

Comments for the SAB on the “Accounting Framework for Biogenic CO₂ Emissions from Stationary Sources” submitted by Bruce Lippke, Professor Emeritus, University of Washington

The EPA draft report falls short of the objectives of accurately reflecting the carbon outcome in a way that is easy to understand and implement while considering all the impacts outside of the stationary source. Life cycle inventory and assessment methods provide a framework for accurate assessment of carbon. A comprehensive review and synthesis of life cycle impacts of forest management and wood utilization on carbon mitigation has been recently published in Carbon Management (2011 2(3) 303-333 (access links attached), and is available open source. The life cycle perspective provides an accounting of the impact of all inputs and outputs affecting carbon mitigation. It is the result of a decade of research by CORRIM, a consortium of 17 research institutions (mostly universities).

The Carbon Management report shows the significant benefits of carbon stored in wood products and the avoidance of emissions from the substitute products that would otherwise be used. Characterizing differences in the carbon leverage between products provides a hierarchy of best uses of wood for carbon mitigation. For example, using wood for fuel has less leverage on carbon mitigation than products, but mill residuals are fully utilized to reduce the need for fossil fuels and their emissions, as there is no better use of the residuals than to provide sustainable reductions in carbon emissions. Forest residuals and other wood wastes, which have not been historically economical to collect provide extensive opportunities for increased biofuel use where increasing carbon values or mitigation incentives can bridge the current economic gap. Only about half of the growth in biomass is currently harvested providing substantial untapped sources for biofuel as economics and the priority to reduce carbon emissions increases. Regulatory costs and misguided policy can negatively impact these potential opportunities. If the biogenic emissions for a boiler are considered the same as fossil emissions as required in EPA's proposed tailoring rule the use of biofuel does not substantially reduce carbon emissions. In contrast, when biogenic emissions are balanced with carbon uptake across a sustainably managed forest landscape, almost all of the fossil emissions are avoided. This second result is substantially different and emerges when using life cycle accounting that covers all inputs and outputs in the analysis.

CORRIM is nearing completion of a several year life cycle study of biofuel processing and collection alternatives. A series of reports covering 3 bioprocessing methods (gasification, fermentation and pyrolysis) and 3 feedstock collection pathways (forest residuals, whole tree thinnings, and willow as a short rotation woody crop) were presented at the International Forest Products Society meeting in June 2011. Video of the presentations have been made available open source by CORRIM (access links attached). These reports are in the process of being prepared for external peer reviewed publications. A first summary publication from this research has been accepted for publication and will soon be available open access in the journal FORESTS' special issue on woody biomass. The article covers fermentation and gasification

processing alternatives into transportation fuels with comparisons to wood products utilization and utility power options.

The science based life cycle carbon accounting provided in these reports places in perspective the relative merits of how forests are managed and wood is utilized. The bottom line is that sustainably managed forests produce sustainable carbon mitigation. Transitions in management regimes may have modest one-time impacts on carbon stored in the forest, which are revealed by life cycle analysis, but with no accumulating impact on sustainable mitigation. Accounting for spatial and time dependent life cycle impacts is simplified when sustainable management at a landscape scale is considered.

Bruce Lippke and Elaine Oneil
blippke@uw.edu
coneil@uw.edu
206-543-8684

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Open source access links for downloading reports and presentations:

1) “Life cycle impacts of forest management and wood utilization on carbon mitigation: knowns and unknowns” in Carbon Management, a Future Science publication. Available from Carbon Management or CORRIM:

http://www.corrim.org/pubs/articles/2011/FSG_Review_Carbon_Synthesis.pdf

2) “[Woody Biomass: Economics, Supply, Conversion to Energy, and Environmental Impacts](#)”
(a series of presentations on life cycle impacts of biofuel production)

http://www.corrim.org/presentations/video/2011/FPS_Biomass/index.asp

3) Sustainable Biofuel Contributions to Carbon Mitigation and Energy
Independence in the Journal Forests’ Special Issue: Sustainable Biofuels From Forests: Woody Biomass,

http://www.mdpi.com/journal/forests/special_issues/woody_biomass/