

February 7, 2020

To: Vermont House Energy and Technology Committee members:

Re: Vermont Greenhouse Gas Inventory and the Global Warming Solutions Act

From: Rachel Smolker, Ph.D., Biofuelwatch (codirector)

Dear Committee Members Briglin, Sibilia, Chestnut-Tangerman, Campbell, Chase, Higley, Patt, Scheuerman, and Yantachka and interested parties.

I understand that there is discussion about the carbon accounting framework, the Vermont Greenhouse Gas Inventory, to be utilized under the proposed Global Warming Solutions Act. As codirector of Biofuelwatch, an international organization that has worked to research and raise awareness about the impacts of large scale bioenergy (ethanol, burning wood chips and pellets, cellulosic fuels etc), I offer the following input on emissions accounting.

Biomass – primarily burning wood - has been a staple of renewable energy policymakers because it is not difficult to retrofit coal plants, wood is widely available year round, and burning wood can provide reliable (not intermittent) baseload power and heat. For this reason, it has expanded to comprise a major proportion of the renewable mix (there are a variety of definitions of “biomass” – some of which include municipal waste, crop residues etc., but wood is the most common feedstock). Given the push to electrification, we can anticipate there will be expanding interest in biomass power generation, not only in Vermont but worldwide, as has been predicted by, for example, the International Energy Agency.

Burning wood has been subsidized directly alongside wind, solar and other renewables. This is problematic for various reasons, not least of which is that the carbon emission accounting is flat-out flawed. Wood bioenergy has been treated persistently as “carbon neutral” based on the false precept that the carbon emitted will be reabsorbed by new tree growth. Yet regrowth of new trees is by no means guaranteed, and could take many decades. Furthermore, carbon emissions from harvesting wood are far greater than just the emissions emitted from the smokestack. They include emissions from harvesting equipment, transportation, soil disturbance, processing of wood (chipping, drying, pelletizing etc) and in many cases, indirect impacts resulting from displacement of other land uses (indirect land use change).

Meanwhile, even accounting solely for the emissions from the smoke stack of a facility, carbon emissions are [up to 150% greater](#) than those from burning coal - per unit of energy produced. Harvesting wood for bioenergy results in “foregone sequestration”, as the carbon that would have been stored in the growing trees is released into the atmosphere. The “carbon neutral” myth for biomass evolved from a loophole that was improperly adopted by the IPCC greenhouse gas accounting methodology, and unfortunately persisted with grave implications. This is detailed in an article published in Science titled “[Fixing a Critical Climate Accounting Error](#)”.

The biomass industry has persisted in claiming to use only forestry residues. This is simply not true. Residues are in very limited supply, and in most cases do not burn well. Instead, whole trees are harvested for biomass. This fact can be verified by simply witnessing the trucks and wood yards at these facilities which are piled high with whole trees. The definition of “residue” has been expanded to essentially refer to trees that are not suitable for saw log harvesting (twisted or misshapen or small). One case in point: in the Southeastern US, pellet manufacturer Enviva was found to be sourcing the wood for their facilities (which are shipped to the UK to burn in the DRAX coal plant) [clearcutting](#) remaining biodiverse forests, not using wood from pine plantations or forestry residues, as claimed. [Recent analyses](#) demonstrate that even when genuine forestry residues are in fact used, the net emissions impact remains very high. And of course forestry practices producing residues are not necessarily optimal, desirable or climate friendly.

Vermont already hosts two biomass power generation facilities (McNeil and Ryegate). The state has wisely adopted a precautionary approach when faced with proposals for additional facilities, and we hope to see this continue. However, there is a tremendous expansion of biomass based heating for commercial, institutional and residential use incentivized in the state and the region. Burning wood releases large amounts of greenhouse gases, and depletes forest carbon sequestration, no matter the end use - for heat or power. The air pollution impacts, are also a serious concern. We recognize that Vermont’s severe winters do require home heating, and in some cases, burning wood, in combination with cold climate heat pumps and conservation measures, may indeed be the most “climate friendly” option. However - the impact of wood harvesting on our forests, and a comprehensive and realistic accounting of greenhouse gas emissions is still essential, if we are serious about effectively addressing climate change, not just “rigging the numbers” for convenience sake.

In sum – improper accounting for emissions from biomass (and biofuels) undermines the intent of effectively reducing greenhouse gas emissions, in fact increasing rather than decreasing emissions. Because of the very large land area required for harvesting biomass – be it wood or bioenergy crops – the goal of protecting water, soil and biodiversity resources is also compromised.

Policy makers around the world are seriously questioning bioenergy. [Most recently](#), just for example, the University of Calgary School of Public Policy concluded: *“We argue that emissions from bioenergy should be treated in the same way as emissions from fossil fuels and this leaves many developed countries in a deep hole for reducing emissions. Based on the analysis in this study, we recommend that Canada pursue strategic policy directions and the design of unique and rational innovation programs.”*

And, in a 2019 article titled [“Serious mismatches continue between science and policy in forest bioenergy”](#) the authors state that *“...current policies are failing to recognize that removing forest carbon stocks for bioenergy leads to an initial increase in emissions. Moreover, the periods during which atmospheric CO<sub>2</sub> levels are raised before forest regrowth can reabsorb the excess emissions are incompatible with the urgency of reducing emissions to comply with the objectives enshrined in the Paris Agreement.”*

For further resources – including annotated peer reviewed literature and reports.

<https://www.biofuelwatch.org.uk/biomass-resources/resources-on-biomass/>

Thank you for your attention to this important matter, and please feel free to contact me with any questions or followup.

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