

To: Chair Brenda Mallory, Council on Environmental Quality (CEQ)

Cc: Chief Randy Moore, U.S. Forest Service (USDA) and Director Tracy Stone-Manning, Bureau of Land Management (DOI)

Re: National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change

Date: April 10th, 2023

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Dear Chair Mallory,

We are writing to comment on the Council’s “National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change” and specifically to urge the Council to improve its recommendations concerning how agencies should address the greenhouse gas emissions from logging. We welcome the Council’s direction that agencies address the greenhouse gas pollution impacts of individual and cumulative logging projects and underscore the importance of gross emissions avoidance<sup>i</sup> throughout our comments.

As detailed below, the Guidance should be amended to direct agencies to use methods and models that represent high quality information and accurate greenhouse gas accounting<sup>ii</sup> when undertaking environmental reviews of logging projects on federal lands. Research, including studies done by the U.S. government,<sup>iii</sup> indicates that logging on federal forests is a substantial source of carbon dioxide emissions to the atmosphere.<sup>iv</sup> Notably, logging emissions – unlike emissions from natural disturbances – are directly controllable. Models and methods exist that allow agencies to accurately report and quantify logging emissions for avoidance purposes at national, regional, and project-specific scales. The Council’s guidance should direct that projects on federal lands disclose estimates of such greenhouse gas emissions using published accounting methods, aim to avoid or reduce the greenhouse gas emissions associated with logging, and acknowledge the substantial carbon debt created by logging mature and old-growth trees and forests on federal lands.<sup>v</sup>

In particular, we recommend that:

1. CEQ should provide guidance to federal agencies to identify and assess the carbon stock of mature and old-growth forests and trees<sup>vi</sup> given the substantial carbon value of such trees and forests;<sup>vii</sup>
2. CEQ should provide explicit guidance to the agencies to identify and assess gross emissions from logging, particularly logging mature and old-growth trees and forests on federal lands, and including the emissions from logging on site and downstream emissions through the entire chain of custody of milling, manufacturing, and transportation;
3. CEQ should require that agencies provide a high standard of scientific support for any asserted offsets of gross emissions, including discussion of timing factors that address the carbon debit created from logging vs avoiding logging and allowing stocks to further accrue.<sup>viii</sup> We also note that storing some carbon in short-lived wood product pools is not

compensatory as an offset or avoidance for using other carbon-intensive materials in construction;<sup>ix</sup> and

4. CEQ should direct that agencies may not fail to disclose emissions from logging or dismiss such emissions as insignificant on the assumption that logging may leave residual forests more resistant to natural disturbances.

Background: Interim Guidance on biogenic emissions. The Guidance's section concerning biogenic emissions includes the following:

In the land and resource management context, how a proposed action and reasonable alternatives (as well as the no-action alternative) affect a net carbon sink or source will depend on multiple factors such as the local or regional climate and environment, the distribution of carbon across carbon pools in the action area, ongoing activities and trends, and the role of natural disturbances in the relevant area.

In NEPA reviews, for actions involving potential changes to biological GHG sources and sinks, agencies should include a comparison of net GHG emissions and carbon stock changes that are anticipated to occur, with and without implementation of the proposed action and reasonable alternatives. The analysis should consider the estimated GHG emissions (from biogenic and fossil-fuel sources), carbon sequestration potential, and the net change in relevant carbon stocks in light of the proposed actions and timeframes under consideration, and explain the basis for the analysis.

Some actions that involve ecosystem restoration can generate short-term biogenic emissions while resulting in overall long-term net reductions of atmospheric GHG concentrations through increases in carbon stocks or reduced risks of future emissions.<sup>x</sup>

The above guidance should be explicitly expanded to direct agencies to at least quantify and – ideally – avoid *gross* emissions to the atmosphere from any logging of mature and old-growth trees and forests on federal lands. Net emissions calculations often used in timber assessments significantly undervalue the carbon stock retention from not logging such forests, focusing on uptake instead of retention of stores.

The Guidance should also specifically direct agencies to disclose direct and indirect climate pollution from removing, transporting, and milling wood. This includes emissions from loss of stored carbon during the removal at the forest (in-boundary) and manufacturing and transport process (out-of-boundary). That is, Guidance should more closely specify the need to disclose the GHG emissions from logging on site through the entire chain of custody of milling, manufacturing, and transportation, including:

- construction, reconstruction, and maintenance of logging access routes;
- all forms of logging operations (clearcut, selective, postfire, commercial thinning, etc), including any herbicides, insecticides and related treatments;
- transport of logs to mills;

- milling of the wood; and
- transport of products to other sectors.

These emissions are all foreseeable impacts of logging projects. In some cases, these impacts may be considerable. For example, the South Plateau Project in Montana, currently undergoing NEPA review, will result in at least 40,000 trips by fully loaded logging trucks to remove the 83 million board feet of timber, and will involve the construction (and subsequent obliteration) of up to 57 miles of temporary road. We note that in addressing the impacts of coal mine expansions, federal agencies have disclosed the GHG emissions of equipment used to mine coal and to transport it to market. Land management agencies can and should make similar projections for GHG pollution associated with vegetation removal projects.

The Guidance should specifically direct agencies to disclose carbon loss from wood products. Land management agencies routinely assert that the impacts of logging on carbon stores will be minimal because carbon from logged trees will be stored long-term in forest products. Such assertions are contrary to research indicating that much of the carbon stored in removed trees is lost in the near term, and little carbon is stored long-term in wood products.

For example, a 2019 study evaluated the quantification of biogenic emissions in the state of Washington, which included GHG emissions from logging, but not decomposition of wood products. The study concluded that the failure to address decomposition losses amounted to as much as a 25% underestimation of carbon emissions.<sup>xi</sup>

Losses from decomposition vary over time and also depend on the lifetime of the wood product being produced from the timber. Paper and wood chips, for example, have very short lifetimes and will release substantial carbon to the atmosphere within a few months to a few years of production. Bioenergy production and burning have been found to release more emissions than burning even coal, including methane. Product disposal in landfills results in anaerobic decomposition that releases methane. Methane has a global warming potential about 30 times that of carbon dioxide over 100 years, and over 80 times that of carbon dioxide over 20 years,<sup>xii</sup> magnifying the impact of disposal of short-term wood products.

Longer term wood products can store carbon for many decades, but this depends on the life of the product. To give a sense of the larger picture, a study modeling carbon stores in Oregon and Washington from 1900-1992 showed that only 23% of carbon from logged trees during this time period was still stored as of 1996. Similarly, more than 80% of carbon removed from the forest in logging operations in West Coast forests since 1900 was transferred to landfills and the atmosphere within decades.<sup>xiii</sup> Hudiburg (2019) also concludes that state and federal carbon reporting had erroneously excluded some product-related emissions, resulting in a 25-55% underestimation of state total carbon emissions from logging.<sup>xiv</sup>

Many of these decomposition emissions could be avoided if these trees were left standing, especially by protecting carbon stocks from logging of mature and old-growth trees and forests on federal lands. The Council's biogenic emissions guidance should direct that agency NEPA analyses disclose the trade-off and the importance of maintaining the stock value of mature and old-growth trees.

The Guidance should specifically direct agencies to disclose both gross and net impacts from logging, and to address impacts to carbon stores over time. The Council’s Guidance generally directs that agencies address climate pollution impacts on both a gross and a net basis, and that they also address how those pollution impacts may change over time. But specific guidance for climate emissions from biogenic resources alludes only to impacts of net emissions: “The analysis should consider the estimated GHG emissions (from biogenic and fossil-fuel sources), carbon sequestration potential, and the *net* change in relevant carbon stocks in light of the proposed actions and timeframes under consideration, and explain the basis for the analysis.” 88 Fed. Reg. at 1207 (emphasis added). We underscore again the importance of logging activities avoiding gross emissions especially of mature and old-growth trees due to their irreplaceable stock value and their contributions to slowing the global biodiversity and climate crises.<sup>xv</sup> At the same time, the Guidance recognizes that the impacts of logging projects may vary over time: “Some actions that involve ecosystem restoration can generate short-term biogenic emissions while resulting in overall long-term net reductions of atmospheric GHG concentrations through increases in carbon stocks or reduced risks of future emissions.” 88 Fed. Reg. at 1207. We urge the Council to amend the Guidance for biogenic resources to make clear that agencies should quantify *both* the short-term *and* long-term gross *and* net impacts of logging projects. This will allow agencies to disclose and assess the trade-offs between increasing GHG emissions via logging now – when decreases are most sorely needed – versus alleged increases in storage later.

The Guidance should direct that agencies may not fail to disclose emissions from logging or dismiss such emissions as insignificant based on the unsupported assumption that logging may leave residual forests more resistant to natural disturbances. As noted, the Guidance asserts that logging justified as “ecosystem restoration can generate short-term biogenic emissions while resulting in overall long-term net reductions of atmospheric GHG concentrations.” In a similar vein, the Forest Service routinely asserts that it can effectively ignore short-term carbon losses due to logging because the residual forest will have significantly reduced potential to have its carbon stores diminished by high-severity fires.

But there is no reasonable basis for a blanket assumption that logging leads to fewer emissions from a given acreage of forest. The comparative probability of a particular acreage being affected by natural disturbance in the presence or absence of logging is difficult to predict with certainty, especially given the changing climate. And assertions about the relationship of logging and carbon emissions require careful documentation, disclosure of uncertainty, and consideration of near, medium, and long-term emissions. Among other things, emissions calculations should account for assumed or expected land management practices (including subsequent re-introduction of natural fire and/or future entry for additional thinning), the fate of carbon in unlogged burned trees as well as logged and processed trees, and the statistical likelihood that intense fire would otherwise occur in the logged area within the lifespan of the proposed treatment and be substantially reduced by the logging. Corroborating this, research indicates that only a small percentage of acres logged are subsequently affected by natural disturbances during the period when the logging is arguably effective.<sup>xvi</sup>

Additionally, the mere possibility of a reduction in post-logging emissions from natural disturbances is not a basis for failing to disclose emissions from the logging itself, especially in comparison to fire. Research shows that emissions from logging across the conterminous United States greatly exceed those from all natural disturbances combined (fire, insects, wind storms).<sup>xvii</sup>

And a recent assessment of carbon emissions that incorporated the intense 2020 fire season found that even in the more fire-prone western United States, the ten-year average emissions from logging were significant, including in comparison to fire.<sup>xviii</sup>

To evaluate biogenic emissions, federal agencies must assess site-specific data. The Guidance makes clear that agencies must address the emissions and storage impacts of project-specific vegetation removal projects, “such as prescribed burning, timber stand improvements, fuel load reductions, and scheduled harvesting.”<sup>xix</sup> We support this direction. We also urge the Council to direct agencies to assess emissions from pile burning related to forestry operations, as such actions can intensify carbon release.

The nature of the climate change emergency is based on multiple points of emission sources, with each contributing to the problem cumulatively. Therefore, project-level analysis is a critical undertaking and one for which land management agencies now have the tools to quantify the contribution of each federal action, including in cumulative effects analyses.

Given the significant climate impact of logging on federal lands, it is critical that agencies estimate and quantify greenhouse gas emissions associated with each individual logging project and provide annual estimates associated with total logging on federal lands. Agencies should expand their abilities and expectations around accounting for logging emissions as a significant contributor to climate change in tandem with continued progress in fire emissions accounting that more accurately captures actual carbon emissions from forest fires.<sup>xx</sup>

There is a great need for the Council to direct federal land management agencies to undertake project-level analysis based on accurate scientific information. The Forest Service, for instance, which manages 193 million acres of public land, continues to use outdated approaches that discount the impacts of logging and fire on carbon stores. For example, the agency has not rescinded and continues to rely on guidance issued in 2009<sup>xxi</sup> during the last month of the Bush Administration that is at best obsolete, and at worst amounts to climate denial.<sup>xxii</sup> The Forest Service used this guidance as recently as 2022 as grounds to dismiss as “infinitesimal,” without any attempt to quantify emissions, the climate impacts of a project authorizing 11,000 acres of logging and burning, including 1,700 acres of clearcuts.<sup>xxiii</sup> This is the very type of cursory and uninformed analysis that the Council’s Interim Guidance specifically recommends against.

In closing, we request that the Council direct federal land management agencies to implement robust gross greenhouse gas emissions calculations for all logging projects going forward, with particular attention to effects of such projects on the carbon value of mature and old-growth trees and forests.

Thank you for your consideration.

Sincerely,

350 Eugene  
Applegate Siskiyou Alliance  
California Wilderness Coalition  
Cascadia Wildlands  
Center for Biological Diversity  
Central Oregon LandWatch  
Climate Writers  
Cottonwood Environmental Law Center  
Earthjustice  
Environment America  
Environmental Law & Policy Center  
(ELPC)  
Forest Keeper  
Friends of Animals  
Friends of Big Ivy  
Friends of Blackwater, Inc.  
Friends of Douglas-fir National Monument  
Gallatin Wildlife Association  
Georgia ForestWatch  
Great Old Broads for Wilderness, Bozeman  
Broadband  
Great Old Broads for Wilderness, Northwest  
Montana  
Green Cove Defense Committee  
GreenLatinos  
High Country Conservation Advocates  
I Heart Pisgah  
Kentucky Heartwood  
Klamath Forest Alliance  
Massachusetts Forest Watch  
Natural Resources Defense Council  
Natural Resources Law  
NJ Forest Watch  
Old-Growth Forest Network  
Oregon Wild  
RESTORE: The North Woods  
Santa Fe Forest Coalition  
Soda Mountain Wilderness Council  
South Umpqua Rural Community  
Partnership  
Southern Oregon Climate Action Now  
Standing Trees  
Umpqua Natural Leadership Science Hub  
Wild Heritage  
WildEarth Guardians  
Yaak Valley Forest Council

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- <sup>i</sup> Guidance should be explicitly expanded to direct agencies to at least quantify and – ideally – avoid gross emissions to the atmosphere from any logging of mature and old-growth trees and forests on federal lands. Net emissions calculations often used in timber assessments significantly undervalue the carbon stock retention from not logging such forests, focusing on uptake instead of retention of stores.
- <sup>ii</sup> Hudiburg, T.W., et al. 2011. Regional carbon dioxide implications of forest bioenergy production. *Nature Climate Change* 1:419-423 <https://doi.org/10.1038/nclimate1264>. Hudiburg, T.W., et al. 2019. Meeting GHG reduction targets requires accounting for all forest sector emissions. *Environmental Research Letters* 14 (2019) 095005 <https://doi.org/10.1088/1748-9326/ab28bb>.
- <sup>iii</sup> Merrill, M.D. et al. 2018. Federal lands greenhouse emissions and sequestration in the United States—Estimates for 2005–14, Scientific Investigations Report. <https://doi.org/10.5066/F7KH0MK4>.
- <sup>iv</sup> Harris, N.L. et al. 2016. Attribution of net carbon change by disturbance type across forest lands of the conterminous United States. *Carbon Balance Manage*:11-24 <https://doi.org/10.1186/s13021-016-0066-5>.
- <sup>v</sup> Hudiburg, Tara W., Beverly E. Law, William R. Moomaw, Mark E. Harmon and Jeffrey E. Stenzel. “Meeting GHG reduction targets requires accounting for all forest sector emissions.” *Environmental Research Letters* (2019): n.pag. <https://doi.org/10.1088/1748-9326/ab28bb>.  
Harmon et al. “Forest Carbon Emission Sources Are Not Equal: Putting Fire, Harvest, and Fossil Fuel Emissions in Context.” *Frontiers For. Glob. Change* (2022) <https://doi.org/10.3389/ffgc.2022.867112>.
- <sup>vi</sup> Krankina, O., et al. 2014. High biomass forests of the Pacific Northwest: who manages them and how much is protected? *Environmental Management*. 54:112-121. Law, B.E., et a. 2021. Strategic forest reserves can protect biodiversity in the western United States and mitigate climate change. *Communications Earth & Environment* | <https://doi.org/10.1038/s43247-021-00326-0>.
- <sup>vii</sup> Mackey, B., et al. 2013. Untangling the confusion around land carbon science and climate change mitigation policy. *Nature Climate Change*, Vol. 3 (June 2013)| VOL 3 | JUNE 2013 | <https://doi.org/10.1038/nclimate1804>.  
Keith, H. et al. 2019. Contribution of native forests to climate change mitigation. *Environmental Science and Policy* 93:189-199 <https://doi.org/10.1016/j.envsci.2018.11.001>. Law, B.E., et al. 2022. Creating strategic reserves to protect forest carbon and reduce biodiversity losses in the United States. *Land* <https://doi.org/10.3390/land11050721>. DellaSala D.A, et al. 2022. Mature and old-growth forests contribute to large-scale conservation targets in the conterminous United States. *Front. For. Glob. Change* 5:979528. doi: 10.3389/ffgc.2022.979528. Birdsey, R., et. al. 2023. Assessing carbon stocks and growth potential of mature forests and larger trees in U.S. federal lands. *Frontiers For. Glob. Change*. <https://doi.org/10.3389/ffgc.2022.1074508>
- <sup>viii</sup> Moomaw, W.R. et al. 2019. Intact forests in the United States: proforestation mitigates climate change and serves the greatest good. *Frontiers in Forests and Global Change*. <https://doi.org/10.3389/ffgc.2019.00027>.
- <sup>ix</sup> Harmon, M.E. 2019. Have product substitution carbon benefits been overestimated? A sensitivity analysis of key assumptions. *Environmental Research Letters*. <https://doi.org/10.1088/1748-9326/ab1e95>.
- <sup>x</sup> CEQ, National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change, 88 Fed. Reg. 1196, 1207 (Jan. 9, 2023).
- <sup>xi</sup> Hudiburg, Tara W., Beverly E. Law, William R. Moomaw, Mark E. Harmon and Jeffrey E. Stenzel. 2019. “Meeting GHG reduction targets requires accounting for all forest sector emissions.” *Environmental Research Letters* (2019): n.pag. <https://doi.org/10.1748-9326/ab28bb>.
- <sup>xii</sup> Intergovernmental Panel on Climate Change, AR6 WG1 (2021): Forster, Piers; Storelvmo, Trude (2021). “Chapter 7: The Earth’s Energy Budget, Climate Feedbacks, and Climate Sensitivity.”
- <sup>xiii</sup> Harmon, M.E., Harmon, J.M., Ferrell, W.K. et al. 1996. Modeling carbon stores in Oregon and Washington forest products: 1900–1992. *Climatic Change* 33, 521–550 (1996). <https://doi.org/10.1007/BF00141703>.
- <sup>xiv</sup> Hudiburg, Tara W., Beverly E. Law, William R. Moomaw, Mark E. Harmon and Jeffrey E. Stenzel. 2019. “Meeting GHG reduction targets requires accounting for all forest sector emissions.” *Environmental Research Letters* (2019): n.pag. <https://doi.org/10.1748-9326/ab28bb>.
- <sup>xv</sup> DellaSala D.A, et al. 2022. Mature and old-growth forests contribute to large-scale conservation targets in the conterminous United States. *Front. For. Glob. Change* 5:979528. <https://doi.org/10.3389/ffgc.2022.979528>; Keith, H. et al. 2019. Contribution of native forests to climate change mitigation. *Environmental Science and Policy* 93:189-199 <https://doi.org/10.1016/j.envsci.2018.11.001>; Law, B.E., et a. 2021. Strategic forest reserves can protect biodiversity in the western United States and mitigate climate change. *Communications Earth & Environment* | <https://doi.org/10.1038/s43247-021-00326-0>; Law, B.E., et al. 2022. Creating strategic reserves to protect forest carbon and reduce biodiversity losses in the United States. *Land* <https://doi.org/10.3390/land11050721>; Mackey, B.,

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et al. 2013. Untangling the confusion around land carbon science and climate change mitigation policy. *Nature Climate Change*. Vol. 3 (June 2013) <https://doi.org/10.1038/nclimate1804>; and Moomaw, W.R. et al. 2019. Intact forests in the United States: proforestation mitigates climate change and serves the greatest good. *Frontiers in Forests and Global Change*. <https://doi.org/10.3389/ffgc.2019.00027>.

<sup>xvi</sup> Schoennagel, T. et al. 2010. Restoration relevance of recent National Fire Plan treatments in forests of the western United States. *Frontiers in Ecology and the Environment*, 9: 271-277 <https://doi.org/10.1890/090199>.

<sup>xvii</sup> Harris, N.L. et al. 2016. Attribution of net carbon change by disturbance type across forest lands of the conterminous United States. *Carbon Balance Manage*:11-24 <https://doi.org/10.1186/s13021-016-0066-5> and Merrill, M.D. et al. 2018. Federal lands greenhouse emissions and sequestration in the United States—Estimates for 2005–14, Scientific Investigations Report. <https://doi.org/10.5066/F7KH0MK4> Zald, H.J., and C.J. Dunn. 2018. Severe fire weather and intensive forest management increase fire severity in a multi-ownership landscape. *Ecological Applications* 28(4):1068-1080 <https://doi.org/10.1002/eap.1710>.

<sup>xviii</sup> Bartowitz, Kristina J., Eric S. Walsh, Jeffrey E. Stenzel, Crystal A. Kolden and Tara W. Hudiburg. “Forest Carbon Emission Sources Are Not Equal: Putting Fire, Harvest, and Fossil Fuel Emissions in Context.” *Frontiers in Forests and Global Change* (2022). <https://doi.org/10.3389/ffgc.2022.867112>. Reporting that per acre emissions of logging are two to eight times more than those of fire in western U.S. forests, depending on the type of logging.

<sup>xix</sup> CEQ, National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change, 88 Fed Reg. at 1206.

<sup>xx</sup> Harmon, M.E., C.T. Hanson, and D.A. DellaSala. 2022. Combustion of aboveground wood from live trees in megafires, CA, USA. *Forests* 13 (3)391; <https://doi.org/10.3390/f13030391>.

<sup>xxi</sup> U.S. Forest Service. 2009. Climate Change Considerations in Project Level NEPA Analysis (Jan. 13, 2009), available at [https://www.fs.usda.gov/emc/nepa/climate\\_change/includes/cc\\_nepa\\_guidance.pdf](https://www.fs.usda.gov/emc/nepa/climate_change/includes/cc_nepa_guidance.pdf).

<sup>xxii</sup> Ibid.

<sup>xxiii</sup> See Kootenai National Forest. 2019. Carbon Report, Black Ram timber sale, attached as Ex. 1. The Forest Service approved the Black Ram Project, relying on the 2019 Carbon Report, in June 2022.