

**JEFFERSON COUNTY
BOARD OF COUNTY COMMISSIONERS**

WORKSHOP AGENDA REQUEST

TO: Board of County Commissioners

FROM: Kate Dean, Commissioner

DATE: April 22, 2024

SUBJECT: Climate Action Committee Recommendations for Greenhouse Gas Emissions and Carbon Sequestration Goals

STATEMENT OF ISSUE:

The Climate Action Committee (CAC) was formed via joint resolution by the City of Port Townsend and Jefferson County in 2007 to "advise the County and the City in the implementation and updating of a Climate Action Plan". The CAC, with broad representation from local governments, utilities, private business, environmental groups and others, sets periodic goals for mitigation and adaptation of climate change.

Based on recent climate data the need to limit greenhouse gas emissions and sequester carbon has intensified.

ANALYSIS:

A workshop on this subject was held on February 26, 2024. Today's workshop continues that discussion and may result in county adoption of these new goals.

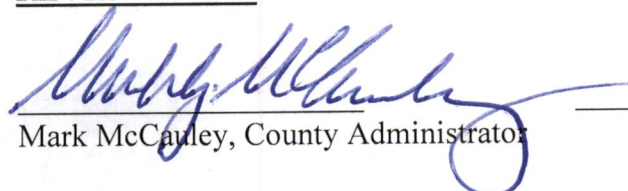
FISCAL IMPACT:

N/A

RECOMMENDATION:

The BOCC will be asked to consider adopting these two climate action goals as part of its Climate Action Plan.

REVIEWED BY:


Mark McCauley, County Administrator

4/18/24
Date



To: City Council and Jefferson County BOCC

Cc: County Administrator and City Manager of the City of Port Townsend

From: Climate Action Committee (CAC)

Date: February 20, 2024

Subject: CAC Recommendation re New Goal on County-wide Carbon Sequestration

As you are aware, in 2023 the Port Townsend/Jefferson County joint Climate Action Committee approved a [Jefferson County Forests and Trees Greenhouse Gas Inventory for 2001-2016 and Next Steps](#). In that inventory, we found that the forests and trees across our county were sequestering (or removing) more than 13 times the amount of greenhouse gases that were being emitted, as measured in the 2018 Inventory of Greenhouse Gas Emissions. Therefore, our opportunity to impact the net greenhouse gas contribution of Jefferson County – and Washington State – is highly influenced by the forests and trees across Jefferson County.

Based on the above information, the CAC adopted a motion at its 12/12/23 meeting recommending that the City Council and BoCC set two new targets for increasing carbon sequestration in the county:

1. **By 2030:** Increase carbon sequestration in Jefferson County (excluding the Olympic National Park and Wilderness areas (ONPW)) **to 2.0 Million Metric Tons of CO₂ (MMTCO₂)/year, a 20% increase above the 2011-2016 baseline of 1.6 MMTCO₂/year.**
2. **By 2050:** Increase carbon sequestration in Jefferson County (excluding ONPW) **to 2.3 MMTCO₂e/year, a 40% increase above the 2011-2016 baseline of 1.6 MMTCO₂/year.**

The rationale for the goals is based on the memo that follows below, approved by the CAC at its 12/12/23 meeting.

Thank you for your consideration of this recommendation. Please let us know if we can be of assistance in moving this recommendation forward.

Kees Kolff, Chair, Climate Action Committee

To: City of Port Townsend / Jefferson County Climate Action Committee (CAC)
From: CAC Forest Working Group
Date: December 5, 2023 (Approved at the 12/12/23 CAC meeting)
Subject: Proposed Recommendation re Countywide Carbon Sequestration Goals

Introduction

In 2008, Jefferson County and the City of Port Townsend adopted joint goals for reducing greenhouse gas (GHG) emissions - 80% below 1990 levels by 2050 - based on the inventory of GHG emissions using 2005 data. At the time, there was no inventory of carbon sequestration (removal of CO₂ from the atmosphere) levels for the county. Since then, a baseline for carbon sequestration was established in the [Jefferson County Forests and Trees GHG Inventory](#), which was approved by the CAC in 2022. Overall results from this Inventory indicate Jefferson County forests generate significant removals of atmospheric CO₂, although forest degradation from disturbances – fire, insects, and harvests, as well as forest conversion to non-forest, reduced the total amount of removal. In addition, trends indicate reduced levels of sequestration over time. The inventory includes a proposed next step that the county could adopt and/or advocate for goals for carbon sequestration.¹ Increasing carbon sequestration reduces overall net GHG emissions and is critical to tackling climate change. The United Nations Intergovernmental Panel on Climate Change (IPCC) has noted the worldwide imperative to reduce GHG emissions significantly by 2030 to keep warming to 1.5°Celsius (or 2.7°Fahrenheit), and the “rapidly closing window to secure a livable future”.² The IPCC identifies ecosystem restoration, afforestation, reforestation and improved sustainable forest management as significant near-term options to reduce emissions.³

The CAC Forest Working Group has researched possible goals for carbon sequestration in Jefferson County, WA. This document summarizes the recommendation, rationale and current research for potential carbon sequestration goals.

Recommended Goals

Based on the research below, the CAC Forest Working Group proposes setting two aspirational goals for increasing carbon sequestration in the county:

- 3. By 2030:** Increase carbon sequestration in Jefferson County (excluding the Olympic National Park and Wilderness areas (ONPW)) **to 2.0 Million Metric Tons of CO₂ (MMTCO₂)/year, a 20% increase above the 2011-2016 baseline of 1.6 MMTCO₂/year.**
- 4. By 2050:** Increase carbon sequestration in Jefferson County (excluding ONPW) **to 2.3 MMTCO₂e/year, a 40% increase above the 2011-2016 baseline of 1.6 MMTCO₂/year.**

Rationale

Forests in Jefferson County have been identified as high-carbon-priority, based on their potential carbon sequestration and low vulnerability to drought or fire.⁴ Increasing our forest and trees carbon sequestration is a critical component of meeting Washington State’s GHG reduction limits.

The Washington State legislature set GHG Reduction Limits consistent with the IPCC 1.5°C target:

- 2020 – Emissions reduce to 1990 levels of 93.5 MMT
- 2030 – 45% below 1990 levels
- 2040 – 70% below 1990 levels
- 2050 – 95% below 1990 levels – and the remaining 5% is offset by nature-based solutions (achieving net zero or neutrality)⁵

¹ In this case, “carbon sequestration” means atmospheric carbon removals (not carbon storage), usually referenced on an annual basis.

² <https://www.ipcc.ch/report/ar6/wg2/resources/press/press-release/>

³ IPCC, 2023: Summary for Policymakers. In: Climate Change 2023: Synthesis Report. See Figure SPM.7 on page 27

⁴ Buotte, P. C., B. E. Law, W. J. Ripple, and L. T. Berner. 2020. Carbon sequestration and biodiversity co-benefits of preserving forests in the western United States. *Ecological Applications* 30(2):e02039. 10.1002/eap.2039

⁵ [Washington State GHG reduction limits](#) were set by the Legislature and went into effect June 11, 2020.

The Jefferson County Forest and Trees GHG Inventory shows a net GHG balance of -3.7 MMTCO₂e/year (negative number indicates atmospheric carbon removals) for the period of 2011-2016, for the entire county. *This is equivalent to reducing Washington State's total current GHG emissions (102 MMT in 2019) by 3.6%.⁶*

The proposed 2030 goal for Jefferson County (excluding the ONPW) would provide an additional -0.33 MMTCO₂e/year, an additional 0.3% reduction in State's current GHG levels, or an additional 0.4% reduction in 1990 levels. The proposed 2050 goal would provide an additional -0.66 MMTCO₂e/year, which is an additional 0.6% reduction from the State's current GHG levels and an additional 0.7% below 1990 levels. **Altogether, by 2050 the Recommended Goals above would provide 3.6+0.7 = 4.3% reduction in Washington State's 1990 GHG emissions, a large portion of the 5% offset needed.**

The recommended goals focus on areas outside of the Olympic National Park and Wilderness (ONPW). These areas are largely protected or unmanaged⁷ and already store large amounts of carbon, meaning there is little opportunity to improve carbon sequestration in the ONPW.

There is significant additional sequestration potential in Department of Natural Resources (DNR), commercial/industrial, small private/public, and county-owned lands. The Jefferson County Forest and Trees GHG Inventory report analyzed the per acre amount of carbon sequestration by ownership type.⁸ Figure 12 of the report shows that the US Forest Service (USFS) land had the highest per acre amount of carbon removal, at 5.025 mtCO₂/acre in the 2011-2016 timeframe, which included a small amount of harvesting.⁹ Additionally, it had the highest percent forest cover, at 93%.¹⁰ If that same per acre carbon sequestration rate was applied to the DNR, commercial/industrial, small private/public, and county-owned areas (455,651 acres) of the county, and all other areas were held constant at 2011-2016 levels, that would result in a 76% increase in the carbon sequestration per year for the county excluding ONPW areas.

Relevant Research

National level recommendations for carbon sequestration goals by 2030 include:

1. [Blueprint 2030: An All-in Climate Strategy for Faster, More Durable Emissions Reductions](#) – led by a coalition of leaders including Mike Bloomberg, Jay Inslee, and others, this document proposes **an 18% increase** in annual carbon sequestration in the US land sector from present (2021) levels by 2030.
2. The Environmental Defense Fund's [Ambitious Climate Mitigation Pathways for U.S. Agriculture and Forestry: Vision for 2030](#), published in 2022, notes that the forestry sector could achieve **a 43% increase** compared to its total removals in 2018 by 2030.

Recent analyses and proposed goals in Oregon are in line with the proposed goals above. The [Oregon Global Warming Commission Natural and Working Lands Proposal – 2021](#) recommends that Oregon's natural and working lands “sequester at least **an additional 5 MMTCO₂e per year** in Oregon's natural and working lands and waters **by 2030**, and **at least 9.5 MMTCO₂e per year by 2050** relative to a 2010 to 2019 activity-based, business-as-usual net carbon sequestration baseline”. It notes that “for context, net carbon sequestered in the measured forest and the wood products pools, which dominate Oregon's total annual net carbon sequestration and storage balance, was 21.7 MMTCO₂e/year between 2001 and 2016”.

The Oregon proposal above references the research paper “[Potential greenhouse gas reductions from Natural Climate Solutions in Oregon, USA](#)”¹¹, which found “that NCS (natural climate solutions) within Oregon could contribute annual

⁶ [Washington State's 2019 GHG Inventory](#)

⁷ The Olympic National Park and Olympic National Forest Wilderness are considered “unmanaged lands” in which natural processes such as fire may alter forest cover but direct human impacts from harvesting do not occur.

⁸ These include Washington State Department of Natural Resources (DNR) managed lands, Commercial and Industrial Private Forest land, the City of Port Townsend, Port Hadlock-Irondale urban growth area, County-owned parcels, Olympic National Park and Wilderness areas, Olympic National Forest areas, Public Private land within Jefferson County

⁹ Using the higher resolution number from the original calculations.

¹⁰ The Jefferson County Forest and Trees GHG inventory shows that undisturbed forests remove the largest amount of CO₂, and areas with the highest percent forest generally had the higher levels of CO₂ removal rates per acre, with harvest emissions also a significant factor.

¹¹ Graves RA, Haugo RD, Holz A, Nielsen-Pincus M, Jones A, Kellogg B, et al. (2020) Potential greenhouse gas reductions from Natural Climate Solutions in Oregon, USA. PLoS ONE 15(4): e0230424. <https://doi.org/10.1371/journal.pone.0230424>

GHG emission reductions of **2.7 to 8.3 MMTCO₂e by 2035** and **2.9 to 9.8 MMTCO₂e by 2050**” and “changes in forest-based activities including deferred timber harvest, riparian reforestation, and replanting after wildfires contributed most to potential GHG reductions (76 to 94% of the overall annual reductions)”. Note that this modeling did not include the potential for avoided emissions by conserving mature forests. Calculating the amount from forest-based activities, using those percentages, **results in 18-22% reduction by 2035** from the 2001-2016 baseline (a reduction in emissions in this framework is an increase in sequestration). **For 2050**, using 76 to 94% of the overall annual reductions for forests results in **33-41% emissions reduction** from baseline. Both of these are consistent with the proposed goals for Jefferson County.

Another research paper, “Leveraging the potential of nature to meet net zero greenhouse gas emissions in Washington State”¹² analyzed the potential for NCS pathways to reduce GHG (i.e. increase carbon sequestration) for each county in Washington State. In analyzing the **Jefferson County data, the dominating factor for increasing sequestration was extended timber harvest**, which is defined as a harvest deferral from a 45-year rotation to a 75-year rotation. Their model for extended timber harvest resulted in an increase of carbon sequestration in Jefferson County by 2050 of between 0.11-0.22 MMTCO₂e/yr, for the limited, moderate and ambitious scenarios. The baseline measured in the Jefferson County 2022 Forests and Trees GHG Inventory document, in the 2011-2016 timeframe, was -3.7 MMTCO₂e/year. An increase of 0.11-0.22 MMT CO₂e/year results in a **3% - 6% increase in carbon sequestration** from the 2011-2016 baseline, by 2050. If that same increase was applied to the County excluding ONPW, that would result in a **7 – 13% increase**. Note that modeling in that paper limited the amount of extended harvest rotation to 40% of all private lands, and to 32% of state lands; increasing those percentages would further increase the sequestration. The paper notes that 40% was chosen as a compromise between 100% for private non-industrial forests and 21% for private industrial forests used in earlier modeling (the Oregon modeling noted above). For Jefferson County, where the small public/private land is larger in acreage than the commercial/industrial forests, using 40% results in a conservative number.

The goals recommended here are also in line with the [Washington Department of Natural Resources Strategic Plan 2022-2025](#), which sets a goal to “reduce net greenhouse gas emissions and strengthen local economies, including strategies to reduce greenhouse gas emissions from DNR’s operations” and “seize opportunities to generate benefits for trust beneficiaries and communities by incentivizing carbon sequestration on public and private lands”. Given that WA DNR manages 18% of Jefferson County lands, and 36% of the land outside the Olympic National Park and Olympic National Forest Wilderness area, DNR is a key partner in this effort.

Other counties in Washington State are also looking to increase their carbon sequestration. King County, WA has a [Forest Carbon Program](#) which aims to protect existing tree and forest canopy, and includes offering both Urban and Rural Forest Carbon Credits. The [Whatcom County, WA Climate Action Plan](#) (2021) includes a goal to “enhance carbon storage and sequestration and create climate resilience in the County through sustainable land use and development policies that preserve, protect, and enhance the health and function of our natural resources.” Also the [Sustainability 2030 – Pierce County’s Greenhouse Gas Reduction Plan](#) has Carbon Sequestration as a focus area, with objectives to protect and conserve lands for carbon sequestration, and increase the use of carbon sequestration best management practices, along with a variety of related actions.

Conclusion

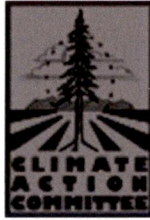
In conclusion, the CAC Forest Working Group believes the proposed goals strike the right balance of feasibility and ambition. The goals are both in line with existing analyses and doing our part to combat climate change.

Additional Opportunities

While the above recommendations, rationale and research are centered on carbon sequestration, it’s important to note that more climate-smart forest management also results in an array of economic, ecological, social, recreational, and health related co-benefits.

The goals above were driven by research and modeling related to forests and trees. There are additional non-forest opportunities for carbon sequestration in Jefferson County. For example, marine ecosystems like kelp forests, tidal wetlands and estuaries also capture and store substantial quantities of “blue carbon”. Additionally, regenerative agriculture – including no-till practices, cover crops, and other methods – can increase carbon sequestration.

¹² Robertson JC, Randrup KV, Howe ER, Case MJ, Levin PS. 2021. Leveraging the potential of nature to meet net zero greenhouse gas emissions in Washington State. PeerJ 9:e11802 <https://doi.org/10.7717/peerj.11802>



To: City Council and Jefferson County BOCC

Cc: County Administrator and City Manager of the City of Port Townsend

From: Climate Action Committee (CAC)

Date: February 20, 2024

Subject: CAC Recommendations re Updated Goal to Reduce Greenhouse Gas (GHG) Emissions

As you aware, in 2008 the City and County jointly adopted a goal to reduce Greenhouse Gas (GHG) Emissions 80% below 1990 levels by 2050, with an interim goal to reduce emissions by 15% from 1990 levels by 2020. When the [2018 GHG inventory](#) was done, we found that we as a community were making great progress toward that goal, with the 2018 data showing a 39% reduction from 1990 levels, ahead of the 2020 goal of a 15% reduction, and well on our way to the 80% below 1990 by 2050. This was primarily driven by two factors: the change in electricity supplier from Puget Sound Energy to Bonneville Power through Jefferson PUD, and the lower carbon footprint of the BPA power, and secondly, a 52% decrease in the Port Townsend Paper Company's emissions between 2005 and 2018.

However, as we presented those results, we noted that globally, we are not on track to reduce emissions sufficiently to keep warming below the 1.5°C increase in temperature that the Intergovernmental Panel on Climate Change (IPCC) recommends, and which was agreed upon in the Paris Agreement. To reach that goal, the IPCC states that we must reduce global emissions by 50% by 2030, and achieve climate neutrality by 2050. In 2022, ICLEI, the Local Governments for Sustainability that we are members of, and which provides tools for GHG emissions and sequestration modeling, created a Science-Based target for Jefferson County that is designed to represent each community's fair share of the global emissions to meet the Paris Agreement, with wealthy nations reducing emissions by more than 50% by 2030. For Jefferson County, utilizing our 2018 inventory as a baseline, they determined a 58.7% absolute reduction in greenhouse gas emissions from 2018 by 2030 is required to do our share. See attachment "High Impact Action Analysis Summary Report: Jefferson County, WA, 2018". See also the [2020 Greenhouse Gas Community Emissions Reduction Opportunities \(based on 2018 inventory\)](#) report approved by the CAC in 2021.

For a 2050 goal, the IPCC recommends all organizations be net zero. However, we learned in the CAC's previously approved "[Forest and Trees Greenhouse Gas Inventory for 2001-2016 and Next Steps](#)" that we already meet that target, since our forests sequester many times more GHGs than the amount reported in our 2018 emissions inventory. Therefore, the CAC discussed and agreed that a good model to follow would be [Washington State, which has set a goal of a 95% reduction of emissions by 2050](#) (with the remaining 5% offset).

Based on the above information, the CAC adopted a motion at its 12/12/23 meeting to "Recommend the City Council and BoCC approve updated GHG emissions reduction goals based on the IPCC recommendations and science-based targets: 58.7% reduction from 2018 baseline levels by 2030 (absolute) and 95% below 2018 levels by 2050 (absolute) with reference to our previous goals using 1990 baseline data." The absolute indicates total emissions, regardless of population changes.

The 2030 goal of a 58.7% reduction from 2018 levels (275,083 metric tons of CO₂e, from the 2018 inventory), would result in reduction of 161,474 metric tons, to an overall inventory level in 2030 of 113,609 metric tons. The 2050 goal of

a 95% reduction from 2018 levels (275,083 metric tons of CO₂e, from the 2018 inventory), would result in reduction of 261,329 metric tons, to an overall inventory level in 2030 of 13,754. Note that to compare the new proposed goals to the original 1990 goals, one must first convert the community-wide emissions in 2005 to the latest IPCC 5th Assessment parameters. That was done in the Emissions Reduction project, and the 2005 5th Assessment inventory using the ICLEI Clearpath tool was calculated as 453,252 metric tons of CO₂e (just slightly more than the 453,034 metric tons reported for 2005 using the original IPCC 2nd Assessment parameters.) That level was “backcast” to 1990 using the same ratio (0.974) of 1990 and 2005 emission in the original Climate Action Plan, and results in a 1990 level of 441,556 metric tons of CO₂e. The new 2030 goal of 113,609 metric tons would be a 74% below 1990 levels. And the new 2050 goal of 13,754 metric tons would be 97% below 1990 levels (as compared to the current goal of 80% below.) These are summarized in the table below.

Year	GHG Emissions (Metric tons of CO ₂ e)	Percent reduction from 2018 level	Percent reduction from 1990 level	Notes
1990	441,560 (backcast from 2005)	N/A	N/A	As modeled in 2018 inventory, using 2005 data, and 5 th Assessment parameters
2018 GHG Emissions	275,083	N/A	38%	Using 5 th Assessment
2030 Recommended Goal for Emissions	113,609	58.7%	74%	
2050 Recommended Goal for Emissions	13,754	95%	97%	

Therefore, the CAC recommends to the BOCC and the City Council that they adopt the updated GHG emissions reduction goals approved by the CAC based on IPCC recommendations and science-based targets of:

- **58.7% below 2018 baseline levels by 2030 (absolute)**
- **95% below 2018 levels by 2050 (absolute)**

Note that the CAC will continue to follow the climate science and will review our goals as that evolves, and will make further recommendations regarding emissions goals if and when necessary to stay consistent with the latest science.

Thank you for your consideration,

Kees Kolff, Chair, Climate Action Committee

Attachment: High Impact Action Analysis Summary Report: Jefferson County, WA, 2018



JeffersonCountyWA
_HIA_updated.pdf