy Analyst (Justin.Butteris@oregon.gov)

Received 1/5/2021

Happy New Year, I hope your year is off to a great start.

I wanted to share this op-ed with you. This morning, CNN published an opinion piece authored by Bernard Looney, bp's CEO, and Christiana Figueres, the former executive secretary of the United Nations Framework Convention on Climate Change. I think most people will find it impressive that two people who you would think would have wildly divergent views came together to write a powerful piece on climate change.

In the article, Bernard and Christiana jointly encourage action by, and cooperation among, corporations, individuals and governments at all levels so that we can achieve the Paris climate goals. It also re-iterates bp's ambition to be a net-zero company by 2050 and to help the world get to net zero, as well as our strategy for how we will achieve our ambition.

You can find the article [here](#).

I hope you will share it with others who might find it interesting, and maybe even surprising. Wishing you a healthy and prosperous 2021.

Warm regards,

Pam Brady

government affairs manager
communications & advocacy
bp America

Direct: 360.371.1519

Mobile: 360.920.1171

Pamela.Brady@bp.com

The logo features the text "Aiming for Net Zero" in a green, handwritten-style font. A green arrow points from the word "for" towards the word "Zero".

Received 1/20/2021

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

Name: Chris Haqq

Email Address: hawq67@gmail.com

Subject: Solar Rebates

Message: I would like to install a full solar array on my house, but I need some assistance. I would like to utilize the same rebate program that was available in 2020 from the Oregon Department of Energy, before the funds ran out.

Please let me know if that program is going to be available in 2021.

Received 1/24/2021

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

Name: rand schenck

Email Address: randschenck@msn.com

Subject: Forestry and Carbon Capture

Message: I wish to submit testimony for the January 29th meeting.

Please note that I encourage ODF to adopt climate smart forestry, described below:

Climate smart forestry is simple - it ensures that forest management increases carbon storage across the forest landscape. Research shows that the biggest bang for the buck from natural climate solutions is to keep trees in Pacific Northwest forests standing longer before logging them – 80 years or more can provide good timber production while increasing stored carbon. We also need to keep more diverse species of trees - especially mature and old growth trees - on the land. If we do this, we increase stored carbon, promote biodiversity and protect our drinking water supplies.

Climate smart forestry is not now being pursued by ODF on state and private industrial lands. Our forest practices act needs to be changed to support this approach and ODF leadership needs to engage in culture change to ensure that ODF recognizes that as an agency they have not responded effectively to the Governor's EO on the Climate.

The Board of Forestry will need to take a much more active role to ensure that ODF leaders are held accountable and that climate smart forestry as defined above is adopted.

Rand Schenck
OLCV Metro Climate Action Team, MCAT

Received 1/24/2021

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

Name: Jeffry Gottfried

Email Address: jeff@gottfried.net

Subject: Oregon Forests: Climate cooling machines

Message: Greetings-If someone invented a technology /machine to suck CO2 out of the atmosphere and sequester it as carbon compounds, I'm confident that the Oregon would buy hundreds of these and place them statewide.

Oregon already owns this technology in the form of forests that are among the most productive, possessing the greatest potential for CO2 sequestration in the world. At the same time, we are clear cutting our forests to fund the very agency that is responsible for managing these forests.g

This is an absurd situation. We need to survey our forests and calculate their potential fir CO2 sequestration and put a stop to clear cutting places like the Oregon Coast Range, for one.

Once a productive forest is clearcut , it becomes a SOURCE OF ATMOSPHERIC CARBON for 30 or more years.

The first order for f business for Gov Brown is to consider appointing the knowledgeable, scientifically informed candidates for the Oregon Board of Firestry

Received 1/25/2021

Oregon Global Warming Commission

January 29, 2021

Dear Commissioners;

Please consider the following points concerning the opportunity for solar energy to contribute to our climate crisis response.

Solar energy: benefits, impediments, and opportunities

Agrioltaics, the synergistic integration of agriculture and solar power, offers great potential not only for agriculture but also for the rapid and deep decarbonization transportation and for energy production and delivery. At the same time, it can reduce land use conflict, accelerate adoption of soil health based agricultural practices, and increase the sustainable efficiency of working lands. It can increase the value of farmland (1) and maintain family farms during generational transition.

Relevant technologies are ready and available to take the next steps to wide scale implementation. They can sustain crops where they otherwise would not thrive (2, 4). They can produce hydrogen efficiently and in large volumes (4); they can produce ammonia as a transportation fuel (6); they can produce fertilizers with much less GHG byproduct than current industrial processes (7), and they can directly draw down CO₂ at a rate that could return the atmosphere to its pre-industrial state in a decade (3).

AVS can contribute to a strong, more resilient distributed power generation network.

If Oregon can rapidly expand the number and size of test and demonstration facilities, these technologies will have a chance to give Oregon a chance at a survivable future. Existing and proposed solar arrays provide an answer. Allocating a portion of the land area and a portion of the produced power to support testing and development of solar powered technologies and land use practices could break the current bottleneck.

A working group consisting of landowners, solar power developers, agencies, and experts in engineering, economics, and science should be convened to identify convergences of interest. We ask that the Commission adopt a recommendation to state government to establish the working group.

Supporting information

Agrioltaics avoids land use conflicts:

In contrast to the customary monolithic solar arrays, dual use AVS integrates solar power production with agriculture, thereby enhancing the performance of both (10). The solar arrays perform better and last longer while livestock and crops can be co-located with them. (9) The sum is greater than either of the parts alone (8).

AVS prevents loss of agricultural land to development:

In addition to convening a series of meetings and webinars concerning dual use AVS, The American Farmland Trust has published analyses and reports describing ways in which these systems can contribute to preventing farmland loss (13, 14).

A quarter of farms in California now operate with installed solar systems (11).

Urgency:

Oregon not only has failed to reach its published goals for GHG reduction, but CO₂ emission are increasing.

If we had started global decarbonization in 2000 we would have had to cut emission by about 3% per year to stay under 2 degrees F of warming. If we had started in 2020, the needed rate would have been 10% per year. If we wait until 2030 it will be 30%. (15)

We must move aggressively to exploit the opportunities available to us.

Sincerely;

Allan Branscomb
Faculty Research Assistant
NEWAg Laboratory
Dept. of Biological and Ecological Engineering
116 Gilmore Hall
Oregon State University
Corvallis, OR 97331
(541) 484-1660

References:

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6. Ammonia from solar:
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10. <https://pubmed.ncbi.nlm.nih.gov/31391497/> Solar potential greatest on crop lands

11. <https://www.greenbiz.com/article/cultivating-coexistence-agriculture-and-solar-farms>.
12. <https://www.npr.org/2020/10/09/919225272/how-to-have-your-solar-farm-and-keep-your-regular-farm-too>
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14. <https://www.farmlandinfo.org/wp-content/uploads/sites/2/2020/08/AFT-solar-siting-guidelines-March2020.pdf>
15. *The Uninhabitable Earth*, David Wallace-Wells, Tim Duggan Books, 2019.



111 SW Columbia Street, Suite 200
Portland, Oregon 97201
pewtrusts.org

January 25, 2021

Ms. Catherine Macdonald, Chair
Oregon Global Warming Commission
550 Capitol St. NE
Salem, OR 97301
Submitted via email: oregon.GWC@oregon.gov

Dear Ms. Macdonald and Global Warming Commission Members:

RE: The Pew Charitable Trusts' Comments on the Global Warming Commission's Natural and Working Lands Proposal

Thank you for the opportunity to comment on the Oregon Global Warming Commission's (Commission) work plan to fulfill Governor Brown's Executive Order 20-04, which (among other issues) tasks the Commission with submitting a proposal to the Governor for consideration of adoption of state goals for carbon sequestration and storage by Oregon's natural and working landscapes. This proposal, which will include development of Oregon's first natural and working lands (NWL) inventory, goals to increase sequestration in this sector, and associated policy options, will represent an important piece of the state's overall climate mitigation efforts while yielding significant adaptation and resilience co-benefits.

The Pew Charitable Trusts' (Pew's) main interest relative to the Commission's NWL proposal is to elevate the critical role healthy coastal and subtidal landscapes play in capturing and storing carbon, and advance science-based approaches for including these "blue carbon" habitats in the NWL proposal. On a per acre basis, blue carbon habitats can store up to 10 times more carbon¹ in the soil than forests, while also protecting frontline communities from sea level rise and flooding, filtering water, and providing vital habitat for salmon and other wildlife. By including and accounting for tidal wetlands (particularly tidal forested swamps) and seagrass habitats into the NWL proposal, the Commission will lay the foundation for Oregon to harness the greenhouse gas (GHG) mitigation potential of these resources.

Accordingly, we encourage the Commission to include blue carbon habitats in the baseline inventory and projections, as well as in the development of carbon storage and sequestration goals, in the NWL proposal that will be submitted to Governor Brown in June 2021. We specifically highlight the following for the Commission's consideration:

- The coastal and subtidal landscapes found in Oregon's estuaries – when intact and restored – represent important carbon sinks, but they also can become sources of emissions when degraded. As such, these ecosystems are important to consider in GHG accounting and reduction efforts.

¹ The National Oceanic and Atmospheric Administration (NOAA) Fisheries Service: Coastal Blue Carbon (<https://tinavuzi.com/v6a2zkes>)

- Mapping and tools exist to develop a baseline “blue carbon inventory” even in relatively data-poor situations.
- Incorporating blue carbon into state mitigation strategies will enable Oregon to leverage and advance other priorities, including the adaptation strategies described in the Draft Climate Change Adaptation Framework, modernizing the state’s estuary management plans, and enhancing coastal fisheries and increasing biodiversity.

Estuaries and Blue Carbon

Coastal ecosystems, including tidal salt marshes, seagrass meadows, mangroves, and brackish river outflow wetlands, have recently been recognized for their impressive ability to store carbon.² Unlike terrestrial forests, most of the carbon is stored in the soil; if left undisturbed, these blue carbon ecosystems can store carbon for hundreds of years, preventing that carbon from contributing to climate change.³ In its 2017 annual greenhouse gas inventory,⁴ the United States Environmental Protection Agency (EPA) estimated that for the period between 1990 and 2016, coastal wetlands in the United States provided a net sink of 8.5 million metric tons of carbon per year,⁵ the equivalent of approximately 1.8 million cars driven annually.

Although Oregon’s coastal habitats occupy a small footprint relative to other landscapes, they represent an important natural climate solution because of their ability to trap and store significant amounts of carbon for long periods of time. Oregon’s tidal forested wetlands, for example, have been identified as significant carbon sinks and are projected to be particularly resilient in the face of sea level rise. A recent study⁶ noted that the Pacific Northwest’s tidal forests are equivalent to mangrove forests in terms of carbon stocks. Given that Oregon has lost over 95% of its tidal forested wetlands due to extensive diking and vegetation conversion,⁷ restoration of these habitats could play an important role in increasing carbon sequestration while also providing habitat for juvenile salmonids and delivering other important ecosystem services.

In addition, Pew recommends the Commission consider the role of impounded coastal wetlands – i.e., wetlands that have been drained for farmland or blocked by roads, which is evident within most of Oregon’s 22 major estuaries – in releasing greenhouse gases, particularly methane. Recent studies indicate that reconnecting wetlands with ocean tides by removing anthropogenic barriers can avoid these emissions, while also helping to create future carbon storage opportunities through restoration.⁸ For example, a study from Massachusetts’s Waquoit Bay Research Reserve found that restoring tidal flow to 1,100 acres of degraded wetlands could, over four decades, prevent estimated carbon dioxide emissions of up to 300,000 tons from entering the atmosphere.⁹ Opportunities associated with these restoration efforts (e.g., climate funding) could also help coastal communities facing challenges related to the marginalization of agricultural lands from sea level rise, saltwater intrusion and subsidence. Pew is working with the Smithsonian Environmental Research

² Chastain, S.G., K. Kohfeld, and M.G. Pellatt. Carbon Stocks and Accumulation Rates in Salt Marshes of the Pacific Coast of Canada. *Biogeosciences Discuss.*, 2018. 2018: p. 1–45

³ Hodgson, C. and A. Spooner. The K’ómoks and Squamish Estuaries: A Blue Carbon Pilot Project: Final Report to North American Partnership for Environmental Community Action (NAPECA). 2016. Comox Valley Project Watershed Society

⁴ See: <https://www.epa.gov/gheemissions/inventory-us-greenhouse-gas-emissions-and-sinks>

⁵ Crooks, Sutton-Grier, Troxler, Herold, Bernal, Schill-Beers, Wirth. Coastal wetland management as a contribution to the US National Greenhouse Gas Inventory. *Nature Climate Change*, vol 8, December 2018. <https://doi.org/10.1038/s41558-018-0345-0>

⁶ Kauffman JB, Giovanonni L, Kelly J et al. Total ecosystem carbon stocks at the marine-terrestrial interface: Blue carbon of the Pacific Northwest Coast, United States. *Glob Change Biol.* 2020;00:1–14. <https://doi.org/10.1111/gcb.15248>

⁷ See: https://appliedeco.org/wp-content/uploads/Brophy_2019_Oregon_tidal_swamp_and_marsh_losses_FINAL_Dec2019.pdf

⁸ See <https://environment-review.yale.edu/tidal-marsh-restoration-could-be-powerful-tool-fight-global-warming>

⁹ See: http://nerrsciencecollaborative.org/media/resources/TerraCarbon_HRR_Feasibility_v1.7_Clean.pdf

Center to summarize opportunities related to coastal wetland impoundments in Oregon and other states and would be happy to share this research with the Commission when completed (likely end of February).

Incorporating Blue Carbon in the NWL Inventory

The NWL baseline inventory is foundational to the overall NWL plan and provides an opportunity to include a first-generation accounting of the state's blue carbon to inform NWL goals and future plan updates. Oregon is fortunate to have access to mapping and research to facilitate the development of an initial baseline, and subsequent updates to the inventory can incorporate improvements in the data that will come about given the growing body of blue carbon research in the Pacific Northwest. Pew is equipped to help connect the state with new and ongoing research as appropriate, as well as provide expertise related to blue carbon accounting. In particular, we would like to highlight the following information sources that could facilitate the inclusion of blue carbon into the inventory:

- Research conducted by the Pacific Northwest Blue Carbon Working Group¹⁰
- Research on current and historic forest tidal wetland habitat conducted by Laura Brophy (Institute for Applied Ecology)¹¹
- Coastal habitat mapping conducted via the Pacific Marine and Estuarine Fish Habitat Partnership.
- Federal datasets, including NOAA's [Coastal Change Analysis Program \(C-CAP\)](#)
- Guidance for incorporation of wetlands into GHG inventories: [2013 Supplement to the 2006 Guidelines for National Greenhouse Gas Inventories: Wetlands](#)

Blue Carbon Leverage Opportunities

Climate mitigation goals, which focus on reducing greenhouse gases, and climate resilience goals, which help communities adapt to inevitable changes, are distinct but interconnected. Many NWL strategies developed for mitigation purposes can also contribute significantly to adaptation, creating synergies and economies of scale that would be invaluable given resource constraints. For example, new policies and funding associated with the state's NWL plan can be coordinated with those developed via the draft Climate Change Adaptation Framework.¹²

Pew would also like to highlight the opportunity to use existing land use frameworks for Oregon's estuaries to help advance GHG reduction goals. Statewide Planning Goal 16, via required 'management units' and associated estuary management plans, could be used to identify areas where restoration and improved conservation would increase Oregon's carbon sinks while also addressing key resilience and adaptation goals related to sea level rise and flooding. Estuary management plans provide a vehicle by which managers can incorporate carbon storage and sequestration information spatially to help prioritize areas of demonstrable carbon value and link this work with management efforts related to coastal resiliency, restoring salmon habitat, and other critical challenges facing Oregon's estuaries.

¹⁰ See: <https://www.pnwbluecarbon.org/> and Kauffman JB, Giovanonni L, Kelly J, et al. Total ecosystem carbon stocks at the marine-terrestrial interface: Blue carbon of the Pacific Northwest Coast, United States. *Glob Change Biol.* 2020;00:1–14. <https://doi.org/10.1111/gcb.15248>

¹¹ See <https://appliedeco.org/ecoregions/oregon-coast/>

¹² See <https://www.pewtrusts.org/en/research-and-analysis/speeches-and-testimony/2020/11/15/pew-recommends-oregon-adopt-nature-based-approach-to-coastal-resilience>

Conclusion

The inclusion of coastal blue carbon habitats into the NWL proposal is an opportunity to deliver a triple win for Oregon to address climate change through mitigation, adaptation and resilience. With national momentum¹³ building for the inclusion of coastal lands and waters as part of new climate mitigation efforts (including potential commitments made via the Paris Agreement), Oregon can lead the country in protecting and restoring blue carbon ecosystems. Pew welcomes the opportunity to help build knowledge and advance science-based policies in support of Oregon's blue carbon efforts.

We thank you for the opportunity to comment on the Commission's efforts relative to natural and working lands and look forward to engaging as the work progresses.

Sincerely,

Jos Hill
Project Director, Pacific
Conserving Marine Life in the United
States

Sylvia Troost
Senior Manager
Conserving Marine Life in the United
States

¹³ See: <https://bonamici.house.gov/media/press-releases/bonamici-announces-ocean-based-climate-solutions-act>

Received 1/25/2021

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

Name: Emily Herbert

Email Address: ewh1960@gmail.com

Subject: January Biennial Report Forestry Rx #36

Message: Climate Smart Forestry:

Climate smart forestry is simple - it ensures that forest management increases carbon storage across the forest landscape. Research shows that the biggest bang for the buck from natural climate solutions is to keep trees in Pacific Northwest forests standing longer before logging them – 80 years or more can provide good timber production while increasing stored carbon. We also need to keep more diverse species of trees - especially mature and old growth trees - on the land. If we do this, we increase stored carbon, promote biodiversity and protect our drinking water supplies.

Action for keeping carbon in the ground does not need a federal measurement process. Industrial Timber is pressing to "harvest" what is left asap while a simple policy change in the years prior to harvest could be implemented NOW.

Received 1/13/2021

Just received your email notice that Oregon is not meeting carbon reduction goals.

Does the report include the impact from wildfires?

An article in the Bend Bulletin today addresses the impact of fires on particle pollution.

https://www.bendbulletin.com/health/study-wildfires-produced-up-to-half-of-pollution-in-west/article_649619f0-8ae0-5414-b483-8a4d9e18cab2.html

How does the commission plan to address this significant impact to the goals?

PETER BAER, LEED AP | President/Architect | T 541.388.9897 x12 | C 541.419.9464

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Received 1/25/2021

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

Name: Owen DiRienzo

Email Address: owen.dirienzo@gmail.com

Subject: PSU Design student searching for interview

Message: Hello,

My name is Owen DiRienzo, I am a second year student at Portland State University, currently studying Design: Social Impact.

This term I am focusing on climate change, and am in the process of learning from individuals who have direct experience with it.

I believe that an interview with a member from the Oregon Global Warming Commission would be a great way for me to bring awareness to your cause, as well as learn more about what it is that you guys do.

If any of this interests you, please let me know!

Thanks for your time,

Owen DiRienzo