Why BECCS using forest biomass will not deliver "negative emissions" as promised in UK policies

October 16, 2024

The Forest Litigation Collaborative (FLC) is a joint undertaking on forests, climate and bioenergy by the Lifescape Project (UK) and the Partnership for Policy Integrity (US). This memo focuses on use of forest biomass for bioenergy and the impossibility of delivering "negative emissions" in a meaningful timeframe using this fuel/technology combination. It provides additional detail to a previous memo[1] published by the FLC.

Contents

Burning forest biomass is not carbon neutral or "low carbon" over climate policy-relevant timeframes

1. The simplest conception of carbon neutral bioenergy is that it has no net impact on the amount of CO_2 in the atmosphere.
2. UK policy treats bioenergy as having zero emissions, and has offered different explanations for this in different contexts. In some cases, policymakers appear to have relied on the IPCC's convention of counting bioenergy as having zero emissions in the energy sector, particularly taking advantage of the fact that the emission of carbon from the land sector for biomass imported from outside the UK does not show up in the UK's own GHG reporting
3. However, this is a misapplication of IPCC rules. As the 2019 update to the IPCC Inventory Guidelines explains, "*Carbon dioxide (CO_2) emissions from the combustion of biomass or biomass-based products are captured within the CO_2 emissions in the AFOLU sector through the estimated changes in carbon stocks from biomass harvest, even in cases where the emissions physically take place in other sectors (e.g., energy).*"[2] In other words, it is not legitimate to simply ignore the emissions, even if they happen halfway around the world. This concept is well-understood for liquid biofuels and palm oil.

[1] https://forestlitigation.org/wp-content/uploads/2023/11/The-Case-Against-Negative-Emissions-Nov-20-2023-1.pdf

[2] https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/2_Volume2/19R_V2_2_Ch02_Stationary_Combustion.pdf

4. Importantly, while the IPCC rules can help with emissions estimates, they were not set up to determine the impact of individual facilities or sectors. As the IPCC FAQ[3] states, "*While individual methodologies and emission factors provided in the IPCC Guidelines may be relevant for estimating CO_2 emissions from the use of bioenergy at an individual facility or industry, the IPCC Guidelines as an overall framework for a national GHG inventory* ***do not provide an analytical approach for assessing the full bioenergy emissions at sub-national entities such as industry sectors****. A complete coverage of bioenergy emissions at the sub-national level – for example for an industry sector –* ***may require additional analytical work*** *and assumptions beyond the scope of the 2006 IPCC Guidelines to* ***attribute all relevant bioenergy emissions (e.g. those associated with growing bioenergy crop, land-use change, fertilization, transportation, etc.) to the sub-national entities of interest****.*"
5. The word "attribute" is important there. The statement recognizes that full lifecycle accounting, including biogenic emissions, requires assigning the emissions to the responsible partner. This may often transcend national boundaries. The UK already engages in trans-national accounting when tracking lifecycle GHG emissions from fossil fuels burned during growing, harvesting, manufacturing and transporting biomass. For example, the Biomass Strategy[4] states, *"BECCS will therefore be required to meet GHG criteria, and GHG supply chain thresholds that ensure that the full biomass supply chain GHG emissions, from growing, processing, transporting and storing, are taken into account in the assessment of the final capture of CO2. These GHG emissions* ***should be accounted for irrespective of the international boundaries where the emissions are taking place****."* However, the UK does not count biogenic emissions – which dwarf these other lifecycle emissions – when these emissions occur in another country.
6. The UK Biomass Strategy presents a *post-hoc* rationalization for treating forest biomass as "low carbon" or carbon neutral because, it says, the sustainability criteria ensure this. However, while the sustainability criteria falsely treat biomass as instantaneously carbon neutral, the Biomass Strategy *also* admits that emissions are *not* zero instantaneously, and that regrowth is involved, stating[5]: "*When produced sustainably, biomass is a renewable, low carbon energy source and material. This is because its inherent energy comes from the sun, it absorbs carbon dioxide (CO2) as it grows, and it can be used to directly displace fossil fuels such as oil, coal, and natural gas, for the production of energy or other products.* ***Biomass can regrow in a relatively short time, unlike fossil fuels****; and the carbon that is released from the organic material was sequestered recently from the atmosphere, compared to fossil fuels where the carbon was sequestered hundreds of millions of years ago*."
7. As discussed in more detail below, there is nothing about the UK's biomass sustainability criteria that ensures either that biomass is instantaneously carbon neutral, or that biomass can "regrow in a relatively short time" It is also irrelevant that the carbon emitted by burning biomass "was sequestered recently from the atmosphere" (what matters is the effect on the balance of CO_2 going forward – if this were not the case, it would be possible to claim that burning all the

[3] https://www.ipcc-nggip.iges.or.jp/faq/faq.html
[4] Page 136 at https://assets.publishing.service.gov.uk/media/64dc8d3960d123000d32c602/biomass-strategy-2023.pdf
[5] at page 11

world's forests would have no effect on atmospheric carbon balance because the carbon was sequestered "recently.")

8. Even more fundamentally, counterfactual modeling shows that simply regrowing biomass to offset emissions of lost carbon can still result in a loss of carbon stored in the ecosystem, and thus an increase in the amount stored in the atmosphere, compared to the trend prior to biomass extraction.
9. This is illustrated in Mitchell et al (2021)[6]. Figure 1, taken from that paper, shows that the point at which there is compensation of "carbon debt" – i.e., the forest has "grown back" to compensate for the *initial* stock loss from harvesting, so that there are "zero" net emissions above that level – comes before the point of parity between the biomass and counterfactual (unharvested forest) scenarios, which is the point after which the biomass scenario starts to deliver a reduction in net emissions compared to the counterfactual scenario. Figure 1 reproduces their graphic.
10. At the point of compensation of carbon debt, emissions are "zero" in the sense that the net carbon sequestered via regrowth, **plus the credit for non-biomass energy generation emissions avoided**, is equal to the ecosystem carbon that was lost/emitted when the biomass was harvested.

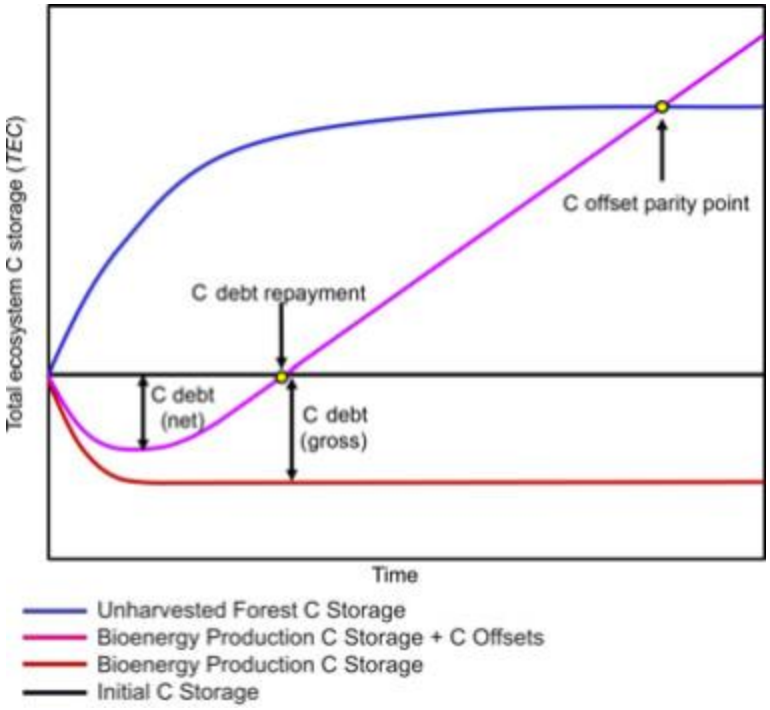

Figure 1. Reproduced from Mitchell et al 2012. Original figure caption states, "*Conceptual representation of C Debt Repayment vs. the C Sequestration Parity Point. C Debt (Gross) is the difference between the initial C Storage and the C storage of a stand (or landscape) managed for bioenergy production. C Debt (Net) is C Debt (Gross) + C substitutions resulting from bioenergy production*."

[6] Mitchell, S. R., et al. (2012). Carbon debt and carbon sequestration parity in forest bioenergy production. GCB Bioenergy 4(6): 818-827. At http://dx.doi.org/10.1111/j.1757-1707.2012.01173.x.

11. It is important to recognize that at this point of carbon debt repayment, where emissions have been offset and net emissions are "zero," the biomass scenario emissions are **still higher than emissions in the counterfactual scenario** (i.e., total ecosystem storage is lower).[7] In other words, net emissions would be lower if the forest had been allowed to keep growing and the system had continued to generate energy by burning fossil fuels.
12. Most counterfactual modeling scenarios conclude that it requires decades to centuries or more for bioenergy scenarios to achieve net emissions parity with counterfactual scenarios. This is true almost no matter what the counterfactual scenario includes – allowing forests to simply continue growing (as in Figure 1), or, harvesting them and converting the wood into products. Almost every scenario keeps more carbon in ecosystems and/or stored in products than a bioenergy scenario, which by definition is the fastest way to convert forest carbon into ttmospheric carbon.
13. After parity is achieved between the biomass and counterfactual scenarios, assuming that forests continue to grow, cumulative emissions from the bioenergy scenario (emissions minus regrowth) are lower than emissions from the counterfactual scenario. Such scenarios can eventually occur when coal is the fuel in the counterfactual, but not if the counterfactual includes emission-free energy like wind.
14. A number of studies have established that for bioenergy versus fossil fuel scenarios where the forest is allowed to continue growing, parity between the two scenarios is only achieved after 40 to 100 years or longer. The EU's 2016 review of forest biomass sustainability summarized much of this science at the time it was written. It states, "*compared to crops which regrow over short periods, forest biomass is part of a much longer carbon cycle. A forest stand typically takes between decades and a century to reach maturity. Recent studies have found that when greenhouse gas emissions and removals from combustion, decay and plant growth (so-called biogenic emissions from various biological pools) are also taken into account, the use of certain forest biomass feedstocks for energy purposes can lead to substantially reduced or even negative greenhouse gas savings compared to the use of fossil fuels in a given time period (e.g. 20 to 50 years or even up to centuries).*"[8]

UK sustainability criteria do not ensure "low carbon" or "carbon neutral" biomass

15. The main UK sustainability criteria concerning forest carbon balance are set out in the UK's Timber Standard, at S6/S6.e:

    S6. Management of the forest must ensure that productivity of the forest is maintained. In order to achieve this, the policy must include requirements for:

[7] The counterfactual in Figure 6 assumes the forest remains unharvested, the most conservative choice. However, the counterfactual could instead represent carbon storage for a landscape where forests are harvested for other products, only, with no biomass harvesting, for instance continuing the business-as-usual forest management, while the biomass scenario captures the harvesting intensity, and broader forest management approaches, when additional wood is harvested for fuel.

[8] Page 16 at https://eur-lex.europa.eu/resource.html?uri=cellar:1bdc63bd-b7e9-11e6-9e3c-01aa75ed71a1.0001.02/DOC_1&format=PDF

e. harvest levels that do not exceed the long-term production capacity of the forest based on adequate inventory and growth and yield data.

16. There is no provision in these criteria that would ensure biomass is low carbon or carbon neutral. Regarding provision S6(e), whereas harvesting sustainability is usually taken at a minimum to meant that logging should not remove more wood each year than the forest produces (thus allowing stocks to remain at least constant), this provision states that harvest levels should not exceed "long term production capacity" of the forest. This is an even weaker provision than limiting logging removals to an amount less than yearly growth, because unlike the amount of wood grown each year, which can in theory be measured, the "long term production capacity" of the forest is undefined.
17. Under this provision, it is possible to greatly reduce the carbon stock and therefore the carbon sink of a forest, thus increasing the concentration of CO_2 in the atmosphere, and still meet the criteria.
18. Thus, the provision does not protect carbon stocks or sinks. At *best* it would allow stocks to increase in an unknown way, but it also could hold stocks constant (meaning there is no net sink, because the sink manifests when stocks increase), and could also permit loss of the forest carbon stock (resulting in a decline in the sink).

19. Regrowth rates help determine the net carbon impact of biomass. There is a big difference in net system-level carbon flux between burning miscanthus, where the aboveground stock completely regrows within a year of harvest, and burning a tree, where relatively tiny amounts of carbon are sequestered by regrowing seedlings and the forest system continues to be a net source of carbon for years as post-harvest residues, roots, etc., decompose.
20. Further, the fact that the miscanthus can regrow the next year does not make the system "carbon neutral." As explained above, the actual net carbon impact of any biomass system can only be assessed using lifecycle accounting and, critically, modeling the biomass scenario against a counterfactual scenario to determine the net carbon impact of adding or intensifying biomass extraction from an ecosystem. In the case of energy crops, land use change and indirect land use change are extremely important considerations.

BECCS will not deliver negative emissions

21. BECCS plants burning forest biomass can not be "carbon negative" for the same reason that unabated (without CCS) bioenergy plants burning forest biomass are not "carbon neutral" or "zero carbon."
22. At a plant using CCS, if it were possible to capture 100% of the CO_2 coming out the smokestack and store it belowground, this would simply represent the transfer of wood carbon that was previously removed from the atmosphere (decades to even centuries ago) to another non-atmospheric pool (belowground storage). There has been no new "removal" of CO_2 from the atmosphere, thus no "negative" emissions.

23. "Removals" of CO_2 from the atmosphere occur as forests regrow following harvesting. In this way, BECCS blurs the distinction between engineered and natural GGR solutions. The timeframes and uncertainties around removals in planted forests also apply to removals associated with BECCS from forest biomass. The only difference is that the carbon accounting may be somewhat more complex since it is necessary to account for the fate of the carbon lost when the forest was initially harvested for biomass, as well as the carbon sequestered if/when it regrows.
24. The IPCC GHG reporting rules emphasize that moving carbon from pool to pool does **not constitute a new removal**. In its discussion of how to count carbon stored in harvested wood products (HWP), the 2019 refinement to IPCC Guidance[9] states, "*The general term "removals" is defined in the Glossary of the 2006 IPCC Guidelines. In the context of HWP, when referring to CO_2 removals, it may be noted that HWP do not directly sequester carbon from the atmosphere. However, carbon retained in HWP constitutes a pool of carbon that was sequestered originally by the above ground biomass carbon pool of forests and other wood producing land categories. In this respect, the carbon from CO_2 originally sequestered by vegetation is transferred to the HWP pool, similarly to when it is transferred from the above ground biomass carbon pool to the litter and soil carbon pools in the AFOLU sector. The only difference is that transfers of carbon from vegetation to HWP are always the result of anthropogenic activity*."
25. Likewise, tree carbon stored belowground does not represent a "removal." It is necessary to distinguish between the amount of CO_2 stored using CCS, and the amount of CO_2 removed from the atmosphere. **Any protocol that confuses the two and counts the carbon that was stored belowground as a "removal" will hugely overestimate the actual removal.**
26. Further, while capture and storage of 100% of smokestack emissions would reduce the CO_2 entering the atmosphere, it would still not even render bioenergy as having "zero" emissions or as "carbon neutral", because there are large and uncapturable CO_2 emissions (both biogenic and fossil-fuel derived) that are associated with biomass harvesting, processing, and transport ("HPT" emissions):
    a. Decomposition of forestry residues, roots, etc, killed by harvesting
    b. Loss of soil carbon due to disturbance from soil harvesting
    c. Burning wood to dry pellets
    d. Fossil fuel CO_2 associated with biomass HPT
    e. Methane emissions associated with storage and transport of wood chips and pellets (studies have shown that these emissions can be significant).
        i. Bioenergy apologists often claim that on-site decomposition of forestry residues is an important source of methane, and that these emissions can be avoided by gathering this material and burning it for energy. However, this is incorrect and misleading. Methanogenesis requires extremely low to zero oxygen (anaerobic) conditions to occur, and these conditions simply are not common at logging sites.

[9] https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/4_Volume4/19R_V4_Ch12_HarvestedWoodProducts.pdf), page 12.7

ii. Nor do landfilled wood products appear to be a significant source of methane. While data on actual methane emissions are scarce, one study by government researchers found conversion of carbon in landfilled wood to landfill gas (carbon dioxide and methane) is generally less than 3% in total,[10] meaning landfilled wood actually represents significant carbon storage. Similarly low values were found for an Australian study.[11]

iii. However, methane emissions associated with wood chip piles[12] and finished pellets[13] can be significant. Buildup of methane and other hazardous gases during transport and storage[14] is of concern to the wood pellet industry[15], and has the potential to add significantly to lifecycle greenhouse gas emissions.[16]

27. On balance, a large proportion of the forest carbon released by logging forests for biomass is not capturable. Net storage is thus reduced, meaning that even using CCS, bioenergy sourced from forest biomass can not deliver on the claim that is has "zero" emissions – the claim that is currently made for *unabated* bioenergy.

28. The IPCC 2006 Guidelines document sets rules for how to calculate the amount of CO_2 stored belowground with CCS. The approach is designated as a "Tier III" protocol.[17] Chapter 2, Equation 2.7, "Treatment of CO_2 capture," states that for a source category, "s",

---

[10] Micales JA, Skog KE 1997 The decomposition of forest products in landfills International Biodeterioration & Biodegradation 39(2):145-58. https://web.archive.org/web/20230609081834/https://www.fpl.fs.usda.gov/documnts/pdf1997/mical97a.pdf

[11] Ximenes, F., et al. (2008). The Decomposition of Wood Products in Landfills in Sydney, Australia. Waste management (New York, N.Y.) 28: 2344-2354. https://www.researchgate.net/publication/5672388_The_Decomposition_of_Wood_Products_in_Landfills_in_Sydney_Australia

[12] PCFplus Research 2002 Methane and Nitrous Oxide Emissions from Biomass Waste Stockpiles – Final Report Washington DC. https://web.archive.org/web/20120417070746/https://wbcarbonfinance.org/docs/CH4_emissions_from_woodwaste_stockpiles.pdf

[13] Röder M, Whittaker C, Thornley P 2015 How certain are greenhouse gas reductions from bioenergy? Life cycle assessment and uncertainty analysis of wood pellet-to-electricity supply chains from forest residues Biomass and Bioenergy 79:50-63. http://dx.doi.org/10.1016/j.biombioe.2015.03.030 ; **also**, Kuang, X., et al. 2008. "Characterization and Kinetics Study of Off-Gas Emissions from Stored Wood Pellets." Annals of Occupational Hygiene 52: 675-683, https://pubmed.ncbi.nlm.nih.gov/18714087/ **also** Yazdanpanah, F., et al. 2014. Measurement of Off-Gases in Wood Pellet Storage. Advances in Gas Chromatography. X. Guo. Rijeka, InTech. https://www.intechopen.com/chapters/46210

[14] Svedberg, U., et al. (2008). Hazardous Off-Gassing of Carbon Monoxide and Oxygen Depletion during Ocean Transportation of Wood Pellets. Annals of Occupational Hygiene 52(4): 259-266. At http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2413103/

[15] Melin S 2008 Safety in handling wood pellets. Summary of the proceedings of BioEnergy Conference and Exhibition 2008 https://web.archive.org/web/20200212192758/http://bioeconomyconference.com/wp-content/uploads/2015/10/2008_Proceedings.pdf

[16] Röder M, Whittaker C, Thornley P 2015 How certain are greenhouse gas reductions from bioenergy? Life cycle assessment and uncertainty analysis of wood pellet-to-electricity supply chains from forest residues Biomass and Bioenergy 79:50-63. http://dx.doi.org/10.1016/j.biombioe.2015.03.030

[17] For "normal" methodologies there are three tiers (I, II and III). Tier I uses IPCC default values (like emission factors) included in the Guidelines. Tier II uses essentially the same calculation methodology but employs nationally derived emission factors

$Emissions_s = Production_s - Capture_s$

EQUATION 2.7
TREATMENT OF CO_2 CAPTURE

$$Emissions_s = \Pr oduction_s - Capture_s$$

Where:

s = source category or subcategory where capture takes place

Captures	= Amount captured.
Productions	= Estimated emissions, using these guidelines assuming no capture
$Emissions_s$	= Reported emission for the source category or sub-category

29. By simply counting biomass emissions as zero in the energy sector, and ignoring the carbon loss in the land sector, this equation will conclude that BECCS has negative emissions. This is incorrect.
30. However, when there is a complete accounting of the GHG emissions and land sector emissions are fully included, the convention of counting forest biomass in the energy sector as having zero emissions is not a problem. For an example where the biomass is harvested and burned in the same country, viewing equation 2.7 in light of national all-sector reporting, the "production" term would be zero, the "capture" term would be non-zero, thus the resulting emissions would be "negative" *in the energy sector* – but over in the land sector, the loss of carbon from logging the trees burned for energy would be counted as an emission. Summing the "negative" energy sector emissions calculated under equation 2.7 with the logging emissions counted in the land sector thus produces a net impact at the whole system level of **zero *at best* – not "negative" emissions**.
31. "At best" because emissions from **BECCS will only be zero if production and capture of GHG's are equivalent** – in other words, if CCS captures 100% of the CO_2 that was produced in the land sector by logging the biomass. As discussed above, in practical terms this would require that the *only* carbon lost from the land sector due to logging is carbon embodied in wood removed from the forest (this never occurs – e.g., there is soil carbon loss from disturbance), *and* 100% of that wood is burned with no loss, *and* 100% of the CO_2 emissions from burning that wood is captured by CCS. In this case, the production and capture terms in equation 2.7 would be equivalent, making emissions zero. In all real cases, emissions would be positive.

(these are supposed to be better, more appropriate). Tier III does not use IPCC methods, but bespoke approaches, like process-based modelling, direct measurement of individual operations, etc. No common methodologies are available, just principles on how to document and use them (so that they can be reviewed). The text says that such individual methods must be used, as there are no standard (default) methodologies and emission factors for this. To have such methodologies, there needs to be sufficient evidence (known practices and a lot of literature), but that does not exist for CCS. We also don't have it for a number of other things (like biochar).

32. It is nonsensical to act as if land sector emissions do not count if they occur in another country, which is how the UK's policies are currently configured. Carbon dioxide is a global pollutant and a loss of land sector carbon stocks in any country affects the global carbon balance.

The UK does not "own" forest carbon imported from other countries

33. It's clear that BECCS using forest biomass as feedstock will not deliver "negative" emissions, and that claims it does so confuse CO_2 *belowground storage* with CO_2 *atmospheric removals*.
34. Critically, even regarding the dubious benefit of belowground storage, the IPCC has not yet convened to develop a methodology for determining ownership of CO_2 storage associated with BECCS. This process is being initiated in autumn of 2024 and will be completed at the earliest in 2026.
35. Challenges associated with accounting for ownership of carbon stocks and removals are examined in the following example.
36. As discussed above, the majority of the carbon in a tree has already been captured and removed from the atmosphere, and represents the carbon stock. New carbon uptake in a given year constitutes only relatively small proportion of total carbon in a mature tree. Thus, the act of burning a tree and storing the CO_2 belowground using BECCS simply represents a **transfer** of carbon from one non-atmospheric pool (the tree) to another non-atmospheric pool (geological storage). **This transfer in no way constitutes "negative" emissions/removal of CO_2 from the atmosphere.** In fact, cutting the tree actually reduces the amount of CO_2 being taken out of the atmosphere, because that tree's future carbon storage capacity has now been terminated. The small seedling that may grow back in its place will not be able to provide the same amount of carbon uptake from the atmosphere for a long time, and perhaps never.
37. An example using Drax's operations serves to illustrate the fallacy of "negative" emissions using forest biomass. Drax owns and operates wood pellet manufacturing operations in the US and Canada, as well as its electricity generating station in Yorkshire. Some British Columbian trees burned by Drax in the UK can easily be older than the province as we know it. Claiming their cumulative removals as current GHG removal cannot reasonably be based on a narrative that these trees were grown from the outset to remove C in and for the UK in the 2020s to reduce climate change. But the same applies to plantations established for the paper industry 50 yrs ago: none of that was for the UK to claim.
38. It is clear that when the forest grows, the resulting removals (i.e., increase of carbon stock in the forest) is "owned" by the US or Canada. It is reported and claimed by those countries in their emissions reporting to the UNFCCC, and may allow those countries to emit more fossil fuel CO_2.
39. It is also clear that once the forest is logged, if the wood were burned and its C stored using CCS in the UK, the same removals would be claimed by the UK as theirs, and theirs only (as a "removal" happening in the year of CCS)
40. This raises a question: exactly what element of the intervening chain of events would trigger the transfer of right/ownership/claim from the US/Canada to the UK?

41. The growth of the forest in the US/Canada was a real, physical removal of C from the atmosphere (although it may or may not have been "anthropogenic"), taking place over an extended period of time (many decades if we just consider the trees cut, but possibly millennia if we consider the age of the "forest", since the time of the last glacial period).
42. Whatever the period, the cumulative C removal over this long period in North America is claimed by the UK at the moment that it is stored using CCS. But what makes this possible? Exploring the following possibilities demonstrates the difficulties:
    a. Assume that Drax does not buy the harvested wood, but buys the forest (in its entirety, with standing timber). Could Drax (or the UK) claim the carbon in the standing trees as their own "removals" or "negative emissions", just because all that carbon has been removed from the atmosphere, and they now own it? This is doubtful. Even by the "standards" of the voluntary carbon markets, just owning a stock of C would not entitle one to claim the past removals that created that stock. Thus if Drax bought all that carbon removed from the atmosphere, they would not be able to claim any of it as a "removal" belonging to the company.
    b. Assume Drax harvests that wood and ships it as logs to the UK, where it is piled up in a heap. The C is now physically in the UK, but could the UK claim the "removals", just by transferring tons of wood (and having caused a corresponding reduction in the North American C stock)? It's unlikely. Under some interpretations of HWP accounting it could be claimed, but it is not straightforward and would not result in net removals. E.g., if both the US and UK follow the production approach for HWP reporting to the UNFCCC, then the US could use the C in the stockpile to reduce the debit it took after the harvest of the forest itself (so part of the accounted emissions would be delayed as long as the C is in the stockpile, and the US would continue to "own" this benefit under the production approach). But this would not result in any removal: The US would only count lower emissions than would be the case if the wood had been "lost" (perhaps burned, or just unaccounted for). And even that relative benefit (emissions reduced compared to instantaneous oxidation) would accrue to the US (as producer), not the UK. The math would be different under other HWP approaches, but the essence remains that there would be no net "removal" anywhere. Just sitting on a stockpile of imported wood would hardly be claimable as "negative emissions", even if in accounting terms it is deductible from the harvest emissions the US has to report.
    c. Assume after importing the stockpile, Drax then burns it, causing emissions. Again, no claims on "removals" can be made by anyone. Drax/UK don't count the emissions because the US has counted them (or so they assume), but no "removals" have occurred.
    d. Assume Drax then store the CO2 using CCS (instead of releasing it as they would). Under the current approach laid out in the consultation, which uncritically accepts BECCS as delivering "negative emissions," all of sudden "removals" appear in the UK.
43. It appears that owning the trees (with all the carbon intact) is not sufficient to claim any C benefit (let alone "negative emissions"). Even killing them and taking them to the UK is not

enough to make it claimable. The company needs to burn them. Unless the company does this, they don't represent anything.

44. Drax and the UK government are misrepresenting the climate benefits of BECCS fueled with forest wood. Using CCS to store forest carbon that was removed from the atmosphere in past decades or centuries is not the same as removing new CO_2 from the atmosphere, but this is what is required by the climate models to balance the carbon accounts. Policymakers must come to grips with this basic "carbon math" before it is too late.