Technical Support Document

for

Amendments to Vermont's Air Pollution Control Regulations

Regulation of Air Pollution Emissions from Wood Burning Stoves,

Central Heaters, and Boilers

Proposed Rule Filing

Introduction

This document is intended to provide technical background in support of regulatory amendments to the Vermont Air Pollution Control Regulations for control of air pollution emissions from wood burning stoves, central heaters and boilers. The existing regulations 5-204 [Wood Stoves and Central Heaters], 5-401(6)(b) [Classification of Air Contaminant Sources], and 5-501 [Permits] currently require all wood stoves and central heaters of 2.5 million BTU per hour heat output or less to be EPA certified under 40 CFR Parts 60 Subparts AAA and/or QQQQ and all wood burning units of greater than 90 H.P. heat output (~7 MMBtu per hour heat input) to obtain a state permit. The proposed regulatory structure is anticipated to eliminate the gap of unregulated units and divide units into three size categories for regulation:

The proposed regulation divides wood heating units into three size categories:

1. 0-350,000 BTU/hr: Units at or less than 350,000 BTU/hr heat input - required to be EPA certified to meet the Step 2 standards (0.10 lbs total PM/MMBTU heat output). This requirement is for both residential and non-residential units.

2. 350,000 – 3 million BTU/hr: Units greater than 350,000 MMBTU/hr heat input and less than 3 million BTU/hr heat input – need to meet one of the following:

    a. Obtain EPA certification showing it meets the Step 2 standards (mandatory for residential units larger than 350,000 BTU/hr heat input).

    b. Obtain VT State certification for each make and model by demonstrating the unit meets the emission limits of 0.10 lbs filterable PM/MMBTU heat input and 270 ppm CO @ 7% O2 through a valid stack emission test (EPA Method 5 for PM; EPA Method 10 or equivalent for CO). Once a specific make and model of unit has obtained VT State certification, additional identical units may be installed at other locations with a notification to the Air Quality & Climate Division.

    c. Obtain VT State certification for each make and model by demonstrating the unit is certified to European EN-303-5 lass 5 standards (this is for units up to 1.7 MMBtu/hr heat output). For units larger than 1.7 MMBtu/hr heat output they must demonstrate the unit has been tested using EN-303-5and meets the Class 5 standards. The European standards and emission testing methodology are not directly comparable to EPA or state standards. However, the European EN-303-5Class 5 standards represent the highest

standards and cleanest units available in Europe and will be accepted as demonstration of meeting the Vermont standard.

3. >= 3 MMBtu/hr: Units rated at 3 million BTU/hr heat input and larger must obtain a State permit and document compliance with the emission limits through a stack test for each installation. The emission limits for units 3 – 10 million BTU/hr are 0.10 lbs filterable PM /MMBTU heat input (EPA Method 5) and 270 ppm CO @ 7% O2 (EPA Method 10) and the limits for units >10 million BTU/hr are 0.030 lbs filterable PM /MMBtu heat input (EPA Method 5) and 270 ppm CO @ 7% O2 (EPA Method 10). The state permit threshold is being lowered from the current ~7 million BTU/hr to 3 million BTU/hr heat input. This new permit threshold is more in-line with, but still less stringent than, most other northeast states with the exception of Connecticut and Maine. The emission limit for units between 3 and 10 million BTU/hr heat input is the same as for small units 350,000 to 3 million BTU/hr heat input. A site-specific stack compliance test is required for each installation rated at 3 million BTU/hr heat input and larger.

§5-211 Visible Emissions/Opacity: We are proposing to amend §5-211(c), which currently allows for instantaneous opacity up to 80%, and would effectively limit opacity to 60%. We are also removing references to the Ringelmann Chart. We are also changing the applicability size limitation for wood boilers from "40 horsepower output" to 3 MMBTU/hr heat input. The 3 MMBTU/hr threshold is slightly lower than the 40 HP threshold.

Regulatory History:

Vermont has required Air Pollution Control Permits of increasing stringency for new wood boilers greater than 90 H.P. heat output (~7 million BTU/hr heat input) for over 40 years.

c.1997 Vermont, as well as numerous other northeast states, adopted regulations to address the growing problems with excessive smoke and nuisance from outdoor wood boilers. These units were predominately cordwood fired units for residential and small commercial facilities.

c.2015 the US EPA adopted regulations for new residential wood heaters/stoves (updating NSPS Subpart AAA originally adopted in 1988) and new residential hydronic heaters and forced air furnaces (40 CFR Part 60, Subpart QQQQ). Step 1 standards took affect May 15, 2015, with the more stringent Step 2 standards taking effect May 15, 2020.

c.2016 Vermont adopted the EPA regulations into §5-204 [Wood Stoves and Central Heaters] and retained the applicability in Vermont's original outdoor wood boiler regulation for non-residential units less than 2.5 MMBTU/hr heat output, requiring them to be EPA certified to meet the same emission standard as if installed for residential purposes.

c.2017-2019 Extension of applicability of the EPA regulations to non-residential units started to prove problematic, especially for larger units.

c.2019 In response to industry concerns, the Vermont General Assembly passed Act 50 which directed the Agency to commence rulemaking to allow for alternative methods of demonstrating compliance with the emission standards in lieu of having to obtain EPA certification for non-residential units. Until such time as the required rulemaking is complete, the Agency has implemented, for units equipped at a minimum with oxygen trim combustion controls, a certification process for each discrete model that

accepts test data pursuant to European Standard EN 303-5 or other similar methods as a means of demonstrating compliance with the emission standards no more stringent than the Step 2 standards.

This document contains background information for three separate evaluations completed in support of the regulatory amendments:

1. Air Quality Impact Evaluation modeling studies of various building configurations and stack heights for a 1 MMBtu per hour boiler and a 3 MMBtu per hour boiler for comparison to the $PM_{2.5}$ 24-hour ambient air quality standard.
2. The projected economic health benefits of the proposed regulation as predicted by the US EPA Co-Benefits Risk Assessment Health Impacts Screen Tool (COBRA).
3. The economic cost impact evaluation of emission controls required to comply with the regulatory limits proposed.
4. Chart of Other State Regulatory Thresholds

Air Quality Impact Evaluation

Air quality impact evaluation modeling analyses were conducted for both a 1 million BTU per hour and a 3 million BTU per hour wood-fired boiler for various building and stack height scenarios for comparison to the $PM_{2.5}$ 24-hour national ambient air quality standard (NAAQS)[1]. The $PM_{2.5}$ annual NAAQS was not evaluated. The US EPA AERMOD model (version 9.7.0) was run in refined mode with 5 years of meteorological data.

Model Inputs: A particulate matter emission rate of 0.25 lbs/MMBtu was used, all assumed to be $PM_{2.5}$. The results may be scaled to other emission rates as desired. The boiler is assumed to operate at the listed firing rate for the full 24 hour period. Meteorological data sets from the Burlington and Springfield airports were used for initial analyses to represent an open and valley scenario, respectively. The two data sets produced similar predicted impacts and only the Burlington met was used for subsequent evaluations. Since these units typically only operate for the winter heating season, only the winter months were evaluated. Inclusion of summer months in the modeling results in a 30-40% increase in predicted ambient impacts. For units that would be expected to run year-round, additional modeling would be needed, including an evaluation of the $PM_{2.5}$ NAAQS.

The modeling evaluated two building configurations and three stack heights for each. The buildings were both 100' by 100'. One building was 20' high, with stacks of 10', 30' and 45' above the roof (30', 50', and 65' above grade). The two taller stacks are both considered to meet the good engineering practice (GEP) stack height recommendation, defined as 2.5 times the building height. The second building scenario was 30' high, again with stacks of 10', 30' and 45' above the roof (40', 60', and 75'

[1] The Clean Air Act requires the US EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The Clean Air Act identifies two types of national ambient air quality standards. Primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. The Clean Air Act requires EPA to review the standards – and the science behind them – periodically to determine whether changes are warranted.

above grade). The tallest stack meets the GEP recommendation. The stack location is modeled as being in the middle of the building. Terrain around the buildings was assumed to be flat, which is reasonable given the highest impacts are expected at near field receptors on school property. These are simplified scenarios. Complex building tiers, larger nearby buildings, and rising terrain would be expected to increase predicted impacts.

Receptors were spaced from the edge of the building outward at the following distances from the stack in feet: 70, 80, 90, 100, 110, 120, 130, 180, 230, 330, 430, 530, 780, 1030, 1280, 1530, 1780. While modeling may often exclude modeled impacts occurring on the plant property where public access is limited, the near field receptors are appropriate for the modeling of a school boiler as well as other scenarios where the public has frequent access.

Wood Boiler Specifications: Predicted ambient impacts are primarily influenced by the emission rate and stack height. However, the exhaust parameters for temperature, flow and velocity, which can vary for different sized units, can also impact dispersion and thus ambient impacts. For this reason, the modeling evaluated two different sized units, one operating at 1 million BTU per hour heat input and one operating at 3 million BTU per hour heat input. Larger units were not considered for this study since such units would be subject to permitting (under the anticipated proposed regulatory structure) and would be expected to undergo some level of review of the appropriateness of the stack for potential ambient impacts.

The stack parameters for the 1 million BTU unit scenario are based on a 2008 stack test of a Chiptec green wood chip unit at Victor School in Victor, Montana rated at ~2.5 million BTU heat input. The unit was operating on low fire at 1.02 million BTU per hour heat input during the test.

The stack parameters for the 3 million BTU unit scenario are based on a 2012 stack test of a Messersmith green wood chip unit at Weeks Memorial Hospital in Lancaster, New Hampshire rated at ~3.1 million BTU heat input. The unit was operating on high fire at 3.1 million BTU per hour heat input during the test (689 lbs/hr @4500 BTU/lb assuming 50% mc chips). The Weeks testing also included two units operating on low fire at a combined rate of 1.1 million BTU. However, the stack temperature, flow rate, and moisture content data in conjunction with a 21" stack is not considered representative of a smaller unit so that data was not used.

1 MMBTU unit:

Firing Rate: 1.02 MMBTU/hr heat input

Temp: 268F

Flow: 893 acfm

Velocity: 840 ft/min (14.0 ft/s)

Stack ID: 14"

3 MMBTU unit:

Firing Rate: 3.1 MMBTU/hr heat input

Temp: 314F

Flow: 1,794 acfm

Velocity: 744 ft/min (12.4 ft/s)

Stack ID: 21”

Model Results: A summary of the modeling results are presented below. A more detailed spreadsheet of the results is available separately. As would be expected for these scenarios, the highest impacts are predicted at the nearest receptors. Since these receptors are located on school grounds where the children and public have access they are considered to be ambient air and representative of public impacts. For evaluation of non-school systems, the spreadsheet also contains the predicted impacts at the various distant receptors that could represent the property line and the start of ambient air. The results of this evaluation are not appropriate for systems that run year-round.

The model results indicate that a typical wood boiler installation would likely result in impacts exceeding the $PM_{2.5}$ 24 hour NAAQS (35 µ/m^3) if not equipped with more advanced emission controls. While taller stacks could potentially remedy many of the predicted exceedances, it is unrealistic to presume such stack heights would always be constructed and thus the potential for violations still exist without more advanced emission controls achieving lower emission rates. It is important to note that the NAAQS standard itself is also currently under EPA review and anticipated to be lowered to within a range of 25 µg/m3 to 30 µg/m3. It is also important to note that the modeling results assume an ambient background of 14 ug/m^3, representative of both the Bennington and Burlington monitors. The Rutland background value, more representative of a valley location, is 22 ug/m^3. Wood boiler impacts in conjunction with this background value would be unlikely to demonstrate compliance with the NAAQS with taller stacks alone.

Air Quality Impact Evaluation for Two Separate Wood Chip Boilers						
1 MMBTU/hr Boiler						
Building	Stack Height Above Grade	Stack Height Above Roof	24-hr max [1] ug/m^3	24-hr 98th [2] ug/m^3	Background [3] ug/m^3	Total [4] ug/m^3
100’ x 100’ 20’H	30’	10’	43.6	35.8	14	49.8
	50’ (GEP)	30’	15.1	9.7	14	23.7
	65’ (GEP)	45’	0.4	0.2	14	14.2
100’ x 100’ 30’H	40’	10’	22.1	17.8	14	31.8
	60’	30’	9.4	6.4	14	20.4
	75’ (GEP)	45’	0.8	0.5	14	14.5
3 MMBTU/hr Boiler						

Building	Stack Height Above Grade	Stack Height Above Roof	24-hr max [1] ug/m^3	24-hr 98th [2] ug/m^3	Background [3] ug/m^3	Total [4] ug/m^3
100' x 100' 20'H	30'	10'	110.0	94.3	14	108.3
	50' (GEP)	30'	38.0	25.2	14	39.2
	65' (GEP)	45'	0.7	0.3	14	14.3
100' x 100' 30'H	40'	10'	53.6	46.5	14	60.5
	60'	30'	23.6	16.5	14	30.5
	75' (GEP)	45'	2.0	1.3	14	15.3

[1] The maximum 24 hour impact is the single highest predicted 24 hour impact at any receptor over the 5 years of meteorological data and is for information only. It is not used for comparison to the $PM_{2.5}$ 24 hour NAAQS of 35 ug/m^3 but is an indicator of potential impacts.

[2] The 24 hour 98th percentile high impact is the highest of the 5 year averages of the 98th percentile impacts at each receptor. The first seven highest impacts at each receptor for each year are discounted. This value is to be added to the design background value and compared to the $PM_{2.5}$ 24 hour NAAQS of 35 ug/m^3.

[3] Background values are from Vermont's ambient monitoring network. The $PM_{2.5}$ 24 hour background value is based on the three year average of the 98th percentile values, not the single highest observed values. The values range from 10 ug/m^3 in Underhill to 14 ug/m^3 in Bennington and Burlington and 22 ug/m^3 in Rutland. The value of 14 ug/m^3 is used for this analysis. The use of Rutland data would result in additional exceedance of the NAAQS.

[4] The $PM_{2.5}$ 24 hour NAAQS is currently set at 35 ug/m^3. The standard is currently undergoing periodic review by EPA as required by the CAA. The Independent Particulate Matter Review Panel (IPMRP), comprised of experts in their field and members of a prior EPA scientific panel, has stated that the current fine particulate matter standards are not protective of public health and should be set in the range of 25 µg/m3 to 30 µg/m3 based on the current scientific evidence. Final EPA action is anticipated in 2020.

Economic Impact/Cost of Compliance

A cost evaluation was conducted to estimate the cost of compliance with the proposed particulate matter emission limit through installation and operation of an electrostatic precipitator (ESP) emission control device. Most small (<10 MMBtu/hr heat input) wood chip fired boilers available on the market today will not be able to meet the proposed PM emission limit of 0.10 lb PM/MMBtu heat input without the use of an advanced PM control device. The two well established advanced PM control devices for boilers are a fabric filter (bag house) or an electrostatic precipitator (ESP). Most of the schools which are employing an advanced PM control device have elected to use an ESP, in part, to avoid the risk of a fire in the bag house due to hot embers being carried through from the combustion chamber. Within

Vermont there are two exceptions: Middlebury College and Green Mountain College. These two schools are using baghouses to reduce their PM emissions. Both of these schools have also needed to replace their filter bags at least once due to a fire in their baghouses.

As part of the development of the proposed regulatory changes for small wood fired boilers, the Agency has reviewed the costs associated with the installation and operation of an ESP designed to reduce PM emissions in order to comply with the proposed 0.10 lb filterable PM/MMBtu heat input.

The Vermont Department of Forest and Parks has provided the Air Quality & Climate Division with data on the actual costs for the purchase and installation of ESPs for 5 different wood fired boiler projects in the United States: three projects were in the Northeast and two were in the Midwest. The project cost information included the purchase cost of an ESP as well as the cost for the installation of the ESP. The installed cost of the ESPs were adjusted for inflation to 2018 dollars.

To help quantify the cost of control for an ESP, the Agency has followed the EPA's Best Available Control Technology (BACT) guidance for estimating the cost of controlling a pollutant in terms of dollars of cost (capital and operating) per ton of pollutant controlled. The amount of PM controlled by the ESP is based on the PM emissions from an uncontrolled boiler and the PM emission rate from the boiler after control by the ESP.

Uncontrolled PM Emission Rate: From a 2008/2009 USFS funded study to examine the real world control efficiency of PM control devices, the Agency has access to PM emission data from wood fired boilers before treatment with any PM control device. From this data the Agency has established that a representative average uncontrolled PM emission rate is 0.25 lb filterable PM/MMBtu heat input.

PM emission rate after controls: It is anticipated that a small boiler with an ESP will have a PM emission rate of no greater than 0.05 lb/MMBtu heat input. This presumes, based on prior installations, that an ESP equipped boiler will have significantly lower PM emission compared to the proposed regulatory limit. Thus, for this cost of control evaluation, we do not select the regulatory limit of 0.10 lb/MMBtu, but a lower emission rate that reflects actual performance.

Annual fuel usage: The annual energy input to a properly sized boiler is estimated to be 25% of the potential annual maximum throughput: Boiler rated heat input * 8,760 hours/year * 25%.

ESP useful life and operating expenses:

- The assumed depreciable life of an ESP is 20 years.
- ESP and exhaust fan electrical usage are based on EPA's cost of control manual EPA/452/B-02-011, Section 6, Chapter 3 Cost Estimates for ESPs. The detailed information available for the ESP used on the National Life wood fired boilers has been used to estimate the required additional exhaust fan power due to the pressure drop across the ESP and the required electricity for the ESP transformer/rectifier. These calculated operating costs for the National Life ESP is multiplied by the ratio of the design heat input of the small boiler to the design heat input of the National Life boilers in order to estimate the operating costs for the small boiler's ESP.

The annual maintenance cost is estimated at $3,000/year. This is from the NYS Register 9/4/2019, page 13.

Co-benefits Risk Assessment (COBRA)/ Health Benefits

The US EPA Co-Benefits Risk Assessment Health Impacts Screen Tool (COBRA) is a screening model that can estimate the economic value of the health benefits associated with clean energy policies, such as Vermont's proposed regulation to reduce particulate matter emissions from wood combustion. Air pollution can exacerbate respiratory diseases and cause heart attacks and premature death as well as result in lost wages or productivity when someone has to miss work or school. COBRA estimates changes in ambient particulate matter due to policy changes and calculates the incidences of adult and infant mortality, non-fatal heart attacks, hospital admissions and emergency room visits for various respiratory and cardiovascular diseases, restricted activity days, and work day losses and then monetizes those incidences consistent with EPA practice.

The COBRA model contains a detailed emissions inventory of $PM_{2.5}$, SO_2, NO_X, NH_3, and VOCs for the year 2017 and 2025 for all the various emission source categories in Vermont including electric generating units, highway and off-road vehicles, and other combustion sources including residential wood combustion. The emissions are apportioned by county. Emission changes as a result of the proposed policy can be entered by emission source category at the county or state level as a percentage reduction or in absolute tons, or a combination of both as may be appropriate. While COBRA allows for non-particulate matter pollutant reductions to be entered into the model, it is only the secondary PM formation attributable to those pollutants that is evaluated. The health benefits predicted from COBRA are only for particulate matter.

COBRA then uses an air quality dispersion model to estimate the change on ambient particulate matter levels across each county and every state. The predicted ambient impacts in combination with county level population data is used to estimate the incidences of health impacts. It is interesting to note that the same level of particulate matter reductions in a more populous county or state will result in greater monetized health benefits, due to the larger exposed population and higher absolute predicted incidences. The model only evaluates the change in the emissions and health impacts due to the policy and is not a tool for predicting total population incidences.

COBRA has the option to run the analysis with a 3% or 7% discount rate. Since not all health benefits occur in the year of analysis (some impacts have ongoing consequences from a single year of exposure), the discount rate is a method to account for the alternative use of the money had it been invested in other ways. This discounts the value of the future benefits by the value the money could have generated otherwise. A higher discount rate will reduce the monetary value of your health benefits as it puts a higher value on the money that could have been invested in some other way. The 7% discount rate was used in our analysis.

For our analysis, the total particulate matter emission reduction attributable to the proposed regulation was estimated to be 60 tons per year statewide. The emission reductions were assigned to the residential wood combustion sector, the most representative category. This value was based in part on wood heating goals in the 2016 Vermont Comprehensive Energy Plan and the Final Report from the Climate Action Committee released on 7/31/2018. In particular, the Climate Action Committee final report Appendix C, item 2. *Accelerate the adoption of Advanced Wood Heat (AWH) to replace high-GHG emitting systems to reach 30 percent of Vermont thermal needs by 2025 (triple installations)* states:

In conjunction with sustainable forestry practices, AWH helps to reduce greenhouse gas emissions, reduce heating bills, improve air quality, develop local economy, and create new jobs through the forest products value chain, thereby helping sustain and manage the state's extensive forest resources. The tripling of AWH installations is approximately equivalent to a 0.3 (million tons of CO2 equivalent) MMTCO2e annually. This calculation assumes the following:

- *18,000 more residential pellet stoves (from the current 31,000)*
- *5,100 more automated pellet boilers (from the current 377) ($19,000)*
- *1,260 more commercial/institutional bulk pellet systems (from the current 162)*
- *108 more commercial woodchip systems (from the current 61)*
- *At least 4 new small pellet mills to ensure the increased demand is met from locally produced pellets*

Focusing only on the proposed growth in commercial woodchip systems, the Agency would anticipate an increase in wood chip fuel combustion from an approximate baseline of 86,000 tons per year (2015 usage for 55 institutional systems) to 240,000 tons per year, or an increase of 154,000 tons. Assuming 50% moisture content woodchips at 4,500 BTU per pound this results in 1,386,000 million BTU per year of increased woodchip combustion. The proposed regulation is expected to result in an approximately 50% decrease in particulate matter from new wood heating systems that would occur without the regulation. Assuming new woodchip systems would emit at approximately 0.20 lbs/MMBTU to 0.25 lbs/MMBTU in absence of the proposed regulation of 0.10 lbs/MMBTU, the proposed regulation would result in approximately 69 to 104 tons per year in particulate matter reductions (average 86.5 tons/year). To the extent the added emission controls achieve lower emissions, which a well designed and operated system should readily achieve an emission rate of 0.05 lbs/MMBTU, the reductions in actual particulate matter would be even greater.

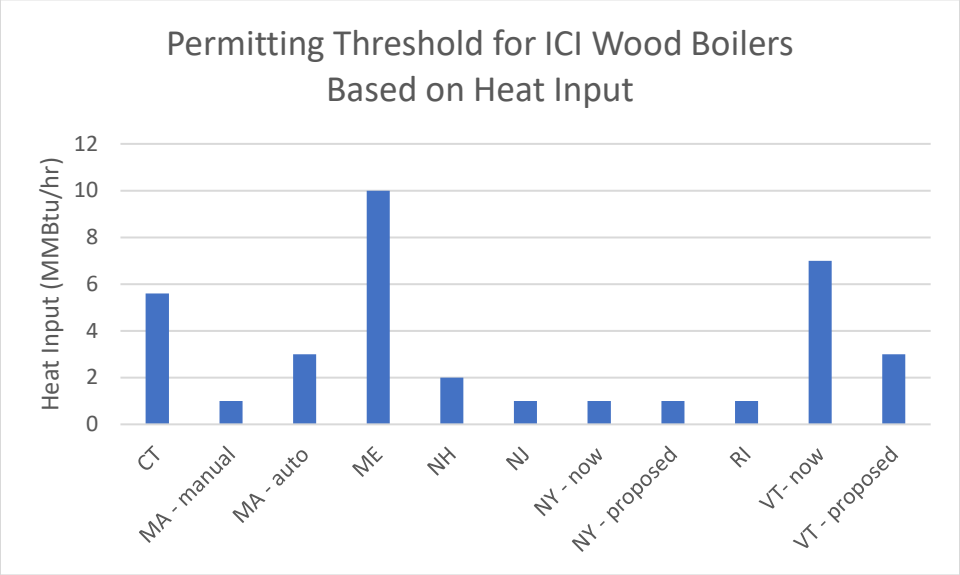
Alternatively, we can focus on the 108 additional commercial woodchip systems being of the average size of those previously installed. Excluding those commercial/institutional units that are greater than 10 MMBTU/hr (13 units), there were 48 units installed with a collective average heat input rating of 4.2 MMBTU/hr. Assuming 50% moisture content woodchips at 4,500 BTU per pound and a 20% wood burning capacity factor yields an estimated 740 tons per year of woodchips per unit and 79,892 additional tons per year of wood chips to be burned collectively by the 108 additional units. Again, assuming the new woodchip systems would emit at approximately 0.25 lbs/MMBTU in absence of the proposed regulation of 0.10 lbs/MMBTU, the proposed regulation would result in approximately 60 tons per year in particulate matter reductions. For the health benefits analysis, the 60 tons of reduced PM will be used.

The Agency does not have data on the current amount of wood pellets combusted in automated and commercial/bulk pellet systems to enable a reliable prediction of the growth in wood pellet combustion that would be subject to the proposed regulation. Further, the unregulated emissions from pellet systems, while varied, are presumed to be significantly cleaner than woodchip systems. For these reasons the Agency has not attempted to quantify particulate matter emission reductions from these units for use in the COBRA health benefits analysis.

The Agency has also not projected any particulate matter emission reductions for the forecasted growth in residential pellet stoves since these units are already subject to the state and federal EPA wood stove regulations.

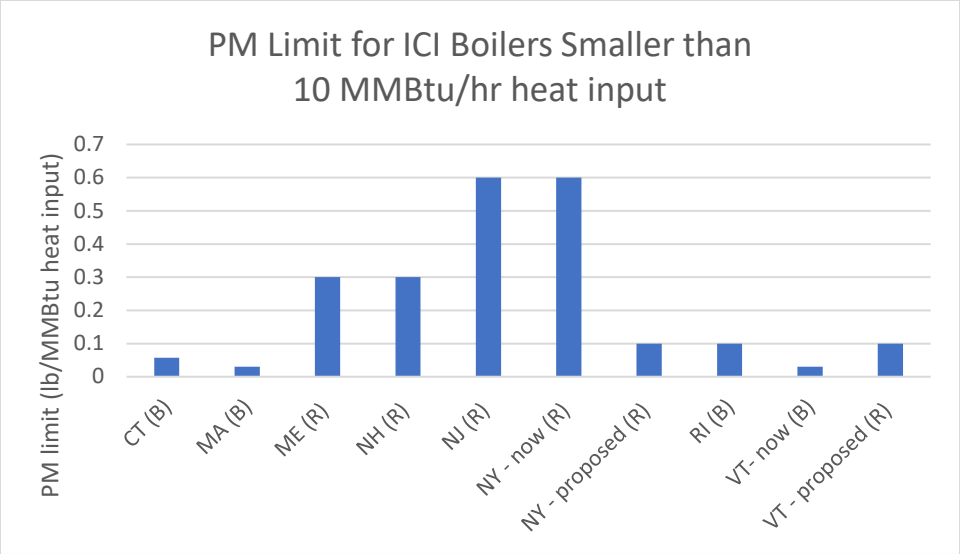
Based on the projected particulate matter emission reductions of 60 tons per year attributable to the proposed regulation, total health benefits from our analysis are estimated to range from $1,510,164 to $3,411,734 per year, in Vermont. While COBRA can also calculate the health benefits occurring in other states from emission reduction scenarios in Vermont, those benefits are not included in the Vermont total.

Other State Regulatory Thresholds for New Institutional, Commercial and Industrial Boilers rated for <= 10 MMBtu/hr heat input.



CT's limit is based on 15 ton/yr of any single criteria pollutant. In this example CO is the pollutant that is estimated to be 15 tpy based on an AP-42 emission factor of 0.6 lb/MMBtu.

ME's permit/license limit of 10 MMBtu/hr is based on the aggregated heat input of all units at a facility which are larger than 1 MMBtu/hr. Ref. Chapter 115, Section 1, B. (2)(a)



R = regulation
B = BACT
RI: PM10

NH – air regulation Env-A 2003.03 has PM standards for devices installed after 1/1/1985. Section (b)(1) sets a PM limit of 0.30 lb/MMBtu heat input for devices smaller than 100 MMBtu/hr heat input.

ME – the PM standard of 0.30 lb/MMBtu set in Chapter 103 only applies to new devices at facilities that must submit an application for a license per Chapter 115. If the facility's aggregated heat input is less than 10 MMBtu/hr, then Chapter 103 doesn't apply and there is no applicable PM standard.