

Goal Setting for Natural & Working Lands



For the
**OREGON CLIMATE
ACTION COMMISSION**

by the
**OREGON
DEPARTMENT OF
ENERGY**



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GOAL SETTING FOR NATURAL & WORKING LANDS

Executive Summary

This report responds to ORS 468A.193 that directed the Oregon Department of Energy and the Oregon Climate Action Commission, in coordination with the Oregon Watershed Enhancement Board, Department of Forestry, Department of Agriculture, and the Department of Fish and Wildlife, to establish a non-binding net sequestration and storage goal for Oregon's natural and working lands and update the goal as new information becomes available. The goal is voluntary, rather than regulatory, and is intended to increase awareness and provide direction for collaborative action related to land management and land use. It is not intended to pose any type of burden or additional requirements on industry, landowners, or others if they do not participate.

ODOE presents three goal options for the Commission's consideration. The goal that will be established, while voluntary, will provide a guidepost for considering land management as part of climate action.

Background

To meet the goal, the legislature established that it is the policy of the state to invest in natural climate solutions (NCS), which are activities that enhance or protect net biological carbon sequestration on natural and working lands, while maintaining or increasing ecosystem resilience and human well-being.ⁱ NCS are nature-based solutions that sequester and store carbon or help avoid emissions. Many of these land management practices can be implemented immediately to remove carbon from the atmosphere and help Oregonians adapt to the impacts of a changing climate. Natural climate solutions can be applied to any type of managed or natural land and many are already being deployed across Oregon ([See Appendix A](#) for the 2026 draft list of Natural Climate Solutions). Increasing the pace and scale of their implementation by governments and willing participants would improve Oregonians' quality of life today and into the future.

The statute directs the state to leverage existing land management programs to implement natural climate solutions. The goal is intended to be separate from, and in addition to, Oregon's sector-based emissions reductions goal. Planning efforts by Tribes, public and private partners, and land stewards are crucial to strategic implementation. A discussion of agency programs that implement natural climate solutions in Oregon can be found in the Natural Climate Solutions and Metrics Analysis.

Land-based net sequestration rates are often compared against sector-based greenhouse gas emissions to communicate scale.

Oregon's lands are already sequestering carbon at large scales and additional actions like natural climate solutions would allow for greater increases. In an average year, Oregon's land-based net sequestration of carbon ranks as the seventh highest in the nation according to the national greenhouse gas inventory. Recent data shows that the nation's natural and working lands sequester carbon at a net rate equivalent to 14 percent of the United States' sector-based greenhouse gas emissions. Oregon contributes roughly 5.4 percent toward the national annual rate.

ⁱ Ellis et al. (2024). The principles of natural climate solutions. *Nature Communications*, 15, 547.
<https://doi.org/10.1038/s41467-023-44425-2>

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Goal Options

Three options for a voluntary net sequestration goal are presented within this report for Commission consideration: 1) maintaining the net sequestration goals the Commission recommended in 2021, 2) modifying the 2021 goals to align time horizons with other state goals (2035 instead of 2030) and address the possibility of meeting a goal while Oregon's net sequestration continues to trend downward, and 3) calibrating the goal based on new data available from Oregon's Land-based Net Carbon Inventory and the U.S. national greenhouse gas inventory and global science-based targets.ⁱⁱ In considering the establishment of a sequestration goal it is important to understand that there are practical constraints on implementation such as the time it takes to: build partnerships, permit projects, align agency infrastructure, build a workforce, and secure investments. The goal language options are presented in the box below. Net sequestration rates are proposed in terms of million metric tons of carbon dioxide equivalent (MMTCO₂e) per year.

Goal Options for Commission Consideration:

The phrase "net sequestration" indicates that land-based emissions and removals have been taken into account during calculations. The phrase indicates that, on net, the goal is seeking an overall sequestration benefit.

Option 1: Original 2021 Proposal

- Achieve net sequestration of at least an additional 5 MMTCO₂e per year by 2030.
- Achieve net sequestration of at least an additional 9.5 MMTCO₂e per year by 2050.

The language has been modified from the 2021 proposal to indicate that "net sequestration" was intended.

Option 2: Modified 2021 Proposal

- Achieve net sequestration of at least 53 MMTCO₂e per year across all land categories by 2035.
- Achieve net sequestration of at least 57.5 MMTCO₂e per year across all land categories by 2050.

Option 3: New Proposal for 2026

- Achieve net sequestration of at least 57.6 MMTCO₂e per year across all land categories by 2035.
- Achieve net sequestration of at least 62.4 MMTCO₂e per year across all land categories by 2050.

Option 2 applies Oregon's most recent five-year average annual sequestration rate to produce the total goals and compensate for the state's declining trend in net sequestration, ensuring that at a minimum the desired annual net sequestration rate is achieved.

ⁱⁱ United States Environmental Protection Agency (2024). *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2022*. <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2022>

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Option 3 was developed using information from Oregon's Land-based Net Carbon Inventory (2025) and the most recent U.S. national greenhouse gas inventory (2024), and placed in context of global targets. This option also satisfies the statutory directive that ODOE and the Commission consider new information as it becomes available.

All three options are within the science-based range of net sequestration potential identified during ODOE's analysis. **ODOE recommends that the Commission select either Option 2 or Option 3.**

While the statute requires ODOE, the Commission, and the agencies to identify metrics to track progress toward a statewide goal, agency capacity and gaps in data infrastructure present challenges to acquiring and applying the necessary data to the metrics to evaluate such progress.

As such, the report presents five recommendations to address this issue: 1) establishing a cross-agency reporting system, 2) modeling natural climate solutions pathways toward achieving the goal, 3) gathering information on incentives for natural climate solutions implementation, 4) allocating funds to the Natural and Working Lands Fund, and 5) conducting a land-based stock assessment to track and potentially set a future goal to protect carbon stocks.

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Land-based Climate Action in Oregon

To address the climate crisis, society must quickly take two actions to meet national and global climate goals:

1. We must rapidly reduce emissions, which includes making a clean energy transition.
2. We must also rapidly increase efforts to remove carbon already in the atmosphere.

Taking these actions is necessary to stop global temperatures from rising beyond thresholds that experts say would be disastrous for humanity and the ecosystems on which it relies.

In 2007, Oregon lawmakers passed House Bill 3543, which set sector-based state emissions reductions goals. The same year, lawmakers established the Oregon Global Warming Commission, now called the Oregon Climate Action Commission (Commission), and charged it with tracking the state's progress to achieve these goals.

In recent years, climate specialists and technologists have turned their attention toward actions to remove carbon already in the atmosphere. Oregon has followed suit. In 2020, Governor Brown directed the Commission to recommend a goal for increased sequestration in Oregon's Natural and Working lands which the Commission adopted in 2021. In 2023, the Oregon legislature passed House Bill 3409, a broad-based package of laws on climate including natural climate solutions. In addition to directing ODOE and the Commission to establish a goal, it defined natural and working lands and natural climate solutions and established a policy to use natural climate solutions as a tool to combat climate change. Success in meeting a natural and working lands goal will be underpinned by a strong nature-based workforce across the forestry, agricultural, restoration, and land stewardship sectors. In 2025, ODOE published a first look at the [natural climate solutions workforce](#) with recommendations to strengthen these jobs in order to provide high quality nature-based solutions opportunities for Oregonians.

Purpose

The purpose of this report is to respond to ORS 468A.193, which directed the Oregon Department of Energy and the Oregon Climate Action Commission, in coordination with the land managing agencies, to

What does "non-binding" mean?

The natural climate solutions statute section directs ODOE, the Commission, and natural resource agencies to establish a non-binding net carbon sequestration and storage goal (ORS 468A.193 (6)). This means the goal is voluntary, not regulatory, and is not intended to pose any type of burden or additional requirements on industry, land stewards, managers, or others if they do not participate.

Why set a voluntary goal??

A voluntary goal can set an intention, increase awareness about the subject of the goal, and provide direction for collaborative action. For the natural and working lands goal, this means land stewards and landowners that would like to bolster carbon sequestration and storage have a guidepost by which to measure progress, additional information to help decision-making, and ideally will be able to track their progress alongside other participants and state land managing agencies.

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establish a non-binding net sequestration and storage goal for Oregon’s natural and working lands and update those goals as new information becomes available.ⁱⁱⁱ

The goal that will be established, while voluntary, will provide a guidepost for considering land management as part of climate action.

Land Management as Climate Action

The Legislature provided a statutory directive to focus on natural climate solutions, which are activities that enhance or protect net biological carbon sequestration on natural and working lands, while maintaining or increasing ecosystem resilience and human well-being.^{iv,v} They are nature-based solutions, strategies that capitalize on ecosystem services, that are also known to sequester and store carbon or help avoid emissions. Many of these land management practices can be implemented immediately and help Oregonians adapt to the impacts of a changing climate. Unlike other technological carbon removal strategies, NCS also protect land-based stocks, increase resilience, and reduce land-based emissions. Natural climate solutions can be applied to any type of managed or natural land, and many are already being deployed across Oregon. Increasing the pace and scale of their implementation by the state agencies and willing participants would improve Oregonians’ quality of life today and into the future.

There are many types of biological and technological carbon removal strategies that can be employed to sequester and store carbon from the atmosphere.^{vi} While all types of carbon removal strategies should be investigated and potentially invested in, it is NCS that sequester carbon now while also providing other important societal benefits. For example, planting trees in cities removes carbon, but also helps achieve multiple other goals by providing shade and temperature refuge for humans and wildlife more equally across neighborhoods, increasing energy efficiency, and offering mental health benefits.^{vii} Deploying natural climate solutions now will thus pay future dividends for the climate and society.

The National Context

Every year, lands in Oregon, and the U.S. more broadly, sequester carbon at very large scales. In recent years, natural and working lands in the U.S. sequestered carbon at an average net rate of 890 million metric tons of carbon dioxide equivalent (MMTCO₂e) per year, equivalent to approximately 14 percent

Carbon Removal Strategies

Technological carbon removal strategies are already being pursued in Oregon, such as direct air capture. For example, a facility currently operating in Oregon removes approximately 500 metric tons of CO₂e per year. While promising, proponents are still working on ensuring their cost-effectiveness and scaling up project size. For comparison, existing trees in developed areas across Oregon currently remove, on average, 1,750,000 metric tons of CO₂e per year, per ODOE’s recent inventory accounting, representing a 3,500-fold difference in scale.

ⁱⁱⁱ Oregon Revised Statute 468A.193. https://oregon.public.law/statutes/ors_468a.193

^{iv} Oregon Revised Statute 468A.183. https://oregon.public.law/statutes/ors_468a.183

^v See supra note i

^{vi} <https://www.oregon.gov/energy/energy-oregon/Documents/NWLC-FS1.pdf>

^{vii} Pataki et al. (2021). The benefits and limits of urban tree planting for environmental and human health. *Frontiers in Ecology and Evolution*, 9, 603757. <https://doi.org/10.3389/fevo.2021.603757>

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of the U.S. sector-based greenhouse gas emissions.^{viii} Oregon’s lands currently sequester carbon at an average net rate of 48 million MTCO₂e per year. This means that Oregon contributes roughly 5.4 percent of the national average net rate of annual sequestration.^{ix} Out of the 50 states, Oregon ranks seventh in the nation in net carbon sequestration.^x

Oregon and the U.S. have a unique opportunity to be world leaders in land-based net sequestration. With additional actions like natural climate solutions, Oregon may enhance its land-based carbon sink and help increase global net sequestration rates.

Two Tracking Systems

ODOE will use two greenhouse gas tracking systems to assess progress toward the voluntary goal that is established.

The statute establishes two types of greenhouse gas tracking for the state. The first type, from ORS 468A.193, is called “consequential accounting” and tracks the progress of NCS strategies.^{xi} This type of tracking is also able to gather information, over time, of the positive and negative effects of NCS implementation: on jobs, local economies, environmental integrity, and public health. In

addition, ORS 468A.195 establishes the second type of tracking, called “allocational accounting” in the form of the Land-based Net Carbon Inventory (Inventory), using Oregon’s lands as the accounting subject rather than NCS.^{xii}

Two Greenhouse Gas Tracking Systems

These two types of greenhouse gas accounting and their relative tracking systems are complementary and put Oregon in a strong position to track progress and illuminate and remove any barriers.

What Makes a Good Natural & Working Lands Goal?

As part of the approach to coalescing information to establish the goal, ODOE asked multiple individuals and organizations: What makes a good goal? The feedback we received and synthesized helped guide the contents of this document and the development of goal options for consideration by ODOE and the Commission.

^{viii} Land-based sequestration rates are often compared against sector-based greenhouse gas data to communicate scale.

It’s important to note that lands do not reduce sector-based emissions and the term ‘net’ is used to indicate whether the balance is an emission or sequestration.

^{ix} Oregon Department of Energy and Oregon Climate Action Commission (2025). *Land-based Net Carbon Inventory Appendix F: Inventory Results*. [2025 Carbon Inventory Appendix F](#)

^x See supra note ii

^{xi} Oregon Revised Statutes § 468A (2025). https://www.oregonlegislature.gov/bills_laws/ors/ors468a.html

^{xii} Oregon Department of Energy and Oregon Climate Action Commission (2025). *Land-based Net Carbon Inventory*. [Land-Based Net Carbon Inventory Report 2025](#)

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What Makes a Good Goal?

- Science-based
- Understandable
- Measurable
- Ambitious, yet achievable
- Multi-benefit

A good natural and working lands goal should be science-based, understandable, measurable, ambitious yet achievable, and spur actions that result in multiple benefits. Oregon's approach and goal should be based on the best-available scientific literature and reports available to us at this time. The rationale behind it should be clear and understandable to a variety of audiences. Progress toward the goal needs to be measurable, take into consideration carbon dynamics information and data, and be consistent with Oregon's existing reporting

infrastructure where possible (these measuring and tracking needs are discussed more in depth in the Natural Climate Solutions and Metrics Analysis). The goal should be consistent with Oregon's climate ambitions—and be achievable. Overall, goals are successful when the trade-offs are understood, negative consequences minimized or mitigated, and it is believed that the collective benefits outweigh the consequences.^{xiii}

Integration with Existing Programs and Policies

The goal will establish a guidepost for Oregon, enable us to track our progress, and identify implementation challenges. However, it is Oregon's land use and land managing policies, programs, and plans that will guide where and how natural climate solutions are implemented across Oregon. The planning efforts of Tribes, public and private partners, and land stewards are crucial to strategic implementation. The statute directs the state to leverage existing programs. Below, we briefly highlight a few examples of programs and policies that provide context within which the goal will sit and how land use planning and land management plans underpin maintaining or enhancing Oregon's rich carbon stores. A more comprehensive compilation of agency programs can be found in the Natural Climate Solutions and Metrics Analysis.

^{xiii} Gardali et al. (2021). Multiple-Benefit Conservation defined. *Conservation Science and Practice*, 3(6), e420. <https://doi.org/10.1111/csp2.420>

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Oregon's Land Use System

Land conversion is a major driver of land-based carbon emissions and removals. Oregon's landmark land use system was created fifty years ago by leaders and advocates who understood the ramifications of potential future land conversion. With that understanding, they created a system to balance conservation and development. Former Governor Tom McCall, passionately railed against "sagebrush subdivisions, coastal condomania, and the ravenous rampages of suburbia" as a threat to Oregonians' quality of life. Today, the benefits of Oregon's land use system are evident out every window and at every vista. Farms, forests, rivers, wetlands, estuaries, and other natural resources exist alongside developed land.

[ODOE's Land-based Net Carbon Inventory \(Inventory\)](#) documents this sustainable development framework noting the relatively low rate of land conversion between land categories (forest, cropland, wetlands, grassland/arid lands, and developed land) over the last 35 years compared to other states. Yet, even as zoning has remained relatively consistent, Oregon has experienced changes in its lands throughout the last three decades in both land use and management practices, which are reflected in significant changes in statewide rates of land-based emissions and removals including decreases in forest, grassland, and agriculture, and increases in developed land.^{xiv} Continued protection of Oregon's landmark land use laws are vital as this program may be the largest statewide policy lever to meet an adopted net carbon sequestration goal.

ORS 468A.185 (3)(d)(F) provides the following list of benefits from NCS implementation:

- Reducing heat island effects;
- Improving air quality;
- Improving flood control;
- Improving soil health and productivity;
- Improving wildfire resilience and community protection;
- Improving drought resilience and response;
- Improving stream health, wetland recovery and riparian functionality;
- Protecting and recovering drinking watersheds for enhanced water quality and quantity;
- Maintaining or increasing short-term, mid-term and long-term fiber supplies;
- Maintaining or increasing food supplies;
- Increasing the climate resilience of fish, wildlife and their habitats;
- Improving protection for coastal communities from the impacts of storm surge; and
- Improving public health.

Land and Water Management

Tribal Nations, state and federal agencies, local governments, and the private sector guide Oregon land and water management. The programs and plans discussed below are not an exhaustive list but were selected by ODOE and the Inter-Agency Working Group as examples that provide a clear connection between goal setting and natural resource management and adaptation/resilience planning in Oregon. Programs like those offered below provide the strategic implementation across land categories necessary to achieve a net land-based carbon sequestration goal and "optimize the social, health,

^{xiv} See supra note ix, pp. 2–3.

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ecological, climate resilience, and economic benefits of natural climate solutions” listed in ORS 468A.185(3)(d)(F) to the right.

Tribal Nations Planning and Action

Tribes in Oregon are climate action leaders. Many Tribes have assessed, or are in the process of assessing, their vulnerabilities, identifying priorities, and creating strategic actions to enhance climate resilience. As an example, in 2025, the Coquille Indian Tribe published the [Coquille Resilience Management Plan](#). An excellent model of holistic resilience planning, the document weaves together all the actions the Tribe will take to make progress on climate mitigation and adaptation to create climate resilience. The strategic priorities below from the Coquille’s plan guide where and how nature-based actions are implemented and can bolster how the natural and working lands goal will be achieved:

- **“Food and Water Sovereignty:** Restore traditional food systems, protect native freshwater and marine fisheries, develop Tribal-led agriculture and aquaculture, advocate for sustainable ocean and river policies, and establish Tribal water rights.
- **Land Acquisition and Sovereignty:** Land tenure is fundamental to self-determination. By controlling our own land and acquiring additional lands, we can increase access to traditional food sources, protect water resources, and implement sustainable agricultural practices. This strengthens our food security and ensures long-term resilience in the face of climate change.
- **Land and Resource Management:** Strengthen Tribal control over forest lands, promote carbon sequestration, reduce wildfire risk, protect sacred sites, and ensure that resources are available for generations to come.
- **Healthy Waters, Lands, and Oceans:** Restore terrestrial, riverine, and marine habitats, integrate Traditional Ecological Knowledge (TEK) with modern science, and advocate for climate-smart resource management policies.
- **Policy Advocacy and Partnerships:** Ensure Tribal sovereignty is recognized in water, energy, food, and environmental policies, and engage in leadership roles at state and federal levels.
- **Ecosystem and Cultural Preservation:** Implement coastal wetland restoration, reforestation, and pollution reduction efforts while integrating cultural knowledge into resource management.”

Federal Agency Planning and Action

Just over half of Oregon’s Natural and Working Lands are federally owned. Federal agency planning and actions, therefore, are part of how well Oregon’s lands sequester and store carbon. Many federal agency programs partner with Oregon to deliver land management services, assistance, and funding that support NCS implementation. State agency partnerships with federal agencies will be part of the NCS and Metrics Analysis.

Oregon State Agency Planning and Action

ODOE estimates that there are approximately 106 state and local agency programs currently implementing or supporting NCS implementation in the state. These implementation programs and projects can contribute to the overall goal that is established by avoiding emissions from habitat degradation, increasing carbon sequestration via restoration, or protecting stocks through long-term stewardship of habitat. Financial and technical assistance programs support the pipeline of projects and can contribute to the overall goal being established.

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Forests: The Oregon Department of Forestry has studied Oregon's forestland conversion, [forest ecosystem carbon, and harvested wood products carbon](#). These analyses, strategic planning, and cross-agency implementation coordination will contribute to the overall goal that is set by supporting and encouraging resilience ecosystems, avoiding emissions from wildfires, and protecting long-term forest stores of Western Oregon.

Plant Material Supplies: The Oregon Department of Agriculture's [Native Seed Strategy](#) and Oregon Department of Forestry's [Seed Programs](#) are needed to coordinate and expand Oregon's native seed supply chain in response to increasing environmental challenges and restoration demands. These programs can contribute to the overall goal established by removing barriers for native plant materials and accelerating the pace and scale of restoration implementation across the state. They will also provide a source of climate-ready seeds for reforestation and ecosystem function restoration either post management or post disturbance.

Water and Wetlands: Intact wetlands hold significant carbon stocks. The Department of State Lands regulates this resource, which delivers multiple climate benefits like defending landscapes against drought, managing floods, and protecting communities from storm surges. Department of State Lands' [five-year strategic plan](#) includes direction to incorporate these considerations into removal-fill permit decision-making. This strategic direction and regulation will contribute to the overall goal that is set by enhancing, restoring, or protecting wetlands and waterways.

Coastal Resources: The Department of Land Conservation and Development developed [Estuary Resilience Action Plans](#) with coastal communities to identify where nature-based strategies like coastal wetland restoration can increase community resilience. OCMP is working with communities to develop coastal resilience plans that address all aspects of coastal communities and coastal resources. Additionally, the Department of Land Conservation and Development supports the implementation and update of regulatory [Estuary Management Plans](#), which are implemented by cities and counties. This water-focused zoning approach supports the protection and enhancement of carbon stocks within tidal wetlands, eelgrass meadows, and other tidal riparian vegetation. These plans and regulations can contribute to the overall goal that is set and provide direction on what NCS to implement to increase water quality, protect wetlands, or safeguard communities.

Watersheds and Habitat: Multiple land managing agencies have created plans and priorities to guide *where* adaptation, resilience, and conservation projects should be implemented based on overarching conservation priorities, like Oregon's [state wildlife action plan](#), including the Oregon Department of Fish and Wildlife's [priority wildlife connectivity areas](#). The Oregon Watershed Enhancement Board has established ecological priorities of significance to the state for use in their [focused investment partnership grant program](#). A broad array of agency programs carry out restoration and conservation actions in coordination with a deep network of partners and grantees.

Setting a goal for nature-based climate action will have effects on many of the elements displayed in Figure 1, are generally aligned with the land managing agency missions, and can help forward overarching state landscape resilience aims described in Executive Order 25-26. Many resilience actions increase carbon sequestration and storage, or protect existing carbon stocks, which mitigate climate change and in turn may reduce the need for future expensive adaptation measures. Each Tribal Nation and natural resource agency have their specific priorities; however, land-based greenhouse gas emissions and removals are a common denominator, trackable across all land managers and stewards, and can help build new understanding and innovative partnership.

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Figure 1. Effects of natural climate solution implementation



Trends in Emissions and Removals on Oregon's Land

Oregon's Land-based Net Carbon Inventory (Inventory)^{xv}, which tracks changes in land-based emission and removals over time, can help place the goal in context of this new statewide greenhouse gas accounting information. See [Appendix B](#) for detailed trend analysis of net emissions and removals by land category and [Appendix F](#) in the Inventory for detailed results by land category. Below, trends in emissions and removals are briefly discussed.

The Inventory accounts for emissions and removals of carbon dioxide, and non-CO2 emissions of methane and nitrous oxide, across all of Oregon's land base, regardless of ownership. For every year in the Inventory, Oregon's lands have, on net, sequestered more greenhouse gases than they have emitted. The gray line in Figure 2 illustrates that, in total, Oregon's land has historically been a net sink; this is largely due to high sequestration from the forest land category, which includes the harvested wood product pool (shown separately in Figure 2 for informational purposes). Individual land categories may be either net sources or sinks of carbon because they are composed of several sub-categories of sources and sinks added together, such as biomass and soils

Oregon's land is a net carbon sink (gray line) though its constituent categories may individually be either carbon sinks or sources.

Terminology

Removals: Greenhouse gas inventory language used to denote carbon removal from the atmosphere. When talking in terms of inventories, best practice is to use "removals" rather than "sequestration". Greenhouse gas inventories focus on calculating emissions. Negative emissions are removals.

Net Removal: Greenhouse gas inventory language used when more carbon is removed from the atmosphere than greenhouse gases are emitted to the atmosphere.

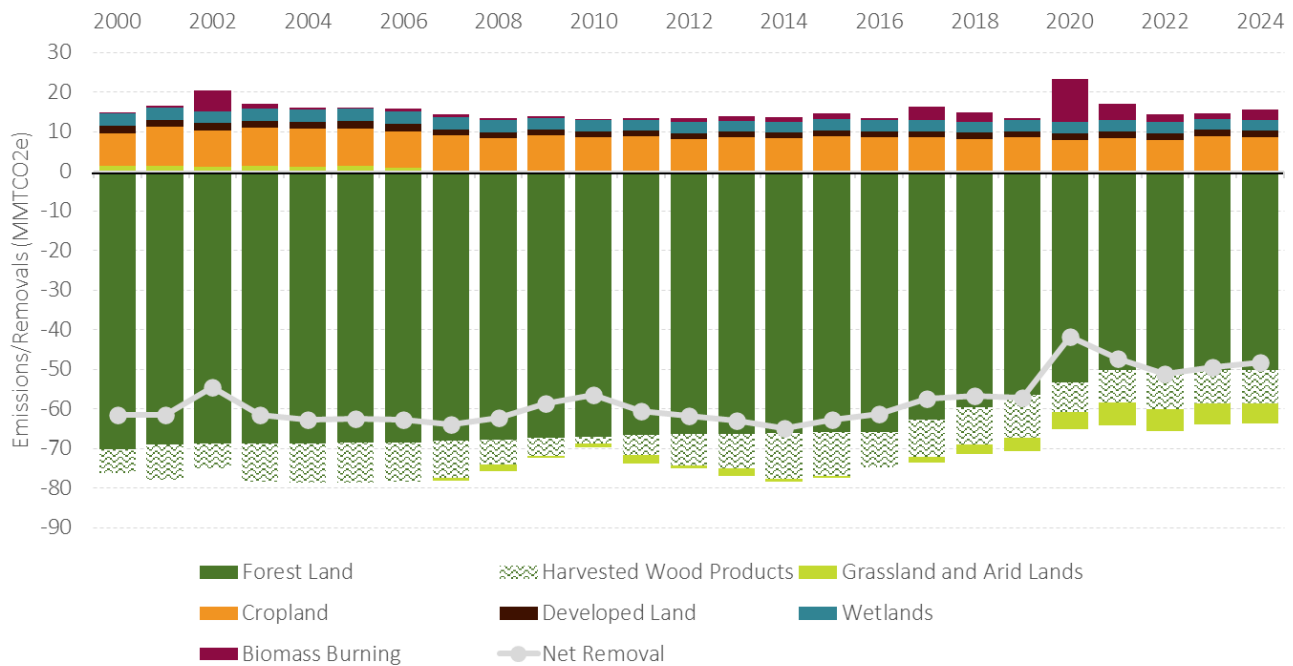
Net Sequestration: Many times a synonym for 'removals.' The statute directs the state to focus on a net sequestration and storage goal. In Oregon, net sequestration includes not only carbon emissions and removals, but non-CO2 emissions as well (e.g., methane released from wetlands or drained soils). Net sequestration includes carbon storage; the process or capacity to retain carbon over time.

Carbon Stocks: The total amount of carbon currently stored in a given reservoir, such as aboveground biomass or soil organic matter, at a specific point in time. Oregon has not assessed stocks at this time. See the [Land-based Net Carbon Inventory](#) for discussion of stocks.

^{xv} See supra note xii.

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Figure 2. Total greenhouse gas emissions and removals by category and net removals from 2000–2024



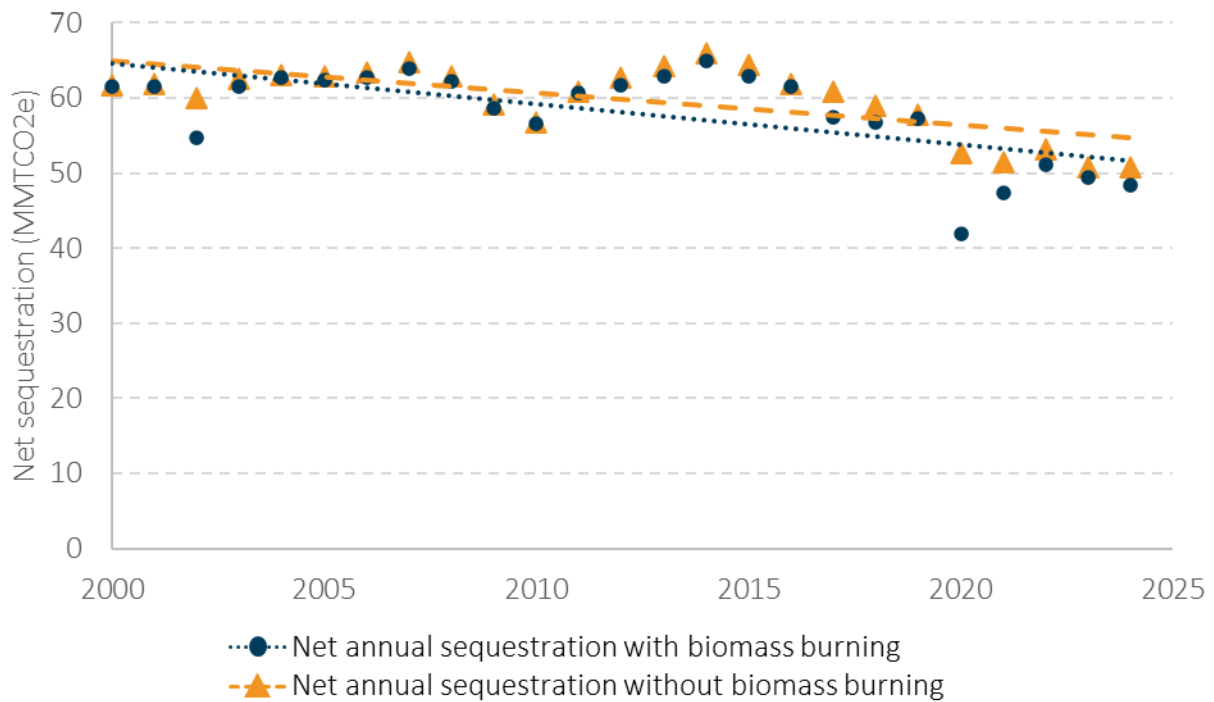
However, Oregon has experienced a significant decline in net sequestration over time. It is important to note that a decline in net sequestration does not necessarily indicate that the land has become less capable of sequestering carbon. A decline in net sequestration may result from many different factors like land conversion, tree die-off from drought and/or extreme heat, disturbance from pests and wildfire, and other causes.

A large part of the decline in Oregon is due to an increase in emissions: biomass burning in the form of wildfires, particularly in 2020, has in recent years been a large source of emissions. Taking this into consideration, Figure 3 shows net sequestration trends with and without the consideration of biomass burning. Without considering biomass burning, Oregon’s lands are still experiencing a decline in net sequestration over time. See [Appendix B](#) for a discussion of the statistical methods used to produce and verify the trendlines. As noted by multiple commenters, wildfire risk reduction strategies are central to protecting current stocks and sequestration capabilities. Wildfire risk reduction strategies are included in the Natural Climate Solutions and Metrics Analysis.

Figure 3 shows the net sequestration of all land categories with biomass burning (see the blue dots and dotted trendline) and of all land categories except for biomass burning (see the orange triangles and dashed trendline). Trendlines indicate significant decline in net sequestration with or without biomass burning. Note that values displayed are the same as those in Figure 2, showing the net removal of the Land-based Net Carbon Inventory, but are graphically displayed as positive values in order to indicate more clearly the historical decline and to indicate that goal options would increase net sequestration.

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Figure 3. Net sequestration of Oregon's land base between 2000–2024



Goal Options for Commission Consideration

Below, ODOE offers three options for the Commission to consider. The Commission has the option of maintaining the goals as they were recommended in 2021 (Option 1); however, if maintaining the goal is desired, ODOE recommends a modification to the original goal in Option 2. In Option 3, ODOE recommends a larger net sequestration rate based on available new data. While there are practical constraints on implementation like the time it takes to build partnerships, permit projects, align agency infrastructure, build a workforce, and secure investments; Option 3 focuses more on the science that provides information about what is needed to contribute to solving the climate crisis rather than the policy and implementation challenges at hand.

The directive in ORS 468A.193 sets the expectation that whatever goals are established, they are meant to be revised as new information on climate change and the success of Oregon's efforts become available or as the challenges become clearer. ODOE recommends the Commission revisit the goals as needed since this is an emerging field of science and new information is being published on a regular basis.

Option 1: "Original 2021 Proposal"

The Commission could maintain the goal recommendations adopted in 2021 for net sequestration on Oregon's natural and working lands.

The language has been modified from the 2021 proposal to indicate that "net sequestration" was intended even if not written in the language:

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- Achieve net sequestration of at least an additional 5 MMTCO₂e per year by 2030.
- Achieve net sequestration of at least an additional 9.5 MMTCO₂e per year by 2050.

All the annual net sequestration rates in this analysis are within the science-defined range of potential net sequestration ODOE calculated ([see Appendix A](#)) and based on certain actions that were able to be quantified by the research community at the time.

The Commission recommended the baseline for this goal be established from a 2010–2019 baseline of natural climate solutions activity in the state. That baseline has not been established at this time due to limitations in the available data on the implementation of natural climate solutions, the climate mitigation benefit of natural climate solutions from scientific studies, and other reasons. As a result, ODOE drafted Option 2, using the Land-based Net Carbon Inventory as a baseline.

However, the Natural Climate Solutions and Metrics Analysis will provide the information the state does have for an initial list of 33 natural climate solutions and identify missing information that would allow for the tracking of the implementation of natural climate solutions in Oregon and their climate benefits. As ODOE and Oregon’s land managing agencies are able to improve statewide tracking and reporting infrastructure for NCS — which is necessary for tracking progress toward any goal option selected by the Commission — ODOE will be better able to establish a historical baseline for natural climate solutions activity.

Option 2: “Modified 2021 Proposal”

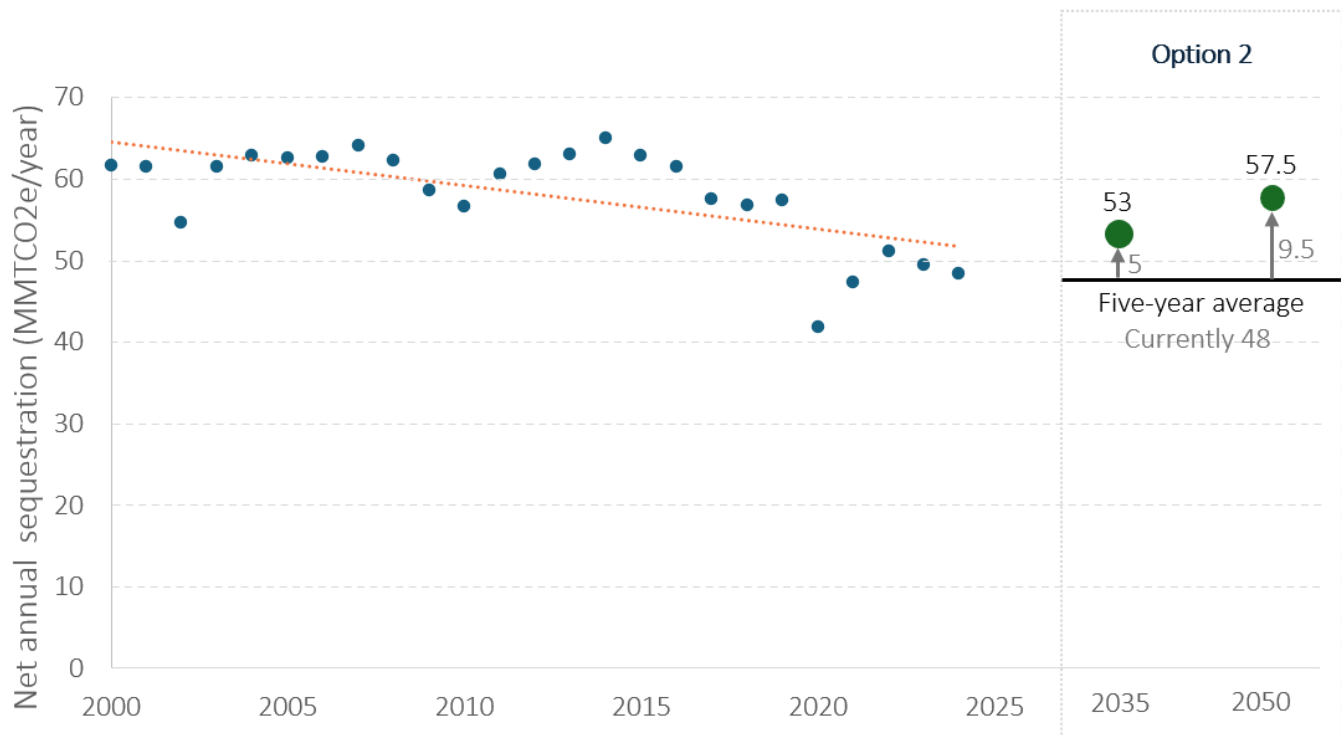
If the Commission maintains the current net sequestration goal amounts, ODOE recommends changes to align the time horizons with other state goals, allow for additional time to meet the goal, and to set a target net sequestration rate rather than as an “additional” amount per year as written in Option 1. With these adjustments the current goals would be modified to read:

- Achieve net sequestration of at least 53 MMTCO₂e per year across all land categories by 2035.
- Achieve net sequestration of at least 57.5 MMTCO₂e per year across all land categories by 2050.

In support of ODOE’s recommendation for these minor adjustments, the Issues to [Consider During Goal Selection section](#) discusses in more detail the time horizons and strategies to account for the declining trend in removals. The values displayed in Figure 4 are the same as those in Figure 2 showing the net removals of the Land-based Net Carbon Inventory, but are graphically displayed as positive values in order to indicate more clearly the historical decline and to indicate that goal options would increase net sequestration. The rates of net sequestration for this goal would be set to 53 and 57.5 MMTCO₂e per year for the years 2035 and 2050, respectively, representing an increase of 5 and 9.5 MMTCO₂e over the five-year average rate of net sequestration estimated by the Land-based Net Carbon Inventory.

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Figure 4. Representation of Goal Option 2



Option 3: “New Proposal for 2026”

Alternatively, the Commission could adopt a more ambitious goal, based on new data sources (see [Appendix D](#) for additional information). This goal would incorporate information from: 1) Intergovernmental Panel on Climate Change and U.S.-based analyses, 2) new data in the Inventory, and 3) the U.S. National Greenhouse Gas Inventory.

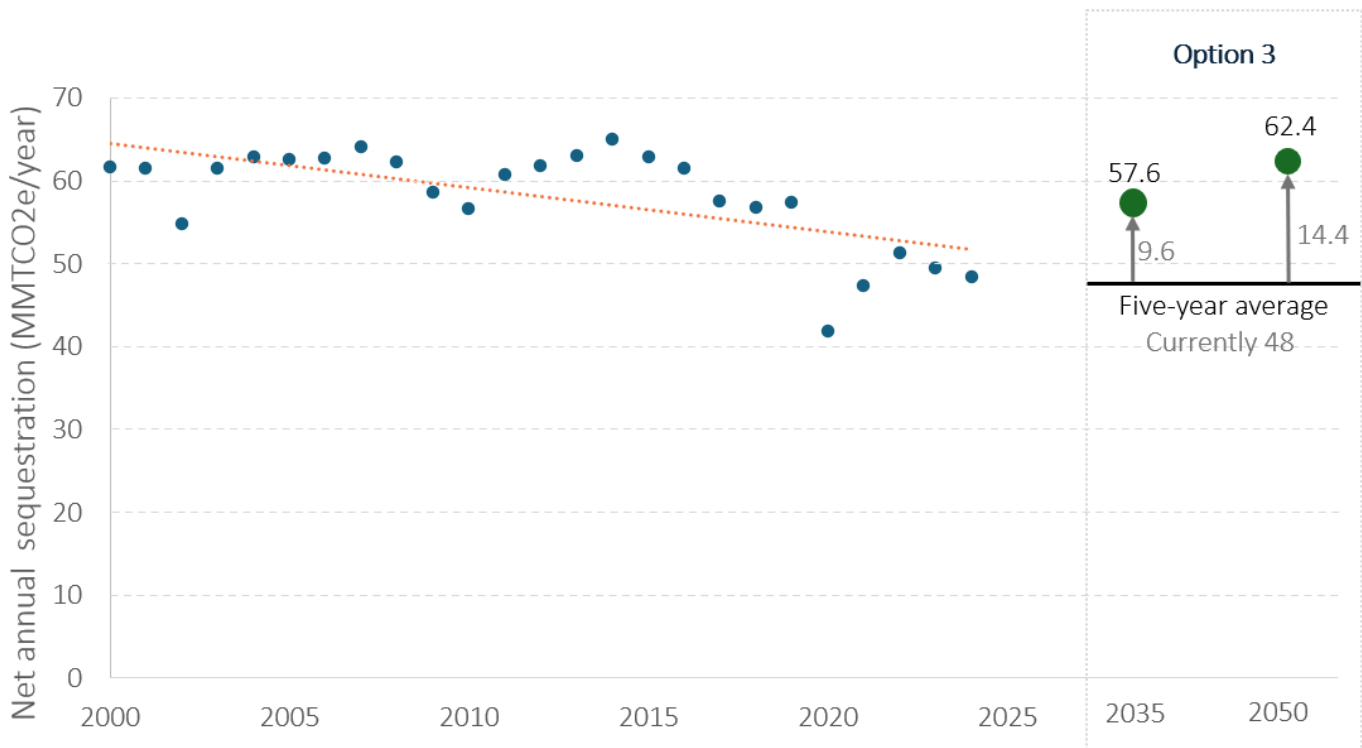
Similar to the changes recommended in Option 2, in Option 3 ODOE proposes a total annual net sequestration rate based on the last five-year average. This would avoid a scenario of meeting a yearly net sequestration goal while also still experiencing a declining net sequestration trend overall. We discuss this reasoning more the [Declining Trend section](#). The new goals would read:

- Achieve net sequestration of at least 57.6 MMTCO2e per year across all land categories by 2035.
- Achieve net sequestration of at least 62.4 MMTCO2e per year across all land categories by 2050.

ODOE selected annual net sequestration rates of 9.6 and 14.4 MMTCO2e in addition to the five-year average to create new targets. Figure 5 shows the goal’s net annual sequestration rates alongside rates reported by the Inventory. Note that values displayed are the same as those in Figure 2 showing the net removals of the Land-based Net Carbon Inventory, but are graphically displayed as positive values in order to indicate more clearly the historical decline and to indicate that goal options would increase net sequestration. The rates of net sequestration for this goal would be set to 57.6 and 62.4 MMTCO2e per year for the years 2035 and 2050, respectively, representing an increase of 9.6 and 14.4 MMTCO2e over the five-year average rate of net removals estimated by the Land-based Net Carbon Inventory.

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Figure 5. Representation of Goal Option 3



Whichever goal option the Commission chooses, a nature-based climate goal should reflect the best available science and acknowledge the work ahead to remove barriers and leverage opportunities to achieve the established goal. ODOE recommends a goal for the next 10 years to capitalize on the effectiveness of nature-based strategies. Carbon sequestered or protected now helps future climate conditions and resiliency efforts in order of magnitudes greater than acting later in terms of climate benefits and also cost.^{xvi}

Weighing the Options

Both Options 1 and 2 are within the calculated science-based range of net sequestration potential investigated and are based on the potential that can be achieved in Oregon based on analysis previously conducted by experts in the research community.

ODOE supplied Option 3 to meet the statutory direction that requires ODOE and the Commission to consider new information as it becomes available. Information from Oregon's Land-based Net Carbon Inventory, from the most recent U.S. national greenhouse gas inventory, and from the IPCC, was used to help craft this recommendation.

To summarize the issue at hand: Should Oregon's goal focus on global climate needs or the feasibility of potential action in Oregon?

^{xvi} Sanderson, B. M., & O'Neill, B. C. (2020). Assessing the costs of historical inaction on climate change. *Scientific Reports*, 10, 9173. <https://doi.org/10.1038/s41598-020-66275-4>

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To answer this question, particularly with the focus on feasibility, it would be ideal to have activity-based modeling and baselines for each activity. In other words, ODOE recognizes that it would be helpful to have data on the carbon sequestration and storage potential for a robust set of NCS activities and modeling that reflected their real-world impact as well as the strategies to achieve the results. However, currently ODOE is limited in describing how the goal would be achieved via NCS activities. The box below highlights three NCS and describes their mitigation potential estimates to illustrate the opportunity for nature-based climate action. More examples are in [Appendix F](#).

Mitigation Potentials of Three Natural Climate Solutions

Taken together, the examples could provide a significant amount of annual net sequestration. Please see Appendix A for the 2026 draft list of natural climate solutions in Oregon.

Tree Planting in Developed Land

Currently, trees in developed areas across Oregon sequester, on average, 1,750,000 metric tons of CO₂e per year. Using American Forest's Tree Equity Score, which is a spatial tool to help address environmental inequities by prioritizing human-centered investment, we can calculate the mitigation potential of urban tree plantings across Oregon. The tool calculates "tree canopy gap" which is the area that could be planted to reach the tool's stated neighborhood tree canopy goal. Employing this tool to calculate an estimated potential implementation area (137,730 acres) and multiplying it by the average annual sequestration rate per acre per year (1.74 metric tons CO₂e/acre/year), Oregon has the potential to sequester an **additional 240,000 metric tons of CO₂e each year**, while delivering resilience, equity, and energy benefits.

Coastal Wetland Restoration

Forested tidal wetlands have the highest sequestration rates because of the trees above ground and the soil carbon stored below. Multiplying the median sequestration rate per acre per year (3.81 metric tons CO₂e) by the higher estimated potential implementation area (see [Appendix F](#)), Oregon has the potential to sequester an **additional 80,000 metric tons of CO₂e each year**, while delivering resilience, recreational, and fishing industry benefits.

Riparian Area Plantings

Riparian area plantings are a strategy employed to provide shade, reduce water temperatures, capture and contain sediment, slow flood flows, and restore salmon habitat. This strategy also sequesters carbon. Multiplying the median sequestration rate of 5.41 tons of per acre per year by the estimated potential implementation area of 500,180 acres, Oregon has the potential to sequester an **additional 2,710,000 metric tons of CO₂e per year**.

These examples are provided for illustrative purposes only, and ODOE does not recommend activity-specific targets at this time. Robust public engagement and additional, deliberate analysis will be necessary to build targets based on what is feasible. Per statute, ODOE also needs to establish baselines for each NCS after collaboration with partner agencies. Finally, it is important to understand that the mitigation potential for each of the NCS cannot simply be summed; they must be modelled to ensure NCS being applied to the same geographic area, do not result in an overestimation of mitigation potential. Scenarios employing complementary NCS must be modelled to create accurate activity-specific targets, and this additional modeling would require as yet to be identified funding.

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Policy, Capacity, and Analysis Recommendations

Achieving the newly established goal will rely on cross-agency collaboration, statewide reporting infrastructure that does not exist today, and additional modeling. Recognizing this, the Commission's NCS committee^{xvii} made specific recommendations to build analysis capacity. They recommended that in the next 3-5 years, the state of Oregon should allocate funding and build capacity to:

1. Develop a cross-agency reporting infrastructure that is crafted to track activity-based progress toward meeting the net sequestration goal.
2. Conduct NCS modeling in the next three years to identify nature-based action pathways for achieving the natural and working lands net sequestration goal, and recommend voluntary activity targets individually for natural lands, forest, agriculture, and developed areas for Commission consideration.
3. Conduct a study on the incentives available to support uptake and transitioning to NCS actions as well as policy changes that could support action on local and private lands.
4. Provide allocations to the Natural and Working Lands Fund and invest in programs that incentivize and otherwise support implementation of NCS on local and private lands.

Lastly, ODOE is not recommending a stock protection goal at this time (see [Carbon Stocks section](#)), but with additional funding, more information on important Oregon stocks and NCS that protect stocks could be coalesced, and ODOE could return to the Commission with recommendations. In the next five years, therefore the state of Oregon should:

5. Conduct a land-based stocks assessment to inform a net carbon stocks goal for ODOE and Commission consideration.

Some of these recommendations may best be accomplished through a scenario modeling effort similar to that of ODOE's TIGHGER Project reports.^{xviii} For example, different levels of NCS implementation could be modeled, with a range of potential climate mitigation potential under different climate pathways that would provide a range of potential options for recommending targets based on land category. Such modeling could also benefit from information on the relative costs of achieving climate targets for each pathway. All of these suggestions would need considerable additional funding and engagement with Tribes, state and federal agencies, private landowners, and other external partners.

Partners have also expressed an interest in measurement, monitoring, reporting, and verification efforts to ensure that NCS implementation is achieving desired rates of climate mitigation potential, and to understand the issues that may cause it to fall short or exceed the rates. Similar work has been pursued in relation to sector-based emissions^{xix} and Natural Resources Conservation Service practices^{xx} in the U.S. and these frameworks could be built upon for use in Oregon. Such work would require additional funding and capacity for collaboration.

^{xvii} The Oregon Climate Action Commission Chair convened a Natural Climate Solutions Committee who met four times from November 2025 through May 2026 to talk about goal setting approaches and issues to consider during goal setting.

^{xviii} Oregon Department of Energy (2023). Transformational Integrated Greenhouse Gas Emissions Reduction Project Report. [2023-TIGHGER-Project-Report.pdf](#)

^{xix} U.S. Department of Energy (2024). [Greenhouse Gas Supply MMRV Fact Sheet Mar2024.pdf](#)

^{xx} U.S. Department of Agriculture (2023). [NRCS IRA MMRV Factsheet](#)

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Measuring NCS Implementation Progress

Oregon statute requires ODOE, the Commission, and the agencies to identify metrics and track progress toward a statewide goal but does not consider the current or future capacity needs of the implementing agencies, nor the data infrastructure needs required to gather and manage the metrics. Certain metrics may not be currently tracked by any agency, some may be more complex than others to measure, and all of them will rely on implementing agency/partner capacity, and the construction of statewide tracking infrastructure. These are major challenges to meet any of the goals being considered. The Natural Climate Solutions and Metrics Analysis further explores these challenges.

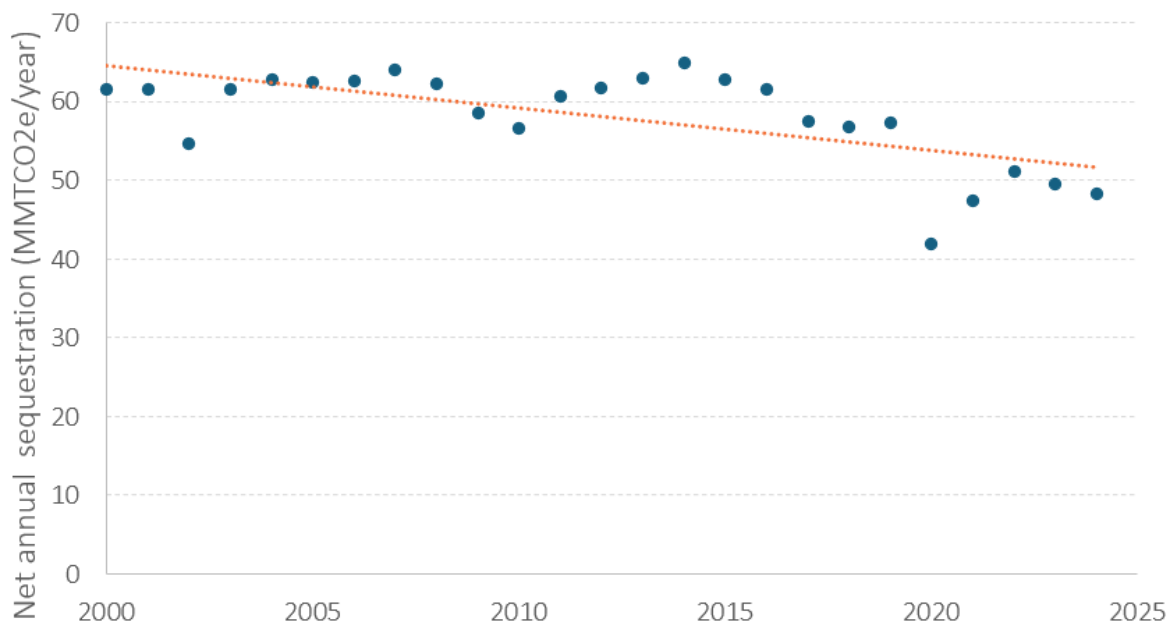
Issues To Consider During Goal Selection

ODOE considered several issues while developing the modifications in Option 2 and crafting Option 3, and recommends the Commission also consider them while deliberating on the goal. Some issues discussed below helped shape the goal itself, while others were important to define the context in which the goal will operate, like a changing climate or landownership in Oregon.

Declining Trend

As can be seen in Figure 6, since 2000, the annual rate of removals has steadily decreased. The trendline indicates a statistically significant decrease in removals over time. Note that values displayed are the same as those in Figure 2 showing the net removal of the Land-based Net Carbon Inventory but are graphically displayed as positive values to indicate more clearly the historical decline.

Figure 6. Land-based net removals over time



ODOE considered the following three strategies to address the declining trend in land-based net removals reported in the Inventory. One prominent cause of this decline is the increase in wildfire across land categories. In 2020, Oregon experienced very large wildfires primarily in carbon rich forests of the Cascade Mountains and the Coast Range, resulting in the lowest value shown in the figure. Other causes of decline are less clear from the Inventory, and ODOE will continue to improve their understanding of

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these other causes in subsequent inventory cycles. Below are three approaches to setting a goal, while addressing this overall declining trend in Oregon:

- 1) **Historic Rate:** This approach sets a goal based on a historic rate of net removals. For example, 2014 is a year noted for being just prior to an observed uptick in wildfires. Returning to 2014's annual net removal rate would require increasing rates of net sequestration every year to compensate for the declining trend.
- 2) **Annual "Buffer":** This approach compensates for the declining trend by adding the annual decrease to the annual net sequestration goal. For example, annual net sequestration could increase by adding an additional 0.5 MMTCO₂e/year, which is the average rate that net removals have declined per year in recent years. Establishing a goal of 10 MMTCO₂e/year by 2050 would then mean an additional buffer of 12.5 MMTCO₂e/year (0.5 MMTCO₂e/year/year for 25 years) for a total of 22.5 MMTCO₂e/year by 2050.
- 3) **Future Goal Rate:** This approach selects a rate of net sequestration to achieve by a future date. It also compensates for the declining trend, whether the trend is positive or negative. For example, if Oregon's lands removed approximately 48 MMTCO₂e/year in 2024, a goal could be considered that would increase overall net sequestration by a percent or rate by a certain date (e.g., 10%–20% by 2035 or 90 MMTCO₂e/year by 2050).

ODOE selected the third approach for Option 2 and Option 3, which set future goal rates that ensure we avoid a scenario of meeting a yearly net sequestration goal while also still experiencing a declining trend overall.

Time Horizons

Appropriate time horizons by which to achieve these goals need to be selected. In 2021, the Commission recommended an increase of land-based net sequestration of 5 MMTCO₂e per year by 2030 and 9.5 MMTCO₂e per year by 2050.^{xxi} Goals structured like this require more work in earlier years, provide more time for NCS to become established, and offer resilience benefits, which would help reduce future impacts of climate change.

These time horizons differ from those used in former Gov. Brown's Executive Order 20-04, which directed state agencies to reduce greenhouse gas emissions with 2035 and 2050 as the key milestone years.

Recognizing the relatively short time from new goal recommendations and 2030, and in an effort to be consistent with the greenhouse gas emissions target dates, ODOE crafted Option 2 and Option 3 using the years 2035 and 2050.

Additional analysis and modeling are needed to establish time horizons based on explicit NCS by certain target years. Measurement, monitoring, reporting, and verification are strongly recommended to ensure that Oregon is indeed meeting the recommended goals. This may require separate and additional goals for the mobilization of Oregon's resources toward this work.

^{xxi} Oregon Climate Action Commission (2021). *Natural & Working Lands Proposal*.
[2021+OGWC+Natural+and+Working+Lands+Proposal.pdf](#)

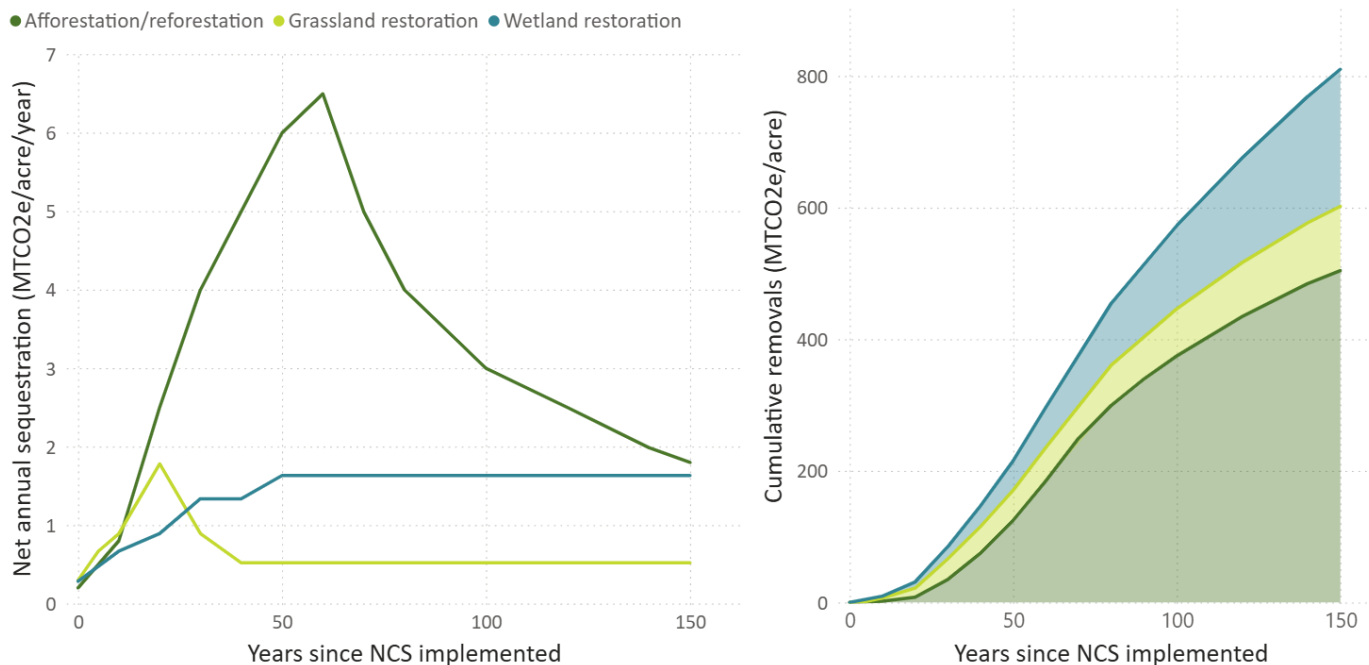
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Net Sequestration Rates Over Time

ODOE took into consideration how nature sequesters carbon. Most NCS require years, decades, or even longer, to achieve their highest rates of net sequestration (see Figure 7). Many NCS quickly reach a peak rate of net sequestration and subsequently taper off or decline. As an example, forest types common to Oregon, such as Douglas-fir, may not achieve their maximum rates of biomass accumulation until they are 40-80 years old. Other types like western hemlock may peak sooner, but both forest types have declining rates of net sequestration afterward.^{xxii} Some NCS like wetland restoration may achieve peak rates of net sequestration in early years after restoration and then plateau.^{xxiii} Pursuing a broad portfolio of NCS is a good strategy for achieving the levels set by any recommended goal, while managing for NCS that have different time horizons to reach their greatest potential.

Figure 7 presents examples of curves showing different rates over time of carbon net sequestration (left) and cumulative removals (right) by different NCS. Rates are based on a small sample of available scientific literature and are meant to be examples; actual rates in Oregon may differ.^{xxiv}

Figure 7. Example NCS sequestration and removal curves



Land Types and Ownership

To achieve any goal Oregon sets for carbon removals on natural and working lands, it is essential to partner with Tribal, federal, private, and local governments. Oregon's land base (approximately 62

^{xxii} Weiskittel et al. (2007). Annualized diameter and height growth equations for Pacific Northwest plantation-grown Douglas-fir, western hemlock, and alder. *Forest Ecology and Management*, 250, 266-278. <https://doi.org/10.1016/j.foreco.2007.05.026>

^{xxiii} Wu et al. (2025). Wetland restoration is effective but insufficient to compensate for soil organic carbon losses from degradation. *Global Ecology and Biogeography*, 34(5), e70063. <https://doi.org/10.1111/geb.70063>

^{xxiv} Yang et al. (2019). Soil carbon sequestration accelerated by restoration of grassland biodiversity. *Nature Communications*, 10, 718. <https://doi.org/10.1038/s41467-019-08636-w>

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million acres) is divided among many owners, each with a unique portfolio of land uses (see Figure 8).^{xxv,xxvi} Nearly 63 percent of Oregon’s forest land (58 percent of its grassland and arid lands, and 24 percent of its wetlands) are owned by the federal government, according to inventory methods for classifying land use in Oregon (Figure 9). Roughly 94 percent of Federal ownership is divided between the U.S. Forest Service and the U.S. Bureau of Land Management (See [Appendix E](#), Figure E2). Greater collaboration and partnership with these two federal bodies presents a large opportunity for increasing carbon removals in much of Oregon. Other land ownerships in Oregon also represent significant opportunities to work toward achieving a land-based net carbon sequestration and storage goal. See [Appendix E](#) for more discussion on opportunities for NCS implementation in Oregon.

Figure 8. Area of land use by land category in Oregon for 2024.

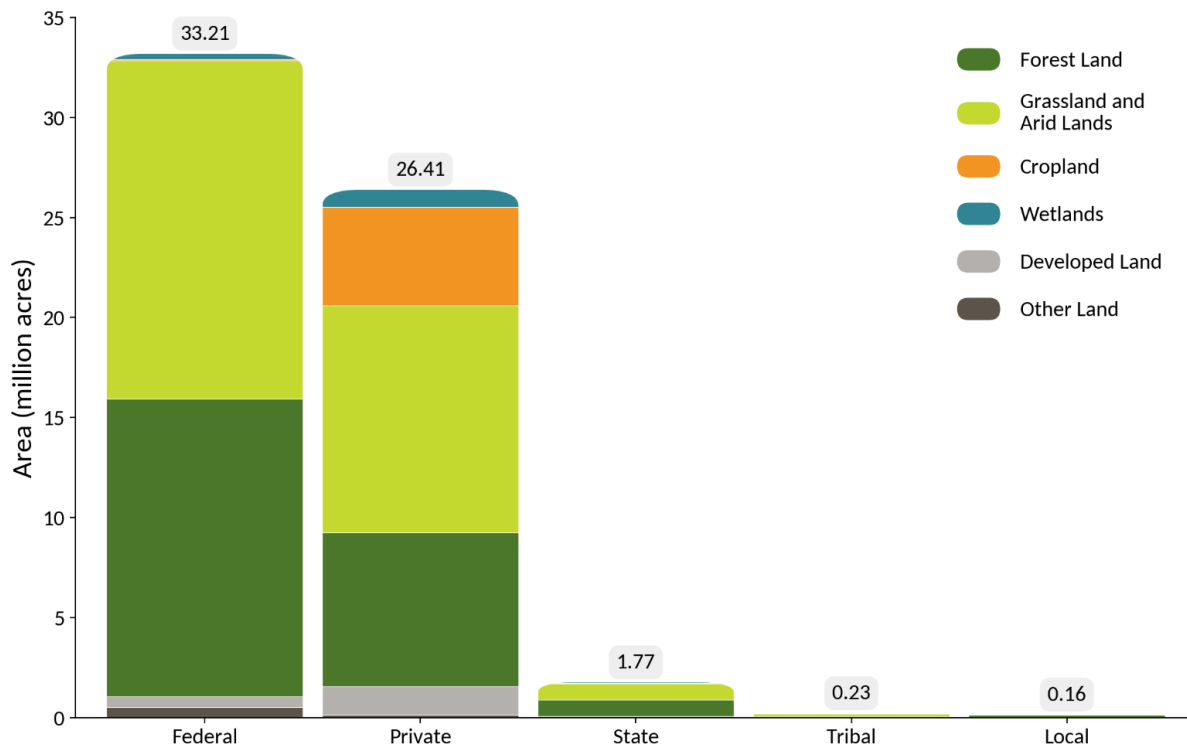


Figure excludes coastal areas that are entirely aquatic (approximately 0.224 million acres).

^{xxv} Land ownership data from: Oregon Department of Forestry (2024). Oregon Land Management. [Oregon Land Management | Oregon GEOHub](#)

^{xxvi} See supra note ix.

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Figure 9. Composition of land ownership by land category in Oregon for 2024. M = million.

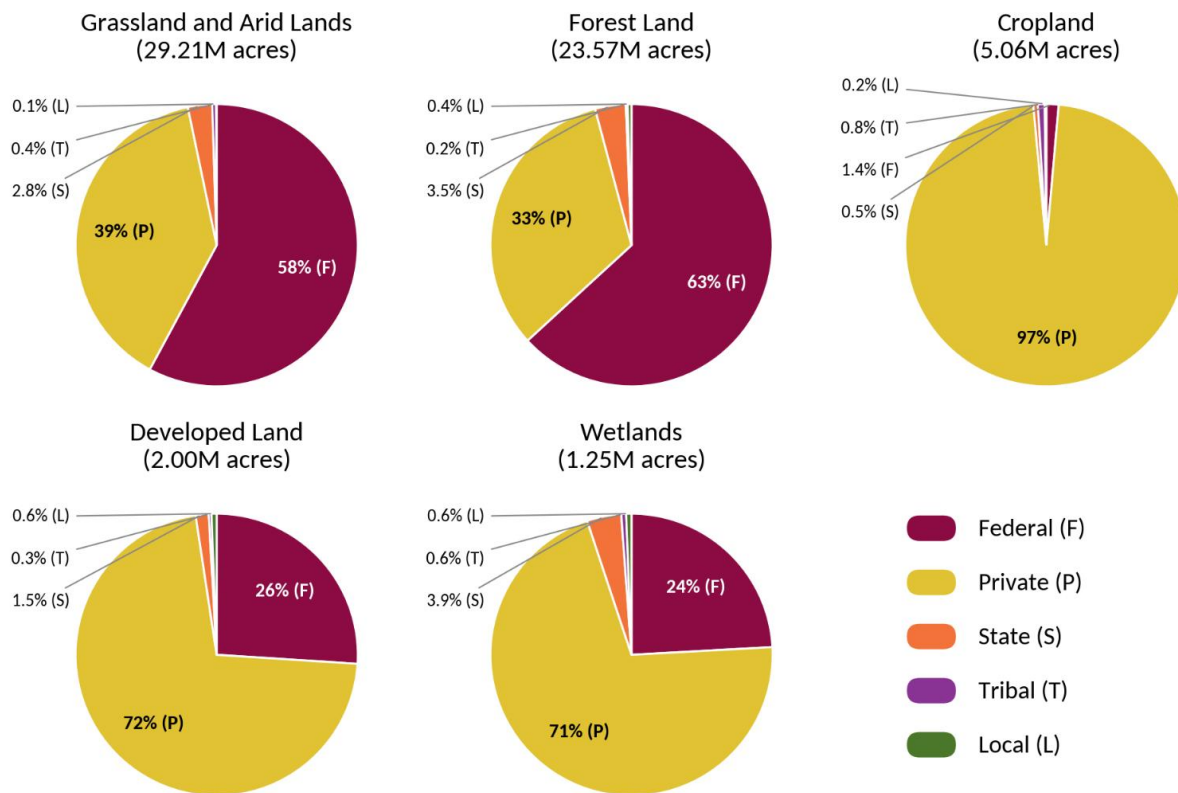


Figure excludes coastal areas that are entirely aquatic (approximately 0.224 million acres).

Climate Change

ODOE considered the effects of climate change on Oregon’s landscape while crafting the recommendation for a goal. Climate change is likely to negatively impact rates of sequestration and the durability of carbon storage on Oregon’s lands, and will also likely reduce the efficacy of natural climate solutions in many parts of the world.^{xxvii,xxviii} Per the Inventory, we have already seen a statistically significant decrease over time in the annual rate of net removals by Oregon’s lands, driven in part by increases in wildfire. Studies in the U.S. and elsewhere have also indicated a decrease in rates of net sequestration due to climate change — particularly due to projected increases in intensity and frequency of drought.^{xxix,xxx,xxxi} In goal setting and future NCS work, a diverse portfolio of NCS strategies should be considered given this uncertainty, focusing on what strategies reduce the risk of climate change across all ecosystems and communities. For example, wildfire risk reduction activities, waterbody and wetland protection, and restoration activities protect carbon stocks and communities.

^{xxvii} See supra note i.

^{xxviii} Buma et al. (2024). Expert review of the science underlying nature-based climate solutions. *Nature Climate Change*, 14, 402-406. <https://doi.org/10.1038/s41558-024-01960-0>

^{xxix} Hogan et al. (2024). Climate change determines the sign of productivity trends in US Forests. *Environmental Sciences*, 121(4), e2311132121. <https://doi.org/10.1073/pnas.2311132121>

^{xxx} Liu et al. (2025). Land change, fire, and climate weaken carbon sink in the conterminous United States. *Science Advances*, 11(46). <https://doi.org/10.1126/sciadv.adx7823>

^{xxxi} Hertzog et al. (2025). Turning point in the productivity of western European forests associated with a climate change footprint. *Science of the Total Environment*, 967. <https://doi.org/10.1016/j.scitotenv.2025.178843>

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These actions contribute to maintaining functioning habitats while creating more resilient working lands that provide food and fiber. For this reason, Option 3 would require intense implementation over the next nine years to provide ecosystems time to become established and increase the resilience and durability of those gains.

Carbon Stocks

While the recommended goal options are focused on carbon sequestration, it is also important to acknowledge the role of carbon stocks, their potential contribution to emissions, and how they might relate to goal setting. Some NCS, like reduced forest degradation or wetland protection, protect existing carbon stocks on natural and working lands. These carbon stocks have been built up over hundreds of years to a millennia, and their loss, which results in greenhouse gas emissions, represents a major threat to the global climate. Some types of Oregon wetlands may have a lower annual rate of net sequestration relative to forests but have a far greater capacity for carbon storage.

For this reason and others, states like California have established goals concerned with maintaining and increasing carbon stocks rather than with rates of net sequestration.^{xxxii} In contrast to NCS that protect stocks, other NCS like grassland restoration, increase rates of net sequestration by adding to or improving the environment, and promote the building of carbon stocks over time.

Setting goals based on rates of net sequestration or carbon stocks are both valid approaches for climate action. Oregon could consider both increasing sequestration and maintaining carbon stocks as complementary climate goals. In the future, ODOE could produce an analysis of Oregon carbon stocks in order to inform additional goal setting focused on protecting Oregon's existing carbon stocks.

In the Pacific Northwest, forests and associated wood products are important stocks to consider. Oregon's forests sequester more carbon every year than any other land category, and natural climate solutions in forest land are important for achieving any net sequestration and storage goal or carbon stocks goal. Forest management may employ natural climate solutions, and in addition, depending on management objectives, may harvest trees for harvested wood products. Harvesting stores carbon in short-, medium-, or long-term products such as paper (short-term) or lumber used in construction (long-term). Harvested wood product production alone is not a natural climate solution because it is a carbon removal strategy that stores carbon off of the landscape. In contrast, NCS are focused on in-situ actions that increase carbon on the land and also provide ecosystem services. However, wood-based materials can be important to the success of sustainable climate action because, when well-sourced through climate-smart practices and existing forest operations, they have much smaller carbon footprints in comparison to building alternatives such as steel and concrete. In collaboration with the Department of Forestry, ODOE will continue to track this important contribution to land-based net removals in the Inventory, and work to include harvested wood products in future stock assessments and any associated goal ODOE and the Commission should consider.

Additionality

Additionality is a core principle in climate mitigation, and in this context it refers to a need for climate strategies like NCS to provide net sequestration in addition to what is already occurring on the land. NCS actions have been occurring for decades by different names through various land management

^{xxxii} California Air Resources Board (2025). 2025 Natural and Working Lands Carbon Inventory Update. [2025 Natural and Working Lands Carbon Inventory Update | California Air Resources Board](#)

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practices. Tracking efforts that are “additional” will be key to maximizing their potential for carbon sequestration purposes, and to make progress toward increasing current rates of net sequestration.

To understand what is “additional” to current land management in Oregon, baselines for each activity are essential to identify. Baselines can be identified in multiple ways relying on large landscape scale spatial datasets, statewide tabular data, or through identifying program operational baselines that implement NCS.

Tracking NCS, and quantifying the additional sequestration they are providing, is an ongoing effort that is necessary to ensure Oregon meets any recommended goal. At this time, ODOE has not calculated baselines for each NCS activity identified in the NCS and Metrics Analysis. The Analysis compiles fundamental information that is necessary to identify a method to calculate baselines for each activity, like identifying state agency programs that implement NCS and/or have relevant datasets, and it creates a list of NCS that are relevant for Oregon.

Next Steps

ODOE is legislatively mandated to update and improve the Inventory every odd-numbered year and is already planning improvements to be responsive to the feedback provided by partners during engagement for this goal-setting process. Such improvements would provide the Commission, agencies, and partners with information on changes in trends and magnitudes of emissions and removals, and more nuanced information within land sectors to be used to adjust or target its goals. Among planned improvements, ODOE plans to track emissions and removals according to land ownership. This would potentially provide key information on how trends in net sequestration are affected by, for example, changes in management policies of federal forests.

ODOE appreciated the interest and engagement by the Commission and partners during the development of this report and have made changes based on feedback received. However, ODOE was not able to address or analyze every suggestion made by Commissioners and partners. Some suggestions that were beyond the scope of this report include: modeling the consequences of federal or state policy actions, setting activity targets by land category or by NCS, and compiling and digitizing archived agency data and records to understand historic actions. To address these suggestions, this report includes several policy, capacity, and analysis recommendations, and articulates the need for additional funding and staff capacity. Should the Commission adopt these recommendations, ODOE’s next steps in partnership with others would include developing scopes of work to advance the additional infrastructure, analysis, and ongoing implementation identified in these recommendations to possibly inform future legislative action.

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Appendices

Appendix A: [Natural Climate Solutions Descriptions](#)

Appendix B: [Analysis of Trends in the Land-based Net Carbon Inventory](#)

Appendix C: [Approach for Providing Supporting Information for Goal Setting and Calculating Potential Net Sequestration Ranges for Oregon](#)

Appendix D: [Data Tables](#)

Appendix E: [Land Types and Land Ownership](#)

Appendix F: [Estimated Annual NCS Mitigation Potential with Sufficient Data Available](#)

Appendix G: [Responses to Public Comments on the Draft Carbon Sequestration and Storage Goal Setting for Natural and Working Lands](#)

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