13 oktober 2020

Dear Commission EZK,

Please accept some partial answers on the five questions related to biomass from the Partnership for Policy Integrity, an NGO working with groups in Europe and around the world to promote policies that protect and restore forests for climate and nature.

Q1. To what extent and in what way is biomass needed to achieve the goals of the Climate Agreement?

There are two ways this question could be interpreted. First, it could be seen as a question about what the Climate Agreement itself says about biomass. We do have some comments on how the Climate Agreement views biomass, at the end of this document. However, we think a more fundamental interpretation is to ask what the science says regarding the role of biomass in meeting the main goal of the National Climate Agreement, which is to achieve a 49% reduction in national greenhouse gas (GHG) emissions by 2030 compared to 1990 levels.

Regarding this question, we urge the Commission to respect the science: there is little to no forest biomass (meaning biomass sourced directly from forests) that is capable of delivering meaningful GHG reductions in the ten years remaining until 2030.

As an example of a "best case" scanerio for forest biomass, where forestry residues are used as fuel, these materials still have significant net emissions even taking into consideration that they would decompose and emit GHG anyway if not burned for energy. I wrote a paper on why burning forestry residues does not provide a carbon benefit in climate-relevant timeframes. It's here: http://iopscience.iop.org/article/10.1088/1748-9326/aaac88

It is accompanied by a short video abstract that explains the concepts and how the carbon accounting is done.

Harvesting wood for the purpose of burning it, then treating this as "carbon neutral," is incorrect. To understand why this is so, remember that carbon may be found in two "pools" – atmospheric CO_2, and carbon bound up in materials, including biomass. When we burn biomass, it releases carbon to the atmosphere, reducing the material pool and increasing the atmsopheric pool. Re-growing the biomass may occur quickly (as with crops) or slowly (as with trees). A multitude of scientific studies demonstrate the obvious conclusion that regrowing trees takes longer than regrowing crops... and that the amount of biomass carbon still "outstanding" in the atmospheric pool is commensurately larger.

Consider for instance felling stands of trees that are 50 years old in years 1, 2, 3, etc. By year 10 (in 2030), the oldest regrowing trees would only be 10 years old and a fraction of the size

of the original trees. The stands felled in year 2 would only have been regrowing for 9 years, and so forth. Burning the stands for energy would have released 10 "stands worth" of carbon to the atmosphere, but regrowth over the time period would have cumulatively only resequestered a fraction of that carbon.

Since biomass proponents in the Netherlands often claim that burning biomass has no carbon impact on the atmosphere if it is harvested "sustainably," we address that here as well. First, the concept that "sustainable" harvesting (whereby harvesting is less than growth) is equivalent to biomass carbon neutrality is fallacious, as demonstrated by the following figures. The three scenarios in Figure 1 all show "sustainable" harvesting, but have different impacts on atmospheric CO_2. There is a big difference between removing ten units of carbon from the atmsphere and removing one unit – in fact, the difference is equivalent to adding 9 units! Figure 2 shows the need for an instantanous and "additional" offsetting mechanism to meet the conidtion of the IPCC for biomass to provide a net reduction in emissions.

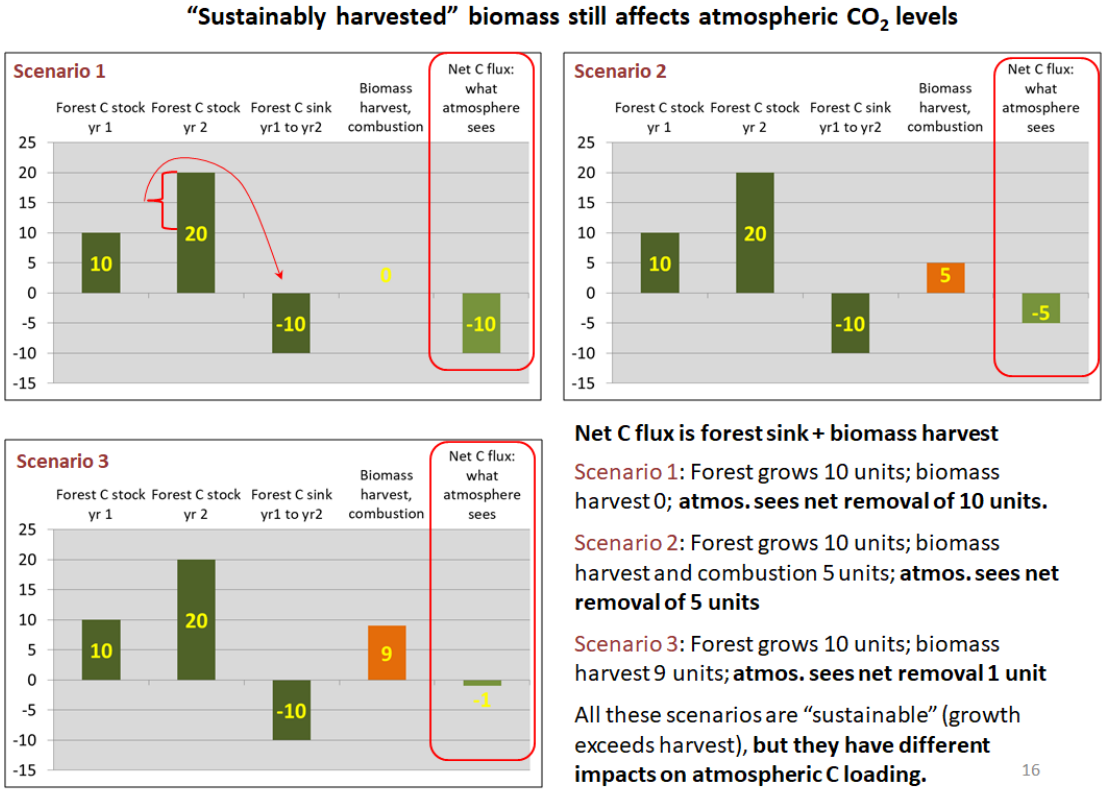

Figure 1. Three "sustainable" scenarios where growth exceeds harvest.

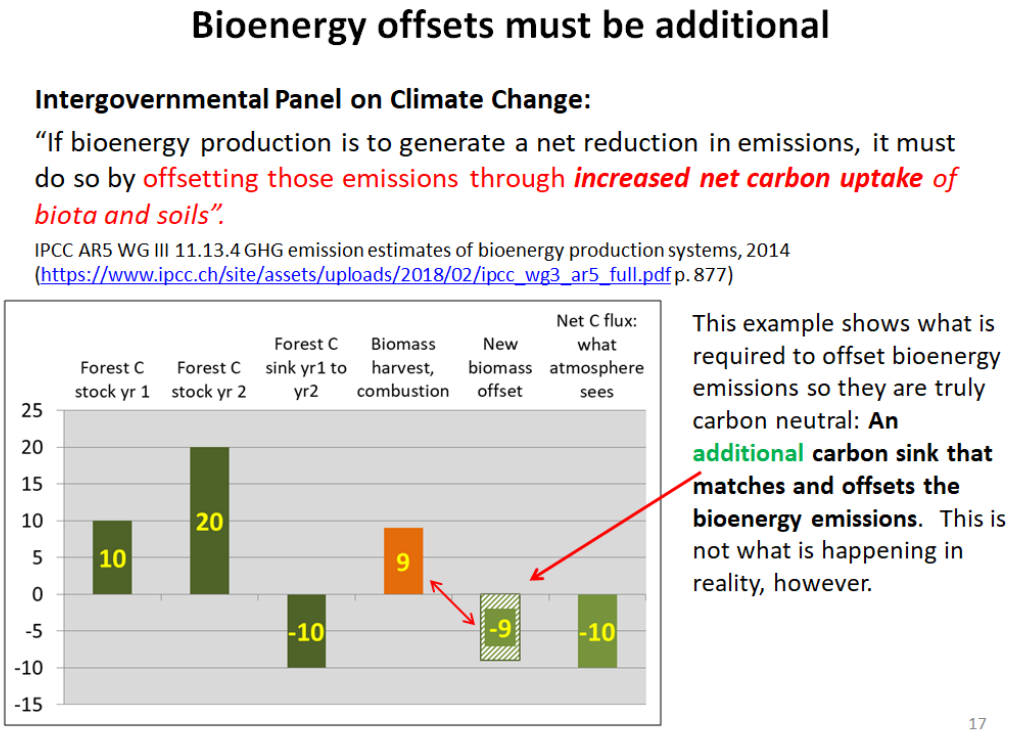

Figure 2. Instantaeous offsetting is required for biomass to cancel out impact of biomass burning on atmospheric CO_2.

Even if trees are specifically planted to "pre-sequester" carbon out of the atmsophere so they can be used as fuel later, and the logging is done "sustainably," so that all the stands in aggregate annually suquester carbon equivalent to that being released by burning, this does not change the fact that burning these trees still emits carbon! The amount of CO_2 relased to the atmosphere is greater when the trees are burned than when they are not. And in any case, what is the point in drawing down atmospheric CO_2 using such plantations, if this carbon is to be released to the atmsophere once again in a few years? This does not "reduce" emissions.

Recall that burning biomass emits more CO_2 per unit useful energy than fossil fuels. Thus replacing fossil fuels with biomass directly increases the amount of CO_2 going up the smokestack, independent of what may be happening on the ground with offsetting activities.

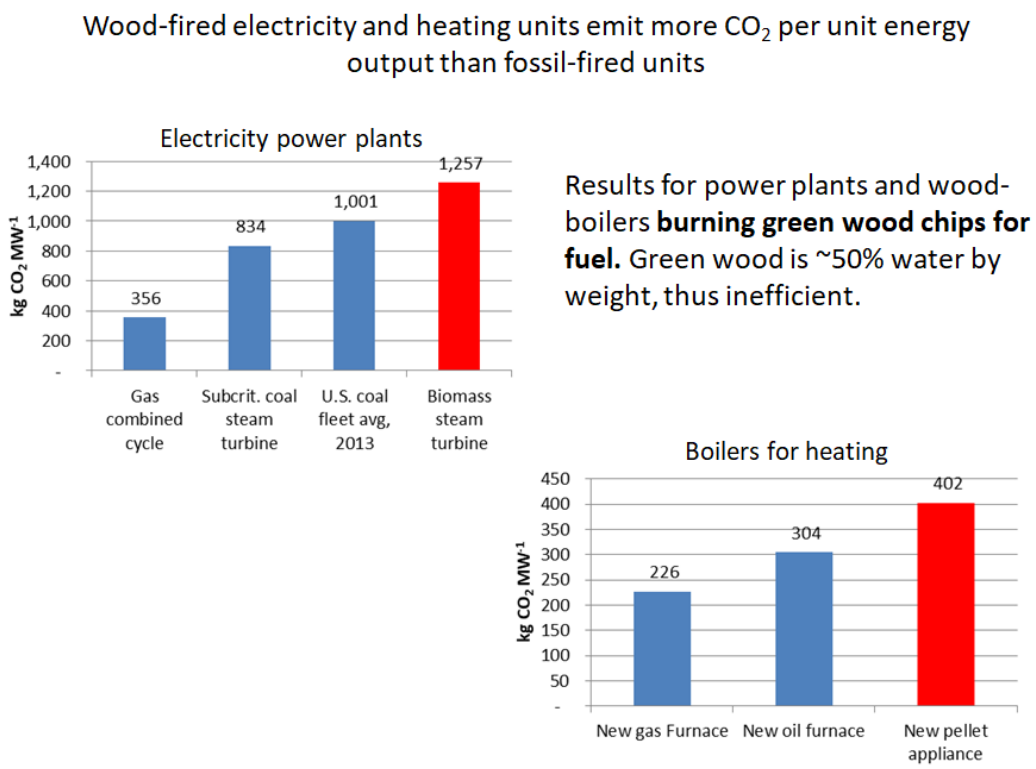

Figure 3. Typical emissions for wood burning units burnng green wood chips for fuel.

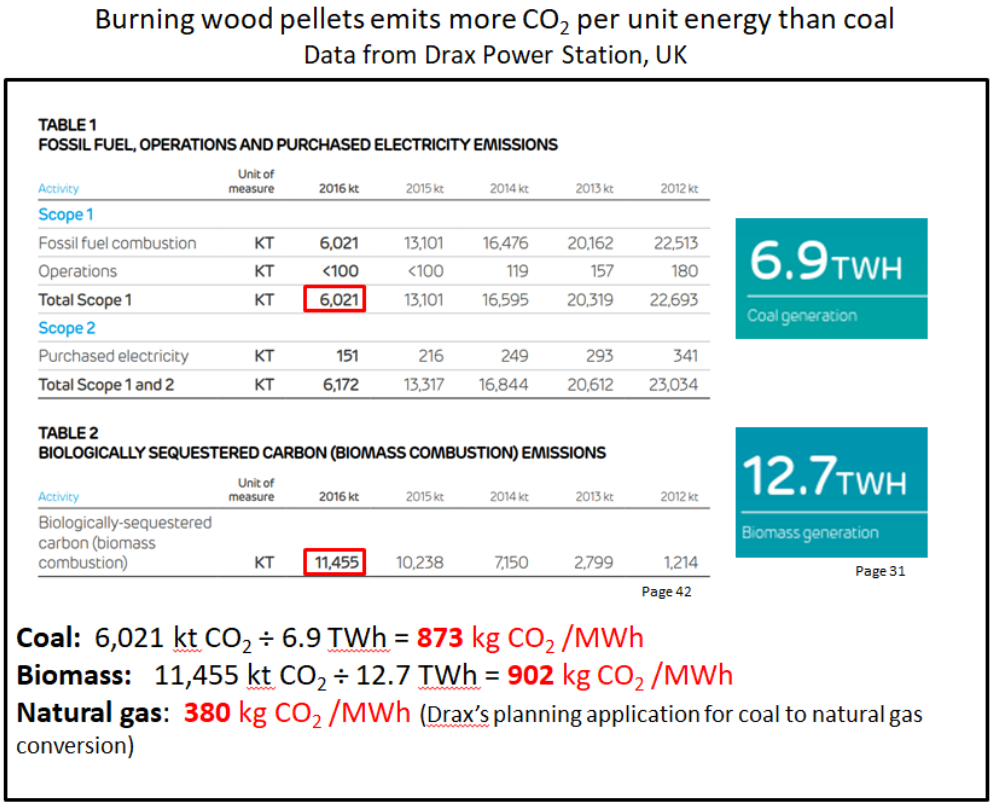

Figure 4. Actual emissions data from Drax in the UK, a large wood and coal power station, with calculations demonstrating that burning wood pellets emits more CO_2 than burnng coal.

Fora more in-depth explanation of why “sutainability” criteria do not protect forests and the climate, please see our “Paper Tiger” report, attached.

Finally, as a way of exploring biomass energy impacts on atmospheric CO_2, we recommend the online model of Laganiere et al, at https://apps-scf-cfs.rncan.gc.ca/calc/en/bioenergy-calculator. This model offers simple choices to evaluate how different types of fuel impact net atmospheric CO_2 from biomass burning. It essentially concludes that the only biomass with carbon “benefits” is biomass that was going to be burned for disposal anyway, a conclusion with which we concur.

Regarding the consdieration of biomass in the Climate Agreement itself, we note that the document includes the land sector as a place to reduce emissions in pursuit of the overall reduction goal. Unlike many countries, where carbon uptake by forests makes the land sector as a whole a net sink for GHG’s, the land sector in the Netherlands is a net source of emissions, comprising 2.65% of total emissions in 2018 according to UNFCCC reporting. Carbon uptake by forests is swamped by the emissions from other parts of the land sector. One way to start reversing this would be to diversify tree plantations and to the extent possible replace them with natural forests, with all their complexity and carbon storage potential. It is more climate friendly, but also more friendly to nature, to protect, restore, and expand natural forests, as unlike plantations, they continue growing and accumulating carbon for centuries. Burning more forest biomass will actively undermine efforts to increase the land carbon sink. Nor is it an acceptable solution to burn imported wood pellets, which represent stored forest carbon from other countries.

Q2. What are the environmental performances of the different applications of biomass?

Focusing on burning biomass for heat and power, the only biomass that is likely to offer a climate benefit is material that would have been burned anyway for disposal (see Laganiere model and paper, referenced above).

Even burning agriculutural residues for fuel does not provide a carbon benefit, because this depletes soil carbon. The agricultural sector of the Netherlands is already a large source of GHG’s. Evreything possible should be done to enhance soil carbon stocks in soils.

Q3. What does the cascading of biomass look like?

I don’t have the time or resources to answer this question now, but I urge the Commission to be aware that burning waste biomass – such as consturction debris, which can include treated wood – can be a large source of heavy metals and other air toxics, even with emissions controls.

Q4. What is the expected supply and demand for (woody) biomass?

Again, I can not speak to this having not the resources or time to answer.

Q5. Which sectors should be prioritized for the application of biomass?

We think this question should be re-stated. Burning biomass increases GHG's and air pollution, so its use should be minimized. However, there are some sectors that burn biomass to dispose of materials, such as bark at sawmills. Such continued uses seem somewhat inevitable. However, such uses should not be favored or promoted by treating this as generating "renewable energy" that counts toward targets. To do so creates distorting incentives.

It is interesting to note that the climate agreement seems to implicitly acknowledge that mining land sector carbon in the Netherlands itself is not going to help mitigate GHG's, as it emphasizes mostly waste materials as fuel: "There is currently still untapped potential for biomass, including in the form of roadside grass, cuttings and sewage sludge and waste flows from the food industry."

However then the Climate Agreement goes on to discusss how "sustainablity" agreements can be used to assure that wood pellets imported from elsewhere will be acceptable and provide climate benefits, ignoring the fact that it does not matter what the forest carbon balance is in the country of origin – there is no "carbon neutral" forest biomass! It also seems naive to assume that "sustainability" agreements will prevent the excesses that are already occuring under such existing agreements, as in this example from British Columbia, where wood pellet companies are logging an ancient inland rainforest (https://thenarwhal.ca/bc-pacific-bioenergy-old-growth-logging-wood-pellets/; also attached).

Thank you for the opportunity to comment.

Mary S. Booth, PhD
Director, PFPI