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Comments: I am a retired geologist, forest landowner, and a student of climate science, policy, and adaptation, the latter most recently through coursework at Georgia Tech. In reading the Forest Service publication, Responding to climate change in national forests: a guidebook for developing adaptation options (Peterson et. al., 2011, p. 49), I learned that in 1990 the Forest Service was charged by Congress to analyze the potential effects of climate change on renewable resources in the forests of the US, and the forestry opportunities to mitigate the buildup of atmospheric carbon dioxide. The climate change report of the Foothills Landscape Project appears to fall short of both objectives.

The Foothills Project climate report (p. 5) states,

"Forest management activities associated with tailpipe emissions and removal of trees likely add to increased CO<sub>2</sub> in the atmosphere. However, under this alternative, releases are minimal and short term and likely offset by long-term forest management practices that absorb and store CO<sub>2</sub> from the atmosphere."

This is a vague assertion of a zero or positive effect in carbon storage, without any supporting evidence. It is also doubtful given the lack of mention of the role of soil carbon in the report.

As the Fourth National Climate Assessment chapter on Forests states (Vose et. al., 2018, p. 244), "Typically, soil carbon is the largest and most stable pool in forest ecosystems, but increased above-ground biomass production in forests is not necessarily accompanied by higher carbon soil content....Increased disturbances such as harvesting, wildfire, and insect and carbon damage can also release carbon stored in soils, especially where multiple disturbances occur over a short time span."

I request that the project plan make an attempt to quantify loss of carbon sequestration due both to loss of trees and carbon in soil. Without it the claim cannot be established that, under the proposed action, above-ground biomass production over time could offset the short-term losses.

The Forest Service is charged to protect National Forests' provision of ecosystem services, including carbon sequestration. The above quoted paragraph in the Foothills Project climate report (p. 5) concludes with the sentence:

"However, CO<sub>2</sub> from this alternative would not be measurable at the global scale."

This statement is of doubtful relevance given the Forest Service's charge to protect carbon sequestration. It is also misleading. According to Vose et. al. 2018 (p. 246),

"Net storage of atmospheric carbon by forests (742 teragrams, or Tg, of CO<sub>2</sub> per year from 1990 to 2015) has offset approximately 11% of U.S. CO<sub>2</sub> emissions. Assuming no policy intervention and accounting for land-use change, management, disturbance, and forest aging --U.S. forests are projected to continue to store carbon but at declining rates (35% less than 2013 levels by 2037) as a result of both land use and lower CO<sub>2</sub> uptake as forests grow older."

In other words, unless the proposed policy intervention has net positive carbon storage, it will worsen a trend that already headed in the wrong direction, and the overall figure of 11% of US carbon emissions certainly does have global significance.

I request that the plan instead clearly state what measures will be taken for the proposed plan to improve, not worsen, the carbon sequestration service that the Forest Service is tasked to protect.

Thank you for your consideration.

References:

Peterson, David L.; Millar, Connie I.; Joyce, Linda A.; Furniss, Michael J.;

Halofsky, Jessica E.; Neilson, Ronald P.; Morelli, Toni Lyn. 2011. Responding to climate change in national forests: a guidebook for developing adaptation options. Gen. Tech. Rep. PNW-GTR-855. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 109 p.

Vose, J.M., D.L. Peterson, G.M. Domke, C.J. Fettig, L.A. Joyce, R.E. Keane, C.H. Luce, J.P. Prestemon, L.E. Band, J.S. Clark, N.E. Cooley, A. D'Amato, and J.E. Halofsky, 2018: Forests. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 232-267. doi: 10.7930/NCA4.2018.CH6