

June 30, 2016

Viessmann Warwick, Rhode Island

Attn: Samantha Meserve
Department of Energy Resources
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Boston, MA 02114

Via E-mail to: Samantha.Meserve@state.ma.us

Viessmann Manufacturing
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RE: Comments from Viessmann Manufacturing Company (U.S.), Inc. on the Massachusetts Alternative Portfolio Standard's Renewable Heating and Cooling Draft Regulations and Guideline

Dear Ms. Meserve,

As the Renewables Manager at Viessmann U.S. and a supplier to several previous and current DOER supported woody biomass heating projects, we appreciate the opportunity to share our comments and suggestions relative to the proposed MA APS Renewable Heating and Cooling Draft Regulations and Guideline. As you may know, Viessmann is a global leader in heating technologies, who has made a significant investment in and contribution to renewable energy over the last several decades. Along with our leadership in high efficiency gas condensing boiler technology and long time commitment to solar thermal panels and systems, our acquisition of two of the leading Austrian wood boiler manufacturers in 2007 has led to one of the most forward thinking heating companies in the world today with respect to efficiency and renewable energy.

Please consider the following comments as you move forward with the regulatory process and publishing of guidelines for your programs in support of the Massachusetts AEPS:

1. The Guideline references (in multiple places including Section 1.; Section 5. Table 1.; Section 6. B); and Section 8.) specific requirements related to particulate emissions at the PM 2.5 level. While this is in the statute and we do not dispute the intent, as a practical matter this information is not widely available for the suitable technologies. What is available from a number of leading manufacturers who have long certified to the EN-303-5 standard in Europe are "dust" emissions at multiple firing rates and for different fuels. These rates are roughly equivalent to and may be translated as PM 10 or total particulate. My suggestion is that the Guideline explicitly recognize these values as qualifying a particular technology as long as the total particulate or dust level certified is below that required for PM 2.5 in the current Guideline.
2. On the subject of performance certification in general and with specific reference to Section 6. Of the Guideline, we would respectfully request that equipment from a manufacturer who already certifies through an internationally recognized testing agency in accordance with EN-303-5 be accepted on that basis, provided the certified performance meets the requirements of the program. We do not believe the "regional consistency" cited is a valid rationale for making the MA DOER program responsive to or giving preference to NYSERDA's approach. Specifically, NYSERDA has refused to recognize the product line certification testing that is accepted in Europe and is part of our TUV performance certification. As a result, NYSERDA has accepted certain of our models and not others. DOER should not follow NYSERDA's lead in setting itself up as a superior entity for this performance qualification over those with decades of experience. All Viessmann biomass boilers are certified in accordance with the EN 303-5 Norm and all meet the minimum performance requirements of the program in keeping with the intent of the legislation and the regulation.
3. With regard to the thermal storage requirements in Section 7. Of the guideline I would offer the following:
 - a. Viessmann is a strong proponent of thermal storage for our systems. We employ storage rather as a buffer than as storage for storage sake and it is an integral part of our control system.
 - b. The Guideline requirement for 2 gallons per 1,000 Btuh is more than twice our requirement for 10 liters per kilowatt. This has added unnecessary cost to projects in Massachusetts and has unintended consequences depending on balance of system characteristics. I note that our approach (again with our

control strategy) has been in use and been demonstrated effective for decades. I recommend that the Guideline encourage thermal storage “in accordance with manufacturer’s instructions and guidance”. The one size fits all approach in the current draft Guideline, apparently imported again from NYSERDA, is unnecessarily costly and (in our view) is based on experience with smaller systems. It is not demonstrated to work better and is in many cases can be detrimental to control and can impede temperature recovery.

- c. In cases where multiple biomass boilers are installed, it is only necessary to buffer (or provide storage for) the lead boiler. Sizing of the thermal storage should therefore be based on the lead or a single boiler capacity, rather than the total installed capacity of the system. This is standard practice, makes sense from both an economic and operational standpoint, and has been accepted by DOER in the past.
 - d. While this does not apply to our current product, I am also aware of experience in Austria with small boilers that are regularly installed without storage with no apparent ill effect. In addition, thermal storage would not benefit an industrial hot water production application which is designed for a continuous load at a specified temperature such as might be found in a manufacturing environment.
4. With regard to the fuel specifications in Section 9. Table 3., I would offer the following observations:
- a. Pellet moisture specification of 6% does not relate to any currently in use published pellet standard. The PFI Premium level is 8%. I suggest using this value. Both PFI and EN Plus standards will support this Guideline.
 - b. For chips, 30% moisture content is a factory dried chip or one stored and harvested specifically for this purpose. Using this level would not allow the most cost effective of larger boiler systems that are designed to utilize 50% MC (or forest) chips. While Viessmann has smaller boilers that do utilize and require a 30% MC chip, we also sell larger systems that are designed and certified to burn 50% chips. I suggest changing this to “50%, or the maximum allowed by the manufacturer (if lower than 50%)”.
5. I believe there is a typographical error in Section 8.B), where “0.01 lb PM2.5/MMBtu” should read “0.1 lb PM2.5/MMBtu”.

Viessmann Manufacturing wishes to express its support of the MA APS Renewable Heating and Cooling Draft Regulations and Guideline, and we thank the MA Department of Resources for the opportunity to submit comments. If you have questions or concerns, or if I may be of assistance in any way, please do not hesitate to contact me by phone or E-mail.

Sincerely,



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