

**Biomass Task Group
Findings, Recommendations and Rationales
22 November 2022**

**DRAFT
FOR DISCUSSION PURPOSES ONLY
Not a Product of the WG at this Time**

The Biomass Task Group met for over eight months to learn about, discuss, debate, and develop recommendations regarding primarily the use of wood biomass for electricity production in Vermont. The full scope of the task group also included considerations related to wood procurement for electricity generation, and some of the broader implications for thermal applications. The group heard presentations and reviewed additional papers from over a dozen experts in forestry, biomass, carbon accounting, public health, and air quality. We sought advice from experts here in Vermont as well as in the U.S. and Canada broadly. An engaged public attended almost all meetings. There was at times vigorous debate, hard questions, and complicated issues to ponder, to understand, and to consider. The group was comprised of members from the Cross-Sector Mitigation, Agriculture and Ecosystems, Science and Data, and Just Transitions Subcommittees.¹ The Vermont Climate Council's Subcommittees and members held a wide range of views on this topic.

The group learned that analyzing biomass for electricity production and GHG emissions involves considering multiple factors. Rather than a single issue, the use of biomass for electricity production is a story about our electricity sources, public health, air quality, timescales, geographic scale of analysis, wood feedstock, international standards of CO₂ accounting,² land uses and forests, economy, tradition, communities forced to live on the margins, and carbon inputs into the atmosphere.

The group learned that comparing electricity production from burning biomass to other forms of electricity production is dependent on several choices and assumptions as to the

¹ Members of Task Group from the respective Subcommittees include Liz Miller and Adam Sherman for Cross-Sector Mitigation, Megan O'Toole and Richard Hopkins for Science and Data, Chase Whiting for Just Transitions and Billy Coster, Judy Dow, and Charlie Hancock for Agriculture and Ecosystems.

² "Carbon dioxide (CO₂) emissions from the combustion of biomass or biomass-based products are captured within the CO₂ emissions in the AFOLU (Agriculture, Forestry and Other Land Uses) 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). This approach to estimate and report all CO₂ emissions from biomass or biomass-based products in the AFOLU sector was introduced in the first IPCC guidelines for national greenhouse gas emissions (IPCC 1995), reflecting close linkages with data on biomass harvesting, and for the pragmatic reason to avoid double counting." https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/2_Volume2/19R_V2_2_Ch02_Stationary_Combustion.pdf

counterfactual or “as compared to what.” Comparisons relevant to biomass in the electricity sector, for example, should include questions such as: which energy source is biomass displacing, avoiding, or discouraging from being developed (*e.g.*, coal, oil, natural gas, wind, solar, hydro); what co-pollutants are associated with those energies; what wood feedstock is being used to power the biomass facility; what additional “upstream” emissions are associated with that feedstock; and what timescale are we using to measure greenhouse gas emissions from that facility.

Timescales are especially important because achieving GHG emissions reductions in line with Vermont’s Global Warming Solutions Act (GWSA) will require significant reductions in the short-term. Questions pertaining to the “land use side of the ledger” include: what happens to forests, carbon storage, and forest management if wood biomass is removed; what would happen to forests, carbon storage, and forest management if wood biomass is not removed; actual and potential future land uses given various levels and methods of removal and post-removal forest management; what would be the disposition of residual wood (remain in the forest to decay slowly, provide habitat, but also release carbon slowly or be sold in other states’ or countries’ biomass fuel markets); what are the various GHG benefits and co-benefits of forests and forest management if biomass is not used for fuel; and what are the policy tools to affect land use given some 85% of the state’s forestland is in private hands.

We also learned that, apart from GHG emissions, the use of biomass for electricity generation has impacts on air quality, public health, quality of life, and cultural resources for those near the fence line of these facilities. The rich level of material the group drew from along with presentations from presenters across a host of disciplines and perspectives is available on the Vermont Climate Council Biomass Task Group webpage.

The Biomass Task Group is pleased to share the following recommendations to the Vermont Climate Council and understands that should they be agreed to by the Council, these recommendations will become part of the state’s Climate Plan.