

## Final Proposed Filing - Coversheet

### Instructions:

In accordance with Title 3 Chapter 25 of the Vermont Statutes Annotated and the “Rule on Rulemaking” adopted by the Office of the Secretary of State, this filing will be considered complete upon filing and acceptance of these forms with the Office of the Secretary of State, and the Legislative Committee on Administrative Rules.

All forms shall be submitted at the Office of the Secretary of State, no later than 3:30 pm on the last scheduled day of the work week.

The data provided in text areas of these forms will be used to generate a notice of rulemaking in the portal of “Proposed Rule Postings” online, and the newspapers of record if the rule is marked for publication. Publication of notices will be charged back to the promulgating agency.

**PLEASE REMOVE ANY COVERSHEET OR FORM NOT  
REQUIRED WITH THE CURRENT FILING BEFORE DELIVERY!**

**Certification Statement:** As the adopting Authority of this rule (see 3 V.S.A. § 801 (b) (11) for a definition), I approve the contents of this filing entitled:

**Biomass Renewable Energy Standard**

/s/ Julia S. Moore

(signature)

, on 12/17/2021

(date)

Printed Name and Title:

Secretary Julia S. Moore, Agency of Natural Resources

RECEIVED BY: \_\_\_\_\_

- Coversheet
- Adopting Page
- Economic Impact Analysis
- Environmental Impact Analysis
- Strategy for Maximizing Public Input
- Scientific Information Statement (if applicable)
- Incorporated by Reference Statement (if applicable)
- Clean text of the rule (Amended text without annotation)
- Annotated text (Clearly marking changes from previous rule)
- ICAR Minutes
- Copy of Comments
- Responsiveness Summary

1. TITLE OF RULE FILING:

**Biomass Renewable Energy Standard**

2. PROPOSED NUMBER ASSIGNED BY THE SECRETARY OF STATE

21P018

3. ADOPTING AGENCY:

Agency of Natural Resources; Department of Forests,  
Parks and Recreation

4. PRIMARY CONTACT PERSON:

*(A PERSON WHO IS ABLE TO ANSWER QUESTIONS ABOUT THE CONTENT OF THE RULE).*

Name: Emma Hanson

Agency: Agency of Natural Resources; Department of  
Forests, Parks and Recreation

Mailing Address: 1 National Life Drive, Davis 2  
Montpelier, VT 05620-3801

Telephone: (802) 622-4187 Fax:

E-Mail: Emma.Hanson@vermont.gov

Web URL *(WHERE THE RULE WILL BE POSTED)*:

<http://anr.vermont.gov/forests-parks-rec>

5. SECONDARY CONTACT PERSON:

*(A SPECIFIC PERSON FROM WHOM COPIES OF FILINGS MAY BE REQUESTED OR WHO MAY ANSWER QUESTIONS ABOUT FORMS SUBMITTED FOR FILING IF DIFFERENT FROM THE PRIMARY CONTACT PERSON).*

Name: Meghan Purvee

Agency: Agency of Natural Resources; Department of  
Forests, Parks and Recreation

Mailing Address: 1 National Life Drive, Davis 2  
Montpelier, VT 05620-3801

Telephone: (802) 279-7870 Fax:

E-Mail: Meghan.Purvee@vermont.gov

6. RECORDS EXEMPTION INCLUDED WITHIN RULE:

*(DOES THE RULE CONTAIN ANY PROVISION DESIGNATING INFORMATION AS CONFIDENTIAL; LIMITING ITS PUBLIC RELEASE; OR OTHERWISE, EXEMPTING IT FROM INSPECTION AND COPYING?)* No

IF YES, CITE THE STATUTORY AUTHORITY FOR THE EXEMPTION:

PLEASE SUMMARIZE THE REASON FOR THE EXEMPTION:

**7. LEGAL AUTHORITY / ENABLING LEGISLATION:**

*(THE SPECIFIC STATUTORY OR LEGAL CITATION FROM SESSION LAW INDICATING WHO THE ADOPTING ENTITY IS AND THUS WHO THE SIGNATORY SHOULD BE. THIS SHOULD BE A SPECIFIC CITATION NOT A CHAPTER CITATION).*

10 V.S.A. §2751, 3 V.S.A. §801(11) and 3 V.S.A. §2853(5) and 30 V.S.A. §8005(c)(2).

**8. EXPLANATION OF HOW THE RULE IS WITHIN THE AUTHORITY OF THE AGENCY:**

The Department of Forests, Parks and Recreation is required to adopt this rule and establish renewability standards for forest products used to generate energy and to promote the sustainable use of forest resources and to ensure long-term forest health and sustainability through harvesting and procurement of biomass pursuant to Act 56 of 2015.

**9. THE FILING HAS CHANGED SINCE THE FILING OF THE PROPOSED RULE.**

**10. THE AGENCY HAS INCLUDED WITH THIS FILING A LETTER EXPLAINING IN DETAIL WHAT CHANGES WERE MADE, CITING CHAPTER AND SECTION WHERE APPLICABLE.**

**11. SUBSTANTIAL ARGUMENTS AND CONSIDERATIONS WERE NOT RAISED FOR OR AGAINST THE ORIGINAL PROPOSAL.**

**12. THE AGENCY HAS INCLUDED COPIES OF ALL WRITTEN SUBMISSIONS AND SYNOPSES OF ORAL COMMENTS RECEIVED.**

**13. THE AGENCY HAS INCLUDED A LETTER EXPLAINING IN DETAIL THE REASONS FOR THE AGENCY'S DECISION TO REJECT OR ADOPT THEM.**

**14. CONCISE SUMMARY (150 WORDS OR LESS):**

Act 56 amended Chapter 87 of Title 10 of the Vermont Statutes Annotated to add a new section 2751, which requires the Commissioner of the Department of Forests, Parks and Recreation to adopt rules that establish renewable energy standards for forest products used to generate energy by distributed renewable generation and energy transformation projects within the Renewable Energy Standard. 10 V.S.A. §2751. This rule establishes biomass renewability standards by setting minimum efficiency standards for Tier III Energy Transformation projects, and sets forester certified standards based on the forest land category of the Use

Value Appraisal (UVA) program for material used in Tier II Distributed Renewable Energy projects.

**15. EXPLANATION OF WHY THE RULE IS NECESSARY:**

Act No. 56 of the Acts of 2015 established a Renewable Energy Standard and Energy Transformation Program for electric utilities in the State of Vermont which specifically includes biomass to produce electricity. 10 V.S.A. §2751.

**16. EXPLANATION OF HOW THE RULE IS NOT ARBITRARY:**

This rule utilizes existing standards established by the EPA and Vermont's UVA program and applies them to this topic.

**17. LIST OF PEOPLE, ENTERPRISES AND GOVERNMENT ENTITIES AFFECTED BY THIS RULE:**

VT Agency of Natural Resources; Department of Forests, Parks & Recreation; Public Service Department; loggers; foresters; public utilities; and others involved with development of Tier II or Tier III projects.

**18. BRIEF SUMMARY OF ECONOMIC IMPACT (150 WORDS OR LESS):**

The economic impact of this rule will be minimal. Any limited additional expenditure necessitated by the rule will be offset by the incentives made available via Tier II and Tier III.

**19. A HEARING WAS HELD.**

**20. HEARING INFORMATION**

(THE FIRST HEARING SHALL BE NO SOONER THAN 30 DAYS FOLLOWING THE POSTING OF NOTICES ONLINE).

IF THIS FORM IS INSUFFICIENT TO LIST THE INFORMATION FOR EACH HEARING, PLEASE ATTACH A SEPARATE SHEET TO COMPLETE THE HEARING INFORMATION.

Date: 7/16/2021

Time: 10:00 AM

Street Address: Teams - Online, and in person at the ANR Annex - 190 Junction Rd, Berlin

Zip Code: 05602

Date: 7/23/2021

Time: 01:00 PM

Street Address: Teams - Online, and in person at FPR Essex  
District Office - 111 West Street, Essex Junction  
Zip Code: 05452

Date:  
Time: AM  
Street Address:  
Zip Code:

Date:  
Time: AM  
Street Address:  
Zip Code:

21. DEADLINE FOR COMMENT (NO EARLIER THAN 7 DAYS FOLLOWING LAST HEARING):  
7/30/2021

KEYWORDS (PLEASE PROVIDE AT LEAST 3 KEYWORDS OR PHRASES TO AID IN THE  
SEARCHABILITY OF THE RULE NOTICE ONLINE).

Biomass  
Renewable  
Distributed Generation



**State of Vermont**  
**Department of Forests, Parks & Recreation**  
1 National Life Drive, Davis 2  
Montpelier, VT 05620-3801  
[www.fpr.vermont.gov](http://www.fpr.vermont.gov)

[phone] 802-828-1531  
[fax] 802-828-1250

*Agency of Natural Resources*

December 17, 2021

Secretary Jim Condos  
Office of the Vermont Secretary of State  
128 State Street  
Montpelier, VT 05633

Sen. Mark A. MacDonald, Chair  
Legislative Committee on Administrative Rules

Dear Secretary Condos and Sen. MacDonald:

Enclosed herewith is the Final Proposed Rule for the Biomass Renewable Energy Standard (21P018). Changes recommended by the Interagency Committee on Administrative Rules have been incorporated (see attached memo from ICAR).

Act No. 56 of the Acts of 2015 established a Renewable Energy Standard and Energy Transformation Program for electric utilities in the State of Vermont which specifically includes biomass to produce electricity. Act 56 amended Chapter 87 of Title 10 of the Vermont Statutes Annotated to add a new section 2751, which requires the Commissioner of the Department of Forests, Parks and Recreation to adopt rules that establish renewability standards for forest products used to generate energy by distributed renewable generation and energy transformation projects within the Renewable Energy Standard. The proposed rule utilizes existing standards established by the Environmental Protection Agency and Vermont's Use Value Appraisal program and applies them to this topic. Therefore, the proposed Final Rule is within the Agency's authority and is not arbitrary.

The purpose of this proposed rule is to ensure long-term forest health and sustainability; the carbon impact of biomass energy is outside of its scope.

Two public hearings were held on July 16 and 23, 2021 and a public comment period ran from June 9, 2021 to July 30, 2021. The second public hearing was added after receiving public feedback that there were technical difficulties at the first hearing, and the public comment period was extended accordingly. These efforts maximized the opportunity for public input.

The economic and environmental impact analyses were deemed sufficient and were not changed. Two changes were made to the proposed Biomass Renewable Energy Standard rule (21P018) in response to feedback received during the public comment period. The changes are as follows:



- Section 6.2
  - We added the successful receipt of a permit to construct from the Vermont Air Quality & Climate Division of the Department of Environmental Conservation as an alternative pathway to meet the renewability standard. This is in addition to the efficiency standard pathway.
  - District Energy Systems (DES) that capture waste heat were added as a line item in Table 1. It was always our intention that DES that capture waste heat from existing facilities be fully eligible, and public comments made us aware that clarity was needed in the rule itself.

An annotated version of the proposed Final Rule is attached showing these two changes in underlined text. Pursuant to 3 V.S.A. §841(b), we provide the following information:

- Final proposed rule cover sheet
- Adopting page
- Economic impact analysis
- Environmental impact analysis
- Public input
- Scientific information
- Text of proposed rule
- Annotated text of proposed rule
- Copies of all written comments and a responsiveness summary
- A copy of the ICAR approval memo

Sincerely,  
Emma Hanson  
Wood Energy Coordinator  
Vermont Department of Forests, Parks and Recreation

## Adopting Page

### **Instructions:**

This form must accompany each filing made during the rulemaking process:

Note: To satisfy the requirement for an annotated text, an agency must submit the entire rule in annotated form with proposed and final proposed filings. Filing an annotated paragraph or page of a larger rule is not sufficient. Annotation must clearly show the changes to the rule.

When possible, the agency shall file the annotated text, using the appropriate page or pages from the Code of Vermont Rules as a basis for the annotated version. New rules need not be accompanied by an annotated text.

1. **TITLE OF RULE FILING:**

**Biomass Renewable Energy Standard**

2. **ADOPTING AGENCY:**

Agency of Natural Resources; Department of Forests,  
Parks and Recreation

3. **TYPE OF FILING (PLEASE CHOOSE THE TYPE OF FILING FROM THE DROPDOWN MENU BASED ON THE DEFINITIONS PROVIDED BELOW):**

- **AMENDMENT** - Any change to an already existing rule, even if it is a complete rewrite of the rule, it is considered an amendment if the rule is replaced with other text.
- **NEW RULE** - A rule that did not previously exist even under a different name.
- **REPEAL** - The removal of a rule in its entirety, without replacing it with other text.

This filing is **A NEW RULE** .

4. **LAST ADOPTED (PLEASE PROVIDE THE SOS LOG#, TITLE AND EFFECTIVE DATE OF THE LAST ADOPTION FOR THE EXISTING RULE):**





**State of Vermont**  
**Agency of Administration**  
109 State Street  
Montpelier, VT 05609-0201  
[www.aoa.vermont.gov](http://www.aoa.vermont.gov)

[phone] 802-828-3322  
[fax] 802-828-3320

*Office of the Secretary*

## INTERAGENCY COMMITTEE ON ADMINISTRATIVE RULES (ICAR) MINUTES

**Meeting Date/Location:** May 10, 2021, Microsoft Teams Virtual Meeting

**Members Present:** Chair Kristin Clouser, Dirk Anderson, Diane Bothfeld, Jennifer Mojo, John Kessler, Matt Langham, Diane Sherman and Clare O'Shaughnessy

**Members Absent:** Ashley Berliner

**Minutes By:** Melissa Mazza-Paquette

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- 2:00 p.m. meeting called to order, welcome and introductions.
  - Review and approval of minutes from the [April 12, 2021](#) meeting.
  - Note: The following Emergency Rules were supported by ICAR Chair Clouser:
    1. 'PUC Emergency Rule 2.500 COVID-19 Emergency Procedures' by the Public Utility Commission on 4/13/21.
    2. 'Reportable and Communicable Diseases Emergency Rule' by the Agency of Human Services, Department of Health on 4/19/21.
  - No additions/deletions to agenda. Agenda approved as drafted.
  - No public comments made.
  - Presentation of Proposed Rules on pages 2-4 to follow.
    1. VOSHA Rule: 29 CFR 1910.1024, Updates and Revisions of the Beryllium Standard for General Industry, Department of Labor, page 2
    2. Biomass Renewable Energy Standard, Agency of Natural Resources, Department of Forests, Parks and Recreation, page 3
    3. Rule on Rulemaking, Office of the Secretary of State, page 4
      - a. Note: The Office of the Secretary of State will be invited to a future ICAR meeting to discuss potential changes to the ICAR forms, including a potential pre-filing with ICAR sheet.
  - Equity Impact on ICAR Rules: Executive Director of Racial Equity Xusana Davis
    - Director Davis plans to attend future ICAR meetings to provide her perspective on equity when needed.
    - There would be value in those proposing rules to do an equity analysis prior to filing and expand their outreach process to be all inclusive.
  - Next scheduled meeting is June 14, 2021 at 2:00 p.m.
  - 3:24 p.m. meeting adjourned.

2) **Proposed Rule:** Biomass Renewable Energy Standard, Agency of Natural Resources, Department of Forests, Parks and Recreation

**Presented By:** Emma Hanson and Meghan Purvee

Motion made to accept the rule by Diane Bothfeld, seconded by Dirk Anderson, and passed unanimously except for Jennifer Mojo who abstained, with the following recommendations:

1. Proposed Rule Coversheet, #8: Include the 2nd sentence from #9 at beginning of #8.
2. Economic Impact Analysis, #5: Include explanation.
3. Economic Impact Analysis, #7: If appropriate, include the negligible impact. Otherwise, state that there isn't any impact without using the 'n/a' acronym.
4. Economic Impact Analysis, #8: Complete.
5. Environmental Impact Analysis, #6: Change 'rules' to 'rule' in the first sentence.
6. Environmental Impact Analysis, #7: Correct 'solution' and 'as well have a' language in the last sentence.
7. Public Input, #3 and #4: Include public engagement, the plan for outreach – including forestry partners/channels and impacted industries, what's been done to date, etc.
8. Public Input, #5: Include standards established by the EPA, completed stakeholder outreach, and feedback from potentially impacted industries received or expected to be received.

## Economic Impact Analysis

### **Instructions:**

In completing the economic impact analysis, an agency analyzes and evaluates the anticipated costs and benefits to be expected from adoption of the rule; estimates the costs and benefits for each category of people enterprises and government entities affected by the rule; compares alternatives to adopting the rule; and explains their analysis concluding that rulemaking is the most appropriate method of achieving the regulatory purpose. If no impacts are anticipated, please specify “No impact anticipated” in the field.

Rules affecting or regulating schools or school districts must include cost implications to local school districts and taxpayers in the impact statement, a clear statement of associated costs, and consideration of alternatives to the rule to reduce or ameliorate costs to local school districts while still achieving the objectives of the rule (see 3 V.S.A. § 832b for details).

Rules affecting small businesses (excluding impacts incidental to the purchase and payment of goods and services by the State or an agency thereof), must include ways that a business can reduce the cost or burden of compliance or an explanation of why the agency determines that such evaluation isn’t appropriate, and an evaluation of creative, innovative or flexible methods of compliance that would not significantly impair the effectiveness of the rule or increase the risk to the health, safety, or welfare of the public or those affected by the rule.

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#### 1. TITLE OF RULE FILING:

**Biomass Renewable Energy Standard**

#### 2. ADOPTING AGENCY:

Agency of Natural Resources; Department of Forests,  
Parks and Recreation

#### 3. CATEGORY OF AFFECTED PARTIES:

*LIST CATEGORIES OF PEOPLE, ENTERPRISES, AND GOVERNMENTAL ENTITIES POTENTIALLY AFFECTED BY THE ADOPTION OF THIS RULE AND THE ESTIMATED COSTS AND BENEFITS ANTICIPATED:*

VT Agency of Natural Resources; Department of Forests,  
Parks & Recreation; Public Service Department; loggers,  
foresters; landowners; and others associated with wood  
harvesting, public utilities.

#### 4. IMPACT ON SCHOOLS:

*INDICATE ANY IMPACT THAT THE RULE WILL HAVE ON PUBLIC EDUCATION, PUBLIC SCHOOLS, LOCAL SCHOOL DISTRICTS AND/OR TAXPAYERS CLEARLY STATING ANY ASSOCIATED COSTS:*

Wood heat is common in Vermont schools. Schools installing a new wood heating system would have to abide by the efficiency limits listed in the rule in order to be eligible for incentives funded by Tier III programs. This will cause little to no additional cost as most systems installed already meet these standards, and any additional costs would be offset by the availability of the incentive. It is far less likely that a school would install a distributed generation system, but if they did install a co-gen biomass system they would have to follow the sourcing guidelines as described.

**5. ALTERNATIVES: *CONSIDERATION OF ALTERNATIVES TO THE RULE TO REDUCE OR AMELIORATE COSTS TO LOCAL SCHOOL DISTRICTS WHILE STILL ACHIEVING THE OBJECTIVE OF THE RULE.***

The Rule was designed to avoid impacts on schools while providing an incentive to promote sustainable forestry practices and purchase of EPA certified and efficient combustion equipment. If a school wished to install a system that does not meet the requirements of the Rule, it may without penalty, but it will not be eligible to receive the incentive funding for either Tier II or Tier III for that system. There was no other alternative that FPR found that could achieve a negligible impact while providing a Tier II or Tier III incentive.

**6. IMPACT ON SMALL BUSINESSES:**

*INDICATE ANY IMPACT THAT THE RULE WILL HAVE ON SMALL BUSINESSES (EXCLUDING IMPACTS INCIDENTAL TO THE PURCHASE AND PAYMENT OF GOODS AND SERVICES BY THE STATE OR AN AGENCY THEREOF):*

The impact to small businesses is minimal. Licensed foresters will need to understand the rule as they may be asked to certify that a harvest meets the standard. Small businesses looking to install an automated wood heating (AWH) system with a Tier III incentive will have to select from models that meet the minimum efficiency standard, or not qualify for the incentive.

This will cause little to no additional cost as most systems installed already meet these standards, and any additional costs would be offset by the availability of the incentive.

**7. SMALL BUSINESS COMPLIANCE:** *EXPLAIN WAYS A BUSINESS CAN REDUCE THE COST/BURDEN OF COMPLIANCE OR AN EXPLANATION OF WHY THE AGENCY DETERMINES THAT SUCH EVALUATION ISN'T APPROPRIATE.*

The impact of this Rule on small businesses is negligible. Most systems installed by small businesses already meet these standards, and any additional cost would be subsidized by the Tier II or Tier III incentive. There is no penalty for not meeting the standards developed in the Rule. Small businesses may choose to install a system that does not meet the standards or use biomass from a harvest that is not certified as compliant with the standards, but they will not be eligible for the Tier II and Tier III incentives. This would result in the businesses being in the same situation that they are in without the Rule in place.

**8. COMPARISON:**

*COMPARE THE IMPACT OF THE RULE WITH THE ECONOMIC IMPACT OF OTHER ALTERNATIVES TO THE RULE, INCLUDING NO RULE ON THE SUBJECT OR A RULE HAVING SEPARATE REQUIREMENTS FOR SMALL BUSINESS:*

The Proposed Rule was developed as an incentive to encourage sustainable forestry practices and use of efficient wood combustion equipment. The Rule was designed to avoid impacts on all small businesses. There is no requirement to comply with the Rule and there is no penalty for not complying. The incentive is available to those small businesses that do comply with the Rule's requirements, and therefore, there is really only a negligible, if any impact on small businesses because they can choose to operate as they currently are operating with no change. The incentive provides an opportunity for a benefit for small businesses with only a negligible, if any, impact since any logging operations must comply with the water quality rules and avoid discharges, and the AMPs are the existing and longstanding method designed to protect against erosion and discharges from logging

operations, and the UVA Program requirements are mandatory for all properties enrolled in UVA, so these requirements are not new. With respect to wood combustion equipment, small businesses can choose to purchase the equipment meeting the EPA certification and receive the incentive, or choose to purchase something else at no penalty and not receive the incentive. Some small businesses may see an increase in sales of the EPA certified equipment, which could result in a benefit. Therefore, the impact is negligible because lack of compliance with the Rule results in the same situation as presently occurs without the Rule in place and compliance should result in benefits from the incentive.

**9. SUFFICIENCY: *DESCRIBE HOW THE ANALYSIS WAS CONDUCTED, IDENTIFYING RELEVANT INTERNAL AND/OR EXTERNAL SOURCES OF INFORMATION USED.***

This analysis provides a sufficient explanation of the costs to consumers, schools, and small businesses that may be associated with adoption of this rule, and provides detail on the limited to no impact that is likely to take place.

# Environmental Impact Analysis

## **Instructions:**

In completing the environmental impact analysis, an agency analyzes and evaluates the anticipated environmental impacts (positive or negative) to be expected from adoption of the rule; compares alternatives to adopting the rule; explains the sufficiency of the environmental impact analysis. If no impacts are anticipated, please specify “No impact anticipated” in the field.

Examples of Environmental Impacts include but are not limited to:

- Impacts on the emission of greenhouse gases
- Impacts on the discharge of pollutants to water
- Impacts on the arability of land
- Impacts on the climate
- Impacts on the flow of water
- Impacts on recreation
- Or other environmental impacts

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### 1. TITLE OF RULE FILING:

**Biomass Renewable Energy Standard**

### 2. ADOPTING AGENCY:

Agency of Natural Resources; Department of Forests,  
Parks and Recreation

### 3. GREENHOUSE GAS: *EXPLAIN HOW THE RULE IMPACTS THE EMISSION OF GREENHOUSE GASES (E.G. TRANSPORTATION OF PEOPLE OR GOODS; BUILDING INFRASTRUCTURE; LAND USE AND DEVELOPMENT, WASTE GENERATION, ETC.):*

This rule would reduce greenhouse gas emissions because it requires that wood fuels must come from forests that are not converted to non-forest. Forest conversion is a significant source of carbon dioxide emissions from both the loss of carbon storage capacity as well as the loss of continued carbon sequestration from living trees. When disturbed, forest soils, which contain about 60% of the carbon in Vermont's forests, emit carbon dioxide; it can take decades or centuries for the soils to recuperate. The rule does not permit the

inclusion of wood harvested from forestland conversion to non-forest.

4. **WATER:** *EXPLAIN HOW THE RULE IMPACTS WATER (E.G. DISCHARGE / ELIMINATION OF POLLUTION INTO VERMONT WATERS, THE FLOW OF WATER IN THE STATE, WATER QUALITY ETC.):*

This rule would have a positive impact on water quality by requiring that wood fuels come from forests that are managed by a licensed forester who ensures that the UVA Program requirements and the Acceptable Management Practices for Maintaining Water Quality on Logging Jobs (AMPs) are complied with and implemented appropriately. While all logging jobs in Vermont are subject to the AMPs, the implementation of the AMP practices are not mandatory; compliance with and implementation of the AMPs provides a rebuttable presumption that the logging operation is in compliance with the Vermont Water Quality Standards. Unfortunately, for lands not enrolled in UVA and other land not managed by a forester, the AMPs are not always implemented. This renewability standard would require implementation of and compliance with UVA Standards and the AMPs, thus increasing the implementation of these protective measures and reducing the potential for discharges, which ultimately will benefit water quality in the State.

5. **LAND:** *EXPLAIN HOW THE RULE IMPACTS LAND (E.G. IMPACTS ON FORESTRY, AGRICULTURE ETC.):*

This rule requires that biomass material used in Tier III projects follow the high standards established in the UVA program and follow AMP standards. It does not allow for the use of material from land being converted from forest to non-forest which promotes the continuation of active forestland. This rule would support the forestry sector by requiring that Tier II projects have a licensed forester work with loggers in timber operations. Licensed foresters are trained in scientifically-based silviculture to achieve long-term management of the forest. For Tier II programs it makes the most of biomass material by setting minimum efficiency standards.



6. **RECREATION:** *EXPLAIN HOW THE RULE IMPACT RECREATION IN THE STATE:*

While there is no direct impact to recreation from this Rule, the standards in the Rule incentivize keeping forests as forests, and thus this protects forest-base recreation also.

7. **CLIMATE:** *EXPLAIN HOW THE RULE IMPACTS THE CLIMATE IN THE STATE:*

This rule would reduce climate change causing GHG emissions from wood-fired appliances for Tier III projects. This rule would permit wood fuels to come only from forests that remain forests. Intact forests are important natural climate solutions because they sequester and store atmospheric carbon - a leading cause of climate change -- as well as having a net cooling effect through a number of different pathways (evapotranspiration, sunlight interception, soil shading, etc.).

8. **OTHER:** *EXPLAIN HOW THE RULE IMPACT OTHER ASPECTS OF VERMONT'S ENVIRONMENT:*

Because wood fuels must come from forest operations overseen by a licensed forester, there may be other ecosystem benefits that arise from sound forest management, like wetland and vernal pool protection.

9. **SUFFICIENCY:** *DESCRIBE HOW THE ANALYSIS WAS CONDUCTED, IDENTIFYING RELEVANT INTERNAL AND/OR EXTERNAL SOURCES OF INFORMATION USED.*

This environmental impact analysis is sufficient because it describes how the rule will positively impact the environment by reducing greenhouse gas emissions from fossil fuels and keeping forests as forests, one of the biggest tools we have to sequester and store carbon.

## Public Input Maximization Plan

### **Instructions:**

Agencies are encouraged to hold hearings as part of their strategy to maximize the involvement of the public in the development of rules. Please complete the form below by describing the agency's strategy for maximizing public input (what it did do, or will do to maximize the involvement of the public).

This form must accompany each filing made during the rulemaking process:

.....

1. TITLE OF RULE FILING:

**Biomass Renewable Energy Standard**

2. ADOPTING AGENCY:

Agency of Natural Resources; Department of Forests,  
Parks and Recreation

3. PLEASE DESCRIBE THE AGENCY'S STRATEGY TO MAXIMIZE PUBLIC INVOLVEMENT IN THE DEVELOPMENT OF THE PROPOSED RULE, LISTING THE STEPS THAT HAVE BEEN OR WILL BE TAKEN TO COMPLY WITH THAT STRATEGY:

Outreach included collaboration with staff at the Department of Forests, Parks, and Recreation, the Agency of Natural Resources, the Department of Public Service, and the Biomass Energy Resource Center at VEIC. Outreach actions included: publishing the rulemaking notice in newspapers; posting the rulemaking materials, hearing and public comment information on the FPR website; distributing the aforementioned materials via forestry and wood energy newsletters and listserves; and direct outreach to the utilities.

4. BEYOND GENERAL ADVERTISEMENTS, PLEASE LIST THE PEOPLE AND ORGANIZATIONS THAT HAVE BEEN OR WILL BE INVOLVED IN THE DEVELOPMENT OF THE PROPOSED RULE:

This rule was developed in coordination with colleagues from the Department of Forests, Parks, and Recreation, the Agency of Natural Resources, and the Department of Public Service. Outside of State government, Adam Sherman of the Biomass Energy Resource Center at VEIC

## Public Input

was also consulted. EPA regulations were consulted as reference material. During the outreach process we received feedback from the forestry and wood energy industry, public utilities, non-profits, and advocacy groups.

## Scientific Information Statement

**THIS FORM IS ONLY REQUIRED IF THE RULE RELIES ON SCIENTIFIC INFORMATION FOR ITS VALIDITY.**

**PLEASE REMOVE THIS FORM PRIOR TO DELIVERY IF IT DOES NOT APPLY TO THIS RULE FILING:**

### **Instructions:**

In completing the Scientific Information Statement, an agency shall provide a summary of the scientific information including reference to any scientific studies upon which the proposed rule is based, for the purpose of validity.

1. TITLE OF RULE FILING:

**Biomass Renewable Energy Standard**

2. ADOPTING AGENCY:

Agency of Natural Resources; Department of Forests,  
Parks and Recreation

3. BRIEF EXPLANATION OF SCIENTIFIC INFORMATION:

While no specific reports were referenced in these forms or the rule, there is extensive scientific research supporting the environmental and carbon benefits of keeping forests as forests, as well as research on the greenhouse gas benefits of utilizing wood for thermal energy. This rule also leans on the AMP's and their benefits to water quality in forest management.

4. CITATION OF SOURCE DOCUMENTATION OF SCIENTIFIC INFORMATION:

Supporting documentation can be found in the following:  
Buchholz, Thomas, and Gunn, John S, and Saah, David S.  
"Greenhouse gas emissions of local wood pellet heat from northeastern US forests." Energy 15 December 2017: 483-491. Science Direct 11 January 2021.

Catanzaro, Paul, and D'Amato, Anthony. "Forest Carbon, An Essential Natural Solution for Climate change." University of Massachusetts, 2019.

Hausman, R.F. and Pruett, E.W. Permanent Logging Roads for Better Woodlot Management, 1973, USDA Forest Service, State and Private Forestry, Upper Darby, Pennsylvania.

Kochenderfer, J.N., Erosion Control on Logging Roads in the Appalachians, Research Paper NE-158, 1970, USDA Northeastern Forest Experiment Station, Upper Darby, Pennsylvania.

Lawlor, Sean M., Determination of Channel-Morphology Characteristics, Bank full Discharge, and Various Design-Peak Discharges in Western Montana, 2004, U.S. Geological Survey, Reston, Virginia.

Landowner's Guide to Building Forest Access Roads; Richard L. Wiest; USDA Forest Service, Northeastern Area State and Private Forestry; NA - TP - 06 - 98, Radnor PA July 1998

Filter Strip Widths for Forest Roads in the Southern Appalachians, 1986, Lloyd W. Swift, Jr., USDA Forest Service, Revised July 1, 2015, Southeastern Forest Experiment Station, Coweeta Hydrologic Laboratory, Otto, NC 28763.

**5. INSTRUCTIONS ON HOW TO OBTAIN COPIES OF THE SOURCE DOCUMENTS OF THE SCIENTIFIC INFORMATION FROM THE AGENCY OR OTHER PUBLISHING ENTITY:**

Contact Vermont Department of Forests, Parks and Recreation, Forestry Division: (802) 828-1531

# Responsiveness Summary to the Proposed Biomass Renewable Energy Standard Rule

## Introduction

The purpose of this document is to provide readers with a summary of the public comments that were received during the Public Comment Period for the proposed Biomass Renewable Energy Standard (RES) rule. The proposed rule was filed on June 4, 2021, with the Vermont Secretary of State and the public comment period closed on July 30, 2021. Two public hearings were held on July 16, 2021 and July 23, 2021 with both in-person and remote options available. Twenty-nine comments were received via email and at the two public hearings held in July 2021.

Public Comments were received, reviewed, and summarized by the Agency of Natural Resource's (ANR) Department of Forests, Parks & Recreation (FPR) staff.

This document organizes comments by theme and includes a response from FPR. Where edits were made to the proposed rule in response to comments, this is clearly stated.

- 1. Public comment theme:** The use of an efficiency standard for projects that would also have to receive a permit from the Vermont Air Quality & Climate Division is redundant and burdensome.

**Response to comments:** Because successful receipt of an air quality permit necessitates a high-quality project, we agree that this is a reasonable edit to the proposed rule. The rule will be adjusted to accommodate air quality permits in lieu of a minimum efficiency standard. The following new language in underlined text has been added to Section 6.2 of the Rule to provide two pathways for meeting the Biomass RES:

To meet the renewability standard for the purposes of Chapter 89 of Title 30 of the Vermont Statutes Annotated, wood-fired appliances shall either receive a permit to construct from the Vermont Air Quality & Climate Division, or meet the minimum performance requirements set forth in Table 1. The Table 1 performance requirements apply to all wood fuel types, including cordwood, wood pellets, green wood chips, dry wood chips.

- 2. Public comment theme:** The timing of the proposed Biomass Renewable Energy Standard (RES) is at odds with the concurrent work happening on the Climate Action Plan (CAP) and Comprehensive Energy Plan (CEP). Some commenters suggested that the rule be postponed until after those documents are finalized.

**Response to comments:** FPR acknowledges the overlapping timing and understands the perception of a conflict. However, after careful consideration and discussion with ANR Staff working on the Climate Action Plan and Comprehensive Energy Plan, FPR has concluded that because the statutory responsibility and focus of this rule is forest health, the proposed approach to how the Biomass RES is written would be the same regardless of the outcome of the CAP or CEP. FPR has not made changes to the rule regarding these comments.

3. **Public comment theme:** The efficiency standards are unachievable for steam powered heat and Combined Heat and Power (CHP) systems.

**Response to comments:** FPR acknowledges this as an oversight and that many systems necessitate steam for process heat or distribution and that steam systems run very cleanly but with a lower efficiency than hydronic or hot air systems. FPR believes that accepting an Air Quality & Climate Division permit to construct in lieu of an efficiency standard addresses this comment. See response to Public Comment Theme #1 and the associated rule changes above.

4. **Public comment theme:** Commenter seeks clarification on whether district energy systems count towards Tier III requirements and how the proposed efficiency standards would apply.

**Response to comments:** Yes, district energy projects that provide heat and displace fossil fuels would count towards Tier III requirements. ANR acknowledges that this sort of project does not fit the standardized efficiency standards established in the proposed rule and will amend the rule to reflect the fact that district energy projects are capturing waste heat, and thus are outside of any efficiency standard. Section 6.2, Table 1 has been amended to add new language and a new category for District Energy Systems as follows:

<u>District Energy System (DES)</u>	<u>DES that capture waste heat from an existing installation are fully eligible</u>
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5. **Public comment theme:** Concern that the proposed standards for Tier II projects could be interpreted as the minimum standards for future Tier I projects. Request that additional clarifying language be added to emphasize that the Tier II standards are only intended to apply to Tier II.

**Response to comments:** Tier I is outside of the legislative authority provided to the Commissioner of the Department of Forests, Parks & Recreation in Act 56, 10 VSA §2751. Additionally, Section 4 of the proposed rule clearly states that the applicability of the rule is to Tier III and Tier II projects (see below). Therefore, FPR believes additional language to be unnecessary and outside of our scope and no change will be made to the rule.

SECTION 4: Applicability

The Biomass Renewability Energy Standard applies to all utilities that: offer incentives on wood-fired appliances as part of their Tier III programming; or all generation from biomass electric generation facilities; or combined heat and power (CHP) facilities that utilities claim towards their Tier II requirements.

6. **Public comment theme:** The proposed rule is out of compliance with the Global Warming Solutions Act (GWSA) because it does not include a full Life Cycle Analysis (LCA).

**Response to comments:** The requirement to consider the increase or decrease in greenhouse gas emissions in decision-making procedures, 578 (c), predates the GWSA and is included as a standard part of the Administrative Procedure Act (APA) filing forms and rulemaking process. Therefore, the APA requirement did not contemplate the GWSA or conducting a full LCA for each rule filing. Additionally, after discussions with ANR staff, FPR has determined it is not reasonable to interpret the APA requirement to include a requirement that a full LCA should be required as part of every decision due to the complex and variable nature of the practice. Finally, ICAR approved the APA filing forms as completed. FPR has not changed the rule or the APA filing forms.

- 7. Public comment theme:** The Department of Forests, Parks, and Recreation lacks the authority to create the proposed rule because the rulemaking authorization for Act 56 expired on July 2, 2016.

**Response to comments:** FPR disagrees with this interpretation of Act 56 and 10 VSA §2751 that the Department no longer has legislative authority to adopt the Biomass Renewability Standard since it did not adopt the rule by July 1, 2016. 10 VSA §2751 clearly states that “The Commissioner shall adopt rules that set renewability standards for forest products used to generate energy by distributed renewable generation and energy transformation projects within the RES...” This is mandatory, not discretionary. If the Legislature had intended for its mandate to expire upon July 1, 2016, it would have clearly stated such in a sunset provision in Act 56 and 10 VSA § 2751. It did not and the Department must interpret the statute as written which not only provides the authority to adopt these Biomass Renewability Standards Rules, but mandates the Department to adopt such rules.

- 8. Public comment theme:** The proposed rule fails to establish siting standards for future Tier II projects.

**Response to comments:** While the proper siting of biomass Tier II projects is an important topic, it is outside the scope of the authority given to the Commissioner in Act 56, 10 VSA §2751.

- 9. Public comment theme:** Biomass energy is not carbon neutral.

**Response to comments:** The carbon impact of biomass energy is a complex topic that varies dramatically from one scenario to another. Regardless, it is outside the scope of this rule and the authority given to FPR by the legislature. The purpose of the Biomass Renewable Energy Standard is to promote the sustainable use of forest resources and to ensure long-term forest health and sustainability through harvesting and procurement of biomass. Sustainable use of forest resources and renewability, i.e., forest health, is the focus of the rule, not carbon neutrality. No change to the rule will be made.

- 10. Public comment theme:** Power generating facilities require very large amounts of biomass which cannot be supplied over long periods without serious negative consequences to forests.



**Response to comments:** To avoid negative consequences to forests, the proposed strategy bans material coming from forest to non-forest conversion and relies on the standards established in the Use Value Appraisal (UVA) program to promote sustainable harvesting and procurement of biomass, and thus to promote and protect forest health. No changes to the rule will be made.



July 22, 2021

Emma Hanson  
Department of Forests, Parks, and Recreation, Agency of Natural Resources  
1 National Life Drive, Davis 2  
Montpelier, VT 05620-3801

Re: Biomass Renewable Energy Standard-Proposed Rule No. 21P018

Dear Ms. Hanson,

Burlington Electric Department ("BED") submits the following comments in response to the Department of Forests, Parks, and Recreation ("FPR"), Agency of Natural Resources' ("ANR's") proposed biomass renewable energy standard rule that was posted on June 9, 2021. As required by 10 V.S.A. §2751, the proposed rule establishes renewable energy standards for forest products used to generate energy by distributed renewable generation and energy transformation projects within the Renewable Energy Standard.

While the proposed rule does not include efficiency standards for district energy systems ("DES") in its Tier III Energy Transformation Projects section, Section 6.2, it is BED's understanding that DES projects as defined in 30 V.S.A. § 209(e)(3)(B)<sup>1</sup> are eligible to receive credit as Tier III projects<sup>2</sup> and that the efficiency standards within the proposed rule do not apply to them.

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<sup>1</sup> 30 V.S.A. § 209(e)(3)(B) "District heat" means a system through which steam or hot water from a central plant is piped into buildings to be used as a source of thermal energy.

<sup>2</sup> 30 V.S.A. § 8002(28) "Energy transformation project" means an undertaking that provides energy-related goods or services but does not include or consist of the generation of electricity and that results in a net reduction in fossil fuel consumption by the customers of a retail electricity provider and in the emission of greenhouse gases attributable to that consumption. Examples of energy transformation projects may include home weatherization or other thermal energy efficiency measures; air source or geothermal heat pumps; high efficiency heating systems; increased use of biofuels; biomass heating systems; support for transportation demand management strategies; support for electric vehicles or related infrastructure; and infrastructure for the storage of renewable energy on the electric grid.

**Burlington Electric Department**  
585 Pine Street Burlington, VT 05401  
burlingtonelectric.com

Phone 802.658.0300

BED requests that FPR confirm within the rule or rulemaking documents that DES projects are Tier III eligible projects and that the efficiency standards within the rule do not apply to them.

Thank you for the opportunity to provide comments. Should you have any questions or concerns, please feel free to contact us at any time.

Sincerely,

A handwritten signature in black ink, appearing to read 'Amber', with a stylized flourish at the end.

Amber Widmayer  
Regulatory Specialist  
Burlington Electric Department  
(802) 735-6918

**Hanson, Emma**

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**From:** Alan Coulter <alan\_coulter@hotmail.com>  
**Sent:** Friday, July 30, 2021 8:58 AM  
**To:** ANR - Biomass RES  
**Subject:** Biomass standards!

**EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.**  
Biomass burning to produce electricity is not carbon neutral! That we even allow it is delusional. Strict standards will hopefully drive them out of business. Do your job with the future in mind!

Thank you  
Alan Coulter

Sent from Outlook

## Hanson, Emma

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**From:** Annette Smith <vce@vce.org>  
**Sent:** Friday, July 30, 2021 5:55 PM  
**To:** ANR - Biomass RES  
**Subject:** Comment on Proposed Rule: Biomass Renewable Energy Standard

**EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.**

**Please consider the environmental justice component as referenced in this article from Massachusetts.**

Thank you. Annette Smith, Vermonters for a Clean Environment

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**Commonwealth – July 30, 2021**

**Proposed biomass limits restrict new plants in 90 percent of state**

**Remaining 35 communities worried about pollution**

**Shira Schoenberg**

MONTHS AFTER THE Baker administration pulled the plug on plans for a controversial new biomass plant in Springfield, state environmental officials proposed new regulations that would drastically limit where biomass plants can be located. The rules promulgated by the Department of Energy Resources in April say new biomass plants located in or within five miles of an environmental justice community will not qualify as a renewable energy source under a state program, the Renewable Energy Portfolio Standard, or RPS, that requires energy producers to obtain a certain amount of energy from renewable sources. Financially, that would likely make it impossible for a company to locate a plant there. Environmental justice communities are generally poor communities of color that are disproportionately affected by pollution.

Practically, Massachusetts has adopted an expansive definition of environmental justice communities, which means that about 90 percent of the state is within five miles of one of these communities. Most of the remaining places where biomass would be eligible for the incentive are in rural Western Massachusetts. The restrictions, which will be the subject of a legislative hearing on Friday, are angering representatives of the few communities that could still be targeted to host biomass plants. “If we’re going to regulate biomass out of 90 percent of the Commonwealth, we might as well make it ineligible for [incentive programs] across the entire Commonwealth,” said Sen. Adam Hinds, a Pittsfield Democrat who represents 17 towns where biomass would remain eligible. Hinds worries that the towns in his district will be aggressively pursued by biomass companies, and he worries about pollution.

Sen. Jo Comerford, a Northampton Democrat who represents three eligible communities, said she has long believed biomass should not be eligible as a renewable energy source because of the pollution it creates – which makes it less “green” than wind or solar power. Comerford said she agrees with DOER’s decision to keep biomass out of environmental justice communities. But she said retaining eligibility in 10 percent of the state puts DOER “in a pretzel-like argument.” “It’s saying biomass in environmental justice communities is bad, but biomass in Leyden is good,” Comerford said. Sen. Patrick O’Connor, a Weymouth Republican who represents three eligible communities, spearheaded a letter signed by nine lawmakers expressing concern that in 35 municipalities, biomass would still be incentivized.

“These large-scale power plants would burn about 1,200 tons of wood per day, emitting masses of soot and harmful pollutants into the air of surrounding communities, exacerbating existing consequences of poor air quality, such as asthma and other respiratory ailments,” O’Connor wrote. “These regulations not only demonstrate environmental neglect, but they are also patently unfair towards these ‘exception’ communities who are being both targeted for biomass siting and then are forced to endure the obstructive and harmful consequences of this energy production.”

According to the Executive Office of Energy and Environmental Affairs, DOER is required by statute to make biomass energy eligible for the RPS program. Biomass reduces lifecycle greenhouse gases and encourages a market for low grade wood, which can promote better forest management and avoid costly expenses to dispose of the material. The office says the five-mile exclusion was created to protect environmental justice communities that are already overburdened by pollution. In a letter to the chairs of the Joint Committee on Telecommunications, Utilities, and Energy, DOER commissioner Patrick Woodcock wrote that the proposed rules also align with a provision in state law that requires an environmental report for any project that impacts air quality, is likely to damage the environment, and is located within five miles of an environmental justice community.



For a thriving New England

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July 30, 2021

Agency of Natural Resources  
Julie Moore, Secretary  
1 National Life Drive, Davis 2  
Montpelier, VT 05620-3901

Department of Forests, Parks and Recreation  
Michael C. Snyder, Commissioner  
1 National Life Drive, Davis 2  
Montpelier, VT 05620-3801

**re: Proposed Biomass Renewable Energy Standard**

Dear Secretary Moore and Commissioner Snyder,

Thank you for the opportunity for Conservation Law Foundation (“CLF”) to comment on the proposed rule concerning a biomass renewable energy standard (the “Proposed Rule”). CLF is a nonprofit, member-supported, regional environmental organization working to conserve natural resources, protect public health, and promote thriving communities for all in the New England region. CLF protects New England’s environment for the benefit of all people. We use the law, science, and the market to create solutions that preserve our natural resources, build healthy communities, and sustain a vibrant economy. CLF works to reduce greenhouse gas (“GHG”) emissions in the building sector by advocating in favor of increased energy efficiency and electrification, and by promoting policies that support clean energy development and that end the use of GHG emitting electricity generation sources. We also work to counter climate change by cutting pollution from our cars and trucks, creating alternatives to driving, and by pushing for more affordable and equitable public transit options.

CLF has reviewed the Proposed Rule, APA Filing Forms as Submitted to the Secretary of State (the “Proposed Rule Coversheet”), Act No. 56 of 2015 (“Act 56”), and related materials.<sup>1</sup> Based

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<sup>1</sup> The Proposed Rule and its Coversheet contain several typographic errors that pertain to important aspects of the Proposed Rule. The State has not yet clarified the typographic errors for the benefit of the public. As such, CLF’s comments rely on emails from Ms. Emma Hanson, Wood Energy Coordinator, clarifying the typographic errors. See Email Correspondence Between Ms. Hanson and Mr. Whiting, attached hereto as [Exhibit 1](#). In particular, CLF is relying on statements clarifying that:

- The first sentence in Proposed Rule Section 6.1 erroneously states “To qualify as a Tier II *Energy Transformation Project* . . .” (emphasis added), and should instead state “To qualify as a Tier II *Distributed Renewable Energy Project* . . .” (emphasis added).
- The first sentence in Proposed Rule Coversheet Section 5 (“Land”) erroneously refers to “Tier III

upon this review, CLF has identified numerous concerns with the Department of Forests, Parks, and Recreation (the “Department”) Proposed Rule, which are summarized below and described in more detail in these comments. For the reasons outlined herein, CLF urges that the Proposed Rule should be withdrawn.

Please note that CLF’s comments do not pertain to the traditional forms of wood home heating already used by many low- and moderate-income Vermonters, such as cord woodstoves. CLF’s comments pertain to the Proposed Rule and its Coversheet, which contemplate Tier II distributed renewable energy projects and Tier III energy transformation projects.

### Summary of Concerns

CLF’s major concerns are summarized here and described in greater detail below.

- The Proposed Rule was introduced outside the legislatively authorized period. Act 56’s specific authorization for rulemaking expired on July 2, 2016 and the Legislature has not established new authority. In the absence of renewed legislative authorization, the Department lacks authority to promulgate the Proposed Rule at this time.
- The Proposed Rule is inconsistent with current law. Act 56 was enacted in 2015. During the intervening six years, the Legislature enacted the Global Warming Solutions Act (“GWSA” or “Act 153”), which mandates GHG emissions reductions from energy generated in Vermont, lifecycle GHG accounting for biomass, and the promulgation of regulations that are consistent with the Climate Action Plan. The Proposed Rule is not informed by lifecycle GHG accounting, would likely increase GHG emissions, and would likely be inconsistent with the Climate Action Plan that is in the midst of being drafted.
- The Proposed Rule is deficient in its statutorily required environmental, economic, and scientific analyses. It is also deficient in its assessment of likely impacts on Vermonters.
- The Proposed Rule does not assess or quantify the new GHG emissions that would be generated from Tier II and Tier III biomass projects.
- The Proposed Rule does not assess or quantify the dangerous pollutants that would be

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projects” and should instead refer to “Tier II projects.”

See Exhibit 1.



emitted by new Tier II and Tier III biomass projects. Nor does the Proposed Rule assess the health impacts that would be felt by Vermonters exposed to those pollutants.

- The Proposed Rule fails to establish efficiency standards for Tier II electricity generation projects. Efficient biomass electricity generation creates meaningful GHG emissions. Inefficient facilities cause significantly greater GHG emissions.
- The Proposed Rule fails to establish siting requirements for Tier II electricity generation facilities. That failure is especially meaningful because the Proposed Rule concurrently fails to assess health impacts for Vermonters exposed to new biomass pollution. Facilities sited in or near Vermonters' communities could have harmful consequences. This is of particular concern for historically marginalized communities.
- The Proposed Rule fails to require any sustainable harvesting requirements for Tier III projects. *See* Proposed Rule Sec. 6.2. The Proposed Rule thus allows any wood burned in Tier III projects to be unsustainably harvested through practices including the conversion of forest to non-forest. *Id.* The Proposed Rule also fails to create a penalty or enforcement mechanism capable of ensuring the proposed Tier II harvesting requirements are met. *See* Proposed Rule Sec. 6.1 (together, these omissions are hereinafter referred to as the "lack of enforceable Tier II and Tier III sustainable harvesting requirements"). As such, the Proposed Rule's statements about its purported economic and sustainability benefits are illusory.

### **Concerns**

#### ***The Department's Rulemaking Authority Expired in 2016 and Has Not Been Reauthorized***

Act 56 was signed into law on June 11, 2015. Section 9(b), which is codified as 10 V.S.A. § 2751(b), outlines several substantive considerations relevant to a biomass renewable energy standard. Importantly, Act 56 also established a specific statutory authorization period during which the "Forest, Parks and Recreation Rulemaking" authority must be exercised. *See* Act 56 Sec. 10 ("On or before July 1, 2016, the Commissioner of Forests, Parks and Recreation shall adopt initial rules under 10 V.S.A. § 2751."). The statutory authorization period expired on July 2, 2016 and was not reauthorized by the General Assembly. The Department initiated rulemaking on June 3, 2021, *see* Proposed Rule Coversheet, which was nearly five years after the expiration of the statutory authorization period. *See* Act 56 Sec. 10. The Department lacks the authority to promulgate the Proposed Rule at this time because the statutory authorization period expired and has not been renewed. The Proposed Rule is thus void.

***The Proposed Rule is Inconsistent with Current Law***

As noted, Act 56 became law in 2015. Vermont’s Global Warming Solutions Act became law in September 2020. *See* Act 153. The GWSA established the Vermont Climate Council, which first convened in November 2020 and has since been laboring to establish the Climate Action Plan. That Plan will set a multifaceted strategy to reduce Vermont’s GHG emissions at least 26% by 2025, 40% by 2030, and 80% by 2050. *See* Act 153 Sec. 3(a), codified as 10 V.S.A. § 578(a). The GWSA also requires the State to “limit the use of . . . substances, or products that contribute to climate change.” *See* Act 153 Sec. 4 ch. 24, codified as 10 V.S.A. § 592(b)(6). Burning biomass in electricity generation facilities and thermal devices produces GHG emissions.<sup>2</sup> Importantly, Act 153 Sec. 3(c), codified as 10 V.S.A. § 578(c), requires that “[i]n order to facilitate the State’s compliance with the goals established in this section, all State agencies shall consider any increase or decrease in greenhouse gas emissions in their decision-making procedures with respect to the . . . operation of programs.” The Proposed Rule does not assess the new GHG emissions that would likely result from relevant Tier II and Tier III projects. *See* Proposed Rule Section 6. The Proposed Rule is inconsistent with the GWSA.

The GWSA also requires the Agency of Natural Resources (“ANR”) to measure GHG emissions in service of accurately reducing such emissions. *See* Act 153 Sec. 3(a), codified as 10 V.S.A. § 578(a) (incorporating 10 V.S.A. § 582(g)). Relevant here, ANR must “achieve transparent and accurate *life cycle accounting* of greenhouse gas emissions, including emissions of such gases from the use of . . . *biomass*.” *See* 10 V.S.A. § 582(g) (emphasis added). Life cycle accounting measures emissions associated with harvesting, processing, manufacturing, transporting, burning, and end-of-life management of biomass fuels, facilities, and appliances. The Proposed Rule creates incentives for the development of biomass units and yet omits any quantification of the GHG emissions that would result from those units. The Proposed Rule’s assessment of GHG emissions is inconsistent with, and deficient under, 10 V.S.A. §§ 578(a) and 582(g).

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<sup>2</sup> *See* Peter Raven, *et al*, *Letter Regarding Use of Forests for Bioenergy* (Feb. 11, 2021) (hereinafter, “Raven”), <https://s3.eu-central-1.amazonaws.com/euobs-media/614ae43ad6355fa0101da2818a484c09.pdf>; *see also* Thomas Buchholz, *et al.*, *Greenhouse Gas Emissions of Local Wood Pellet Heat from Northeastern US Forests* at i, 11, 15-16 (2017) (hereinafter, “Buchholz”); Mary S. Booth, *Trees, Trash, and Toxics: How Biomass Energy Has Become the New Coal*, PARTNERSHIP FOR POLICY INTEGRITY, 5 (April 2, 2014) (hereinafter, “Booth”) (“Biomass power plants are also a danger to the climate, emitting nearly 50 percent more CO<sub>2</sub> per megawatt generated than the next biggest carbon polluter, coal. Emissions of CO<sub>2</sub> from biomass burning can theoretically be offset over time, but such offsets typically take decades to fully compensate for the CO<sub>2</sub> rapidly injected into the atmosphere during plant operation.”), <https://www.pfpi.net/wp-content/uploads/2014/04/PFPI-Biomass-is-the-New-Coal-April-2-2014.pdf>.



The Proposed Rule will likely necessitate additional rulemaking procedures because the Proposed Rule is inconsistent with the GWSA. The Climate Action Plan must “set forth the specific initiatives, programs, and strategies, including regulatory and legislative changes, necessary to achieve the State’s greenhouse gas emissions reduction requirements.” *See* Act 153 Sec. 4 ch. 24, codified as 10 V.S.A. § 592(a). The Climate Action Plan will be substantially completed within the next five months. ANR will then be required to “adopt and implement rules consistent with the specific initiatives, programs, and strategies set forth in the Plan.” *See* Act 153 Sec. 4 ch. 24, codified as 10 V.S.A. § 593(b). ANR and the Department have decided to untimely promulgate the Proposed Rule while the Climate Council is in the midst of developing the Climate Action Plan. The Proposed Rule would establish a new regulation that very likely would need to be evaluated by the Climate Council, that may be inconsistent with the Climate Action Plan, and that would thus potentially need to be amended or rescinded to achieve Vermont’s GHG emissions reduction requirements, *see* 10 V.S.A. 578(a), and to comply with ANR’s obligations under 10 V.S.A. § 593(b). The proposed rule is inconsistent with current law.

### ***The Proposed Rule Does Not Adequately Consider Statutorily Required Analyses***

“Where . . . a statute directs an agency to adopt rules, the agency shall initiate rulemaking and adopt rules in the manner provided by sections 836-844 of this title.” *See* 3 V.S.A. § 831(a). As is relevant here, 3 V.S.A. § 838(a) requires the Commissioner to file an environmental impact analysis, an economic impact analysis, a summary of the scientific information upon which the Proposed Rule is based, and an explanation of the people affected by the Proposed Rule. The Proposed Rule is deficient for failing to adequately conduct those statutorily required analyses, as explained in more detail below.

### ***The Environmental Impact Analysis is Deficient***

3 V.S.A. § 383(b) requires that the “environmental impact analysis shall: (1) analyze the anticipated environmental impacts, whether positive *or negative*, from adoption of the rule” and “(2) Compare the environmental impact of the rule with the environmental impact of *other alternatives to the rule*, including having no rule on the subject.” (emphasis added). The Department’s analysis does not address the anticipated negative environmental impacts caused by the Proposed Rule. *See* 3 V.S.A. § 383(b)(1). Nor does the Department compare the environmental impact of the Proposed Rule with alternatives to the rule. *See* 3 V.S.A. § 383(b)(2). Further, the Department’s analysis includes multiple erroneous statements about the scope and text of the Proposed Rule’s harvesting requirements. *Compare* Proposed Rule Sec. 6.1 (containing unenforceable harvesting requirements), *with* Proposed Rule Sec. 6.2 (omitting

any harvesting requirement). The Department also fails to establish efficiency standards for Tier II biomass facilities. The Department’s omissions and errors overlook substantial environmental impacts.

*The Department’s Greenhouse Gas Analysis.* The Department states that the Proposed Rule will “reduce greenhouse gas emissions because it *requires* that wood fuels must come from forests that are not converted to non-forests. . . . The rule *does not permit* the inclusion of wood harvested from forestland conversion to non-forest.” See Proposed Rule Coversheet at 12 (emphasis added). The Department’s analysis is problematic for the following reasons.

- The Department’s assertion that the “rule does not permit the inclusion of wood harvested from forestland conversion to non-forest” is inaccurate on its face. The Proposed Rule’s purported harvesting requirements *only* pertain to Tier II distributed renewable energy projects. See Proposed Rule Sec. 6.1. The harvesting requirements do *not* apply to any Tier III energy transformation projects. See Proposed Rule Sec. 6.2. The Department made this distinction clear on page 3 of the Proposed Rule Coversheet, stating that the proposed rule “establishes biomass renewability standards by setting minimum efficiency standards for Tier III Energy transformation projects, *and sets forester certified standards based on the forest land category of the Use Value Appraisal (UVA) program for material used in Tier II Distributed Renewable Energy projects.*” (emphasis added). Under the plain terms of the Proposed Rule, biomass harvested for Tier III transformation projects could be sourced from forests converted to non-forest. See *id.*; see also Proposed Rule at 2-3. The Department’s GHG emissions analysis is erroneous under the plain text of the Proposed Rule.
- The Department’s assertion that the Proposed Rule will “reduce greenhouse gas emissions” is erroneous for at least three reasons. First, when biomass is burned it emits multiple types of climate-change-causing GHGs, including carbon dioxide and methane.<sup>3</sup> Methane disproportionately accelerates climate change because it has a significant global warming potential.<sup>4</sup> Burning biomass will directly *cause* new and additional greenhouse gas emissions to enter Earth’s atmosphere and thereby accelerate climate change.<sup>5</sup> The

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<sup>3</sup> See note 2, *supra*; see also GHGOnline, Methane Sources – Biomass Burning (last visited July 27, 2021), <http://www.ghgonline.org/methanebioburn.htm>.

<sup>4</sup> See U.S. Environmental Protection Agency, Greenhouse Gas Emissions, Understanding Global Warming Potentials (last visited July 28, 2021), <https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>.

<sup>5</sup> See note 2, *supra*.

Department does not address that fact. Second, the Department’s assertion depends on the assumption that “wood fuels must come from forests that are not converted to non-forests.” *See* Proposed Rule Coversheet at 12. As already noted, that assertion is false as to biomass burned in Tier III transformation projects, which, under the Proposed Rule, can be sourced from forests converted to non-forests. *See supra*; *see also* Proposed Rule Sec. 6.2. Nor does the Proposed Rule effectively require that Tier II electricity generation facilities utilize sustainably harvested wood. As noted, the Proposed Rule lacks a penalty or enforcement mechanism capable of ensuring electricity generation facilities source sustainably harvested biomass. *See* Proposed Rule at 2-3 (omitting a penalty and enforcement mechanism). Without the ability to enforce sustainable harvesting practices, Tier II electricity generation facilities could burn unsustainably harvested biomass with impunity under the Proposed Rule. Together, the lack of enforceable Tier II and Tier III sustainable harvesting requirements render the Proposed Rule ineffectual. Third, to “reduce” GHG emissions through forest sequestration, as the Proposed Rule contemplates, the emissions sequestered in new tree growth must exceed the emissions caused by the Tier II and Tier III biomass projects contemplated by the rule. However, the Proposed Rule does not contain the type of lifecycle GHG accounting necessary to assess the Department’s conclusion that net GHG emissions would be reduced in such a manner. Accordingly, the Proposed Rule does not provide a sufficient factual or scientific basis to assess the veracity of its capacity to “reduce” GHG emissions. Moreover, current science indicates that burning biomass to produce electricity and heat would increase GHG emissions, not reduce them.<sup>6</sup>

- The Department’s assertion that the Proposed Rule “*would* reduce greenhouse gas emissions,” *see* Proposed Rule Coversheet at 12 (emphasis added), overreaches. “Would” indicates causation: the Proposed Rule *would* reduce greenhouse gas emissions. The Department attributes causation to “wood fuels . . . com[ing] from forests that are not converted to non-forest.” *Id.* However, the lack of enforceable Tier II and Tier III sustainable harvesting requirements means that all of Vermont’s Tier III biomass fuel could come from unsustainably harvested wood. *See* Proposed Rule Sec. 6.2. That possibility becomes increasingly likely if the cost to produce unsustainably harvested wood decreases relative to the cost to produce sustainably harvested wood (*e.g.*, if it becomes cheaper to produce and purchase unsustainably harvested biomass fuel). And because the Proposed Rule lacks an enforcement mechanism to ensure Tier II electricity generators use sustainably harvested biomass, *see* Proposed Rule Sec. 6.1, Tier II

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<sup>6</sup> *Id.*

biomass facilities could acquire and burn unsustainably harvested wood with impunity.

- The Proposed Rule does not contain efficiency standards for Tier II biomass electricity generation facilities. *See* Proposed Rule Sec. 6.1. Burning biomass causes GHG emissions.<sup>7</sup> Inefficient biomass facilities will cause substantially more GHG emissions.
- The Proposed Rule and its Coversheet do not cite or summarize any scientific study supporting the Department’s GHG assertions. *See* Proposed Rule; *see also* Proposed Rule Coversheet at 12-14. Those assertions, therefore, cannot be reliably assessed, leave no support in the administrative record for the GHG assertions, and suggest that the assertions are arbitrary.
- The Department does not consider any potential negative GHG emissions or climate change impacts caused by burning biomass fuels relative to the adoption of cleaner forms of electricity and heat generation – such as solar, wind, and heat pumps. Government policies “for burning wood create a double climate problem because this false solution is replacing real carbon reductions. Companies are shifting fossil energy use to wood, which increases warming, as a substitute for shifting to solar and wind, which would truly decrease warming.”<sup>8</sup> Heat pumps that rely on low GHG energy sources – such as wind and solar – produce meaningfully less GHG emissions than wood pellet stoves, even under the most sustainable and efficient circumstances for wood pellet stoves.<sup>9</sup>

*The Department’s Water Analysis.* The burning of wood biomass fuels produces harmful pollutants capable of entering Vermont’s water systems,<sup>10</sup> and harming aquatic organisms.<sup>11</sup> The Proposed Rule omits any analysis of such pollution. The Department instead seeks to shoehorn

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<sup>7</sup> *Id.*

<sup>8</sup> *See* Raven.

<sup>9</sup> *See* Buchholz at 15-16.

<sup>10</sup> *See* U.S. Environmental Protection Agency (“EPA”), Health & Environmental Effects of Particulate Matter (PM) (last visited July 27, 2021) (hereinafter, “EPA Health and Environmental Effects of Particulate Matter”), <https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm>; *see also* Danny Hartono, *et al*, *Impacts of Particulate Matter (PM2.5) on Freshwater Snail Parafossarulus Striatulus* (2017) [hereinafter, “Hartono”], <https://www.nature.com/articles/s41598-017-00449-5>.

<sup>11</sup> *See* Hartono (“The results suggest that high PM2.5 deposition in water bodies, associated with acidification and some metals, can have an adverse effect on aquatic organisms.”).

1986 Acceptable Management Practices (“AMP”) water analysis into the Proposed Rule. *See* Proposed Rule Coversheet at 17-18; *see also* email from Ms. Hanson, attached here as Exhibit 2 (explaining that most of the reports listed in the Proposed Rule Coversheet pertain to the AMP). The AMP does not address water pollution caused by Tier II and Tier III biomass combustion. It instead relates to harvesting. *See supra*. However, because the Proposed Rule facially allows unsustainable Tier III biomass and does not enforce its purported Tier II sustainability requirements, the AMP have little meaningful significance in the Proposed Rule.

*The Department’s Land Analysis.*<sup>12</sup> The Department states, without providing scientific support, that the Proposed Rule would benefit Vermont lands through the promotion of sustainable harvesting practices. However, and as previously noted, the Proposed Rule does not require sustainable harvesting for Tier III biomass fuels. *See* Proposed Rule Sec. 6.2. Those fuels may be sourced from clear-cutting. In addition, and as discussed above, the Tier II harvesting regulation is unenforceable under the Proposed Rule. *See* Proposed Rule Sec. 6.1. The Department does not address how forests supplying unsustainably harvested Tier II and Tier III biomass may become tree plantations destined for deforestation. The Proposed Rule’s claimed benefits to lands are illusory.

*The Department’s Recreation Analysis.* The Department fails to account for the extent to which elevated levels of pollution caused by increased biomass burning could affect Vermont’s air,<sup>13</sup> water,<sup>14</sup> and aquatic species,<sup>15</sup> or Vermont’s recreational activities that rely on those resources. The Department also fails to account for the extent to which GHG emissions caused by burning biomass will negatively impact Vermont’s winter recreation opportunities.<sup>16</sup>

*The Department’s Climate Analysis.* The Department’s climate analysis is deficient for the same reasons its GHG emissions analysis is deficient.<sup>17</sup>

*Other.* The Department erroneously states that “[b]ecause wood fuels must come from forest operations overseen by a licensed forester, there *may* be other ecosystem benefits that arise from sound forest management, like wetland and vernal pool protection.” (emphasis added). The

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<sup>12</sup> *See* note 1, *supra*.

<sup>13</sup> American Lung Association, *Public Policy Positions on Energy and Transportation* (June 22, 2019), <https://www.lung.org/policy-advocacy/public-policy-positions/public-policy-position-energy>.

<sup>14</sup> *See* EPA Health and Environmental Effects of Particulate Matter.

<sup>15</sup> *See* Hartono, *supra*, note 11.

<sup>16</sup> *See* State of Vermont, *Climate Change in Vermont, Less Snow Cover* (last visited July 27, 2021), <https://climatechange.vermont.gov/our-changing-climate/dashboard/less-snow-cover>.

<sup>17</sup> *See* pages 6-8 and notes 3-9, *supra*.

Proposed Rule is uncertain by its own terms, stating that any additional benefits “may” occur. It also fails to provide scientific bases for those possible ecosystem benefits. In addition, the lack of enforceable Tier II and Tier III sustainable harvesting requirements means that Tier II and Tier III biomass fuels could come from forests that are unsustainably managed and cultivated, making the claimed possible benefits, if they in fact could materialize, less certain. *See* Proposed Rule Sec. 6. In addition, the Department’s environmental analysis omits any discussion about the known human health impacts caused by biomass combustion pollution.<sup>18</sup>

*The Department’s Sufficiency Analysis.* The Department’s Environmental Impact Analysis is insufficient for the reasons described above.

### ***The Proposed Rule is Deficient for Failing to Evaluate Affected Vermonters***

3 V.S.A. § 839(a)(4) requires that the Proposed Rule contain “an explanation of the people . . . affected by the rule.” However, the Department’s analysis focuses exclusively on the business and regulatory community and fails to assess impacts on actual Vermonters. The Proposed Rule Coversheet enumerates the following affected entities: “VT Agency of Natural Resources; Department of Forests, Parks & Recreation; Public Service Department; loggers; foresters; public utilities; and others involved with development of Tier II or Tier III projects.” *See* Proposed Rule Coversheet at 3-4.<sup>19</sup> The Department does not identify a single Vermonter who would be negatively affected by (1) fine particulate matter emitted from Tier II and Tier III biomass projects, (2) GHG emissions emitted from Tier II and Tier III biomass projects, or (3)

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<sup>18</sup> *See* EPA Health and Environmental Effects of Particulate Matter; *see also* American Lung Association, *Particle Pollution* (last visited July 27, 2021) (“Overwhelming evidence shows that particle pollution—like that coming from that exhaust smoke—can kill. . . . Burning wood in residential fireplaces and wood stoves as well as wildfires, agricultural fires and prescribed fires are some of the largest sources.”), <https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/particle-pollution>; Helinow J. Johnson, *et al.*, *How Harmful Is Particulate Matter Emitted from Biomass Burning? A Thailand Perspective* (Nov. 11, 2019) (“A large body of epidemiological evidence has clearly demonstrated that short- and long-term exposure to particulate matter (PM) is associated with increased morbidity and mortality.”); British Columbia, HealthLinkBC, *Particulate Matter and Outdoor Air Pollution* (last visited July 27, 2021) (“One of the largest sources of particulate matter in [British Columbia] is residential wood burning. Wood smoke may come from residential sources such as a fireplace or wood stove in a home.”), <https://www.healthlinkbc.ca/healthlinkbc-files/outdoor-air-pollution>; VT Dept. of Environmental Conservation, Air Quality & Climate Div., *Vermont Annual Air Monitoring Network Plan 2021 at 22* (July 1, 2021) (noting DEC monitors black carbon, *i.e.*, fine particulate matter, caused by “wood smoke, biomass-burning smoke, and tobacco smoke”).

<sup>19</sup> The Department’s limited economic impact analysis adds the following additional entities: “landowners” and “others associated with wood harvesting.” *See* Proposed Rule Coversheet at 8.



the impacts on Vermont communities in which Tier II electricity generation facilities would be sited. Nor has the Department assessed the negative health, quality of life, or financial impacts that would be felt by those Vermonters.

The omission of the Proposed Rule’s impacts on Vermonters is significant:

- Burning wood biomass produces fine particulate matter and black carbon that can enter human lungs and bloodstream and be detrimental to human health.<sup>20</sup> Vermont’s Department of Health and Department of Environmental Conservation have long recognized that fact.<sup>21</sup> The fine particulate matter caused by biomass combustion has long been regulated as a federal criteria pollutant.<sup>22</sup> Vermonters are aware of the dangers of particulate pollution because of now-frequent wildfire wood combustion events.<sup>23</sup> The Department should weigh the fact that biomass facilities produce significantly more pollutants than coal and natural gas burning facilities.<sup>24</sup>
- Burning wood biomass produces new GHG emissions that cause climate change.<sup>25</sup> The Department neglected to assess any impacts likely to be felt by Vermont – such as

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<sup>20</sup> See note 18, *supra*.

<sup>21</sup> Vermont Department of Health, Health & The Environment, Tracking Air Quality, What is Particulate Matter? (last visited July 27, 2021), <https://www.healthvermont.gov/tracking/air-quality>; Vermont Department of Environmental Conservation, Local Air Quality Forecasts (last visited July 27, 2021), <https://dec.vermont.gov/air-quality/local-air-quality-forecasts>.

<sup>22</sup> EPA, Criteria Air Pollutants (last visited July 28, 2021) (listing fine particulate matter as one of six criteria air pollutants regulated by the EPA under the National Ambient Air Quality Standards), <https://www.epa.gov/criteria-air-pollutants>.

<sup>23</sup> See Joel Banner Baird, *Wildfire Smoke Again Pollutes Vermont With Unhealthy Air*, BURLINGTON FREE PRESS (July 27, 2021) (“Air quality in much of Vermont remained subpar Tuesday morning, after red-lining into the ‘dangerous’ category Monday afternoon. . . . Children, the elderly and people with respiratory or heart diseases are most at risk from elevated levels of particle pollution, and should limit outside exercise during air-quality alerts, state officials warned.”), <https://www.burlingtonfreepress.com/story/news/2021/07/27/vermont-air-quality-suffers-wildfire-smoke-prompting-alert/5383420001/>.

<sup>24</sup> See Booth at 5 (“Comparison of permits from modern coal, biomass, and gas plants shows that a even the “cleanest” biomass plants can emit > 150% the nitrogen oxides, > 600% the volatile organic compounds, > 190% the particulate matter, and > 125% the carbon monoxide of a coal plant per megawatt-hour. . . . Emissions from a biomass plant exceed those from a natural gas plant by more than 800% for every major pollutant.”).

<sup>25</sup> See, e.g., Raven.

extreme heat, increased flooding, more intense storms, shorter sugaring seasons, shorter skiing seasons, and increased tick-borne illnesses – due to increased GHG emissions.<sup>26</sup>

- The locations in which new Tier II projects would be sited will impact Vermonters living in adjacent communities. Pursuant to Act 56 Sec. 3(c)(1), codified as 30 V.S.A. § 8005(c)(1), distributed renewable generation that burns biomass to produce electricity must “produce[] both electricity and thermal energy from the same biomass fuel and the majority of the energy recovered from the plant is thermal energy.” To recover sufficient thermal energy to satisfy that provision, it is very likely that a Tier II biomass electricity generating facility would need to be sited proximately to the homes and businesses that would use the thermal energy. Such proximity would facilitate the transmission of heat. It would also facilitate the transmission of carcinogenic air pollutants, such as fine particulate matter, in those same areas. The Proposed Rule fails to assess this risk. It also fails to contemplate siting requirements to protect Vermonters’ health and prevent disproportionate harms in historically marginalized communities.

### ***The Department’s Scientific Basis is Deficient***

3 V.S.A. § 838(a) requires the Department to conduct a summary of the scientific information upon which the Proposed Rule is based because the Proposed Rule depends on scientific information for its validity. The Department referenced no scientific reports in its environmental or economic analyses. See Proposed Rule Coversheet at 12-14. Instead, the Department asserts in a conclusory manner that “there is extensive scientific research supporting the environmental and carbon benefits of keeping forests as forests, as well as research on the greenhouse gas benefits of utilizing wood for thermal energy.” See *id.* at 17. However, the Department provides no analysis or summary of those scientific sources. The Department instead lists several reports, many of which were published in the 1970s and 1980s. See *id.* at 17-18. The bulk of those materials pertain to the establishment of the AMPs for maintaining water quality on logging jobs, see Exhibit 2, and are only marginally related to the GHG emissions, pollution impacts, climate change, and clean energy alternative considerations that should be central to the Department’s analysis of the Proposed Rule.

The Department’s scant scientific basis is also deficient for the following reasons:

- *GHG Emissions and Climate Change.* The Department did not consider that significant

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<sup>26</sup> See, e.g., State of Vermont, Climate Change in Vermont, Our Changing Climate (last visited July 27, 2021), <https://climatechange.vermont.gov/vermonts-changing-climate>.

amounts of stored forest carbon are lost at the time of timber harvest.<sup>27</sup> Nor did the Department consider that burning biomass emits more carbon than burning coal for an equivalent amount of energy.<sup>28</sup> Nor did the Department consider that when wood “harvest levels increase due to pellet production, using pellet heat increase[s] GHG emissions” relative to fossil fuel.<sup>29</sup> A letter sent by 200 scientists to U.S. congressional leadership in 2020 explains that “scientific evidence does not support the burning of wood in place of fossil fuels as a climate solution. Current science finds that burning trees for energy produces even more CO<sub>2</sub> than burning coal, for equal electricity produced, and the considerable accumulated carbon debt from the delay in growing a replacement forest is not made up by planting trees or wood substitution.”<sup>30</sup> Although Vermont’s forests currently sequester 50% of Vermont’s annual carbon emissions,<sup>31</sup> Vermont’s forests could sequester and store 2.3 to 4.2 times more carbon.<sup>32</sup> It will likely take decades or centuries to restore forest carbon levels reduced by harvesting.<sup>33</sup>

- *Land.* The Department did not consider that wood harvesting practices often change dramatically when new biomass energy generation facilities come online. If “the world supplied just an additional 2% of its energy from wood, it would need to double its commercial wood harvests.”<sup>34</sup> In Europe, for example, biomass electricity generation facilities built in the last decade have resulted in a 49% increase in harvested area and a 69% loss of forest biomass for the period of 2016–2018 relative to 2011–2015.<sup>35</sup> A 2019

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<sup>27</sup> See Tara W. Hudiburg, *Meeting GHG reduction targets requires accounting for all forest sector emissions*, ENVIRON. RES. LETT. (2019); see also N.L. Harris, et al, *Attribution of net carbon change by disturbance type across forest lands of the conterminous United States*, CARBON BALANCE & MANAGEMENT (2016).

<sup>28</sup> John D. Sterman, et al, *Does replacing coal with wood lower CO<sub>2</sub> emissions? Dynamic lifecycle analysis of wood bioenergy*, ENVIRON. RES. LETT. (2018) (hereinafter, “Sterman”).

<sup>29</sup> See Buchholz at i & 11.

<sup>30</sup> Letter to Congressional leadership from “Scientists concerned about climate and biodiversity impact of logging” (May 8, 2020), <https://sites.tufts.edu/gdae/files/2020/05/Forest-Letter-to-Congress.pdf>.

<sup>31</sup> Final Report, Vermont Forest Carbon Sequestration Working Group (Jan. 2020).

<sup>32</sup> William S. Keeton, et al, *Late-successional biomass development in northern hardwood-conifer forests of the Northeastern United States*, FOREST SCIENCE (2011.)

<sup>33</sup> See Sterman at 6.

<sup>34</sup> See Raven.

<sup>35</sup> Guido Ceccherini, et al, Abrupt increase in harvested forest area over Europe after 2015, NATURE

study in Michigan demonstrates that “soil ecosystems can be negatively affected by intensive biomass harvesting due to losses of organic inputs and soil compaction, ultimately leading to reduced forest productivity.”<sup>36</sup> Soils contain up to 50% of the carbon pool in Northeastern U.S. forests, and a recent Dartmouth College study demonstrated a “significant, negative relationship between time after harvest and mineral soil [carbon] pools.”<sup>37</sup>

- *Forest and Water Ecosystems.* A healthy forest floor is a critical foundation for the forest ecosystem. Structurally complex forests with high levels of dead and dying wood were the native conditions of most Vermont landscapes.<sup>38</sup> Many insect species evolved to depend on the decay of dying and dead trees for their survival. In turn, those species are food for birds and other wildlife. And a wide range of species depend on dead and dying wood for security, nesting, and denning habitat, from amphibians to birds and bears.<sup>39</sup> By creating new commercial value for dead or dying snags and downed wood, these important components of healthy forests will be increasingly removed during harvest activities. Pollution generated by burning biomass can also enter water ecosystems and harm aquatic organisms.<sup>40</sup> The Department’s analysis presumes, without providing supporting analysis, that the AMPs are sufficient to maintain overall ecological health in the face of harvesting and biomass pollution. The Department’s analysis should explain the extent to which the AMPs provide ecological and pollution protections in the specific context of a biomass renewable energy standard. The Department’s analysis should also address topics on which the AMPs are relatively silent – such as retention of woody

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(2020). <https://www.nature.com/articles/s41586-020-2438-y>.

<sup>36</sup> Tera E. Lewandowski *et al*, *Long term effects of intensive biomass harvesting and compaction on the forest soil ecosystem 1*, SOIL BIOLOGY & BIOCHEMISTRY (2019), <https://www.sciencedirect.com/science/article/abs/pii/S0038071719302366>.

<sup>37</sup> Chelsea L. Petrenko & Andrew J. Friedland, *Mineral soil carbon pool responses to forest clearing in Northeastern hardwood forests*, GCB BIOENERGY (2015), <https://onlinelibrary.wiley.com/doi/full/10.1111/gcbb.12221>.

<sup>38</sup> Eric Sorenson & Robert Zaino, Vermont Conservation Design: Maintaining & Enhancing an Ecologically Functional Landscape 24 (Feb. 2018), <https://vtfishandwildlife.com/sites/fishandwildlife/files/documents/Conserve/VT%20Conservation%20Landscape-level%20Design/Vermont-Conservation-Design-Summary-Report-February-2018.pdf>.

<sup>39</sup> Simon Thorn, et al, *The living dead: acknowledging life after tree death to stop forest degradation*, (2020).

<sup>40</sup> See Hartono, *supra*, note 11.

debris, maximum logging road density, and whole-tree harvesting below limits imposed by Vermont’s Heavy Cut Law.

- *Air Pollution.* The Department did not consider that burning biomass endangers Vermont’s air quality with particulate pollution.<sup>41</sup> The American Lung Association states: “[We do] not support biomass combustion for electricity production, a category that includes wood, wood products, agricultural residues or forest wastes, and potentially highly toxic feedstocks, such as construction and demolition waste.”<sup>42</sup> The American Lung Association explains that “[b]urning biomass can emit recognized air pollutants, including particulate matter and other carcinogens, which cause premature death and endanger respiratory health.”<sup>43</sup>

### *The Economic Impact Analysis is Deficient*

The Department’s “economic impact analysis shall analyze the anticipated costs and benefits to be expected from adoption of the rule.” See 3 V.S.A. § 838(b). Specifically, the Commissioner “shall, for each requirement in the rule,” both “list each category of people, enterprise, and government entities potentially affected and estimate for each the costs and benefits anticipated”; and “compare the economic impact of the rule with the economic impact of other alternatives to the rule, including having no rule on the subject . . . .” *Id.* The Proposed Rule and its Coversheet are deficient for failing to meet these minimal requirements and thereby failing to consider substantial economic impacts that may result from the Proposed Rule.

*Summary of the Department’s Economic Impact Analysis.* On page 4 of the Proposed Rule Coversheet, the Department states that “[t]he economic impact of this rule will be minimal. Any limited additional expenditure necessitated by the rule will be offset by the incentives made available via Tier II and Tier III.” See Proposed Rule Coversheet at 4. On pages 8 through 11 of the Proposed Rule Coversheet, the Department provides analysis pertaining to Vermont schools and small businesses that might choose to utilize Tier III transformation projects. See Proposed Rule Coversheet at 8-11. There, the Department states that schools and small businesses would not be penalized for failing to comply with the proposed Tier III efficiency standards and would receive an incentive if they do comply. *Id.* The Department provides no assessment of any Tier

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<sup>41</sup> See note 18, *supra*.

<sup>42</sup> American Lung Association, *Public Policy Positions on Energy and Transportation* (June 22, 2019), <https://www.lung.org/policy-advocacy/public-policy-positions/public-policy-position-energy>.

<sup>43</sup> *Id.*

II economic impacts. *Id.*

The Department's scant economic analysis is deficient and incomplete:

- The Proposed Rule and its Coversheet provide no analysis as to the proposed Tier II biomass electricity generation requirements. *Compare* Proposed Rule Coversheet at 4, 8-11, *with* Proposed Rule Sec. 6.1. This omission is significant because Tier II biomass electricity generation is a major part of the Proposed Rule and 3 V.S.A. § 838(b) requires that the Department conduct an economic impact analysis for each requirement of the Proposed Rule. The Department has failed to do so. The Proposed Rule is deficient as a matter of law. *See* 3 V.S.A. § 838(b).
- The Department does not provide any analysis of financial costs to Vermonters whose homes and businesses would be located near new Tier II biomass facilities that emit fine particulate matter. *See id.*
- The Department does not provide an economic impact analysis on alternatives to the proposed Tier II standards pertaining to biomass electricity generation, such as cleaner forms of electricity generation that do not emit pollutants or GHGs. *See id.* Nor does the Department conduct an economic analysis of the cost to Vermonters if Tier II biomass electricity generation facilities displace other Tier II electricity generation facilities that use no- and low-GHG emissions sources, like wind and solar. *See id.*
- The Department does not provide economic analysis as to how the Proposed Rule will in fact provide sufficient economic incentives to maintain forests as forests (as assumed by the Proposed Rule) relative to other income alternatives, like subdividing and clear-cutting forests.
- The Department does not provide economic analysis pertaining to the cost to Vermonters and Vermont lands and waters if Tier III biomass is harvested unsustainably, as the Proposed Rule allows. *See* Proposed Rule Sec. 6.2. Nor does the Department provide economic analysis pertaining Tier II biomass being harvested unsustainably, as the Proposed Rule effectively allows by omitting an enforcement mechanism. *See* Proposed Rule Sec. 6.1.
- The Department does not assess the economic impact of Tier II and Tier III projects that do not comply with harvesting or efficiency standards, and thereby (1) presumably become ineligible for incentives, and/or (2) externalize economic costs and burdens to



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Vermonters.

- The Department provides no analysis explaining how the unspecified incentives will actually offset expenditures. It is thus unclear whether the Department has conducted sufficient analysis to support its primary conclusion.

**Conclusion**

The Proposed Rule should be withdrawn for the foregoing reasons. Thank you for taking the time to review and consider CLF's concerns.

Sincerely Yours,

/s/

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Chase S. Whiting  
Staff Attorney  
Conservation Law Foundation  
15 East State Street, Suite 4  
Montpelier, VT 05602-3010

/s/

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Zack Porter  
Lake Champlain Lakekeeper  
Conservation Law Foundation  
15 East State Street, Suite 4  
Montpelier, VT 05602-3010

## Exhibit 1

**From:** [Hanson, Emma](#)  
**To:** [Chase Whiting](#)  
**Subject:** RE: Question about the proposed biomass renewable energy standard  
**Date:** Monday, July 19, 2021 12:18:03 PM

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CAUTION: Email from outside CLF.

Hello Chase,

That is a typo – good catch, I’m amazed no one else noticed that. It should say, “To qualify as a Tier II Distributed Renewable Energy Project for the purposes of this Rule and Chapter 89…”

The Tier III in section 5, Land, is also a typo. It should say Tier II.

Thank you,  
Emma



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**Emma Hanson** | Wood Energy Coordinator  
Vermont Department of Forests, Parks & Recreation  
1 National Life Drive, Davis 2 | Montpelier, VT 05620  
802-622-4187

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**From:** Chase Whiting <cwhiting@clf.org>  
**Sent:** Sunday, July 18, 2021 10:25 PM  
**To:** Hanson, Emma <Emma.Hanson@vermont.gov>  
**Subject:** Question about the proposed biomass renewable energy standard

**EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.**

Hi Emma,

I hope this email finds you doing well. My name is Chase Whiting. I am a staff attorney with Conservation Law Foundation who has been reviewing the proposed biomass renewable energy standard and its coversheet. I have a couple of quick questions I am hoping you can please help clarify.

Question about Section 6.1 of the proposed biomass renewable energy standard:

- Brief background on the questions: The heading on Section 6.1 is “Tier II Distributed Renewable Energy Projects.” However, the first sentence of that section states: “To qualify as a Tier II *Energy Transformation Project* . . .” (emphasis added). My understanding is that



transformation projects are typically thought of under Tier III (which is consistent with the Section 6.2 heading: “Tier III Energy Transformation Projects”), and that distributed renewable energy projects are thought of under Tier II (which is consistent with the Section 6.1 heading: “Tier II Distributed Renewable Energy Projects”).

- **Questions:** I am wondering if the first sentence of Section 6.1 is intended to say: “To qualify as a Tier II Distributed Renewable Energy Project . . .” Can you please clarify whether the first sentence of Section 6.1 contains a typo? If so, can you please also clarify what the first sentence of Section 6.1 is intended to say?

Question about Environmental Impact Analysis Section 5 (“Land”) from the Coversheet:

- The first sentence of this section refers to “Tier III projects” but all other references in the section refer to Tier II. I am wondering if the first sentence is intended to refer to “Tier II projects”? Can you please clarify if the first sentence has a typo and, if so, what that sentence is intended to say?

Many thanks for your help with these questions.

Kind regards,

Chase

**Chase Whiting**

Staff Attorney  
Conservation Law Foundation  
*Pronouns: he/him/his*

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**P:** 802-622-3009

**E:** [cwhiting@clf.org](mailto:cwhiting@clf.org)

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**From:** [Hanson, Emma](#)  
**To:** [Chase Whiting](#)  
**Subject:** RE: Scientific source documents  
**Date:** Monday, July 26, 2021 3:36:46 PM  
**Attachments:** [Permanent Logging Roads for Better Woodlot Management 1977.pdf](#)

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CAUTION: Email from outside CLF.

Hello Chase,

Thanks for reaching out, I hope you had a nice weekend with the welcome burst of sunshine!

To your first question, you do not have to purchase the Buchholz paper. If you click on "View Open Manuscript" rather than "Purchase PDF" you can view it for free.

To your second, the references are the same as those referenced in the AMP rule and they are included here due to the reliance upon the AMPs in the Biomass Rule. I was able to locate links to three of the five, a pdf and a library copy of a fourth, and the fifth I've reached out to a colleague who worked on the AMP rule to see if he has a copy.

- **Hausman, R.F. and Pruett, E.W. Permanent Logging Roads for Better Woodlot Management, 1973, USDA Forest Service, State and Private Forestry, Upper Darby, Pennsylvania.**
  - [Copy available at Middlebury College](#)
- **[Kochenderfer, J.N., Erosion Control on Logging Roads in the Appalachians. Research Paper NE-158, 1970, USDA Northeastern Forest Experiment Station, Upper Darby, Pennsylvania.](#)**
- **[Lawlor, Sean M., Determination of Channel-Morphology Characteristics, Bank full Discharge, and Various Design-Peak Discharges in Western Montana, 2004, U.S. Geological Survey, Reston, Virginia.](#)**
- **[Landowner's Guide to Building Forest Access Roads; Richard L. Wiest; USDA Forest Service, Northeastern Area State and Private Forestry; NA - TP - 06 - 98, Radnor PA July 1998](#)**
- **Filter Strip Widths for Forest Roads in the Southern Appalachians, 1986, Lloyd W. Swift, Jr., USDA Forest Service, Revised July 1, 2015, Southeastern Forest Experiment Station, Coweeta Hydrologic Laboratory, Otto, NC 28763.**
  - Not the full paper, but abstract and charts available [here](#)

I will let you know when I hear back from my colleague on the Filter Strip article.

Thank you,  
Emma



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**Emma Hanson** | Wood Energy Coordinator

## Hanson, Emma

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**From:** Douglas Smith <douglasvsmith@icloud.com>  
**Sent:** Friday, July 30, 2021 10:18 AM  
**To:** ANR - Biomass RES  
**Subject:** Proposed Rule: biomass renewable energy standard

**EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.**

To ANR:

Attempts to attend public hearing by internet were not successful. I am certain the industry made it. So much for PUBLIC input.

This is an extraordinarily inappropriate time to be issuing these proposed rules. The state — actually ANR believe it or not — is engaged in two long term planning exercises to determine, among many other things, the role of biomass in Vermont's energy future. Yet you choose now to issue your standards — seemingly oblivious to these planning efforts. Not a good sign.

Biomass burning to generate electricity is worse for the climate than coal burning when effects on forest ecology are considered. We need to close large biomass combustion facilities, not issue efficiency standards.

Please hold off on these standards until Vermont's energy and climate planning exercises are finished.

Sincerely,

Douglas V. Smith  
international energy consultant, retired  
Sharon, VT



July 30, 2021

Ms. Emma Hanson  
Vermont Department of Forests, Parks and Recreation  
1 National Life Drive, Davis 2  
Montpelier VT 05620-3801

Re: Proposed Biomass Renewability Standard

Dear Ms. Hanson,

Thank you for the opportunity to comment on the establishment of renewability standards for forest products used to generate energy by distributed renewable generation and energy transformation projects within the Renewable Energy Standard (RES).

In addition to some aspects of the proposal's substance, REV questions the timing of this rulemaking process. It has been six years since biomass was included in the Renewable Energy Standard in 2015. In four months, the Climate Council will release the Climate Action Plan and shortly after that, the Department of Public Service will release the updated Comprehensive Energy Plan. These plans will determine Vermont's path toward reducing greenhouse gas emissions and will undoubtedly shape requirements that may need to be placed on biomass.

It also appears clear that the legislature did not intend the Department of Forest Parks and Recreation (FPR) to specifically require an efficiency standard for biomass to qualify for Tier III. Title 10 V.S.A. § 2751 indicates only that rulemaking "may include minimum efficiency standards." If FPR decides to move forward with an efficiency requirement, REV recommends a careful stakeholder engagement process because there is currently a lack of government or industry consensus on appropriate biomass efficiency standards and methodology. Different testing methodologies can produce different results even when applied to the same appliance.

REV also cautions against applying any standards that are redundant with current federal, state and industry standards that will slow the deployment of new efficient and much-needed Tier III projects. An additional efficiency requirement will add cost and time to an already lengthy process, disincentivizing not only new deployments, but also upgrades from less efficient equipment to newer, more efficient systems. In addition, a new efficiency standard could slow efforts currently underway with Distribution Utilities to expand the participation of Advanced Wood Heat and other efficient wood energy systems in Tier III.

Given the lack of consensus on measurement and testing, the upcoming release of the Comprehensive Energy Plan and Climate Action Plan, and the fact that any new regulation / rule

would take time and effort to modify in the future, REV respectfully recommends that the Department of Forest, Parks and Recreation re-evaluate the adoption of efficiency standards under the RES. If establishing efficiency standard is determined to be necessary, REV recommends a robust stakeholder process to determine methods of renewability and/or what the efficiency standards should be.



We look forward to further engagement on these important questions.

Sincerely,

*Lisa Cline*

Lisa Cline  
Communications Manager  
Renewable Energy Vermont

## Hanson, Emma

---

**From:** Laura Simon <simonlaura06@gmail.com>  
**Sent:** Friday, July 30, 2021 10:07 AM  
**To:** ANR - Biomass RES  
**Subject:** Biomass Standarts

**EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.**

Hello,

I am concerned that development of biomass standards is poorly timed - i.e it is premature given concurrent processes underway in the state to develop a revised Comprehensive Energy Plan and also to meet the mandates under the Global Warming Solutions Act, with a Climate Action Plan.

Burning wood releases very large amounts of greenhouse gases. The “carbon neutrality” claim is a myth that has led to increasing rather than decreasing emissions, and our best tool for removing CO2 from the atmosphere is to allow forests to grow rather than cutting trees and burning them.

--

Laura Simon, social worker, activist, teacher, musician  
P.O. Box 1112 Wilder, VT 05088  
802 296-8318

“ Let us put our minds together to see what kind of future we can make for our children....” Sitting Bull

## Hanson, Emma

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**From:** Lilian Shen <lilian.shen.vt@gmail.com>  
**Sent:** Monday, July 26, 2021 10:55 AM  
**To:** ANR - Biomass RES  
**Subject:** Renewable Energy Standard and TREE BIOMASS:

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Please read my public comment on Renewable Energy Standard and TREE BIOMASS:

The claim that burning biomass from wood is carbon neutral is a sham. It appears that you are ignoring the science in favor of profits for the logging and biomass industry.

For a start, the biomass industry is deceiving us. They falsely state that they burn only "waste" yet it is apparent to anyone who visits a biomass facility that their wood yards are piled high with WHOLE TREES.

It's been made abundantly clear by the Intergovernmental Panel on Climate Change (2018-2019) that forests play a MAJOR role in sequestering carbon from the atmosphere. Existing forests of MATURE TREES are many times more efficient at carbon absorption than forests that re-grow after logging.

The assertion that burning tree-derived biomass is "carbon neutral" and "renewable" is COMPLETELY ERRONEOUS. New forests don't approach the carbon absorbing ability of the forests they replace. Data shows that trees less than 50 years old store do not approach the carbon storing capacity of trees in the 50-150 year range and beyond.

In addition, regrowth forests may never equal what was once there. Often they are less healthy because the necessary nutrients were removed in the trees that were felled and trucked away. Climate change is advancing NOW - and rapidly. It is nonsense to think that removing some of today's carbon decades in the future via regrowth forests is any solution to climate change.

Burning trees releases more carbon dioxide than burning fossil fuels and it is as dirty as coal. The only realistic way to make use of trees to combat climate change is to LEAVE THEM UNCUT.

Energy derived from burning trees is not "renewable energy" and must be withdrawn from the Renewable Energy Standards

**Hanson, Emma**

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**From:** Lindsey Berk <lindseyberk@gmail.com>  
**Sent:** Friday, July 30, 2021 11:06 AM  
**To:** ANR - Biomass RES  
**Subject:** Biomass Standard for Renewable Energy Standard

**EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.**  
To Whom it May Concern,

I am writing to express my concern about biomass' role in Vermont's future energy and climate policies.

There is growing recognition that burning wood releases very large amounts of greenhouse gases, that the "carbon neutrality" claim is a myth that has led to increasing rather than decreasing emissions, and that our best tool for removing CO2 from the atmosphere is to allow forests to grow rather than cutting trees and burning them.

Protecting and restoring forests is critical and doing so must take priority over providing biomass as "renewable energy." I oppose the use of biomass for power generation in Vermont.

Thank you,  
Lindsey Berk  
Brandon, VT



## Hanson, Emma

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**From:** Mark N <m.a.nelson@live.com>  
**Sent:** Friday, July 30, 2021 9:57 AM  
**To:** ANR - Biomass RES  
**Subject:** Proposed Rule: Biomass Renewable Energy Standard

**EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.**

I would like to submit the following comments concerning the Proposed Rule: Biomass Renewable Energy Standard

I am concerned that development of biomass standards is poorly timed given the concurrent processes underway in the state to develop a revised Comprehensive Energy Plan and also to meet the mandates under the Global Warming Solutions Act, with a Climate Action Plan. Both of these are likely to be relevant to the underlying role of biomass in the state's energy mix.

Biomass should play only a minimal role, home heating with high efficiency equipment, in any future energy and climate policy, as there is growing recognition that burning wood releases very large amounts of greenhouse gases, that the "carbon neutrality" claim is a myth that has led to increasing rather than decreasing emissions, and that our best tool for removing CO2 from the atmosphere is to allow forests to grow rather than cutting trees and burning them.

Power generating facilities require very large amounts of biomass which cannot be supplied over long periods without serious negative consequences to forests. Similarly, a concentration of small users - residences, schools etc can also put an unsustainable demands in place. Where subsidies and policy supports incentivize use of biomass, scale of demand will expand. This is particularly true where faulty assumptions about the climate costs and benefits remain (failure to account for greenhouse gas emissions from harvest, preparation, and combustion, which contributes further to incentives).

Climate change requires that we protect and restore forest ecosystems, best achieved by limiting logging and disturbances to forests. In fact growing forests and allowing them to remain un-logged is the best available method we currently have at hand for sequestering and storing carbon from the atmosphere. It is also key to protecting waterways and biodiversity. Protecting and restoring forests is critical and doing so must take priority over providing biomass as "renewable energy".

The climate impacts of expanded demand for wood, in particular, are not addressed by standards. A letter from some 800 scientists delivered to EU policymakers states: *"the life-cycle greenhouse gas emissions of wood-based bioenergy are not in any way related to forest management practices. Introducing 'sustainable forest management' standards for biomass does nothing to protect the climate... even if forests are allowed to regrow, using wood deliberately harvested for burning will increase carbon in the atmosphere and warming for decades to centuries - as many studies have shown -even when wood replaces coal, oil or natural gas. The reasons are fundamental and occur regardless of whether forest management is "sustainable".*

Standards for biomass have proven to be largely ineffective. Several reports and briefings on this topic have been produced in the context of European policy making which has proceeded in advance of other regions, providing important lessons for us here in Vermont.

A 2020 report from Biofuelwatch and Global Forest Coalition **“Can sustainability and GHG standards protect the climate, forests and communities from the harmful impacts of wood-based bioenergy?”** highlights that to date all greenhouse gas standards for biomass continue to fail to account for carbon released from burning nor from logging activities, nor the loss of sequestration. Doing such an accounting for emissions however would be extremely difficult given the many assumptions and counterfactuals that would be necessary.

Some have referred to standards limiting to use of only “residues”. Yet the term residue remains easily manipulated and ill-defined - having been applied to many forms of roundwood and low grade wood, leading to intensified harvesting. Increased demand for residues for bioenergy also can divert from existing markets, ultimately driving up logging rates. A 2019 study showed that even use of genuine forestry residues is incompatible with the goal of limiting global warming to 1.5 degrees.

A study published in Nature 2019 titled *“Abrupt increase in harvested forest area over Europe after 2015”* identifies increasing demand for biomass as renewable energy as the most probable driver of deforestation across Europe. This is in spite of EU and some country level biomass and forestry “standards”.

A 2021 report by FERN is titled “Unsustainable and Ineffective: Why EU forest biomass standards wont stop destruction” Within are numerous case studies illustrating the failure of standards to forestall harms created when there are policies and incentives in place driving unsustainable demand. *“The EU implementing rules offer no measures to minimise the destructive consequences of wood burning. Compliance with the sustainability criteria will be a simplistic box-ticking exercise to determine the existence of relevant laws, not their adequacy and effectiveness.”*

Biomass, other than for home heating with high efficiency equipment, has no place in Vermont's Renewable Energy Standards. To reiterate, biomass releases large amounts of greenhouse gases, the “carbon neutrality” claim is a myth that has led to increasing rather than decreasing emissions. Our best tool for removing CO2 from the atmosphere is to allow forests to grow rather than cutting trees and burning them.

Thank you for the opportunity to submit these comments about the Proposed Rule: Biomass Renewable Energy Standard.

Mark Nelson  
Ripton, VT

*“The wildlife and its habitat cannot speak, so we must and will.” ~ Theodore Roosevelt*



July 28<sup>th</sup>, 2021

Vermont Department of Forests, Parks and Recreation  
1 National Life Drive, Davis 2  
Montpelier, VT 05620-3801

18 N. MAIN STREET  
S U I T E 2 0 4  
CONCORD, NH 03301

6 0 3 - 2 2 9 - 0 6 7 9  
[northernforest.org](http://northernforest.org)

Dear Commissioner Snyder,

I am writing on behalf of the Northern Forest Center in support of Vermont's effort to develop a Biomass Renewable Energy Standard. Our work serves the Northern Forest Region—including much of Vermont—investing in the rural forest economy, supporting community revitalization, and providing leadership on issues of public policy and regional economic strategy. For over a decade, we have worked with Vermont businesses, conservation organizations, communities, and agencies to support the increased adoption of efficient modern wood heat in Vermont.

The Center applauds the State of Vermont for its inclusion of modern wood heat in its plans for a sustainable energy portfolio. When used for thermal energy, biomass significantly reduces greenhouse gas emissions compared to fuel oil or propane, making it a meaningful opportunity to address climate change using Vermont's abundant forest resources. Most wood fuel is a byproduct of other timber production and manufacturing, supporting forest-based jobs and providing a foundation for responsible forest management practices as a market for low grade wood. Incentivizing modern wood heat also generates substantial wealth retention for the state; approximately 75% of every dollar spent on wood fuel remains in the region, compared to only cents per dollar spent on fossil fuels. Wood heat is alone among renewables in providing this suite of co-benefits and has an essential role to play in Vermont's transition away from fossil energy sources.

As wood energy technologies are further developed, it is important that that they are held to a high standard of performance. At the same time, these standards must be attainable to avoid inadvertently becoming a barrier to modern wood heat in the state. We encourage that the proposed standard be crafted to not unnecessarily bar participation of larger industrial or district energy systems with high temperature thermal energy needs.

Thank you for your consideration.

Sincerely,

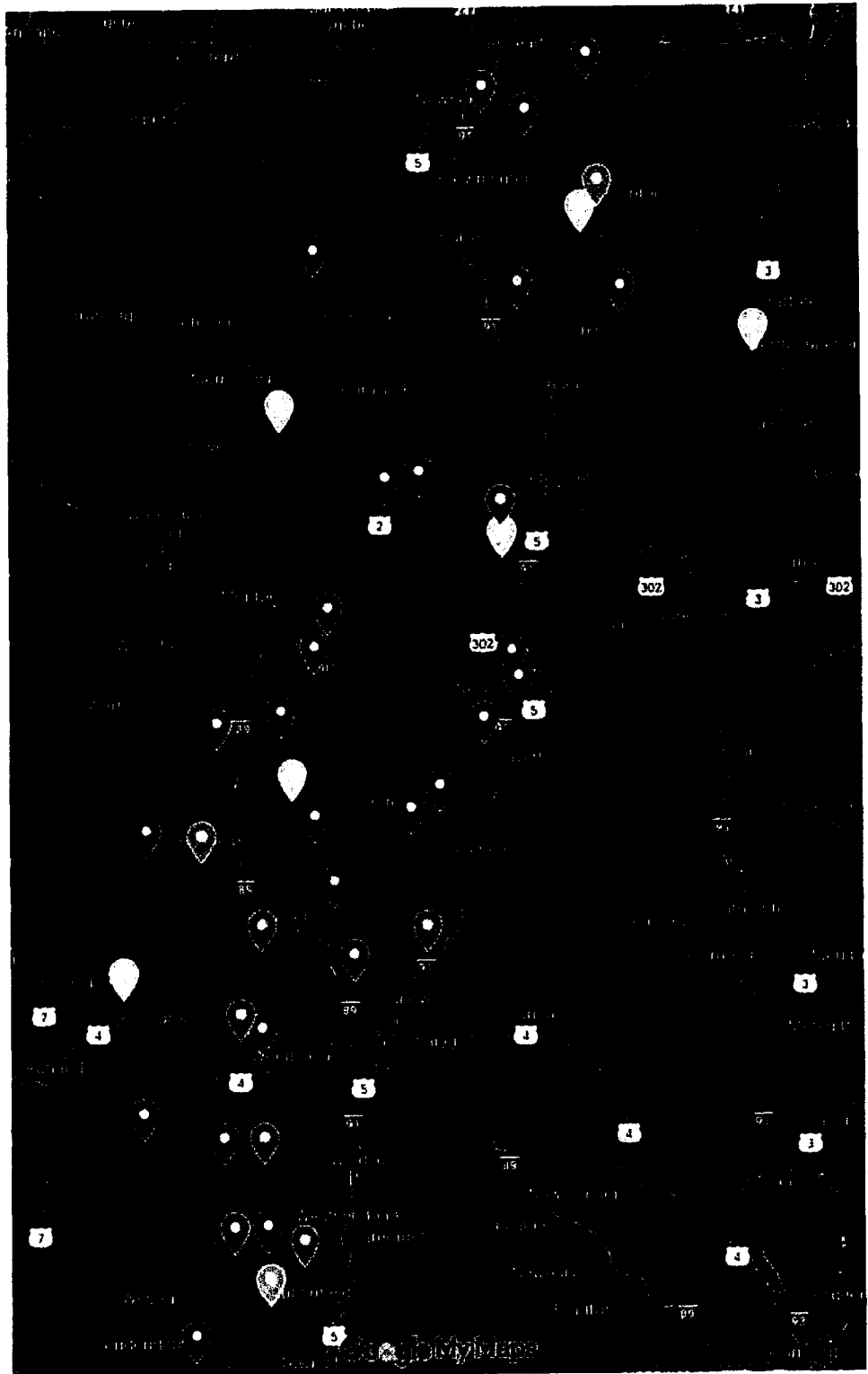
A handwritten signature in black ink that reads "Joe Short".

Joe Short, Vice President  
[jshort@northernforest.org](mailto:jshort@northernforest.org)  
(603) 491-2651

# Active Logging Jobs

## Active Logging Jobs

- 📍 Donny Lafavre  
P&L Loggers
- 📍 Gabe Freitag
- 📍 Perry/Cloud  
Jason Lowell
- 📍 Wolstenholme  
Jake Stevenson
- 📍 Manning
- 📍 Bret Lewis
- 📍 Calvin Johnson
- 📍 Jeff Norris
- 📍 Cloud - Bonning
- 📍 Richard Riendeau
- 📍 CPE Hooper
- 📍 Cloud Metcalf
- 📍 Berry
- 📍 Rich Hollstrom
- 📍 Jeff Porier
- 📍 Tristan Vaughan
- 📍 McHarg Powers
- 📍 Tony Dwyer
- Emerson
- 📍 Dennis Ducharme
- 📍 Cluet
- 📍 Gerard Riendeau
- 📍 Limlaw
- 📍 Taft
- 📍 Cloud Hiltbrand
- 📍 Kevin Blake
- 📍 Sam Lincoln
- 📍 Knapp
- 📍 Jeff Masure
- 📍 Calvin Willard  
Walt Bandy
- 📍 Buzz Emerson
- 📍 Cadwell
- 📍 CPE Seawright
- 📍 Limlaw



- 📍 Webster
- 📍 Chris Clark
- 📍 Taft
- 📍 Temple

RE: Biomass Renewable Energy Standard

FROM: Rachel Smolker, Ph.D.  
Biofuelwatch (codirector)  
680 Sherman Hollow Road  
Hinesburg, VT. 05461  
(802)482-4979  
rsmolker@riseup.net

TO: Forest, Parks and Recreation, Agency of Natural Resources,  
State of Vermont

July 30, 2021

We recognize that the development of this standard has been legislatively mandated. However, we are concerned that development of biomass standards is poorly timed - i.e it is premature given concurrent processes underway in the state to develop a revised Comprehensive Energy Plan and also to meet the mandates under the Global Warming Solutions Act, with a forthcoming Climate Action Plan. Both of these are likely to be relevant to the underlying role of biomass in the state's energy mix. We hope that biomass will play only a minor role in any future energy and climate policy, as there is growing recognition that burning wood releases very large amounts of greenhouse gases, that the "carbon neutrality" claim is a myth that has led to increasing rather than decreasing emissions, and that our best tool for removing CO<sub>2</sub> from the atmosphere is to allow forests to grow rather than cutting trees and burning them.

Assuming that this process for developing biomass standards will move forward nonetheless, we provide here comments and suggestions based on our experience over two decades working nationally and internationally on these issues. We do not support the use of biomass for power generation whatsoever, and while we consider home and school heating to be higher priority uses for biomass, ultimately it is the scale of demand that will determine the impacts of biomass procurement practices - not the standards in place.

In brief: No standard can make an *unsustainable level of demand*, sustainable.

Power generating facilities are generally grossly inefficient and require ongoing vast amounts of biomass which cannot be supplied over long periods - decades - from surrounding forests without serious negative consequences to those forests.

Similarly, a concentration of small users - residences, schools etc can also create unsustainable demand. Where subsidies and policy supports incentivize use of biomass, the scale of demand will expand. This is particularly true where faulty assumptions about the climate costs and benefits persist (failure to account for greenhouse gas emissions from harvest and combustion, which contributes further to incentives under policies intended to support renewable energy and emissions reduction).

Climate change requires that we protect and restore forest ecosystems, best achieved by limiting logging and disturbances to forests. In fact growing forests and allowing them to simply grow is the best available method we currently have at hand for sequestering and storing carbon from the atmosphere, as is

urgently necessary. It is also key to protecting waterways and biodiversity.

Protecting and restoring forests is critical and doing so must take priority over providing biomass as “renewable energy”, falsely accounted for as “carbon neutral”.

The climate impacts of expanded demand for wood are not addressed by standards. A letter from some 800 scientists delivered to EU policymakers states: *“the life-cycle greenhouse gas emissions of wood-based bioenergy are not in any way related to forest management practices. Introducing ‘sustainable forest management’ standards for biomass does nothing to protect the climate... even if forests are allowed to regrow, using wood deliberately harvested for burning will increase carbon in the atmosphere and warming for decades to centuries - as many studies have shown -even when wood replaces coal, oil or natural gas. The reasons are fundamental and occur regardless of whether forest management is ‘sustainable’.*

Where standards for biomass have been adopted, they have proven to be largely ineffective. Several reports and briefings on this topic have been produced in the context of European policy making which has proceeded in advance of other regions, providing important lessons for us here in Vermont.

A report from Biofuelwatch and Global Forest Coalition **“Can sustainability and GHG standards protect the climate, forests and communities from the harmful impacts of wood-based bioenergy?”** highlights that to date all greenhouse

gas standards for biomass continue to fail to account for carbon released from burning nor from logging activities, nor the loss of sequestration. Doing such an accounting for emissions however would be extremely difficult given the many assumptions and counterfactuals that would be necessary but are difficult if not impossible to assess accurately.

Some have suggested using standards that limit to use of only “residues”. Yet the term residue remains easily manipulated and ill-defined - having been applied to many forms of roundwood and “low grade wood”, leading to intensified harvesting. Increased demand for residues for bioenergy also can divert from existing markets, ultimately driving up logging rates.

Meanwhile, A 2019 study showed that even use of genuine forestry residues is incompatible with the goal of limiting global warming to 1.5 degrees.

One of the most important reasons why standards have failed to prevent harms from biomass is the **lack of credible verification and auditing**. In short, the fox is left to guard the henhouse. Certification is often handled by industry insiders who profit (directly and/or indirectly) from providing them and prioritize maintaining positive relationships with clients and coworkers rather than taking any punitive measures to ensure standards are met. Auditing and verification is typically outsourced to private companies chosen and paid for by the energy or forestry company looking for a certificate. Commonly, ‘verification and auditing’ relies entirely on trails of paperwork, with no site visits involved. Certification has become a profit- making industry



unto itself, and those requiring certifications can often simply “shop around” to find someone who will provide it, as detailed in “Sustainable biomass: a modern myth.”

That standards have failed to prevent excessive logging and forest loss is demonstrable: Both the UK and Netherlands have mandatory sustainability standards for biomass in place, yet these have not prevented them from sourcing wood from Enviva, a company that has been found routinely clearcutting highly biodiverse forests in the Southeastern USA, which are then shipped overseas to be burned (and richly subsidized as “renewable” energy).

A study published in Nature 2019 titled “*Abrupt increase in harvested forest area over Europe after 2015*” identifies increasing demand for biomass as renewable energy as the most probable driver of deforestation across Europe. This is in spite of EU and some country level biomass and forestry “standards”.

A 2021 report by FERN is titled “Unsustainable and Ineffective: Why EU forest biomass standards wont stop destruction” Within are numerous case studies illustrating the failure of standards to forestall harms created when there are policies and incentives in place driving unsustainable demand. “*The EU implementing rules offer no measures to minimise the destructive consequences of wood burning. Compliance with the sustainability criteria will be a simplistic box-ticking exercise to determine the existence of relevant laws, not their adequacy and effectiveness.*”

Again, the ineffectiveness of standards has been demonstrated in

Europe, where policies and incentives have been implemented for longer and with greater force. Vermont should learn those mistakes, not repeat them.

While we oppose the use of biomass for power generation in Vermont, and remain concerned about the scale of demand for biomass that results when incentives and subsidies are provided for its use in other smaller scale applications (heating), we nonetheless offer some specific comments here below with respect to how a biomass standard could, at least in principle, if implemented, be improved.

**STANDARDS AND SCALE OF DEMAND:** It is essential to limit the scale of demand for biomass first and foremost - with priority use for *highly efficient* residential heating. Protecting and restoring forests should be the paramount goal, which necessitates limiting the scale of harvests. As we stated earlier: standards cannot make an unsustainable level of demand sustainable.

**LIMITING TRANSPORT OF BIOMASS:** Currently biomass is transported over considerable distance within and between neighboring states. This was brought home in a presentation to legislative committee by Ryegate staff for example (see attached) showing the locations of logging projects scattered around the state which indicates that material is being trucked in over considerable distances. This is problematic both because of the emissions and other impacts of trucking, and also because of the risk of spreading invasive pests and pathogens around the state (or across state borders). A smaller supply radius will mean harvests are concentrated in a smaller area, which in turn

requires harvesting less if we are to maintain any semblance of healthy forest ecosystems in the area.

**KEEPING FOREST AS FOREST:** Limiting harvests from land converted from forest to non forest is certainly key, but we are unclear what the basis is for determining whether or not conversion has occurred? An area that is heavily logged, though not referred to specifically as “conversion” may fail to regenerate substantially for decades. The heavy cut law only applies to harvest areas greater than 40 acres which in our judgement is far too large (and risks many cuts at 39.9 acres).

**COMPLIANCE WITH AMPs:** The current AMPs are grossly inadequate, providing only very bare-bones guidance on how to avoid some of the most egregious harms, particularly to waterways - if followed to the tee.

In general they fail to reflect recent scientific findings revealing how forest ecosystems depend upon complex interactions, including through soil micorizhae and diverse species communities.

Nor do they reflect our greatly advanced understanding of the important role of forests, (including both young and old trees and soils), in carbon sequestration.

The AMPs fail to offer adequate guidance for protecting forest soils. For example, there appears to be no guidance on how much woody debris should be left on the ground following harvest to ensure nutrients and protection from erosion. Nor does there appear adequate guidance on how many roads can be

constructed into forests given what we know about their impacts? (A 2017 UN report found that “*Permanent roads and associated temporary roads are the primary sources for 90% of the sediment generated by harvesting*”).

The AMPs fail to provide guidance to ensure or verify appropriate species diversity or soil conditions optimal to ensure robust regeneration after harvests. Regeneration is often just assumed. Yet it does not necessarily occur, or may take many decades, or may be only very weak and vulnerable to disease etc. For example, studies in the Northeast have shown “*a significant negative relationship between time since forest harvest and the size of mineral soil C pools, which suggested a gradual decline in C pools across the region after harvesting.*”

The AMPs fail to address the changing conditions and multitude of threats to forests resulting from both a fast heating climate and the barrage of pests and pathogens that have been introduced through careless trade and transport, including introductions resulting from harvesting equipment and activities.

In general, guidance for logging practices should be based not on a goal of maximizing timber extraction, but rather on protecting and restoring forests - allowing them to continue growing to maximize carbon sequestration and protect soils, waterways, air quality and biodiversity. Vermont’s forests are “in recovery” but they are far from their former glory, which included vast areas of old-growth, ancient trees, great quantities of deadwood, rich complex soils, clean streams and rivers etc.

The term “sustainability” should be defined in terms of these

multiple benefits, not just sustaining timber harvest.

**VERIFICATION AND CERTIFICATION:** As we have learned from experience, standards are largely ineffective without independent verification of compliance. Providing a piece of paper with boxes checked does not necessarily translate to effective implementation out on the ground in the forest, where it matters. Such verifications are challenging, given that logging projects are often in remote locations difficult to access, making site visits challenging, and providing vast opportunity for noncompliance to go unnoticed. When certifications are provided by fellow industry colleagues with shared interests for profitmaking, they are rendered useless. (The fox cannot guard the henhouse).

## Hanson, Emma

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**From:** Charles Storrow <chuck@leoninepublicaffairs.com>  
**Sent:** Monday, July 26, 2021 2:31 PM  
**To:** ANR - Biomass RES  
**Cc:** Hanson, Emma  
**Subject:** Proposed Rule re: Biomass Renewable Energy Standard

**EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.**

Dear Sir/Madam,

I am writing to submit a comment on behalf of our client, Stored Solar, LLC, concerning the Department's proposed Biomass Renewable Energy Standard rule. Stored Solar owns and operates the biomass fueled electrical generating plant in Ryegate, Vermont. The plant was built in the 1990s and has a generating capacity of approximately 22 MW.

10 VSA sec. 2751(b) provides that the Department is to issue a rule setting renewability standards for forest products used to generate energy by "distributed renewable energy" projects. The term "distributed renewable energy" is defined in 10 VSA sec. 2751(a) to reference the definition of that term in 30 VSA sec. 8005.

Given its age and size the Ryegate plant does not fall within the definition of "distributed renewable generation."

However, section 4 of the proposed rule, entitled "[a]pplicability," provides that the rule applies, *inter alia*, to "all generation from biomass electric generation facilities." Since the enabling legislation for the proposed rule limits the rule's applicability to "distributed renewable energy" facilities it is respectfully suggested that to avoid confusion section 4 of the proposed rule be modified as follows:

"The Biomass Renewability Energy Standard applies to all utilities that: offer incentives on wood-fired appliances as part of their Tier III programming; or all generation from biomass electric generation facilities that constitute distributed renewable generation projects; or combined heat and power (CHP) facilities that utilities claim towards their Tier II requirements."

I should mention that Stored Solar employs a professional forester at the Ryegate plant, that that individual oversees all logging jobs associated with producing biomass used at the plant, and that all logging associated with producing biomass for the plant is conducted in accordance with principles of sustainable, environmentally sound forestry practices.

Thank you for considering the foregoing.

Sincerely—Charles ("Chuck") Storrow

Charles Storrow, Partner  
Leonine Public Affairs, LLP  
1 Blanchard Court, Suite 101  
Montpelier, VT 05602

Cell: (802) 371-7863  
[chuck@leoninepublicaffairs.com](mailto:chuck@leoninepublicaffairs.com)

## Hanson, Emma

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**From:** Stuart Blood <ssblood@riseup.net>  
**Sent:** Thursday, July 29, 2021 2:03 PM  
**To:** ANR - Biomass RES  
**Subject:** public comment on proposed Biomass Renewable Energy Standard

**EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.**

To whom it may concern:

The

Biomass Renewable Energy Standard must not allow the cutting of whole trees for electricity generation.

Residential

heating should be established as a priority use for a limited harvest of wood.

The biomass industry argues it uses only waste and residues for energy, yet wood yards at biomass facilities are stacked with whole trees.

The

science is clear: Burning wood is not carbon neutral. It releases more CO<sub>2</sub> than burning fossil fuels and emits air pollution comparable to burning coal.

Leaving

forests to grow without logging them is the most effective means available for removing CO<sub>2</sub> from the atmosphere. In fact, it's the

**only**

tried and true method. Even

though biomass burning releases more CO<sub>2</sub> than burning fossil fuels, policy makers usually consider that release to be negligible or nonexistent based on mistaken assumptions. They assume that carbon released into the atmosphere when a tree is harvested and

burned will be offset by reabsorption of an equivalent amount of carbon during regrowth of new trees, somewhere. That assumption is incorrect. If regrowth does occur, which in practice is far from certain, it may be compromised where soils and ecosystems

have been depleted and degraded by prior logging. Even if regrowth does occur, it will take many decades for the equivalent amount of carbon to be sequestered in a new tree. That is time we simply cannot afford.

Vermont's forests should be left to grow and

sequester carbon to the greatest extent possible, with appropriate policy supports to landowners for doing so, and a ban on logging of state and federal forest lands. Thank you for considering my comments. Sincerely,  
Stuart Blood

--

*Stuart Blood*

851 Poor Farm Road

Thetford Center, VT 05075 USA

(802) 785-4950

[ssblood@riseup.net](mailto:ssblood@riseup.net)





Wood Energy Technical Assistance Team

Wood Education and Resource Center  
310 Hardwood Lane  
Princeton, WV 24720  
(304) 487-1510

## ***Memorandum***

**DATE:** June 22, 2021

**TO:** Vermont Agency of Natural Resources

**FROM:** Lew McCreery, Wood Energy Technical Assistance Team Leader

**CC:** Dan Wilson, Paul Frederick, Emma Hanson

**RE:** Forest Service Comments on Proposed Rule: Biomass Renewable Energy Standard

The US Forest Service supports renewable energy standard requirements which encourage highly efficient systems, but do not unnecessarily bar participation of larger industrial or district energy systems with high temperature thermal energy needs. The proposed Vermont rule seems to be based on technical requirements that pertain to smaller wood energy systems. It is recommended that the requirements be adjusted to allow, and encourage, systems that serve large, high temperature thermal process demands to switch to very low value wood residues. Such residues from forest management and wood processing facilities need markets so these residues are not treated as waste.

The efficiency standard can be adjusted to remedy this situation. High temperature applications do not have the same efficiency potential with wood when using higher heating value (HHV) efficiencies as do low temperature applications (this is true for fossil fuels currently used in these applications as well). For example, 400 psig steam is 448°F, while hot water might be 180°F, and the resulting flue gas temperatures from each of these processes are what limit the overall HHV efficiencies. For this reason, it is not realistic to require a sawmill generating high pressure steam in a CHP plant to meet the same HHV efficiency standard as a hot water boiler at a school. It is important to note that fossil fuel systems with high stack temperatures also have reduced HHV efficiency compared to low temperature applications, and the reason is the nature of the end use they are serving as opposed to the quality or performance of the boiler system.

Additionally, the use of the higher heating value efficiency (HHV) metric arbitrarily disincentivizes direct use of green chip systems, particularly for larger systems. Note that some of the larger systems would likely be exactly what the forest management sector needs in VT in order to accept residues such as bark or the other lowest value wood residues (wastes if they are not beneficially used). We say arbitrary, because doing things to wood residues to lower moisture (drying/pelletizing) outside of the wood energy conversion system is less efficient overall than just using a high performing wood energy conversion system designed for high moisture content material. Please see the recent Life Cycle Analysis of GHGs for wood residues provided by the Biomass Thermal Energy Council ([https://www.biomassthermal.org/wp-content/uploads/2021/06/LCA\\_TTC-Wood-Pellets-Chips-GHG-FINAL.pdf](https://www.biomassthermal.org/wp-content/uploads/2021/06/LCA_TTC-Wood-Pellets-Chips-GHG-FINAL.pdf)) Most, if not all, dry chips and pellets used in Vermont come from active drying systems and pelletizing systems that use a mix of wood, fossil fuels, and electricity to remove moisture and require transportation over and above the direct use of green chips. Thus, the efficiency of pellet or dry chips

systems may actually be worse than the efficiency of the green chip systems, when life cycle process and transportation energy is taken into account. Assessing the efficiency only at the final stage of use does not properly or fairly account for the overall energy used in each case. Further, larger systems which use green chips, and may or may not meet this efficiency standard set, will likely have as good or better performance than smaller dry chip or pellet systems with regard to PM since they will likely have emission controls to meet permit requirements.

For some time, European regulations have focused on Lower Heating Value (LHV) in order to focus on heat conversion efficiency. The LHV metric (also known as net calorific value) is preferable to HHV because LHV removes the component of the moisture in the flue gas, much of which is a result of the moisture in the wood fuel. LHV keeps the focus on the heat transfer efficiency of the conversion system and boiler. While the LHV efficiency is generally a higher number than the HHV efficiency, this is not the point, the point is that the LHV efficiency is the same for a given boiler system with high conversion efficiencies, no matter what moisture content of fuel is utilized.

There are several approaches that could address these concerns overall:

- 1) The easiest to implement is simply to rely on the existing air quality permitting and approval process for wood energy systems in the state. The PM emission requirements necessitate installation of high performing systems. Vermont's emission rules require DEC Air Quality and Climate Division approval of smaller wood energy systems that don't require specific permits for construction and operation, and at larger sizes, wood energy systems are required to have permits for construction and operation. AQCD approval and permit rules now require excellent emission performance for smaller systems and emission controls for larger systems. Thus, a letter from the AQCD stating that the system meets their current rules ensures a clean (low emitting) system. Low emitting systems will necessarily have very high efficiencies that are directly correlated to what is possible for the specific application (fuel moisture and service temperature).
  - a. Requiring efficiency testing for some types of systems is burdensome and likely not useful because it introduces a new testing requirement separate from the PM testing requirement that many larger wood systems are already subject to as part of their air permitting. Thus, there is already a good process for ensuring high performing systems, particularly at the larger scale.
  - b. The proposed regulation currently does not reference any specific efficiency test methods, and so it is unclear exactly what test methods or standards would be acceptable or economical to employ. Without identifying a specific test method, this requirement is unclear, and does not serve the public interest since it does not help ensure low PM. We recommend that instead, PM emissions be regulated for Tier III systems in a way that is consistent with the pending PM regulations for biomass boiler systems in Vermont.
- 2) For larger systems (not the systems which can be covered by referring to EPA standards) switch to LHV efficiency standards and consider high temperature applications in setting the efficiency standard. This supports participation by facilities that may be the sites which are the most beneficial applications for wood energy from a sustainability, climate benefit and market for low value forest residues in the state.
- 3) If an efficiency standard is going to be used, it is strongly recommended that the acceptable test for meeting the efficiency standard also be identified. This requires that the performance

standard set (for different system sizes) be commensurate with the test (or tests) that are identified. Results of the use of those tests to identify high performing systems should be available (i.e. please don't pick a standard value and a test that doesn't have a correlated history). For larger systems, an indirect test method is ASME's standard recommendation.

In summary, the systems that are probably best from an overall sustainability perspective, and especially from a forest sustainability perspective, are the ones that are large enough to use the lowest quality forest management residues directly and without processing. These are also the systems that require air permits and very good PM emission controls, and typically result in the highest life cycle efficiency when compared to systems that use processed wood residues (i.e. pellets). Thus, these are systems that should be targeted heavily. The rule, as currently written, excludes these from participating.

*Note that the comments above are more targeted towards larger systems. There are certainly reasons to use efficiency as a metric for smaller systems, particularly at the residential size class. There is also less oversight already provided by AQCD on these systems other than to rely on EPA certification.*

Additional comments are:

- 1) Consider including firewood systems but require thermal storage for all firewood systems. Thermal storage volume should be based on fire box size, and 105 gallons per 1ft<sup>3</sup> of fire box size is a reasonable volume requirement. Firewood users should be required to monitor firewood moisture content to ensure the use of firewood with moisture content  $\leq$  25% wet basis.
- 2) Consider allowing larger firewood systems that also meet EPA's emissions requirements through approved test methods (but are not certified by EPA because they are too large) to qualify. These systems should also be required to have thermal storage.
- 3) The proposed Tier II fuel sourcing standards are too simplistic and do not account for the use of sawmill residues or commingled wood fuels from multiple sources. The proposed standards appear to envision an in-woods chipping operation which then delivers fuel directly to an end use, whereas the wood residue market is much more complex. We agree that forester oversight of harvesting operations, and avoidance of land use change, are key to the sustainability of the wood industry. The MA APS allows for the use of sawmill residues regardless of origin and explicitly states that such residues can be assumed to be sustainable. There should also be a distinction made for the case of aggregators or pellet plants which receive fuel from multiple sources. Should a specific customer require certification of fuel for meeting Tier II, it should be sufficient for this aggregator or pellet plant to show chain of custody on a mass-balance basis over the period of a year, that sufficient certified feedstock was obtained, to provide the supply to that particular customer, rather than having to show certification for all feedstock received by that aggregator or pellet plant.

**For More Information or To Obtain Technical Assistance on Your Project Contact:**

**US Forest Service -WERC  
Wood Energy Technical Assistance Team  
180 Canfield St.  
Morgantown, WV 26501  
Lew R. McCreery, Woody Biomass Coordinator  
[lmccreery@fs.fed.us](mailto:lmccreery@fs.fed.us)  
304-285-1538**

**WERC Woody Biomass Website:  
<http://na.fs.fed.us/werc/biomass/index.shtm>**

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## Biomass Renewable Energy Standard

### SECTION 1: Introduction

Act No. 56 of the Acts of 2015 established a Renewable Energy Standard and Energy Transformation Program for electric utilities in the State of Vermont which specifically includes biomass to produce electricity. Act 56 amended Chapter 87 of Title 10 of the Vermont Statutes Annotated to add a new section 2751, which requires the Commissioner of the Department of Forests, Parks and Recreation to adopt rules that establish renewability standards for forest products used to generate energy by distributed renewable generation and energy transformation projects within the Renewable Energy Standard. 10 V.S.A. §2751. These standards may include minimum efficiency requirements for wood boilers and requirements for harvesting and procurement. In developing these rules, the Commissioner shall consider differentiating the standards by type of forest product and scale of forest product.

### SECTION 2: Policy and Purpose

The policy and purpose of the Biomass Renewable Energy Standard is to promote the sustainable use of forest resources and to ensure long-term forest health and sustainability through harvesting and procurement of biomass.

### SECTION 3: Authority

This rule is adopted pursuant to 10 V.S.A. §2751, 3 V.S.A. §801(11) and 3 V.S.A. §2853(5).

### SECTION 4: Applicability

The Biomass Renewability Energy Standard applies to all utilities that: offer incentives on wood-fired appliances as part of their Tier III programming; or all generation from biomass electric generation facilities; or combined heat and power (CHP) facilities that utilities claim towards their Tier II requirements.

### SECTION 5: Definitions

**5.1 "AMPs"** shall mean the rule entitled "Acceptable Management Practices for Logging Jobs in Vermont" adopted by the Department of Forests, Parks and Recreation.

**5.1 "Combined heat and power (CHP) facility"** shall have the same meaning as in 30 V.S.A. §8015(b)(2).

**5.2 "Distributed renewable generation"** shall have the same meaning as in 30 V.S.A. §8005(a)(2).

5.3 ***"Distribution Utilities or DUs"*** refers to the 17 electric distribution utilities in Vermont, as authorized by the Public Utility Commission.

5.4 ***"Energy transformation project"*** shall have the same meaning as in 30 V.S.A. §8002.

5.5 ***"Micro CHP Facility"*** means a system with 5kw or less of electric generating capacity.

5.5 ***"Renewability"*** means capable of being replaced by natural ecological processes or sound management practices.

5.6 ***"RES"*** means the Renewability Energy Standard established in 30 V.S.A. §8004 and §8005.

5.7 ***"Tier II"*** means the distributed renewable generation RES category as defined in 30 V.S.A. §8005.

5.8 ***"Tier III"*** means the energy transformation RES category as defined in 30 V.S.A. §8005.

5.10 ***"UVA"*** shall mean the Use Value Appraisal Program established by 32 V.S.A. §§375- - 3777.

## SECTION 6: Biomass Renewable Energy Standard

### 6.1 Tier II Distributed Renewable Energy Projects

To qualify as a Tier II Energy Transformation Project for the purposes of this Rule and Chapter 89 of Title 30 of the Vermont Statutes Annotated, biomass electric generation facilities and combined heat and power (CHP) facilities shall comply with the following:

1. Forestland located within the State of Vermont:

- a. Wood fuels shall be sourced from forests that are currently enrolled and in good standing in UVA; or
- b. For wood fuels sourced from forestland in Vermont but not enrolled in UVA, a licensed forester shall certify that the harvest area that is producing the wood fuel complies with the Vermont UVA Management Plan standards applicable to the harvest, the AMPs and all applicable Vermont forestry related laws.

2. Forestland located outside of the State of Vermont:

- a. Wood fuels that are sourced from forestland outside of Vermont may qualify as fuel for a Tier II Energy Transformation Project provided a licensed or SAF certified forester in the state in which the forestland is located certifies that the harvest area that is producing the wood fuel complies with the Vermont UVA Management Plan standards applicable to the harvest, and all applicable state and local forestry and water quality related laws within that jurisdiction.

**3. Requirements for all forestland within or outside of the State of Vermont:**

- a. **Land Conversion:** Wood sourced from forestry operations on land being converted from forest to non-forest does not qualify as renewable.
- b. **Certification:** The certification required in 1.b. and 2 of this section shall be a document which: identifies the requirements applicable to the harvest producing the wood fuel; certifies that the harvest producing the wood fuels complies with the requirements of this Rule; and is signed by the forester making the certification. The biomass electric generating facility shall maintain a copy of the forester certification and shall make the certification available upon request by the Commissioner of the Department of Forests, Parks and Recreation or the Commissioner of the Department of Public Service. These records shall be kept for a minimum period of four years.

## 6.2 Tier III Energy Transformation Projects

To meet the renewability standard for the purposes of Chapter 89 of Title 30 of the Vermont Statutes Annotated, wood-fired appliances shall either receive a permit to construct from the Vermont Air Quality & Climate Division, or meet the minimum performance requirements set forth in Table 1. The Table 1 performance requirements apply to all wood fuel types, including cord wood, wood pellets, green wood chips, dry wood chips.

Table 1

<b>Appliance</b>	<b>Performance Requirement</b>
Pellet Stove	Must be EPA Certified on date of installation
Wood Stove	Must be EPA Certified on date of installation
Automated Pellet Boiler or Furnace	≥85% efficiency**
Wood Chip Boiler	≥78% efficiency***
Cordwood Boiler – Up to 350,000 Btu’s	Must be EPA Certified on date of installation
Cordwood Boiler – Over 350,000 Btu’s	Not Eligible
Micro CHP Facility	≥85% efficiency**
District Energy System	DES that capture waste heat from an existing installation are fully eligible

\*\*Meaning a higher heating value or gross calorific value of 85 percent or more on a peak efficiency basis and as measured by an accredited lab or organization.

\*\*\* Meaning a higher heating value or gross calorific value of 78 percent or more on a peak efficiency basis and as measured by an accredited lab or organization.

# Biomass Renewable Energy Standard - Annotated

## SECTION 1: Introduction

Act No. 56 of the Acts of 2015 established a Renewable Energy Standard and Energy Transformation Program for electric utilities in the State of Vermont which specifically includes biomass to produce electricity. Act 56 amended Chapter 87 of Title 10 of the Vermont Statutes Annotated to add a new section 2751, which requires the Commissioner of the Department of Forests, Parks and Recreation to adopt rules that establish renewability standards for forest products used to generate energy by distributed renewable generation and energy transformation projects within the Renewable Energy Standard. 10 V.S.A. §2751. These standards may include minimum efficiency requirements for wood boilers and requirements for harvesting and procurement. In developing these rules, the Commissioner shall consider differentiating the standards by type of forest product and scale of forest product.

## SECTION 2: Policy and Purpose

The policy and purpose of the Biomass Renewable Energy Standard is to promote the sustainable use of forest resources and to ensure long-term forest health and sustainability through harvesting and procurement of biomass.

## SECTION 3: Authority

This rule is adopted pursuant to 10 V.S.A. §2751, 3 V.S.A. §801(11) and 3 V.S.A. §2853(5).

## SECTION 4: Applicability

The Biomass Renewability Energy Standard applies to all utilities that: offer incentives on wood-fired appliances as part of their Tier III programming; or all generation from biomass electric generation facilities; or combined heat and power (CHP) facilities that utilities claim towards their Tier II requirements.

## SECTION 5: Definitions

**5.1 “AMPs”** shall mean the rule entitled “Acceptable Management Practices for Logging Jobs in Vermont” adopted by the Department of Forests, Parks and Recreation.

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**5.2 “Distributed renewable generation”** shall have the same meaning as in 30 V.S.A. §8005(a)(2).



5.3 **“Distribution Utilities or DUs”** refers to the 17 electric distribution utilities in Vermont, as authorized by the Public Utility Commission.

5.4 **“Energy transformation project”** shall have the same meaning as in 30 V.S.A. §8002.

5.5 **“Micro CHP Facility”** means a system with 5kw or less of electric generating capacity.

5.5 **“Renewability”** means capable of being replaced by natural ecological processes or sound management practices.

5.6 **“RES”** means the Renewability Energy Standard established in 30 V.S.A. §8004 and §8005.

5.7 **“Tier II”** means the distributed renewable generation RES category as defined in 30 V.S.A. §8005.

5.8 **“Tier III”** means the energy transformation RES category as defined in 30 V.S.A. §8005.

5.10 **“UVA”** shall mean the Use Value Appraisal Program established by 32 V.S.A. §§375- - 3777.

## SECTION 6: Biomass Renewable Energy Standard

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To qualify as a Tier II Energy Transformation Project for the purposes of this Rule and Chapter 89 of Title 30 of the Vermont Statutes Annotated, biomass electric generation facilities and combined heat and power (CHP) facilities shall comply with the following:

1. Forestland located within the State of Vermont:
  - a. Wood fuels shall be sourced from forests that are currently enrolled and in good standing in UVA; or
  - b. For wood fuels sourced from forestland in Vermont but not enrolled in UVA, a licensed forester shall certify that the harvest area that is producing the wood fuel complies with the Vermont UVA Management Plan standards applicable to the harvest, the AMPs and all applicable Vermont forestry related laws.
2. Forestland located outside of the State of Vermont:
  - a. Wood fuels that are sourced from forestland outside of Vermont may qualify as fuel for a Tier II Energy Transformation Project provided a licensed or SAF certified forester in the state in which the forestland is located certifies that the harvest area that is producing the wood fuel complies with the Vermont UVA Management Plan standards applicable to the harvest, and all applicable state and local forestry and water quality related laws within that jurisdiction.

### 3. Requirements for all forestland within or outside of the State of Vermont:

- a. **Land Conversion:** Wood sourced from forestry operations on land being converted from forest to non-forest does not qualify as renewable.
- b. **Certification:** The certification required in 1.b. and 2 of this section shall be a document which: identifies the requirements applicable to the harvest producing the wood fuel; certifies that the harvest producing the wood fuels complies with the requirements of this Rule; and is signed by the forester making the certification. The biomass electric generating facility shall maintain a copy of the forester certification and shall make the certification available upon request by the Commissioner of the Department of Forests, Parks and Recreation or the Commissioner of the Department of Public Service. These records shall be kept for a minimum period of four years.

### 6.2 Tier III Energy Transformation Projects

To meet the renewability standard for the purposes of Chapter 89 of Title 30 of the Vermont Statutes Annotated, wood-fired appliances shall either receive a permit to construct from the Vermont Air Quality & Climate Division, or meet the minimum performance requirements set forth in Table 1. The Table 1 performance requirements apply to all wood fuel types, including cord wood, wood pellets, green wood chips, dry wood chips.

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<u>District Energy System</u>	<u>DES that capture waste heat from an existing installation are fully eligible</u>

\*\*Meaning a higher heating value or gross calorific value of 85 percent or more on a peak efficiency basis and as measured by an accredited lab or organization.

\*\*\* Meaning a higher heating value or gross calorific value of 78 percent or more on a peak efficiency basis and as measured by an accredited lab or organization.

# The Vermont Statutes Online

## Title 10 : Conservation And Development

### Chapter 087 : Harvesting Guidelines And Procurement Standards

(Cite as: 10 V.S.A. § 2751)

#### § 2751. Biomass renewability standards; RES

(a) Definitions. As used in this section:

(1) "Commissioner" means the Commissioner of Forests, Parks and Recreation.

(2) "Distributed renewable generation" shall have the same meaning as in 30 V.S.A. § 8005.

(3) "Energy transformation project" shall have the same meaning as in 30 V.S.A. § 8002.

(4) "Renewability" means capable of being replaced by natural ecological processes or sound management practices.

(5) "RES" shall have the same meaning as in 30 V.S.A. § 8002.

(b) Rules. The Commissioner shall adopt rules that set renewability standards for forest products used to generate energy by distributed renewable generation and energy transformation projects within the RES. The Commissioner shall design the standards to ensure long-term forest health and sustainability. These standards may include minimum efficiency requirements for wood boilers and requirements for harvesting and procurement. In developing these rules, the Commissioner shall consider differentiating the standards by type of forest product and scale of forest product consumption. (Added 2015, No. 56, § 9.)

VERMONT **GENERAL ASSEMBLY**

# The Vermont Statutes Online

## Title 3 : Executive

### Chapter 025 : Administrative Procedure

#### Subchapter 001 : General Provisions

(Cite as: 3 V.S.A. § 801)

#### § 801. Short title and definitions

(a) This chapter may be cited as the "Vermont Administrative Procedure Act."

(b) As used in this chapter:

(1) "Agency" means a State board, commission, department, agency, or other entity or officer of State government, other than the Legislature, the courts, the Commander in Chief, and the Military Department, authorized by law to make rules or to determine contested cases.

(2) "Contested case" means a proceeding, including but not restricted to rate-making and licensing, in which the legal rights, duties, or privileges of a party are required by law to be determined by an agency after an opportunity for hearing.

(3) "License" includes the whole or part of any agency permit, certificate, approval, registration, charter, or similar form of permission required by law.

(4) "Licensing" includes the agency process respecting the grant, denial, renewal, revocation, suspension, annulment, withdrawal, or amendment of a license.

(5) "Party" means each person or agency named or admitted as a party, or properly seeking and entitled as of right to be admitted as a party.

(6) "Person" means any individual, partnership, corporation, association, governmental subdivision, or public or private organization of any character other than an agency.

(7) "Practice" means a substantive or procedural requirement of an agency, affecting one or more persons who are not employees of the agency, that is used by the agency in the discharge of its powers and duties. The term includes all such requirements, regardless of whether they are stated in writing.

(8) "Procedure" means a practice that has been adopted in writing, either at the election of the agency or as the result of a request under subsection 831(b) of this title. The term includes any practice of any agency that has been adopted in writing, whether or not labeled as a procedure, except for each of the following:

(A) a rule adopted under sections 836-844 of this title;

(B) a written document issued in a contested case that imposes substantive or procedural requirements on the parties to the case;

(C) a statement that concerns only:

(i) the internal management of an agency and does not affect private rights or procedures available to the public;

(ii) the internal management of facilities that are secured for the safety of the public and the individuals residing within them; or

(iii) guidance regarding the safety or security of the staff of an agency or its designated service providers or of individuals being provided services by the agency or such a provider;

(D) an intergovernmental or interagency memorandum, directive, or communication that does not affect private rights or procedures available to the public;

(E) an opinion of the Attorney General; or

(F) a statement that establishes criteria or guidelines to be used by the staff of an agency in performing audits, investigations, or inspections, in settling commercial disputes or negotiating commercial arrangements, or in the defense, prosecution, or settlement of cases, if disclosure of the criteria or guidelines would compromise an investigation or the health and safety of an employee or member of the public, enable law violators to avoid detection, facilitate disregard of requirements imposed by law, or give a clearly improper advantage to persons that are in an adverse position to the State.

(9) "Rule" means each agency statement of general applicability that implements, interprets, or prescribes law or policy and that has been adopted in the manner provided by sections 836-844 of this title.

(10) "Incorporation by reference" means the use of language in the text of a regulation that expressly refers to a document other than the regulation itself.

(11) "Adopting authority" means, for agencies that are attached to the Agencies of Administration, of Commerce and Community Development, of Natural Resources, of Human Services, and of Transportation, or any of their components, the secretaries of those agencies; for agencies attached to other departments or any of their components, the commissioners of those departments; and for other agencies, the chief officer of the agency. However, for the procedural rules of boards with quasi-judicial powers, for the Transportation Board, for the Vermont Veterans' Memorial Cemetery Advisory Board, and for the Fish and Wildlife Board, the chair or executive secretary of the board shall be the adopting authority. The Secretary of State shall be the adopting authority for the Office of Professional Regulation.

(12) "Small business" means a business employing no more than 20 full-time

employees.

(13)(A) "Arbitrary," when applied to an agency rule or action, means that one or more of the following apply:

(i) There is no factual basis for the decision made by the agency.

(ii) The decision made by the agency is not rationally connected to the factual basis asserted for the decision.

(iii) The decision made by the agency would not make sense to a reasonable person.

(B) The General Assembly intends that this definition be applied in accordance with the Vermont Supreme Court's application of "arbitrary" in *Beyers v. Water Resources Board*, 2006 VT 65, and *In re Town of Sherburne*, 154 Vt. 596 (1990).

(14) "Guidance document" means a written record that has not been adopted in accordance with sections 836-844 of this title and that is issued by an agency to assist the public by providing an agency's current approach to or interpretation of law or describing how and when an agency will exercise discretionary functions. The term does not include the documents described in subdivisions (8)(A) through (F) of this section.

(15) "Index" means a searchable list of entries that contains subjects and titles with page numbers, hyperlinks, or other connections that link each entry to the text or document to which it refers. (Added 1967, No. 360 (Adj. Sess.), § 1, eff. July 1, 1969; amended 1981, No. 82, § 1; 1983, No. 158 (Adj. Sess.), eff. April 13, 1984; 1985, No. 56, § 1; 1985, No. 269 (Adj. Sess.), § 4; 1987, No. 76, § 18; 1989, No. 69, § 2, eff. May 27, 1989; 1989, No. 250 (Adj. Sess.), § 88; 2001, No. 149 (Adj. Sess.), § 46, eff. June 27, 2002; 2017, No. 113 (Adj. Sess.), § 3; 2017, No. 156 (Adj. Sess.), § 2.)

VERMONT **GENERAL ASSEMBLY**

# The Vermont Statutes Online

## Title 3 : Executive

### Chapter 051 : Natural Resources

#### Subchapter 003 : Commissioners And Directors

(Cite as: 3 V.S.A. § 2853)

#### § 2853. Permissive duties; approval of Secretary

The commissioner with the approval of the Secretary, may:

- (1) Transfer appropriations or parts thereof within or between divisions and branches, consistent with the purposes for which the appropriations were made.
- (2) Transfer classified positions within or between divisions subject only to State personnel laws and regulations.
- (3) Cooperate with the appropriate federal agencies and administer federal funds in support of programs within the department.
- (4) Submit plans and reports, and in other respects comply with federal law and regulations which pertain to programs administered by the department.
- (5) Make regulations consistent with law for the internal administration of the department and its programs.
- (6) Appoint a deputy commissioner. The provisions of subsections 253(d) and (e) of this title shall apply.
- (7) Create such advisory councils or committees as he or she deems necessary within the department, and appoint their members, for a term not exceeding his or hers.
- (8) Provide training and instruction for any employees of the department, at the expense of the department, in educational institutions or other places.
- (9) Organize, reorganize, transfer, or abolish divisions, staff functions, or sections within the department. This authority shall not extend to divisions or other bodies created by law. (Added 1969, No. 246 (Adj. Sess.), § 5(d), eff. June 1, 1970.)

VERMONT **GENERAL ASSEMBLY**

# The Vermont Statutes Online

## Title 30 : Public Service

### Chapter 089 : Renewable Energy Programs

#### Subchapter 001 : General Provisions

(Cite as: 30 V.S.A. § 8005)

#### § 8005. RES categories

(a) Categories. This section specifies three categories of required resources to meet the requirements of the RES established in section 8004 of this title: total renewable energy, distributed renewable generation, and energy transformation.

(1) Total renewable energy.

(A) Purpose; establishment. To encourage the economic and environmental benefits of renewable energy, this subdivision establishes, for the RES, minimum total amounts of renewable energy within the supply portfolio of each retail electricity provider. To satisfy this requirement, a provider may use renewable energy with environmental attributes attached or any class of tradeable renewable energy credits generated by any renewable energy plant whose energy is capable of delivery in New England.

(B) Required amounts. The amounts of total renewable energy required by this subsection shall be 55 percent of each retail electricity provider's annual retail electric sales during the year beginning on January 1, 2017, increasing by an additional four percent each third January 1 thereafter, until reaching 75 percent on and after January 1, 2032.

(C) Relationship to other categories. Distributed renewable generation used to meet the requirements of subdivision (2) of this subsection (a) shall also count toward the requirements of this subdivision. However, an energy transformation project under subdivision (3) of this subsection shall not count toward the requirements of this subdivision.

(D) Municipal providers; petition. On petition by a provider that is a municipal electric utility serving not more than 6,000 customers, the Commission may reduce the provider's required amount under this subdivision (1) for a period of up to three years. The Commission may approve one such period only for a municipal provider. The Commission may reduce this required amount if it finds that:

(i) the terms or conditions of an environmental permit or certification necessitate a reduction in the electrical energy generated by an in-state hydroelectric



facility that the provider owns and that this reduction will require the provider to purchase other renewable energy with environmental attributes attached or tradeable renewable energy credits in order to meet this required amount; and

(ii) this purchase will:

(I) cause the provider to increase significantly its retail rates; or

(II) materially impair the provider's ability to meet the public's need for energy services after safety concerns are addressed, in the manner set forth in subdivision 218c(a)(1) (least-cost integrated planning) of this title.

(2) Distributed renewable generation.

(A) Purpose; establishment. This subdivision establishes a distributed renewable generation category for the RES. This category encourages the use of distributed generation to support the reliability of the State's electric system; reduce line losses; contribute to avoiding or deferring improvements to that system necessitated by transmission or distribution constraints; and diversify the size and type of resources connected to that system. This category requires the use of renewable energy for these purposes to reduce environmental and health impacts from air emissions that would result from using other forms of generation.

(B) Definition. As used in this section, "distributed renewable generation" means one of the following:

(i) a renewable energy plant that is new renewable energy; has a plant capacity of five MW or less; and

(I) is directly connected to the subtransmission or distribution system of a Vermont retail electricity provider; or

(II) is directly connected to the transmission system of an electric company required to submit a Transmission System Plan under subsection 218c(d) of this title, if the plant is part of a plan approved by the Commission to avoid or defer a transmission system improvement needed to address a transmission system reliability deficiency identified and analyzed in that Plan; or

(ii) a net metering system approved under the former section 219a or under section 8010 of this title if the system is new renewable energy and the interconnecting retail electricity provider owns and retires the system's environmental attributes.

(C) Required amounts. The required amounts of distributed renewable generation shall be one percent of each retail electricity provider's annual retail electric sales during the year beginning January 1, 2017, increasing by an additional three-fifths of a percent each subsequent January 1 until reaching 10 percent on and after January 1, 2032.

(D) Distributed generation greater than five MW. On petition of a retail electricity

provider, the Commission may for a given year allow the provider to employ energy with environmental attributes attached or tradeable renewable energy credits from a renewable energy plant with a plant capacity greater than five MW to satisfy the distributed renewable generation requirement if the plant would qualify as distributed renewable generation but for its plant capacity and the provider demonstrates that it is unable during that year to meet the requirement solely with qualifying renewable energy plants of five MW or less. To demonstrate this inability, the provider shall issue one or more requests for proposals, and show that it is unable to obtain sufficient ownership of environmental attributes to meet its required amount under this subdivision (2) from:

(i) the construction and interconnection to its system of distributed renewable generation that is consistent with its approved least-cost integrated resource plan under section 218c of this title at a cost less than or equal to the sum of the applicable alternative compliance payment rate and the applicable rates published by the Department under the Commission's rules implementing subdivision 209(a)(8) of this title; and

(ii) purchase of tradeable renewable energy credits for distributed renewable generation at a cost that is less than the applicable alternative compliance rate.

(3) Energy transformation.

(A) Purpose; establishment. This subdivision establishes an energy transformation category for the RES. This category encourages Vermont retail electricity providers to support additional distributed renewable generation or to support other projects to reduce fossil fuel consumed by their customers and the emission of greenhouse gases attributable to that consumption. A retail electricity provider may satisfy the energy transformation requirement through distributed renewable generation in addition to the generation used to satisfy subdivision (2) of this subsection (a) or energy transformation projects or a combination of such generation and projects.

(B) Required amounts. For the energy transformation category, the required amounts shall be two percent of each retail electricity provider's annual retail electric sales during the year beginning January 1, 2017, increasing by an additional two-thirds of a percent each subsequent January 1 until reaching 12 percent on and after January 1, 2032. However, in the case of a provider that is a municipal electric utility serving not more than 6,000 customers, the required amount shall be two percent of the provider's annual retail sales beginning on January 1, 2019, increasing by an additional two-thirds of a percent each subsequent January 1 until reaching 10 and two-thirds percent on and after January 1, 2032. Prior to January 1, 2019, such a municipal electric utility voluntarily may engage in one or more energy transformation projects in accordance with this subdivision (3).

(C) Eligibility criteria. For an energy transformation project to be eligible under this subdivision (a)(3), each of the following shall apply:

(i) Implementation of the project shall have commenced on or after January 1, 2015.

(ii) Over its life, the project shall result in a net reduction in fossil fuel consumed by the provider's customers and in the emission of greenhouse gases attributable to that consumption, whether or not the fuel is supplied by the provider.

(iii) The project shall meet the need for its goods or services at the lowest present value life cycle cost, including environmental and economic costs. Evaluation of whether this subdivision (iii) is met shall include analysis of alternatives that do not increase electricity consumption.

(iv) The project shall cost the utility less per MWH than the applicable alternative compliance payment rate.

(D) Conversion. For the purpose of determining eligibility and the application of the energy transformation project to a provider's annual requirement, the provider shall convert the net reduction in fossil fuel consumption resulting from the energy transformation project to a MWH equivalent of electric energy, in accordance with rules adopted by the Commission. The conversion shall use the most recent year's approximate heat rate for electricity net generation from the total fossil fuels category as reported by the U.S. Energy Information Administration in its Monthly Energy Review. If an energy transformation project is funded by more than one regulated entity, the Commission shall prorate the reduction in fossil fuel consumption among the regulated entities. In this subdivision (D), "regulated entity" includes each provider and each efficiency entity appointed under subsection 209(d) of this title.

(E) Other sources.

(i) A retail electricity provider or a provider's partner may oversee an energy transformation project under this subdivision (3). However, the provider shall deliver the project's goods or services in partnership with persons other than the provider unless exclusive delivery through the provider is more cost-effective than delivery by another person or there is no person other than the provider with the expertise or capability to deliver the goods or services.

(ii) An energy transformation project may provide incremental support to a program authorized under Vermont statute that meets the eligibility criteria of this subdivision (3) but may take credit only for the additional amount of service supported and shall not take credit for that program's regularly budgeted or approved investments.

(iii) To meet the requirements of this subdivision (3), one or more retail electricity providers may jointly propose with an energy efficiency entity appointed under subdivision 209(d)(2) of this title an energy transformation project or group of such projects. The proposal shall include standards of measuring performance and methods to allocate savings and reductions in fossil fuel consumption and greenhouse gas

emissions among each participating provider and efficiency entity.

(F) Implementation. To carry out this subdivision (3), the Commission shall adopt rules:

(i) For the conversion methodology in accordance with subdivision (3)(D) of this subsection (a).

(ii) To provide a process for prior approval of energy transformation projects by the Commission or its designee. This process shall ensure that each of these projects meets the requirements of this subdivision (3) and need not consist of individual review of each energy transformation project prior to implementation as long as the mechanism ensures those requirements are met. An energy transformation project that commenced prior to initial adoption of rules under this subdivision (F) may seek approval after such adoption.

(iii) For cost-effectiveness screening of energy transformation projects. This screening shall be consistent with the provisions of this subdivision (3) and, as applicable, the screening tests developed under subsections 209(d) (energy efficiency) and 218c(a) (least-cost integrated planning) of this title.

(iv) To allow a provider who has met its required amount under this subdivision (3) in a given year to apply excess net reduction in fossil fuel consumption, expressed as a MWH equivalent, from its energy transformation project or projects during that year toward the provider's required amount in a future year.

(v) To ensure periodic evaluation of an energy transformation project's claimed fossil fuel reductions, avoided greenhouse gas emissions, conversion to MWH equivalent, cost-effectiveness and, if applicable, energy savings, and to ensure annual verification and auditing of a provider's claims regarding project completion and resulting MWH equivalent. Changes to project claims resulting from periodic evaluations shall not reduce retroactively claims made on behalf of a project approved under subdivision (3)(F)(ii) of this subsection (a) or reduce verified claims carried forward under subdivision (3)(F)(iv) of this subsection (a).

(vi) To ensure that all ratepayers have an equitable opportunity to participate in, and benefit from, energy transformation projects regardless of rate class, income level, or provider service territory.

(vii) To ensure the coordinated delivery of energy transformation projects with the delivery of similar services, including low-income weatherization programs, entities that fund and support affordable housing, energy efficiency programs delivered under section 209 of this title, and other energy efficiency programs delivered locally or regionally within the State.

(viii) To ensure that, if an energy transformation project will increase the use of electric energy, the project incorporates best practices for demand management,

uses technologies appropriate for Vermont, and encourages the installation of the technologies in buildings that meet minimum energy performance standards.

(ix) To provide a process under which a provider may withdraw from or terminate, in an orderly manner, an ongoing energy transformation project that no longer meets the eligibility criteria because of one or more factors beyond the control of the project and the provider.

(G) Petitions. On petition of a retail electricity provider in any given year, the Commission may:

(i) reduce the provider's required amount under this subdivision (3) for that year, without penalty or alternative compliance payment, if the Commission finds that compliance with the required amount for that year will:

(I) cause the provider to increase significantly its retail rates; or

(II) materially impair the provider's ability to meet the public's need for energy services after safety concerns are addressed, in the manner set forth in subdivision 218c(a)(1) (least-cost integrated planning) of this title; or

(ii) allow a provider who failed to achieve the required amount under this subdivision (3) during the preceding year to avoid paying the alternative compliance payment if the Commission:

(I) finds that the provider made a good faith effort to achieve the required amount and its failure to achieve that amount resulted from market factors beyond its control; and

(II) directs that the provider add the difference between the required amount and the provider's actually achieved amount for that year to its required amount for one or more future years.

(4) Alternative compliance rates.

(A) The alternative compliance payment rates for the categories established by this subsection (a) shall be:

(i) total renewable energy requirement - \$0.01 per kWh; and

(ii) distributed renewable generation and energy transformation requirements - \$0.06 per kWh.

(B) The Commission shall adjust these rates for inflation annually commencing January 1, 2018, using the CPI.

(b) Reduced amounts; providers; 100 percent renewable.

(1) The provisions of this subsection shall apply to a retail electricity provider that:

(A) as of January 1, 2015, was entitled, through contract, ownership of energy

produced by its own generation plants, or both, to an amount of renewable energy equal to or more than 100 percent of its anticipated total retail electric sales in 2017, regardless of whether the provider owned the environmental attributes of that renewable energy; and

(B) annually each July 1 commencing in 2018, owns and has retired tradeable renewable energy credits monitored and traded on the New England Generation Information System or otherwise approved by the Commission equivalent to 100 percent of the provider's total retail sales of electricity for the previous calendar year.

(2) A provider meeting the requirements of subdivision (1) of this subsection may:

(A) satisfy the distributed renewable generation requirement of this section by accepting net metering systems within its service territory pursuant to the provisions of this title that govern net metering; and

(B) if the Commission has appointed the provider as an energy efficiency entity under subsection 209(d) of this title, propose to the Commission to reduce the energy transformation requirement that would otherwise apply to the provider under this section.

(i) The provider may make and the Commission may review such a proposal in connection with a periodic submission made by the provider pursuant to its appointment under subsection 209(d) of this title.

(ii) The Commission may approve a proposal under this subdivision (B) if it finds that:

(I) the energy transformation requirement that would otherwise apply under this section exceeds the achievable potential for cost-effective energy transformation projects in the provider's service territory that meet the eligibility criteria for these projects under this section; and

(II) the reduced energy transformation requirement proposed by the provider is not less than the amount sufficient to ensure the provider's deployment or support of energy transformation projects that will acquire that achievable potential.

(iii) The measure of cost-effectiveness under this subdivision (B) shall be the alternative compliance payment rate established in this section for the energy transformation requirement.

(c) Biomass.

(1) Distributed renewable generation that employs biomass to produce electricity shall be eligible to count toward a provider's distributed renewable generation or energy transformation requirement only if the plant produces both electricity and thermal energy from the same biomass fuel and the majority of the energy recovered from the plant is thermal energy.

(2) Distributed renewable generation and energy transformation projects that employ forest biomass to produce energy shall comply with renewability standards adopted by the Commissioner of Forests, Parks and Recreation under 10 V.S.A. § 2751.

(d) Hydropower. A hydroelectric renewable energy plant shall be eligible to satisfy the distributed renewable generation or energy transformation requirement only if, in addition to meeting the definition of distributed renewable generation, the plant:

(1) is and continues to be certified by the Low-impact Hydropower Institute; or

(2) after January 1, 1987, received a water quality certification pursuant to 33 U.S.C. § 1341 from the Agency of Natural Resources. (Added 2005, No. 61, § 4; amended 2005, No. 208 (Adj. Sess.), § 15; 2007, No. 92 (Adj. Sess.), § 22; 2009, No. 45, § 4, eff. May 27, 2009; 2009, No. 159 (Adj. Sess.), §§ 3, 4, 5, 8, eff. June 4, 2010; 2011, No. 47, § 8 (eff. May 25, 2011) and § 18; 2011, No. 170 (Adj. Sess.), § 3, eff. May 18, 2012; 2013, No. 34, § 19; 2015, No. 56, § 3; 2015, No. 174 (Adj. Sess.), § 14.)



# Proposed Rules Postings

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## Search Rules

### Deadline For Public Comment

Deadline: Jul 30, 2021

The deadline for public comment has expired. Contact the agency or primary contact person listed below for assistance.

### Rule Details

Rule Number:	21P018
Title:	Biomass Renewable Energy Standard.
Type:	Standard
Status:	Proposed
Agency:	Department of Forests, Parks, and Recreation, Agency of Natural Resources
Legal Authority:	10 V.S.A. §2751, 3 V.S.A. §801(11) and 3 V.S.A. §2853(5) and 30 V.S.A. §8005(c)(2).
Summary:	Act 56 amended Chapter 87 of Title 10 of the Vermont Statutes Annotated to add a new section 2751, which requires the Commissioner of the Department of Forests, Parks and Recreation to adopt rules that establish renewable energy standards for forest products used to generate energy by distributed renewable generation and energy transformation projects within the Renewable Energy Standard. 10 V.S.A. §2751. This rule establishes biomass renewability standards by setting minimum efficiency standards for Tier III Energy Transformation projects, and sets forester certified standards based on the forest land category of the Use Value Appraisal (UVA) program for material used in Tier II Distributed Renewable Energy projects.
Persons Affected:	VT Agency of Natural Resources; Department of Forests, Parks & Recreation; Public Service Department; loggers; foresters; public utilities; and others involved with development of Tier II or Tier III projects.



Economic Impact: The economic impact of this rule will be minimal. Any limited additional expenditure necessitated by the rule will be offset by the incentives made available via Tier II and Tier III.

Posting date: Jun 09,2021

## Hearing Information

### Information for Hearing # 1

Hearing date: 07-16-2021 10:00 AM

Location: Virtual Hearing via Microsoft Teams

Address: n/a

City: n/a

State: VT

Zip: n/a

[https://teams.microsoft.com/l/meetup-join/193ameeting\\_NzlhNDaxMWQtMDRkYi00MGIzLTgwOTQtMzJjZjRmNTg3NmVi40thread.v2](https://teams.microsoft.com/l/meetup-join/193ameeting_NzlhNDaxMWQtMDRkYi00MGIzLTgwOTQtMzJjZjRmNTg3NmVi40thread.v2)

Notes: /0?context7b22Tid223a2220b4933b-baad-433c-9c02-70edcc7559c6222c22Oid223a22eea1044c-7d60-470a-bc16-c21c0ff84f59222c22IsBroadcastMeeting223atru7d

### Information for Hearing # 2

Hearing date: 07-23-2021 1:00 PM

Location: FPR Essex Office & via Microsoft Teams

Address: 111 West Street

City: Essex Junction

State: VT

Zip: 05452

[https://teams.microsoft.com/l/meetup-join/193ameeting\\_OTYwMDE2YjEtNmY2OS00NGQwLWlxODgtZDJkYjAzZmFjZGZi40thread.v2](https://teams.microsoft.com/l/meetup-join/193ameeting_OTYwMDE2YjEtNmY2OS00NGQwLWlxODgtZDJkYjAzZmFjZGZi40thread.v2)

Notes: /0?context7b22Tid223a2220b4933b-baad-433c-9c02-70edcc7559c6222c22Oid223a22eea1044c-7d60-470a-bc16-c21c0ff84f59227d

## Contact Information

### Information for Primary Contact

**PRIMARY CONTACT PERSON** - A PERSON WHO IS ABLE TO ANSWER QUESTIONS ABOUT THE CONTENT OF THE RULE.

Level: Primary

Name: Emma Hanson

Agency: Department of Forests, Parks, and Recreation,  
Agency of Natural Resources

Address: 1 National Life Drive, Davis 2

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### Information for Secondary Contact

**SECONDARY CONTACT PERSON** - A SPECIFIC PERSON FROM WHOM COPIES OF FILINGS MAY BE REQUESTED OR WHO MAY ANSWER QUESTIONS ABOUT FORMS SUBMITTED FOR FILING IF DIFFERENT FROM THE PRIMARY CONTACT PERSON.

Level: Secondary  
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### Keyword Information

Keywords:

Biomass  
Renewable  
Distributed Generation

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	The Islander ( <a href="mailto:islander@vermontislander.com">islander@vermontislander.com</a> )	Tel: 802-372-5600 FAX: 802-372-3025
	Vermont Lawyer ( <a href="mailto:hunter.press.vermont@gmail.com">hunter.press.vermont@gmail.com</a> )	Attn: Will Hunter

**FROM:** APA Coordinator, VSARA **Date of Fax:** June 7, 2021  
**RE:** The "Proposed State Rules " ad copy to run on **June 17, 2021**  
**PAGES INCLUDING THIS COVER MEMO:** **2**

**\*NOTE\* 8-pt font in body. 12-pt font max. for headings - single space body. Please include dashed lines where they appear in ad copy. Otherwise minimize the use of white space. Exceptions require written approval.**

If you have questions, or if the printing schedule of your paper is disrupted by holiday etc. please contact VSARA at 802-828-3700, or E-Mail [sos.statutoryfilings@vermont.gov](mailto:sos.statutoryfilings@vermont.gov), Thanks.

PROPOSED STATE RULES

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By law, public notice of proposed rules must be given by publication in newspapers of record. The purpose of these notices is to give the public a chance to respond to the proposals. The public notices for administrative rules are now also available online at <https://secure.vermont.gov/SOS/rules/> . The law requires an agency to hold a public hearing on a proposed rule, if requested to do so in writing by 25 persons or an association having at least 25 members.

To make special arrangements for individuals with disabilities or special needs please call or write the contact person listed below as soon as possible.

To obtain further information concerning any scheduled hearing(s), obtain copies of proposed rule(s) or submit comments regarding proposed rule(s), please call or write the contact person listed below. You may also submit comments in writing to the Legislative Committee on Administrative Rules, State House, Montpelier, Vermont 05602 (802-828-2231).

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Rule on Rulemaking

Vermont Proposed Rule: 21P017

AGENCY: Office of the Secretary of State

CONCISE SUMMARY: In 2020, the Secretary of State (SOS) adopted emergency rules allowing administrative rules to be submitted electronically with a "conformed signature" to reduce the risk of exposure to COVID-19 associated with in-person contact. This filing will make the change permanent. The SOS will continue to accept administrative rule submissions electronically with a conformed signature as long as the agency maintains a version bearing the original signed version to ensure authenticity. This amendment will also remove a requirement to notify ICAR and LCAR 30 days before the SOS makes changes to the filing forms. The need to react quickly during the pandemic demonstrated the need to remove barriers to updating filing forms. Other instances have also occurred where legislative changes took longer to implement due to this requirement to notify ICAR and LCAR 30 days before making changes to the forms. Minor formatting changes were also made for consistency.

FOR FURTHER INFORMATION, CONTACT: Chris Winters, Deputy Secretary of State, Office of the Secretary of State, 128 State Street, Montpelier VT 05633-1101 Tel: 802-828-2363 Fax: 802-828-2496 Email: [sos.statutoryfilings@vermont.gov](mailto:sos.statutoryfilings@vermont.gov) URL: <http://sos.vermont.gov/secretary-of-state-services/apa-rules/> .

FOR COPIES: Louise Corliss, Office of the Secretary of State, VSARA 1078 U.S. Rte. 2 Middlesex, Montpelier VT 05633-7701, Tel: 802-828-2863 Fax: 802-828-3710 Email: [sos.statutoryfilings@vermont.gov](mailto:sos.statutoryfilings@vermont.gov).

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Biomass Renewable Energy Standard.

Vermont Proposed Rule: 21P018

AGENCY: Agency of Natural Resources; Forests, Parks & Recreation.

CONCISE SUMMARY: Act 56 amended Chapter 87 of Title 10 of the Vermont Statutes Annotated to add a new section 2751, which requires the Commissioner of the Department of Forests, Parks and Recreation to adopt rules that establish renewable energy standards for forest products used to generate energy by distributed renewable generation and energy transformation projects within the Renewable Energy Standard. 10 V.S.A.

§2751. This rule establishes biomass renewability standards by setting minimum efficiency standards for Tier III Energy Transformation projects, and sets forester certified standards based on the forest land category of the Use Value Appraisal (UVA) program for material used in Tier II Distributed Renewable Energy projects.

FOR FURTHER INFORMATION, CONTACT: Emma Hanson, Agency of Natural Resources; Department of Forests, Parks and Recreation, 1 National Life Drive, Davis 2 Montpelier, VT 05620-3801 Tel: 802-622-4187 Email: [Emma.Hanson@vermont.gov](mailto:Emma.Hanson@vermont.gov) URL: <http://anr.vermont.gov/forests-parks-rec> .

FOR COPIES: Meghan Purvee, Agency of Natural Resources; Department of Forests, Parks and Recreation, 1 National Life Drive, Davis 2 Montpelier, VT 05620-3801 Tel: 802-279-7870 Email: [Meghan.Purvee@vermont.gov](mailto:Meghan.Purvee@vermont.gov).

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