

# Recommendations Regarding the Use of Biomass for Electricity Generation in Vermont Adopted by the Vermont Climate Council

FINAL VERSION  
December 2023

The Vermont Climate Council formed a Biomass Task Group in 2022 to develop recommendations regarding the use of biomass for electricity generation in Vermont. The Council reviewed the recommendations in April 2023 and raised several concerns. This document represents a revised set of recommendations that seeks to address those concerns.

The [15 presenters](#)<sup>1</sup> who spoke with the Biomass Task Group demonstrated the complexity of this issue, which impacts the forestry sector, Vermont's electricity generation and carbon emissions, communities that rely on the forestry economy, people who live near biomass plants, and Tribal communities that may see their cultural heritage impacted. The Task Group also heard that wood energy biomass harvesting in Vermont must meet responsible forest use standards.<sup>2</sup>

The presentations to the Task group provided information about the carbon profile of biomass electricity generation, the role of biomass facilities in supporting forestry-based economies, and the role biomass plays in Vermont's electricity portfolio, as well as health studies related to air quality impacts from burning wood.

The recommendations below are primarily oriented towards gathering additional information that will help Vermont make wise decisions on this complex issue. As a starting place, the Council recognizes that electricity from biomass can have positive and negative implications for Vermont. For instance:

Examples of benefits to Vermont<sup>3</sup>:

1. Generates one of Vermont's few local sources of electricity that provides reliable, non-fossil, affordable, non-intermittent power, supporting grid stability.
2. Supports jobs in forestry, logging, trucking and at biomass plants, which circulates economic activity in the local economy.
3. Provides income to landowners that may in some cases allow the landowners to maintain the forested land as forest.

---

<sup>1</sup> <https://docs.google.com/document/d/13htG-9UvNcOL7ePMB6faPFLpeHiSKWvZ/edit?usp=sharing&oid=102815267945022977952&rtpof=true&sd=true>

<sup>2</sup> Specific requirements can be found in the Certificates of Public Good for each facility and in the Biomass Renewable Energy Standard: [https://fpr.vermont.gov/sites/fpr/files/doc\\_library/Biomass%20RES\\_Final\\_Clean.pdf](https://fpr.vermont.gov/sites/fpr/files/doc_library/Biomass%20RES_Final_Clean.pdf)

<sup>3</sup> The examples of benefits and harms reflect input to the Biomass Task Group.

4. May potentially have opportunities to reduce greenhouse gas emissions through the capture of waste heat.

Examples of harms to Vermont:

1. At the point of generation, electric-led biomass emits CO<sub>2</sub> in quantities comparable to fossil fuels.<sup>4</sup>
2. Emits particulate matter, creating potential health impacts for people living near biomass plants.
3. May have a negative impact on forest ecosystems through the removal of trees, treetops & branches.
4. May damage the culture and heritage of Tribal communities through actions such as siting decisions.

The Council urges Vermont to weigh these benefits and harms carefully and think creatively about how to address them. The Council therefore recommends:

1. The State should conduct an evidence-based study, which includes inputs from Traditional Ecological Knowledge, focused on at least the following components:
  - What would be the implications for greenhouse gas reductions if existing electricity-generating biomass facilities were phased out?
    - What would be the likely source(s) of electricity that would provide a similar electricity profile to today's biomass generation? Today, Vermont has two biomass electricity generation facilities that provide "baseload" (around the clock) power to the grid: the 50 MW McNeil generation facility and the 20 MW Ryegate facility. Together, electricity generated from these facilities makes up approximately 7% of Vermont's current total electricity use, while the Renewable Energy Credits associated with the generation are sold out of state.<sup>5</sup>
    - How will these different pathways affect Vermont's 2025, 2030, and 2050 GWSA greenhouse gas emission reduction requirements? How would they impact New England's carbon emissions?
    - If Vermont phased out its biomass facilities, how much of the current harvest would likely be continued to be harvested and used in other biomass facilities?
    - What are the various standards and practices for accounting for biomass emissions? How would different approaches affect the recommendations that result from this study?

---

<sup>4</sup> The Biomass Task Group received presentations on the estimated emissions from burning biomass for electricity, which can be found here: <https://docs.google.com/document/d/13htG-9UvNcOL7ePMB6faPFLpeHiSKWvZ/edit?usp=sharing&oid=102815267945022977952&rtpof=true&sd=true>

<sup>5</sup> Information provided by the Public Service Department in November 2023

- What would be the implications on electricity costs if existing biomass facilities were phased out?
- What would be the impact on Vermont's electricity resilience if existing biomass facilities were phased out?
  - Would the state find itself relying more on imported energy sources rather than local fuel sources?
  - Would Vermont face new or different risks to electricity resilience?
- What would be the economic implications of phasing out the existing facilities, including on rural areas of Vermont where the forest economy is an important economic driver?
  - How many jobs would be affected?
  - What might a transition look like for impacted people and communities currently working in forestry/logging/biomass generation? What jobs might replace any lost employment?
  - What actions would Vermont need to take to ensure landowners continue to manage their land as forestland and achieve goals such as limiting fragmentation and deforestation across the state?
    - In the event there is no market for biomass for electric generation in Vermont, what changes if any would be necessary to keep the Current Use program in place and viable for forest landowners participating in the program?
- Can we better understand the impacts on health and cultural resources today, and how these issues would change if biomass facilities were phased out?
  - What are the current impacts to public health (from particulate matter) and quality of life and cultural resources near existing biomass electricity facilities?
    - How can these impacts be assessed and quantified? For instance, through targeted air monitoring and public health studies?
    - Related to this work, engagement with potentially impacted communities should be conducted in a respectful, consistent, and ongoing manner.
  - If we successfully reduce harms to Vermont, are we exporting those same harms to other communities?
- What would be the implications for forest health and resilience to a changing climate if Vermont's biomass facilities are phased out?
  - What would be the positive or negative impacts? In doing this analysis, use an ecosystem, systems-based approach to forest health and resilience, such as protecting soil health, erosion and resilience to flooding.
  - Might there be reduced incentives for active forest management that promotes biodiversity?
- What are the alternatives for making existing biomass facilities more efficient, for instance by using waste heat, and how do those alternatives compare to phasing out the facilities?

- What are the emissions implications for different heating scenarios in the areas that could be supported by district heat?
  - What are other ways to increase the efficiency of existing biomass facilities and their emissions implications?
2. The Council recommends that the Public Utilities Commission be directed to evaluate the role of biomass based on the results of the study described above. If the PUC is reviewing possible electric-led biomass facilities while the study is being conducted, it should review and address the issues described above in this document.

Finally, the Council encourages the legislature and administration to allocate the necessary resources to implement these recommendations, which are a high priority for the Council.