European Academies
easac
Science Advisory Council

President and CEO, World Resources Institute
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Re: Proper Accounting for Wood Harvest and Use in the GHG Protocol

The European Academies Science Advisory Council, representing the endorsed views of Europe's 27 national academies of science, has analysed in several reports the role of forests and forest bioenergy in addressing climate change. Our work makes it abundantly clear that proper carbon accounting is critical to assessing the real effects on climate of harvesting biomass for wood use in general and particularly for energy production. Importantly, the scientific analyses show to what extent the real effects on climate differ from those claimed by supporters of current bioenergy policies that universally label bioenergy as 'renewable' and equate it with solar, wind and other renewable energies. As your organizations are now considering how to account for these effects in revising the Greenhouse Gas Protocol Land Sector and Removal Guidance, it has been suggested that we share some of our evidence and conclusions.

As we have pointed out, while solar and wind emit almost no CO_2 when operating, burning woody biomass for electricity generation emits as much if not more per kWh than the fossil fuels it may have replaced. The labeling of woody bioenergy as 'renewable' is based on the assumption that the carbon in the biomass and its associated emissions when burned can be treated as zero, on the grounds that forest will regrow and re-absorb the carbon in the biomass harvested. As EASAC has repeatedly written, this concept of carbon neutrality ignores the time lag between emissions and reabsorption of the original carbon which multiple studies show can be very long- from decades to centuries. Arguments were summarised in our 2019 paper "Serious mismatches remain between science and policy in forest bioenergy". Our conclusion then remains that large-scale

bioenergy uses that include additional wood harvesting are perverse and have negative effects on climate over the time periods relevant to the Paris Convention (up to 2050/60).

Our papers have therefore emphasized the critical concept of a "payback period," which is the time taken for forests to reabsorb the carbon dioxide emitted during biomass combustion, and pointed out that until payback is achieved, the effects on climate are negative. We conclude that "it is essential to properly include the effects of harvesting on carbon stocks as well as supply chain and biogenic emissions." (EASAC 2018). In doing so, we have pointed to the use of biophysical models to study the specific effects of harvesting activities and regrowth on carbon storage (EASAC 2022, p. 12; EASAC 2017 p. 22-24). And that "the proximity of current levels of warming to the 1.5 °C Paris targets requires that only projects whose payback periods are of the order of a decade or less should be regarded as 'renewable energy'." (EASAC 2018). Proper accounting is critical to distinguish the climate-positive and climate-negative harvests and uses of wood within this period.

Currently several large biomass power stations in Europe receive subsidies founded on the original concept of carbon neutrality, so that their business model could be threatened if feedstocks were to exclude woody biomass with payback times over a decade or so. Recent attempts to differentiate between biomass sources in EU legislation led to the European Parliament proposing to exclude 'primary woody biomass' from subsidy, while negotiations led to the exclusion of 'industrial grade roundwood'.

A prominent argument in these negotiations has been that harvesting woody biomass from forests can be regarded as carbon neutral if carbon stock is increasing elsewhere. Our commentaries reject this view because trends in the broader landscape are affected by many variables unrelated to the effects of harvesting wood for bioenergy. An increase in forest carbon stock nationally or even locally may be due to the combined effects of rising carbon dioxide concentrations on photosynthesis and a slowdown of global respiration in response to warming (EASAC 2017, p. 10). In Central and Northern Europe, we have also noted growth due to longer growing seasons and nitrogen deposition (EASAC 2017, p. 12). Such trends are the background conditions that exist whether wood is harvested or not, so the key question remains what the climate consequences are of harvesting a specific stand, and whether that will have a positive or negative effects on climate over the desired timescale.

EASAC has thus repeatedly concluded that carbon balances should be assessed at the stand level, irrespective of whether depletion of carbon in one stand is or is not offset by growth in a stand elsewhere. For bioenergy, "it is necessary to compare the effects of various bioenergy harvest options against a baseline of no bioenergy harvest (or other credible counterfactual scenarios) for the same area of forest." (EASAC 2017 p. 23, fn. 18). Indeed similar considerations apply to other uses of wood, since there is a fundamental trade-off between using the forest for carbon storage and other ecosystem services, and harvesting the wood- even for longer-lived applications.

As your organizations are addressing in part the same or similar issues, we hope you will find it helpful to understand the combined views of Europe's national academies of science and we list our publications below for further elaboration.

Yours Sincerely,
Professor Lars Walløe, Professor András Báldi (Chairs of the Environment Program), Professor Michael Norton (Director of the Environment Program), EASAC
(sent 10/1/24)
References

EASAC 2022. Forest bioenergy update: BECCS and its role in integrated assessment models. https://easac.eu/publications/details/forest-bioenergy-update-beccs-and-its-role-in-integrated-assessment-models

EASAC 2019. Forest bioenergy, carbon capture and storage, and carbon dioxide removal: an update https://easac.eu/publications/details/forest-bioenergy-carbon-capture-and-storage-and-carbon-dioxide-removal-an-update

Norton M. et al. 2019. Serious mismatches continue between science and policy in forest bioenergy. https://doi.org/10.1111/gcbb.12643

EASAC 2018. Forest Bioenergy and Carbon Neutrality. https://easac.eu/publications/details/commentary-on-forest-bioenergy-and-carbon-neutrality

EASAC 2017. Multi-functionality and Sustainability in the European Union's Forests. https://easac.eu/publications/details/multi-functionality-and-sustainability-in-the-european-unions-forests.