IEA Bioenergy

# Response to Chatham House report "Woody Biomass for Power and Heat: Impacts on the Global Climate"

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13 March 2017

A recent report published by Chatham House addresses three issues related to the use of woody biomass for energy: climate effects and carbon neutrality, greenhouse gas accounting, and sustainability criteria. Particular attention is placed on the use of wood pellets produced in Southeast United States (SE US) to supply power in Europe, which in 2014 comprised about 2% of total harvest removals in the SE US, less than 1% of total US forestry products by weight and less than 0.5% of total US forest products export value. About 95% of EU energy wood consumption is currently based on domestic raw material and less than 2% is based on wood pellets imported from the US.

**As described in the supporting document to this brief**, the report presents a misleading description of bioenergy, focusing on extreme cases that do not represent current practice. Some statements contrast sharply with the current state of understanding informed by climate science, integrated modelling and forestry disciplines. The report fails to acknowledge the benefits bioenergy can provide in supporting urgently-needed energy system transition to reduce reliance on fossil fuels in order to meet climate targets. We disagree with several of the conclusions and recommendations in the report.

Concerning **climate effects and carbon neutrality**, we identify several flaws in the report:

- ***Misplaced focus on emissions at the point of combustion***
  It is critical to distinguish between release of $CO_2$ that has been locked up for millions of years and the cycling of carbon between the atmosphere and the biosphere. The report blurs this distinction between fossil carbon and biogenic carbon, which is misleading.
- ***Inaccurate interpretation of impact of harvest on forest carbon stock***
  The large fluctuations observed at the stand level, from net carbon sequestration to net carbon emissions at harvest, are not observed at the landscape level due to staggered harvest, which delivers a constant supply of timber while maintaining or increasing wood volume in the forest. Impacts of bioenergy on forest carbon stock should be assessed as impact on long-term average forest carbon stocks at a landscape scale.
- ***Unrealistic counterfactual scenario***
  When the impacts of bioenergy are quantified by comparing with a reference "no-bioenergy" scenario that describes the fate of residues and forests in the absence of the

bioenergy market, the definition of this reference scenario has a strong influence on the outcome. In most cases, it is implausible to suggest that the forest would remain unharvested and continue to grow if no biomass was used for bioenergy.

- ***Misguided focus on short-term carbon balances***
  It is the cumulative emissions of $CO_2$ that largely determine global warming by the late 21st century and beyond. The critical question is whether increasing use of forest biomass for energy leads to systematic decreases or increases in the forest carbon stocks.
- ***Overstated climate change mitigation value of unharvested forests***
  The climate change mitigation value of forests sustainably managed for production of timber and bioenergy is greater than the mitigation value of unharvested forests, which have declining mitigation value over time because carbon sequestration rate diminishes as forests approach maturity.

Carbon neutrality is an ambiguous concept, and its debate distracts from the broader and much more important question of how forests and associated industries can contribute to climate change mitigation through carbon sequestration, storage, and biomass production, while also serving many other functions.

With regard to ***bioenergy and forest products markets and systems***, we point out the following errors:

- ***Misleading assertion on biomass feedstocks used for bioenergy***
  Bioenergy feedstocks mainly consist of byproducts from sawnwood and pulp and paper production, and small diameter trees and residues from silvicultural treatments (e.g., thinnings) and final felling. Concerning the SE US, note that biomass for pellets comprised about 2% of total harvest removals in 2014.
- ***Dismissal of impacts of bioenergy markets on forest management***
  Emerging bioenergy markets, and the outlook for other forest product markets, influence decisions of forest managers. A market for bioenergy can prompt landowners to plant more trees and invest in forest management to enhance health and productivity of the forest, which in turn influences the forest carbon stocks.
- ***Failure to identify the benefits of bioenergy in supporting energy system transition***
  The report largely overlooks the role bioenergy can play in supporting the urgently-needed energy system transition, including provision of grid stability to facilitate expansion of intermittent and seasonal wind and solar resources. It neglects the important question of how uptake of bioenergy influences investment in fossil fuel-based technologies and infrastructure, which has implications for future carbon emissions. This is a serious shortcoming, as it is essential to consider the effects on the current and future energy system when developing energy and climate policy.

With respect to **GHG accounting for bioenergy**, the report notes weaknesses in the current approach and its implementation. The report makes recommendations to overcome these weaknesses, including improved transparency and coverage in land-sector accounting, with which we agree. However, ***we strongly object to the final "last resort" recommendation*** "...*to account for carbon dioxide emissions from biomass burned for energy within the energy sector, with additional rules to avoid double-counting in the land-use sector."* This would entail significant disruption to the established GHG accounting framework and create a disproportionate disincentive for all bioenergy options, including those known to provide large climate benefits.

Concerning ***sustainability criteria***, the report fails to acknowledge

- that forest bioenergy is not a single entity but includes a large variety of sources and qualities, conversion technologies, end products and markets. Forest bioenergy systems are often components in value chains or production processes that also produce material products, such as sawnwood, pulp, paper, and chemicals.
- that the current legally-binding sustainability criteria for the use of wood pellets, for example in the UK and Netherlands, go far beyond any voluntary sustainable forest management scheme or any requirement for wood products (which only have to meet compliance with local and international laws).
- that it is unreasonable to expect that sustainability criteria and certification schemes applied to a single product category can guarantee the maintenance of forest carbon stocks on a landscape level.

The report recommends that the GHG assessment be underpinned by life cycle analysis that includes changes in forest carbon stock as well as supply-chain emissions. We agree that these aspects should be included in the assessment of climate change effects of bioenergy. As discussed above, it is appropriate that forest carbon stock change is quantified at the scale at which it is managed, that is, at the landscape scale. Furthermore, we note the need for application of comparable assessment approaches to all energy sources and, ideally, to all land uses.

In the report's general conclusion, it is proposed that *"Sustainability criteria should be used to restrict support to mill residues that are produced from legal and sustainable sources". **We strongly disagree with this recommendation***. The impact of bioenergy implementation on net GHG emission savings is context- and feedstock-specific as many important factors vary across regions and time. The promotion of forestry and of forest bioenergy needs to reflect the variety of ways that forests and forest-related sectors contribute to climate change mitigation. A generic categorization system that specifies only some forest biomass types as eligible bioenergy feedstocks prevents the effective management of forest resources to economically meet multiple objectives, including climate change mitigation.

In summary, the Chatham house report does not present an objective overview of the current state of scientific understanding with respect to the climate effects of bioenergy. The major conclusions and policy-specific recommendations are based on unsubstantiated claims and flawed arguments. We urge Chatham House to reconsider their recommendations and engage in a more thoughtful and substantive discussion on bioenergy and climate change mitigation.

Support for bioenergy should be based on objective assessment of bioenergy options based on their specific features and context. Bioenergy policies should facilitate the use of sustainably-sourced biomass, allowing the global potential for bioenergy to be realized in synergy with other renewable energy sources. Sustainability safeguards must be implemented in concert, to ensure that climate change mitigation and other benefits are delivered and that tradeoffs are minimized.