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Catherine Macdonald, Chair
Oregon Global Warming Commission
c/o Oregon Department of Energy
550 Capitol Street NE
Salem, OR 97301

RE: Governor's Executive Order 20-04 directing the OGWC to develop recommendations of state goals for carbon sequestration and storage by Oregon's natural and working landscapes...."

In 2011 the Oregon Global Warming Commission (OGWC) recommended, with respect to forest carbon, that the federal government and the State Department of Forestry undertake to provide reliable measured forest carbon data that would inform state policy. The United State Forest Service (USFS), to its credit, developed and delivered to the state in 2016 the first encompassing description of forest carbon in Oregon by geography, ownership and forest carbon pool.

These Forest Inventory and Analysis (FIA) data supported a special status for Oregon westside forests in particular: they were among the most carbon-dense forests in the world, more so than the Amazon, Indonesian or Central African forests. Taken together with their extensions south (into northern California) and north (up to and around the Gulf of Alaska), they constituted a global carbon sink comparable to that in Indonesia (which is approximately twice as extensive but half as carbon-dense). And in Oregon at least this forest was acting as a net sink, increasing carbon content at a rate of approximately 30 mm tons annually.

For comparison, Oregon's total net emissions to the atmosphere – mostly energy-related, and excluding forests – were approximately 60 mm tons annually.

As then Chair of the Commission, I understood that our state was in the special position of steward for a carbon resource of global importance. If these forests in the other Pacific coast states (and British Columbia) were acquiring and sequestering carbon at a comparable rate, the importance of holding onto those exceptional gains in a world where carbon losses to the atmosphere were the rule was hard to overstate. This was especially so when the data were showing net carbon losses from the globe's other great forest regions.

The Commission undertook, in 2017 and 2018, to consult with authorities in Federal and State forest agencies, academic experts, industry and others, with a view to making recommendations to the state and federal government owners and regulators of forest practices. It submitted its forest carbon findings in a special 2018 Report to the Legislature. The Report identified ongoing data gaps and analytic needs, but also vulnerabilities (overharvest) and opportunities (increased carbon sequestration through measures such as longer harvest rotations and reforestation). It cited research from Oregon State University that suggested the potential to increase forest carbon capture and sequestration by $\pm 50\%$ from changes in forest practices that would be challenging but achievable¹. Since the forest products industry was arguing for a policy that would include valuing carbon sequestration in forest products (e.g., construction lumber), the Report asked for additional analysis of the net carbon flux associated with harvest. Data from some expert and peer-reviewed papers² suggested that as little as 15% to 20% of the carbon in a living tree ended up in durable product, and the average duration of product when used for permanent housing was around 50 years (whereas a mature 80 year old tree could be expected to live, and hold its carbon, for another several hundred years; while a stand of trees not subject to harvest might hold its carbon in perpetuity).

While additional analysis would be beneficial to refine the Commission's conclusions in its 2018 Report, there are sufficient data and analysis to enable to Commission to make preliminary findings and recommendations on the forest carbon elements of a Natural and Working Lands carbon policy for the state. These findings and recommendations could include the following:

1. Forest Carbon Gains Should be Additional. The state should establish as policy that carbon gains or losses in Natural and Working Lands are additional to GHG emissions reductions, and progress toward emissions reduction goals, in energy and other sectors. This policy recognizes that Oregon, as a state in possession of a global carbon resource, must act as steward of that resource to preserve and enlarge it; and that this responsibility is in addition to the common goal Oregon shares with other states and nations to reduce emissions losses from energy and other sources to the atmosphere.
2. Oregon Should Adopt a Life Cycle Carbon Accounting Methodology for Valuing Net Carbon Content in Wood Products³. To resolve differences in calculation and interpretation, Oregon should adopt a Life Cycle carbon accounting methodology for forest wood products. The methodology should take as its baseline the carbon content of the living tree (or stand) in the forest and net out carbon losses from harvest, transportation, processing, and waste (including end use carbon releases to the atmosphere from product degradation directly or indirectly from

¹ Law, Hudiburg et al, "Land use strategies to mitigate climate change in carbon dense temperate forests", PNAS January 22, 2018.

² See Ingerson, A. 2009 "Wood Products and Carbon Storage: Can Increased Production Help Solve the Climate Crisis?" Washington, D.C.: The Wilderness Society. Also, Tara W Hudiburg *et al*" Meeting GHG reduction targets requires accounting for all forest sector emissions" 2019 *Environ. Res. Lett.* **14** 095005.

³ This approach is different from, and more precise than, current IPCC methodologies which have been criticized as enabling forest carbon depletion by characterizing forest bioenergy as "carbon neutral" without regard for the importance of front-loaded emissions reductions and carbon capture/sequestration.

disposition into and emissions from landfills). It should then establish a carbon sequestration value (or values) and duration for varied wood products. The methodology should reflect the higher value of carbon held in sequestration during the immediate future (to 2030 or 2035) in blunting the effects of near-term emissions and of resulting climate changes.

3. Oregon Should Modify Its Rules and Practices to Value Forest Carbon in State-Owned and Regulated Forestlands, and Should Seek To Influence Other Forest Managers To Do Likewise. Two iterations of FIA data concur that the net⁴ annual capture and sequestration of carbon in Oregon forests is approximately 30 million tons. The state should endeavor to grow this net amount through changes in forest practices including old growth preservation, longer harvest rotations in commercial forestry, and reforestation of areas formerly forested, among other measures. Oregon should recognize the potential for “leakage” as reduced harvest here can be offset by increased harvests elsewhere, but this effect cannot be used as an excuse for failing to control emissions from Oregon forests (negotiating reciprocity via the Paris Accord is an appropriate alternative strategy). Setting and meeting an Oregon benchmark will involve:
 - a. Influencing federal forest management;
 - b. With respect to state-owned forestlands, formally recognizing that carbon sequestration contributes to and is consistent with accomplishment of the state’s “Greatest Permanent Value” goal as well as with the Governor’s Executive Order⁵;
 - c. Developing an in-lieu payment plan to augment local government budgets where these would be adversely affected by carbon retention changes in forest management practices;
 - d. Reset state forest management practices for private industrial forestlands to require, over time, increases in carbon capture and sequestration;
 - e. Develop incentives (including access to carbon markets) for smaller woodlot owners to reset their management practices such that, in aggregate, these forested lands are also contributing to net forest carbon capture and sequestration.
4. Oregon Should Set a Combined Emissions and Sequestration Goal of Carbon Neutrality by 2035, and As a Net Sink Thereafter. Oregon should develop a combined Natural and Working Lands plus GHG sector emissions goal of achieving true carbon neutrality as a state by 2035, and thereafter maintaining and growing Oregon’s capacity as a global carbon sink.
5. Oregon Should Seek Forest Carbon Policy Alignment With Other Pacific Coast Jurisdictions and Forest Managers. Oregon should propose to those jurisdictions with which it shares

⁴ Net of harvest, wildfire and other fluctuations that would act to reduce gross GHG captured and held in forest carbon pools plus carbon held in durable forest products and forest products consigned to landfills that are able to effectively hold wood-based carbon for decades.

⁵ EO 20-04 directs that state agencies, “to the full extent allowed by law . . . shall consider and integrate climate change, climate change impacts and the state’s GHG emissions reduction goals into their planning, budgets, investments and policymaking decisions.”

stewardship of the Pacific Coastal Temperate Rain Forest⁶, including California, Washington, British Columbia and Alaska, and including national governments to the extent they share in forest management, that a comparable multi-jurisdictional forest carbon capture and sequestration goal be developed and subscribed to.

For Natural and Working Lands other than forestlands, fewer data are available and less analytic work has been performed so I will reserve recommendations for these areas, except the Commission should immediately: (a) undertake a literature survey of available information about, or relevant to, carbon content and land use and management practices that affect such content; (2) develop management, technological and other options for increasing carbon capture and sequestration on these lands together with, (3) implications for economic uses of these lands and potential effects, positive and negative, on households and communities that rely for their living on these lands.

The Commission should pay particular attention to how more carbon efficient land practices can best be reconciled with reliance by native tribal inhabitants on such land uses, and seek ways to reconcile more effective carbon outcomes with more advantageous economic and cultural outcomes for those tribal peoples. It should undertake this in full consultation with these native tribal households, communities, and sovereign governments.

I hope these thoughts are helpful as the Commission works its way through this especially important charge from the Governor.

Sincerely,

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Former Chair, OGWC
PNW Consultant, NRDC

Cc: Oregon Global Warming Commission Members
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⁶ This forest designation would include the carbon-dense coastal forests and the westside of Cascades summit or equivalent areas in other jurisdictions