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RE: Public comments on Washington state's proposed changes to the U.S. Forest Protocol, Chapter 173-446 WAC, Cap-and-Invest Offsets rulemaking

Dear Washington Department of Ecology staff,

Thank you for the chance to comment on Washington state's proposed changes with the US Forest Protocol before adoption.

I have studied the outcomes of California's US Forest Protocol and how well its carbon accounting methods align with published literature. I worked with several research teams over the last six years together producing a series of publish articles on the outcomes of the protocol. This protocol has resulted in significant over-crediting from the ways it calculates baselines, leakage, reversal risk, and creates incentives at odds with California healthy forest initiatives (Haya 2023). The most important sources of over-crediting are from how baselines are estimated and its leakage accounting methods. These comments focus on those two quantification factors.

The proposed amendments to baseline setting methods and leakage accounting are improvements over the current protocol. Yet still, the amendment only make incremental changes. If adopted as proposed, over-crediting will almost certainly remain significant, albeit reduced compared to California's version.

IFM Baselines

While the proposed approach to setting baselines for improved forest management (IFM) projects on privately-owned forests contains some important improvements to the California protocol, reducing the extent to which baselines can be below initial carbon stocks, the over-crediting risk associated with setting baselines at common practice remain.

Significant over-crediting that has resulted from baselines set at common practice is well studied and explained in the published literature. Assessment areas contain forests that naturally have a range of carbon stocks per acre and differences in carbon stocks can also vary because of management choices with no link to carbon or offsets. The US Forest Protocol creates incentives to lands already holding more carbon per acre than the average to participate since they can be paid for no change in forest management practice compared to what they already were doing and would have done. Badgley et al. (2021) documents this clearly. Using more granular FIA data to compare similar lands revealed that lands participating in the offset program strongly leaned towards forests in parts of the assessment areas with naturally higher carbon per acre. We re-quantified carbon credit generation using more refined assessment of the baseline and found that simply because of the way that common practice was defined in rough assessment areas led to 29% more credit generation than if our more refined assessment had been used.

Two later studies expanded on these results. Stapp et al. (2023) and Coffield et al. (2022) find that California protocol baselines are unrealistically low. Both studies found no statistically significant difference in California offset projects, nation-wide and in California respectively, between management by the project, and (1) previous management on project lands before the offset project and (2) management by other similar control areas.

> Recommendation: I recommend not using common practice as the baseline because of adverse selection as well documented in published studies. I recommend instead using dynamic baselines with similar control plots since this is best practice in baseline setting for forest projects. See Haya et al. (2023) for a discussion of different methods for setting IFM project baselines.

IFM Leakage

Improved forest management projects under California's forest offset protocol over-credit significantly because of leakage accounting. The most important source of over-crediting is mismatched timing associated with projects with initial carbon stocks above the baseline. The Washington protocol has the same timing mismatch. Both protocols deduct leakage every year against a 100-year average annual baseline harvesting rate. By doing this, the Washington protocol over-credits because the baseline involves greater than average harvesting in years 1-10 as on-site carbon is depleted from initial carbon stocks down to the baseline. In their first 10 years, projects are credited for higher than average reductions in harvesting, but deduct leakage equal to the lower 100-year average. In the California protocol, the over-crediting happens in year 1. In the Washington protocol, the same over-crediting occurs over the first 10-years. This over-crediting can be significant (Haya 2019, Haya et al. 2023).

This timing issue can be solved if the baseline were consistent – if the same baseline harvesting assumptions associated with reduced on site carbon stocks in years 1-10 were also used to estimate leakage (rather than a 100-year average for all years). Please see Haya (2019) and Haya & Stewart (2019) for more details on this issue.

I believe that there is a mistake in equation 6.1. When you updated secondary effects from 20% leakage to 40% leakage, I believe the 0.80 in equation 6.1 should have been reduced to 0.60. I'm happy to discuss this with you, and you can also see the math worked out in Haya (2019).

There appears to be an error in equation 6.5b. There is a "MIN" function without a comma delineating options.

Lastly, an increase in leakage rate to 40% is a positive improvement, though not conservative given the large uncertainties in true leakage rates and higher rates in some published literature for the United States (Haya et al. 2023).

Most sincerely,

Barbara Haya

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