



Steven Snook
Vermont Air Pollution Control Division
103 South Main Street, Building 3 South
Waterbury, VT 05671-0402

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To the Vermont Air Pollution Control Division,
The Partnership for Policy Integrity (PFPI) is a New England-based organization using science, policy analysis and strategic communications to promote sound renewable energy policy. Thank you for the opportunity to submit the following comments on the draft air permit for the Beaver Wood Energy (BWE) wood pellet manufacturing and biomass power facility in Fair Haven, Vermont. We understand that a permit review conducted by Air Resources Group has been submitted as a comment on this facility, and we incorporate that letter by reference. We also have attached an affidavit to the Vermont Public Service Board by Biomass Energy Resource Center founder Tim Maker, testifying as to the impacts of the BWE Pownal plant, and we incorporate that statement by reference. We here confine our comments to a few issues that in our opinion deserve further scrutiny.

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Criteria pollutant and Hazardous Air Pollutant (HAP) emissions

Pollution caps avoiding major source status strain credibility

- Summary: setting allowable emissions for NOx and VOCs just below critical permitting thresholds is not justified.

The air permit covers two biomass burners: the 482 mmbtu main power boiler, and a 30 mmbtu burner used for pellet drying. The main power boiler has emissions controls for NOx, CO, and PM; the pellet dryer burner has controls for PM and relies on “good combustion practices” for control of other pollutants. Neither burner has controls for hydrogen chloride (HCl).

However, despite there being at least two if not three sources of each pollutant, emissions estimates for NOx and VOCs presented in Table 2.5.1 of the application and summarized on page 6 of the permit barely skim under critical emissions thresholds, allowing the facility to escape purchasing emission reduction credits.

Table 2.5.1 Potential Emissions Comparisons

Pollutant	BWE Potential Emissions (tons/yr)	PSD Major Source Thresholds (tons/yr)	Threshold for obtaining emission reduction credits (tons/yr)
SO ₂	45.9	50	not applicable
PM ₁₀	65.4	50	not applicable
NOx	99.9	50	100
CO	190.5	50	not applicable
VOC	49.8	50	50

Proposed allowable emissions provided in Table 2.5.1 indicate the facility will exceed major source thresholds for NOx, PM₁₀ and CO. BWE is proposing a facility-wide cap on NOx of 99.9 tons per year.

Table 1. Facility emissions data from BWE permit application

This is a problem for at least three reasons:

- First, and most importantly, these emission caps appear to have been calculated in a way that is not mathematically correct, legally correct, or practicably enforceable. This is discussed further below.
- Second, it discredits the permitting process for an applicant to behave as if emissions can be controlled to this level of precision, and for the state permitting agency to accept this. It is highly unrealistic to assume that emissions caps will be met when there are three significant sources of VOCs at the facility (VOCs from the main and

pellet dryer burners, plus VOCs emitted from the pellets themselves during the drying process). Both burners also emit significant amounts of NO_x; for instance, the smaller 30 mmbtu burner, which has no controls for NO_x and no continuous emissions monitoring system, is responsible for large proportion of total NO_x emissions at the facility.

- Third, these emission levels are based on allowable emission rates that could be much lower. The emission rates for BWE are higher those guaranteed by Babcock and Wilcox for the Palmer Renewable Energy facility in Massachusetts. Thus, BWE's is not a demonstration of critical analysis of Most Stringent Emission Rate (MSER); it is a demonstration of the applicant setting their own terms, and poor terms at that.

Emissions for the power boiler have not been estimated on a true Potential to Emit basis

- Summary: BWE is required to properly calculate its potential to emit (PTE) according to the requirements of the Clean Air Act.

The Clean Air Act requires that potential to emit (PTE) be calculated for the purposes of determining whether a facility is a major emissions source for regulatory purposes. PTE is calculated by multiplying the boiler capacity (mmbtu/hr) by a pollutant's emission rate (lb/mmbtu) by the number of hours in a year (8,760), and dividing by 2,000 to convert from pounds to tons. However, BWE's potential to emit does not appear to have been calculated in this way. Table 3-1 in the Technical Analysis document states that a capacity factor of 96% is used to calculate allowable emissions. This limitation is important in the permit, because without it the facility would be calculated as emitting more than 100 tons of NO_x and more than 50 tons of VOCs, a condition that would require BWE to purchase emission credits (ERCs). Because the PTE is calculated incorrectly, this factor alone, aside from other factors discussed below, should require that the emissions of NO_x, VOCs, and indeed all pollutants be revisited in the permit.

An exception to the PTE rule can be made under some circumstances. According to EPA guidance, a facility can put limits on operations that ensure that it remains a "synthetic minor" source that does not trigger key permitting thresholds. However, EPA requires that these limits must be stated in the permit and be practicably enforceable. BWE's air permit does not state practicably enforceable limits that will guarantee that emissions of NO_x remain below 100 tons and emissions of VOCs remain below 50 tons. Therefore, BWE's permit and avoidance of requirements to purchase ERCs are not legitimate.

Emissions from BWE have been underestimated and the facility is actually a major source

- Summary: Proper calculation of BWE's potential to emit (PTE) demonstrates that BWE is a major source for NO_x and VOCs and should be required to purchase emission reduction credits.

Besides the incorrect calculation of PTE for the power boiler, emissions from the pellet dryer burner also appear to contain a discrepancy with regard to PTE.

The permit contains the following table:

Beaver Wood Energy Fair Haven, LLC

DRAFT 9/15/2011

#AP-11-015

Burner/Rotary Dryer Emission Limitations				
Pollutant	Emission Limitations			Compliance Test Method ¹
	Emission Limit		Averaging period	
NO _x	0.35 lb/MMBtu	5.25 lb/hr	Hourly average	Reference Method 7E
CO	0.35 lb/MMBtu	5.25 lb/hr	Hourly average	Reference Method 10
Total PM	0.2 lb/ODT	3.0 lb/hr	Hourly average	Reference Method 5 and 202
Filterable PM	0.005 gr/dscf ²	2.3 lb/hr	Hourly average	Reference Method 5
SO ₂	0.025 lb/MMBtu	0.75 lb/hr	Hourly average	Reference Method 6C
VOC	0.69 lb/ODT	10.3 lb/hr	Hourly average	Reference Method 18 or 25
GHG	427 lb CO ₂ e/ ton finished pellets	-	Monthly average	Calculation based on wood fuel usage and pellet production.

Any emission testing conducted to demonstrate compliance with the above emission limits shall be performed in accordance with methods shown above, or an alternative method which has been published in 40 CFR, provided the federally approved alternative method has been accepted in writing by the Agency before testing.

² Emission limit for undiluted exhaust gas.

[10 V.S.A. §556(c)] [§5-502 of the Regulations] [Application for #AP-11-015]

Table 2. Emission rates from BWE permit.

The pellet dryer burner is a 30 mmbtu/hr unit. The permit does not contain any practicably enforceable limits on its operation. Therefore, its hourly emissions of NO_x are calculated as 30 mmbtu/hr x 0.35 lb/mmbtu = 10.5 lb/hr. Inexplicably, however, the table contains an hourly NO_x limit of one-half this amount, at 5.25 lb/hr. The same mathematical discrepancy exists for CO and PM.

Interestingly, VOC emissions, which are expressed in terms of tons of pellets produced, appear to be calculated assuming full-time operation of the burner: 0.69 lb/ODT x 115,000 ODT/yr = 79,350 lb/yr. Dividing this figure by the number of hours in a year: 79,350/8,760 = 9.06 lb/hr of VOCs emissions. This figure is slightly less than the hourly rate in the table of 10.3 lb/hr stated in the table. From this it seems that for VOC emissions, at least, full-time operation of the pellet dryer at full capacity has been assumed. Why then are the hourly rates for the other

pollutants expressed as if the burner were operating at one-half capacity, or only one half the time?

If the potential to emit for VOCs from the pellet dryer ($10.3 \text{ lb/hr} \times 8760 \text{ hrs}/2000 = 45.11 \text{ tons}$) is added to the potential to emit for VOCs from the power boiler ($482 \text{ mmbtu/hr} \times 0.005 \text{ lb/mmbtu} \times 8,760/2000 = 10.55 \text{ tons}$), the sum comes to 55.67 tons, making this facility a major source for VOCs, and thereby requiring the facility to purchase Emission Reduction Credits.

If the potential to emit for NO_x were calculated correctly for the 30 mmbtu boiler, the PTE would be 45.99 tons. Adding this to the PTE for the power boiler ($482 \text{ mmbtu} \times 0.03 \text{ lb/mmbtu} \times 8,760/2000 = 63.33 \text{ tons per year}$) the sum comes to 109.32 tons. This figure is more than the threshold figure of 100 tons that qualifies BWE as a major emitter, thereby requiring the facility to purchase Emission Reduction Credits for NO_x.

Power boiler emission rate for NO_x does not represent MSER

- Summary: VT DEC should commit BWE to lower emission rates for NO_x and require BWE to have a separate and enforceable rate for startup and shutdown for NO_x and other pollutants.

In our opinion, VT DEC should not accept the applicant's claim that the emission rates set for the Palmer Renewable Energy facility in Springfield, MA are unachievable. If BWE wishes to demonstrate why the Palmer limits are unachievable, then VT DEC can be assured there will be an attentive audience south of the state border for this discussion, but without such a demonstration, the emission rates set at BWE are not MSER. If BWE is using Babcock technology, then with all the claims made to the press that BWE will be the "cleanest in the nation", the applicant should be the first to insist that Babcock meet the more stringent standards that the company has promised for the Palmer plant. In fact, other facilities around the country have also set low emission rates for NO_x; for instance, the Green Hunter Mesquite Lake plant in CA has an annual NO_x rate of 0.015 lb/mmbtu.

It is interesting to note, however, that the applicant simultaneously complains of the difficulty in meeting the hourly NO_x emissions rate, but then promises an annual rate that is half this, at 0.03 lb/mmbtu. In turn, Palmer's annual NO_x emissions rate is 0.017 lb/mmbtu, almost one-half of the BWE rate. Clearly, both facilities plan for "business as usual" emissions to be much lower than the maximum hourly rate, if they are to meet the annual average rate. However, it appears that in BWE's case, the maximum hourly rate is set to cover emissions during startup and shutdown, when the MPSCR system is not at optimum operating temperature. It seems likely that actual startup and shutdown emissions may be higher than the 0.06 lb/mmbtu set for the hourly rate – for instance, the DTE Stockton plant in CA specifies a startup emissions rate for NO_x that is more than 10 times the annual average rate at that plant of 0.04 lb/mmbtu. Having reviewed more than 60 permits for biomass facilities around the country, we can say it is typical for biomass facility air permits to state that pollution control rates do not apply during startup and shutdown, or to specify different rates for these periods, and atypical for a

permit to assume that the maximum hourly rate covers startup and shutdown events, as BWE's does. Given the importance of reducing NO_x emissions in the Northeast's ozone transport region, the air permit for a new large source of NO_x like BWE should contain a separate and enforceable rate for NO_x emissions during startup and shutdown, and this emission rate should be modeled to determine its effect on the 1-hour NO_x NAAQS standard. Other pollutants should be similarly evaluated for their true emissions during startup and shutdown.

Power boiler PM rate does not represent MSER

- Summary: BWE, in order to comply with MSER requirements, must commit to lower PM emission rates.

With regard to PM emission limits, BWE's permit application states,

The lowest permit value for total PM (filterable and condensable) is 0.008 lb/MMBtu at Seneca Sustainable Energy. This emission rate is far below that for any known solid-fuel power facility, biomass or otherwise. Efforts to understand the source of the Seneca PM limit yielded no technical basis for an emission rate of its level. Therefore, the Seneca 0.008 lb/MMBtu limit for total PM (filterable and condensable) is considered unattainable. The lowest achievable total PM (filterable and condensable) emission rate proposed is 0.019 lb/MMBtu.

While the Seneca rate may seem out of reach, other biomass facilities have been transparent about their approach for reducing filterable PM. For instance, the We Energies plant in Wisconsin is guaranteeing a filterable PM rate of 0.008 lb/mmbtu, lower than the 0.012 lb/mmbtu limit in the BWE permit. There are other instances of actual test data showing PM rates lower than that promised by the applicant. Even the Mount Tom coal plant in Massachusetts has test data showing lower PM emissions than are to be met by BWE – recent data from that plant, known at one time as one of the “filthy five” in Massachusetts, shows PM emission rates of 0.0055 lb/mmbtu for filterable PM and 0.0059 lb/mmbtu for total PM. The technology is capable of meeting a more stringent standard, and BWE should comply with this under the requirements of MSER.

Power boiler CO rate does not represent MSER

- Summary: BWE must guarantee lower emission rates for CO to comply with MSER.

As is the case with NO_x, BWE and by extension VT DEC have too quickly dismissed the CO rate that constitutes BACT at the Palmer facility in Massachusetts. The 3-hour emissions limit at Palmer is 0.07 lb/mmbtu, and the annual rate is 0.0365 lb/mmbtu. Reductions in CO are important not only because CO is a criteria pollutant, but also because the same factors that lead to emissions of CO also lead to emissions of organic hazardous air pollutants. Since

Babcock has guaranteed these lower emissions rates at the Palmer facility, they should be guaranteed at the BWE facility as well.

Applicant has not justified the use of alternate HAP emission factors

- Summary: VT DEC should require BWE to provide greater transparency in HAPs emission calculations.

In estimating hazardous air pollutant (HAP) emissions, BWE has picked from a selected suite of emissions factors drawn from emissions testing, NCASI, and the EPA AP-42 document. However, there is no reason provided as to why NCASI and other emission factors were chosen instead of AP-42 factors, which in many cases have an “A” rating for quality and reliability. The VT DEC should require each alternative emission factor to be justified, and to the extent that test data from operating facilities are used as the basis of emission factors, these data should be clearly and transparently presented.

MSER Determination for Greenhouse Gas (GHG) Emissions

The Draft Permit would allow BWE to satisfy Vermont DEC’s “most stringent emission rate” (MSER) requirement by simply burning biomass fuel in conjunction with energy efficiency measures and good operating and maintenance practices for CO₂ control.¹ Underlying this decision is the false notion that the use of biomass for energy combustion is “carbon neutral”. The claim of carbon neutrality for biomass energy is not supported by sound science, and if Vermont continues to treat it as such, it will significantly impair the State’s ability to reduce greenhouse gas emissions from the power sector.

Therefore VT DEC, as discussed in detail below, must recognize the following in order for BWE to fully comply with MSER GHG requirements:

- **“Good combustion practices” does not reduce CO₂ emissions and should not be considered MSER for GHG emissions,**
- **Combustion of biomass fails to meet the requirements of MSER for CO₂ emissions,**
- **BWE cannot rely on EPA’s Bioenergy BACT Guidance or White Paper to determine GHG MSER control since it is based on the false assumption that combustion of biomass is “carbon neutral”;**
- **Combustion of biomass emits more CO₂ at the stack per energy unit than fossil fuels,**
- **CO₂ emissions from BWE will double CO₂ emissions from biomass burning in the state, and**

¹ Technical Support Document at 32-33; see also Beaver Wood Energy Fair Haven LLC, “Air Permit Application for Electric Generating Plant and Wood Pellet Production Plant” submitted to Vermont Department of Environmental Conservation, at 3-15 (February 18th 2011). (“Permit Application”).

- CO₂ emissions from BWE will remain in the atmosphere for decades before being resequstered, hindering VT from achieving GHG reduction goals.
- BWE, and facilities like it, will threaten VT forests carbon stocks

BWE is legally required to demonstrate MSER for greenhouse gases

Greenhouse gases are currently “subject to regulation” under the Clean Air Act’s prevention of significant deterioration and Title V permitting programs at new stationary sources with the potential to emit more than 100,000 tons per year (measured as CO₂e, or CO₂-equivalent).² Vermont has incorporated these federal requirements into its permitting program.³ Although EPA subsequently adopted a rule deferring these requirements with respect to biogenic CO₂ emissions for a period of three years,⁴ the Technical Support Document states that this deferral is not effective in Vermont.⁵

Therefore, as the Technical Support Document acknowledges, BWE is required to apply Most Stringent Emission Rate (MSER) requirements to GHG emissions. An MSER demonstration must follow a top-down analysis similar to a best available control technology (“BACT”) under the federal Clean Air Act:

1. Identify most stringent emission rates and associated control technologies
2. Eliminate technically infeasible options
3. Rank remaining control technologies by control effectiveness
4. Evaluate most effective controls and document results (case –by-case consideration of energy, environmental, and economic impacts)
5. Select MSER.⁶

In concluding that energy efficiency, biomass fuel, and good operating and maintenance practices were sufficient to meet MSER requirements, DEC relied on a recent EPA guidance document regarding BACT determinations for bioenergy applications.⁷ However, as explained below, because GHG emissions from biomass are not carbon neutral, the determination that biomass combustion *itself* constitutes MSER for the emissions associated with biomass combustion is both factually and legally deficient.

² Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule; Final Rule, 75 Fed. Reg. 31,514 (June 3, 2010); 40 C.F.R. §§ 51.166(b)(48), 52.21(b)(49), 70.2, 71.2.

³ Technical Support Document at 31.

⁴ See 76 Fed. Reg. 43,490 et seq. (July 20, 2011) (“Biomass Deferral Rule”).

⁵ Technical Support Document at 32.

⁶ Permit Application at 3-1, 3-2.

⁷ US EPA, *Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production* (March 2011). (“Bioenergy BACT Guidance”). As the guidance itself makes clear, it is neither a rule nor a regulation and does not have the force of law. In any event, such guidance cannot override statutory requirements of the Clean Air Act.

The use of “good combustion practices” as MSER for GHG emissions

BWE has included “good combustion practices” in the list of measures to be taken to reduce greenhouse gas emissions. It should be noted that typically, the objective of good operating and maintenance practices is to ensure complete combustion and reduce the amount of carbon *monoxide* emissions by ensuring complete oxidation of fuel carbon to carbon dioxide. Therefore, while we agree that a well-run facility is more likely to be an efficient facility, it should be acknowledged that there is really very little that can be done to reduce CO₂ emissions from burning fuels, and the goal of “good combustion practices” is to actually increase CO₂ emissions.

Biomass combustion does not satisfy Vermont’s MSER requirement for GHG control

In its permit application BWE states that its MSER determination was prepared in anticipation of EPA’s Bioenergy BACT Guidance, which would “provide a basis that state permitting authorities may use to conclude that use of biomass as a fuel is the best available control technology for GHG emissions.”⁸ Both the “White Paper” that BWE relies on, and EPA’s subsequent Bioenergy BACT Guidance, propose that use of biomass fuel *can* be considered as a measure to reduce CO₂ emissions.⁹ DEC appears to have accepted this determination in explicitly relying on EPA’s guidance and including biomass combustion among the MSER measures approved in the Draft Permit.¹⁰ However, EPA’s guidance is based on the inherently flawed assumption that emissions from combustion of biomass are “carbon neutral,” a concept that has never been demonstrated in practice.

Biomass combustion for energy is not “carbon neutral”

- Summary: VT DEC should require BWE to provide a real and transparent discussion of MSER for greenhouse gases.

According to the draft permit, BWE has the potential to emit 470,900 tpy of GHG.¹¹ As shown in Table 3, biomass power facilities like BWE emit significantly more CO₂ per unit useful energy at the stack than fossil fuel facilities. Given that biomass facilities emit about 45% more CO₂ than coal, and 2- 3+ times more CO₂ than natural gas facilities, BWE owes the electricity-rate paying public who will subsidize this power plant, as well members of the reality-based community, an explanation of why this technology should be considered the “best available” for controlling greenhouse gasses.

⁸ Permit Application at 3-15; citing US EPA, *Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from Industrial, Commercial, and Institutional Boilers* (October 2010) (White Paper)..

⁹ See *White Paper* at 26; *BACT Bioenergy Guidance* at 15.

¹⁰ Technical Support Document at 32-33.

¹¹ State of Vermont Agency of Natural Resources, Department of Environmental Conservation “Air Pollution Control Permit to Construct, Draft Permit” at 6 (September 15th 2011). (“Draft Permit”).

	lb CO2 emitted per mmbtu heat content	facility efficiency	mmbtu heat input to generate 1 MWh	lb CO2 emitted per MWh
gas combined cycle	117.1	0.45	7.54	883
gas steam turbine	117.1	0.33	10.40	1,218
coal steam turbine	205.6	0.34	10.15	2,086
biomass steam turbine	213	0.24	14.22	3,029

Table 3. Biomass versus fossil-fueled power generation technologies and their CO₂ emissions per megawatt-hour (MWh). Data on facility efficiency and CO₂ emissions per mmbtu are from the Energy Information Administration.

A true evaluation of MSER for GHG's would involve discussing the nature and relative carbon impacts of different types of biomass fuels, since EPA's guidance acknowledges that the net carbon impacts of different fuels can differ. However, in the absence of any discussion, the simple fact remains that burning biomass emits more CO₂ at the stack per unit energy than does burning coal, oil, or natural gas. BWE's claim that MSER for greenhouse gases is 2,993 lb CO₂ per MW-h electrical output, without any discussion of the true carbon impacts of biomass burning, makes a travesty of the MSER determination process.

BWE will increase carbon emissions at the state level

According to the draft permit, BWE has the potential to emit 470,900 tpy of GHG.¹² Putting this number into context, Energy Information Administration data show that biomass power fueled by wood and wood products provided about 5.4% of Vermont's power in 2009. Vermont was the state with the lowest reported carbon emissions from the power sector in 2009, at 7,257 tons of CO₂. However, if EIA had included CO₂ emissions from biomass power, this would add another 596,107 tons of CO₂, bringing the state's total to 603,364 tons – meaning that biomass CO₂ emissions would be 82 times greater than emissions from conventional fuel burning. Emissions from the BWE facility will essentially double the amount of CO₂ emitted by biomass burning in the state.

BWE's carbon emissions are real and lasting

As a pellet manufacturing facility, BWE will already be responsible for liquidating large amounts of forest carbon into the atmosphere. However, even the amount of tops and limbs generated by forest harvesting for pellets will not be sufficient to meet BWE's demand for 362,000 tons of biomass fuel per year, which the facility claims it will supply with forest residues, bark, and mill waste,¹³ a claim that appears highly implausible and deserves critical evaluation.

¹² State of Vermont Agency of Natural Resources, Department of Environmental Conservation "Air Pollution Control Permit to Construct, Draft Permit" at 6 (September 15th 2011). ("Draft Permit").

¹³ Permit Application at 2-1.

Vermont currently generates around 522,000 green tons of logging residues yearly.¹⁴ Since half of these residues should remain in place to retain soil nutrient stocks, the amount of residue available for fuel is 261,000 tpy.¹⁵ This amount of residue is already well below what BWE requires for fuel supply, even without accounting for other uses for this material. Since residues will not suffice to meet fuel demand, BWE will inevitably harvest additional “low grade trees” that are harvested specifically for fuel.¹⁶

We are aware of several studies that evaluate the net carbon effect of cutting and burning trees for energy on atmospheric CO₂ emissions. The Massachusetts-commissioned Manomet Study is by far the most detailed and most transparent of these. The Manomet Study concluded that lifecycle carbon emissions from burning whole trees for power in low-efficiency facilities like BWE emits more CO₂ than burning coal for a period of more than 40 years.

The idea that burning whole trees for energy is carbon neutral has been justified by the claim that so long as forests regrow, the carbon released from harvesting will be resequenced.¹⁷ However, the Manomet Study showed that increasing forest harvesting for fuel leads to dramatic decadal increases in net CO₂ emissions in the exact timeframe when it is most critical to reduce emissions. This occurs for two reasons. First, combustion of biomass results in greater CO₂ emissions per unit of energy produced than combustion of fossil fuels, as explained above. Second, when this increase in emissions is coupled with the loss of sequestration due to forests being harvested, the result is greater net CO₂ emissions in the atmosphere that will take decades or even centuries to resequencer.¹⁸ The vital carbon sequestration function of forests is recognized by the carbon accounting protocols of the Intergovernmental Panel on Climate Change (IPCC) and the EPA. To ignore the liquidation of carbon stocks and label this as carbon neutral is contrary to sound science.

We understand that BWE’s managing director has described the Manomet Study as “trash”,¹⁹ but considering that Vermont’s Deputy Secretary at Air and Natural Resources, Chris Recchia, served on the panel that produced the study, we hope that VT DEC will take into consideration the findings of the study. Despite BWE’s considered opinion, it should also be noted that the results of the Manomet Study were considered “untrashlike” enough by Vermont’s neighbor Massachusetts to serve as the basis for revising eligibility requirements for receipt of renewable energy credits by biomass power facilities. Massachusetts is serious about reducing

¹⁴ Smith, W.B., et al. 2007. Forest Resources of the United States, 2007. United States Forest Service, Gen.Tech Report WO-78. December, 2008.

¹⁵ Id.

¹⁶ Id.

¹⁷ M.Booth & R. Wiles at 3.

¹⁸ M. Booth & R. Wiles at 3; citing Manomet Center for Conservation Sciences. 2010. Massachusetts Biomass Sustainability and Carbon Policy Study: Report to the Commonwealth of Massachusetts Department of Energy Resources. Walker, T. (Ed.). Contributors: Cardellicchio, P., Colnes, A., Gunn, J., Kittler, B., Perschel, R., Recchia, C., Saah, D., and Walker, T. Natural Capital Initiative Report NCI-2010- 03. Brunswick, Maine.

¹⁹ Bromage, A. Renewable or Retrograde? A biomass plant proposed for Fair Haven sparks controversy. Vermont Seven Days, October 5, 2011.

greenhouse gas emissions – the Massachusetts Global Warming Solutions Act mandates the state to do so. If Vermont is serious about this goal as well, then DEC will not sign off on a determination that burning biomass, which emits more CO₂ than fossil fuels, is the best way to reduce emissions. There is no way around the fact that putting forest carbon into the air raises atmospheric carbon stocks and reduces terrestrial stocks. Considering this to be “best available control technology” beggars common sense, as well as the best available science.

BWE represents a threat to forests

Even a “pro-biomass” report from the Cary Institute of Ecosystem Studies (co-authored by Thomas Buchholz, of University of Vermont’s Rubenstein School of Environment and Natural Resources) suggests that current estimates of “low grade wood” potentially available as biomass fuel in New England are likely overstated.²⁰ Some conclusions from the Cary Institute report include:

- The magnitude of the sustainable forest biomass supply is far smaller than most previous studies have suggested.
- Overharvesting would lead to degradation of northeastern forests and release more carbon to the atmosphere than would comparable energy production from fossil fuels.
- Total carbon storage in the forests would be expected to continue to increase for many years as carbon stocks in the “reserved” (legally or otherwise) lands continued to increase, **but any increase in harvests above current levels would come at the expense of a decline in the total stock of forest biomass in the working forests.**
- The current harvest regime over the entire Northeast is very close to (if not greater than) a sustainable rate, when limited to the available land base.

A key factor distinguishing the Cary Institute report is that it does not simply evaluate forest harvest and mortality versus forest growth over the whole landscape, but acknowledges that some forests are heavily utilized, and others less so. The report paints a dark picture of the ability of Northeastern forests to meet emerging energy wood demand. In light of the complete failure and apparent inability of BWE to critically evaluate carbon emissions from biomass burning, VT DEC thus should at a minimum evaluate the net effect of this facility on Vermont’s forest carbon stocks before allowing it to move forward. To fail to do so is a betrayal not only of the permitting process, but also the trust of citizens that the State’s agency will protect resources and act to mitigate climate change, in accordance with its mandate.

Thank you for the opportunity to comment.

Mary S. Booth, PhD.
Sarah Herbert
Partnership for Policy Integrity

²⁰ Cary Institute of Ecosystem Studies. *Forest Biomass and Bioenergy: Opportunities and Constraints in the Northeastern United States*, 2011. http://www.ecostudies.org/report_biomass_2011.pdf