

August 23, 2010

Environmental Protection Agency
Docket Center (EPA/DC)
Mailcode 2822T
1200 Pennsylvania Ave., NW
Washington, DC 20460



Re: National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers; Proposed Rule, 75 Fed. Reg. 31896 (June 4, 2010); Docket ID No. EPA-HQ-OAR-2006-0790

To Whom It May Concern:

The Council of Western State Foresters (CWSF) respectfully submits the following comments in response to the Environmental Protection Agency's (EPA's) proposed National Emission Standards for Hazardous Air Pollutants for Area Sources (Docket ID No. EPA-HQ-OAR-2006-0790). CWSF is a nonpartisan organization whose membership includes the directors of the state forestry agencies in the Western United States and Pacific Islands. We strive to ensure the sustainability and health of western forests in meeting today's needs and those of the future. We appreciate the opportunity to comment on the proposed rule in order to better utilize forest derived biomass as a source of renewable energy and request that you consider our comments as you finalize your rulemaking.

The forestry sector in the Western U.S. has been in transition for many years, and in some places is at or below critical industry infrastructure to support the necessary forest management practices to sustain healthy forests. Market options for small diameter, lower value products, and expanded renewable energy markets will help diversify existing forest industry and provide economical alternatives to achieve sustainable, healthy forests in our country.

For example, vast areas of federal, state and private forests in the Western U.S. are identified for fuels reduction that reduces wildfire risk to communities and protects critical forest resources. Large landscapes are being impacted by bark beetle; removing the hazard trees generates large volumes of wood materials that currently have few local options for value-added products. Options for local, small-scale energy uses such as heating school campuses, prisons, and greenhouse complexes are a cost effective way of utilizing the forest and manufacturing residues, while contributing to community and state renewable energy goals. Larger bioenergy facilities also have a role in the western landscape in the form of combined heat and power, industrial boilers, and community energy systems, and are currently one of the major producers of renewable energy for the United States.

The draft Area Source and Major Source Rules will directly impact the cost and viability of existing and new systems. Unfortunately, these rules potentially have the unintended consequence of providing no options for using forest residues other than slash pile burning in the forest. This option alone cannot provide our nation with the resources needed to maintain healthy forests and help meet renewable energy standards. Although the rulemaking process such as the MACT standards are not required to look at these trade-offs and the alternative fates, the reality is that clean burning of forest biomass in modern high efficiency biomass boilers creates many benefits for society beyond renewable energy because it reduces this alternative source of emissions while producing renewable energy.

We have worked with the National Association of State Foresters to develop the comments that are attached to this letter, and support their position.

A handwritten signature in black ink, appearing to read "Arthur Blazer".

Arthur, "Butch" Blazer, New Mexico State Forester
Council of Western State Foresters Chair



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Re: National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers; Proposed Rule, 75 Fed. Reg. 31896 (June 4, 2010)

To Whom It May Concern:

The National Association of State Foresters (NASF) respectfully submits the following comments in response to the Environmental Protection Agency's (EPA's) proposed National Emission Standards for Hazardous Air Pollutants for Area Sources (Docket ID No. EPA-HQ-OAR-2006-0790). NASF seeks to discuss, develop, sponsor and promote programs and activities which will advance the practice of sustainable forestry, the conservation and protection of forest lands and associated resources and the establishment and management of the Nation's forests. We offer the following suggestions to the proposed rule in order to better utilize forest derived biomass as a source of renewable energy.

I. General Comments

NASF has an interest in promoting markets for forest products including forest derived biomass. New markets for biomass have significant potential to improve the management of both private and public forest lands. We have concerns that the proposed Area Source rule will prevent new markets for forest biomass from developing. Unnecessarily stringent regulations in the proposed rule can be cost prohibitive and have the potential to prevent new investment in wood-based bioenergy facilities. This will cause boilers to increase their use of fossil fuels which runs counter to the nation's renewable energy goals. Further, lack of markets for biomass will increase onsite open burning which can have negative public health impacts due to the release of methane and black carbon. We strongly encourage EPA to avoid finalizing regulations that have unintended consequences that limits forest role in delaying the nation's shift to clean, renewable energy.

II. Comments on the Proposed Area Source Rule

NASF offers the following comments and recommendations for EPA to improve the Area Source rules and limit the impact they will have on job maintenance and creation, renewable energy production and the sustainable management of the nation's forests. Detailed comments can be found in the attached

Executive Director
Jay Farrell

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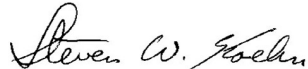
background information provided by the Northeastern Area Association of State Foresters' Forest Utilization Committee.

- **EPA should avoid promulgating rules that result in negative economic impacts to rural communities, rural manufacturers, landowners and the entire biomass chain.** Many rural communities rely upon or significantly benefit from the use of biomass boilers for energy at manufacturing facilities, schools and hospitals. The rule, as proposed, will directly impact both boiler owners and fuel suppliers in these communities. By limiting the opportunity for biomass boilers, economic losses will be considerable, especially so in the wood products manufacturing, forestry, and agriculture sectors.
- **Fuel switching is not possible in many areas due to the lack of low-cost alternative fuels.** The emission limits and testing procedures proposed for new biomass boilers under 10 mmBtu/hr impose onerous capital and annual costs on potential project owners. These owners are typically schools, small businesses, hospitals, and other institutions in rural areas without access to natural gas as a fuel. Thus, this proposed rule will disproportionately impact the ability of entities in rural and potentially economically depressed areas to move from fuel oil or propane to a renewable and lower cost fuel.
- **Implementation of the Area Source Rule will have substantial negative economic impacts on small boilers.** EPA specifically states that “*we propose to regulate biomass-fired... boilers under GACT*” due to concerns surrounding the costs of control technologies to small entities. However, in order to meet the proposed PM emissions limits, new biomass boilers are required to install either electrostatic precipitators or fabric filters. The cost of these technologies per unit of boiler output is greater for smaller boilers. Therefore, there are basic economic reasons why smaller biomass boilers cannot employ the same control technologies as larger boilers. Despite this, in establishing Generally Available Control Technologies (GACT) limits for boilers **10 mmBtu/hr or less in size**, the EPA states that, all PM test data were taken from boilers “**greater than 10 mmBtu/h in size.**” In other words, while filters may be GACT for boilers greater than 10 mmBtu/hr, filters are not GACT for boilers less than 10 mmBtu/hr. We recommend EPA review the report commissioned by the Western Forestry Leadership Coalition entitled, “Emission Controls for Small Wood Boilers” for more information on smaller systems. The report can be found at: <http://www.rsginc.com/emission-controls-for-small-wood-fired-boilers/>
- **The proposed rule is inconsistent with existing standards used by state agencies and by European countries.** While EPA was unable to access data on smaller US boilers, much data as well as information on emissions regulations are available from many European countries and the European Union. Europe, which has traditionally implemented stricter environmental standards than the US, has employed widespread Advanced Wood Combustion system technologies for decades. Emissions data is also available in the AP-42 database which is maintained by EPA and is currently used by state air quality permitting agencies as a basis for decisions on the adequacy of boiler emissions controls. In the absence of strict emissions limits, current biomass installations have particulate matter (PM) emissions levels below current AP-42 data for general available control technology (GACT) and equal to or below Europe’s strictest policies.
- **The data set used to develop the rule does not adequately describe the performance of small boiler systems.** The dataset used to set emissions standards for the proposed rule is incomplete in that the boilers capable of meeting the limit for PM are not capable of meeting the limit for carbon monoxide (CO) simultaneously. Additionally, of the 10,958 biomass burning boilers in existence the MACT standards were determined by 65 boilers for CO and only 20 boilers for PM. These limits do not represent the average capability of existing boilers.

- **Work practice alternatives should be implemented for all Area Source boilers instead of annual stack testing.** Stack testing by an independent 3rd party should be conducted at boiler installation to prove that the system can perform to manufacturer and permit standards. Thereafter boiler tune-ups will maintain system performance.
- **Preamble to the rule provides contradictory information about the treatment of mercury from biomass boilers.** The discussion in the draft rule preamble related to mercury from biomass systems is confusing. The discussion from p. 56 seems to contradict previous statements regarding MACT-based controls for mercury only being imposed on coal boilers. The discussion on p. 75 is confusing with regard to mercury emissions from biomass boilers. Also, statements seem to indicate that EPA is willing to consider regulating biomass boilers for mercury emissions through MACT-based emission standards. It should be made clear in the rule that mercury emissions from biomass boilers using unadulterated wood fuel are not a concern.

While we support efforts to address serious health threats from air emissions, we also believe rules can be promulgated that include a sustainable approach that protects the environment and public health without having severe impacts on forest-based economies.

Sincerely,



Steven W. Koehn
President and Maryland State Forester

**NORTHEASTERN AREA ASSOCIATION OF STATE FORESTERS
 FOREST UTILIZATION COMMITTEE
 BACKGROUNDER: EPA AREA SOURCE RULE
 AUGUST 2010**

Concerns about the Area Source Rule - “40 CFR Part 63 – National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers”

The Draft Area Source Boiler Rule may affect close to 1.3 million boilers, the majority of which have not been regulated to date (<10 mmBtu/hr). As a result many non-traditional sources such as churches, schools, hotels, apartments, restaurants, and health care facilities will now be affected by EPA rulemaking. It is estimated that less than 1percent are industrial boilers, 47 percent are commercial boilers, and 53 percent are institutional boilers.

In the draft rule EPA proposes emissions limits for particulate matter (PM -as a surrogate for urban metal HAPs), carbon monoxide (CO - as a surrogate for Polycyclic Organic Matter), and mercury (Table 1). EPA is proposing Generally Available Control Technology (GACT) based regulations for PM and MACT-based regulations for CO and mercury. Table 2 provides the comparison between the proposed emissions for existing vs. new boilers. Natural gas boilers are not included in these emission rules.

Table 2 - Emission Limits for Area Source Boilers (lb/mmBtu heat input)

Source	Subcategory	Particulate Matter (PM)	Mercury	Carbon Monoxide (CO) (ppm)
New Boiler	Coal	0.03	3.0E-06	310 (@ 7% oxygen)
	Biomass	0.03		100 (@ 7% oxygen)
	Oil	0.03		1 (@ 3% oxygen)
Existing Boiler	Coal		3.0E-06	310 (@ 7% oxygen)
	Biomass			160 (@ 7% oxygen)
	Oil			2 (@ 3% oxygen)

Data used to develop the Area Source Boiler Rule

Out of EPA’s estimated total population of 10,958 biomass boilers, the Maximum Achievable Control Technology (MACT) CO limits were determined by only 65 boilers (0.6%). The Generally Available Control Technology (GACT) PM limits were determined by only 20 boilers (0.2%). The biomass boilers that achieve the PM standard are not the same boilers that achieve the CO standard. The six biomass boilers in the dataset that are able to meet the proposed GACT standard for PM have an average CO emission of 1,164 ppm, which is more than 11 times higher than the proposed CO limit for new boilers. The eight biomass boilers in the dataset that are able to meet the MACT standard for CO have an average PM emission of 0.23 lbs/mmBtu, which is more than seven times higher than the proposed PM limit. In other words no biomass boiler tested by EPA can meet the proposed standards for PM and CO.

The population of tested boilers also was limited by boiler size. Only data from boilers >10 mmBtu/hr was used to develop PM limits, while only data from boilers >1.6 mmBtu/hr was used

to develop CO limits. Area source boilers range in size from 200,000 btu/hr to >10 mmBtu/hr in size.

The discussion in the draft rule preamble related to mercury from biomass systems is confusing. The discussion from p. 56 seems to contradict previous statements regarding MACT-based controls for mercury only being imposed on coal boilers. The discussion on p. 75 is confusing with regard to mercury emissions from biomass boilers. Also, statements seem to indicate that EPA is willing to consider regulating biomass boilers for mercury emissions through MACT-based emission standards. It should be made clear in the rule that mercury emissions from biomass boilers using unadulterated wood fuel are not a concern.

No data was included on emissions from biomass fuels other than wood, and the data did not provide specifications on the wood fuel from included boilers. No data were collected from systems burning corn stover or grasses. Such fuels are becoming more common as efforts such as the Biomass Crop Assistance Program are expanded.

Biomass boiler treatment under the Area Source rule

Comparisons of Table 2 and Table 4 point out some alarming differences between current and proposed permit levels for CO and PM emissions for existing and new area source biomass systems. The proposed rule is six times lower (100 ppm v. 596 ppm) for CO and five times lower (.03 lb vs. .15 lb) for PM than current AP-42 guidance. The proposed rule is also substantially more restrictive than existing European standards as well (Table 5). While modern advanced wood combustion (AWC) systems have significantly improved combustion controls and burn much cleaner than existing units, even these systems will have difficulty meeting these standards. The substantial reduction in CO levels is particularly perplexing. Studies in Europe indicate that the relationship between CO and POM reductions are not linear. CO reductions below 600ppm do not yield substantial reductions in POM levels (*“European Wood-Heating Technology Survey,” New York State Energy Research and Development Agency, April 2010, pg. 3-5.*) Additionally, particulate emissions from these AWC systems have proven to be less biologically active than particles emitted from older, less efficient wood combustions systems (*Nussbaumer T., Klippel N., Oser M., “Health relevance of aerosols from biomass combustion in comparison to diesel soot indicated by cytotoxicity tests,” 14th European Biomass Conference, Paris, 2005.*)

The proposed emission levels from Area Source boilers (Table 2) are more stringent than for larger Major Source boilers (Table 1). The stoker and Dutch oven/suspension burner boilers are most similar to Area Source biomass boiler types; these have proposed CO emission levels of 560 ppm and 1,010 ppm @ 3% O₂, respectively which converts to 434 ppm and 764 ppm @ 7% O₂. Therefore it seems unreasonable that smaller boilers would be subject to CO limits that are so much lower when major sources have less stringent CO limits.

In fact the emission standards proposed by EPA for residential outdoor wood boilers are higher than the standard for commercial wood boilers. As a result a sawmill owner who lives adjacent to the sawmill and has an outdoor wood boiler for home heating can emit .32 lbs/mmBtu from the home heating system, but can only emit 0.03 lbs/mmBtu from the commercial boiler running the sawmill kilns next door.

EPA specifically states that “*we propose to regulate biomass-fired... boilers under GACT*” due to concerns surrounding the costs of control technologies to small entities. However, in order to meet the proposed PM emissions limits, new biomass boilers are required to install either electrostatic precipitators or fabric filters. The cost of these technologies per unit of boiler output is greater for smaller boilers. Therefore, there are basic economic reasons why smaller biomass boilers cannot employ the same control technologies as larger boilers. Despite this, in establishing GACT limits for boilers **10 mmBtu/hr or less in size**, the EPA states that, all PM test data were taken from boilers “*greater than 10 mmBtu/h in size.*” In other words while filters may be GACT for boilers greater than 10 mmbtu/hr, filters are not GACT for boilers less than 10 mmbtu/hr.

The emission limits and testing procedures proposed for new biomass boilers under 10 mmBtu/hr impose onerous capital and annual costs on potential project owners. These owners are typically schools, small businesses, hospitals, and other institutions in rural areas without access to natural gas as a fuel. Thus, this proposed rule will disproportionately impact the ability of entities in rural and potentially economically depressed areas to move from fuel oil or propane to a renewable and lower cost fuel.

EPA recognized this economic impact in the preamble to the proposed rule. On pages 55-56 of the preamble EPA states that “*...Based on this analysis, pursuant to CAA section 112(h), EPA is proposing that it is not feasible to enforce emission standards for area source boilers having a heat input capacity of less than 10 mmBtu/hr because of the technological and economic limitations described above. Thus, a work practice, as discussed below, is being proposed to limit the emissions of mercury and CO (as a surrogate for POM) for existing area source boilers having a heat input capacity of less than 10 MMBTU/h. We are specifically requesting comment on whether a threshold higher than 10 mmBtu/hr meets the technical and economic limitations as specified in section 112(h).*”

The limits imposed for PM do not reflect GACT for units under 10 mmBtu/hr and potentially for units up to 30 mmBtu/hr. By EPA’s own admission on Pages 55-56, the testing and monitoring costs alone are not implementable for existing boilers under 10 mmBtu/hr. The costs for new boilers would be little different than those for existing boilers, and thus the same conclusion should be drawn.

EPA does not cite significant test data that are applicable to area source units and specifically states that no data from units under 10 mmBtu/hr were available with regard to PM emissions. On page 72, EPA refers to the NSPS CFR 60 subparts Db and Dc. They state it covers to all units over 10mmbtu/hr input. However, the only discussion in this reference refers to units over 8.7 megawatts or 30mmBTU/hr. Also, the reference it indicates that the 0.03 lb/mmBtu of PM is for coal and oil, or a combination of these fuels and wood. A wood fired unit burning over 30% wood has a limit described is 0.1 lb/mmbtu for PMmmBtu.

Financial Impacts on New Projects

To demonstrate the impact of the proposed regulations to project viability, fuel cost savings and project value are presented for a current USFS technical assistance project at a rural high school. Table 3 presents the financial analysis for the installation of a 3.5 mmBtu/hr central biomass boiler at the school. Project financial analyses are run with and without impacts from the proposed rule.

Table 3 – Financial impact to area source < 10 mmBtu/h

Controls	Capital Cost	Year 1 Cash Flow	Annual Savings	25 Year Net Present Value	Annual Testing Costs
Current rules - multiclone	\$1,120,136	\$22,377	\$97,918	\$1,513,891	\$0
Proposed limits - ESP	\$1,242,636	-\$5,784	\$78,018	\$868,221	\$14,000
Proposed limits - filter bags	\$1,172,636	-\$11,826	\$67,256	\$683,827	\$14,000

Note: Current rules for this project require an annual boiler tune up with a cost of \$500. This annual cost will be necessary under the proposed rules as well.

The addition of an electrostatic precipitator and implementation of the required testing regime **reduces the lifetime project value of the investment by more than 40%**. While this is an example of the impact to a system less than 10 mmBtu/hr, larger systems will face similar, although less drastic financial impacts.

Comparisons with existing emissions limits

While EPA was unable to access data on smaller US boilers, much data as well as information on emissions regulations are available from many European countries and the European Union. Europe, which has traditionally implemented stricter environmental standards than the US, has employed widespread AWC technologies for decades. Emissions data is also available in the AP-42 database. This database is maintained by EPA and is currently used by state air quality permitting agencies as a basis for decisions on the adequacy of boiler emissions controls. Table 4 compares the emissions limits from the draft area source rule to current limits from Europe and from the AP-42 database.

Table 4 – Comparison of emissions levels and limits between the draft Area Source Rule, EU EN 303-5 and AP-42.

Item	CO (ppm)	PM (lb/mmBtu)
Proposed EPA rule	100	0.03
European emissions limits ¹	1220	0.15
AP-42 – mechanical collector ²	596	0.22
AP-42 – electrolyzed gravel bed	596	0.1
AP-42 – wet scrubber	596	0.066
AP-42 – fabric filter	596	0.1
AP-42 – electrostatic precipitator	596	0.054

¹ - NYSEDA European Wood Heating Technology Survey Category 3 unit less than 1.0 mmBtu/hr http://www.nyserda.org/programs/Research_Development/10-01_european_wood_heating_technology_survey.pdf

² AP-42 is a database of emission factors maintained by EPA often used by states to set boiler emission permit levels

In the absence of strict emissions limits, current biomass installations have PM emissions levels below current AP-42 data for general available control technology (GACT) and equal to or below Europe’s strictest policies. Europe utilizes a tiered system for environmental labeling of

biomass systems. Rather than impose strict emissions limits on systems, the European approach is to provide financial incentives for the purchase of higher tier systems.

It may be difficult, if not impossible for existing biomass systems to come into compliance with the proposed CO levels. As you can see in Tables 4 and 5, currently permitted CO levels are much higher than the proposed EPA rule. Most existing biomass combustions systems in the US were permitted with CO levels between 500 and 600 ppm and in some cases no CO level was indicated on the permit. Analysis of the EPA boiler database used to develop the rule shows that the set of boilers that were the best performers for PM had CO levels near 1,164 ppm at 7% O₂. The proposed rule will mean that many existing biomass boilers will have to be taken out of service in three years. Impacts on existing businesses, particularly in the wood products sector may be substantial given the current economic downturn impacts on this industry sector. Table 5 provides more detail regarding the existing European standards for small boilers contained in the EN 303-5 standards.

Table 5. Current European Emission Standards EN 303-5^{1,2}

Stoking	Nominal Heat Load in Mbtu/hr	CO in mg/m ³ (12% O ₂)			CO in ppm (7% O ₂)			PM, lbs/mmBtu		
		Class	Class	Class	Class	Class	Class	Class	Class	Class
		1	2	3	1	2	3	1	2	3
Manual	< 170	20,455	6,545	4,090	25,455	8,145	5,090	0.22	0.2	0.17
	170 - 510	10,227	4,090	2,045	12,727	5,090	2,545	0.22	0.2	0.17
	510 - 1025	10,227	1,635	980	12,727	2,035	1,220	0.22	0.2	0.17
Automatic	< 170	12,270	4,090	2,455	15,269	5,090	3,055	0.2	0.18	0.15
	170 - 510	10,230	3,680	2,045	12,731	4,580	2,545	0.2	0.18	0.15
	510 - 1025	10,230	1,635	980	12,731	2,035	1,220	0.2	0.18	0.15

1 - Values for European standards obtained from NYSERDA European Wood Heating Technology Survey, April 2010

2. - All corrections done for absolute mass concentrations (0 ° C and 100 kPa); V=22.4 L/mol, M=28g/mol

Comparing Table 2 to Table 5 above demonstrates that the proposed EPA standard is significantly lower than current European standards. Significant research and development funding as well as support for biomass energy implementation have resulted in AWC systems that can perform to these standards. The implementation of significantly more rigorous standards in the US without support of technological improvement will have substantial impacts on both the biomass boiler industry and the current and potential users of biomass systems.

Economic Impacts on Rural Communities

Many rural communities rely upon or significantly benefit from the use of biomass boilers for energy at manufacturing facilities, schools and hospitals. The rule, as proposed, will directly impact both boiler owners and fuel suppliers in these communities. By limiting the opportunity for biomass boilers, economic losses will be considerable, especially so in the wood products manufacturing, forestry, and agriculture sectors.

Rural economies, which have suffered tremendously during the recession, benefit from the production and use of sustainable biomass. It is predicted that 342 private sector jobs are created during the production of 200,000 tons of biomass for heat (*Biomass Thermal Energy Council, et al, "Heating the Northeast with Renewable Biomass: A Vision for 2025," April 2010, pg. 37*). However, the proposed rule will certainly cause the opposite result and invalidate EPA's original estimate of only 2,000 job losses. Biomass demand will drop in response to onerous, expensive, and unrealistic regulations; some boiler operators will have to reduce emissions by a factor of five over their current State air quality permits or go out of business entirely. The proposed rule states that new boiler purchasers have the option of selecting gaseous fuel types that are cleaner and avoid emissions testing. In many rural areas, natural gas pipelines do not exist and propane (the most expensive fuel type) is typically five to six times more expensive per Btu than wood chip fuel.