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2020 APS Minimum Standard Review Stakeholder Response

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Maine Energy Systems wishes to recognize the Massachusetts Executive Office of Energy and Environmental Affairs, Mass DOER as well as their technical service provider Daymark Energy Advisors for conducting such a considerate review (per 225 CMR 16.07(3)) of the Alternative Portfolio Standard. Please find below our response to the November 5th invitation to comment.

Overview:

Maine Energy Systems (MES) recognizes the complexity of the APS as well as the challenges faced by the DOER as it seeks to improve the emissions control efficacy of this regulatory tool. As such we can appreciate that this careful assessment delivered a number of findings, some more nuanced than others. That said, we in the wood heating industry applaud the both the intent of the APS as well as the desire the DOER is showing to improve the functionality of this important program.

1. What are the benefits of the APS program to ratepayers, including but not limited to economic, environmental, and societal benefits?

Despite being entirely renewable, wood will never constitute a dominant fuel in Massachusetts' heating sector; as such we in the modern wood heating industry aspire to capture only 5-7% of the heating market, supplanting traditional cordwood use. However, despite this minority status, modern wood heating delivers outsized decarbonization benefits per ratepayer investment; a finding somewhat lost by Daymark's report. Recognizing that the industry is currently fueled with 100% non-forest derived feedstock (sawdust, chipped mill slabs, and utility greenwaste) I believe we can claim carbon neutrality (or very close) as the fuel's thermal degradation will release exactly the same CO₂ as if it were allowed to biologically resolve (rot). Also of note is that fact that modern wood heating is matched by only solar hot water in its ability to decouple from the electric grid and its varied sources of generation.

Modern wood heating must also be acknowledged for its potential to reduce municipal and utility greenwaste disposal costs. For point of reference in 2019 the city of Springfield paid \$150,000 to rid itself of this unavoidably created material. Such disposal is far from trivial as notable assessments by the University of Massachusetts and others have estimated the Commonwealth's annual non-forest-derived green chip production to be more than 1,000,000 tons per year. We must also be mindful that decades of mindful urban reforestation efforts within the

Commonwealth are now resulting in increasing volumes of urban greenwaste....every urban planted tree must someday be removed.

Modern wood heating also has the potential to provide grid infrastructure relief to utilities. As the Commonwealth strives to achieve the carbon reduction goals set forth within the GWSA it is expected that increased dependence on electricity will result in significant costs. Such improvements are disproportionately expensive at the grid's distal ends. Therefore the preferential use of modern wood heating (in lieu of heat pumps) in these areas may avoid the significant (and costly) line improvements borne by ratepayers.

Please note that we found two notable technical elements in the Daymark report that bear further consideration. As such we found it curious in table 1 (page 5) that biomass pellet boilers were assessed to have earned \$1,900 worth of AEC's over their initial decade of operation. When dividing by the cost of AECs (\$15) this suggested an annual consumption of only 3.1 tons per year, less than half what we ascribe to similarly priced systems. We believe that within this timeframe similar systems should have earned more than \$4,000 in AECs. It is further notable that pellet boilers are eligible for AECs for their entire operational lifetime. As such it would be more appropriate when considering the return on ratepayer investments to capture AECs for the full 25 year operational life of the system. Accordingly, this would return \$10,000 to the system owner (5x the listed return). It is also worth noting that despite being involved in the pellet heating industry we support the use of refined wood chips, especially for larger, commercial applications (not utility size). That said, we can appreciate that Daymark was constrained to pre-2019 APS data and thus not provided any measures for dried wood chips.

2. What are the costs of the APS program to ratepayers, including but not limited to economic, environmental, and societal costs?

Humans have utilized stored wood energy since the beginning of recorded history for heating both themselves and the food we consume. During this time, technological advancements have profoundly changed how efficiently this energy is made available. However, due to the simple durability (50+ years is commonplace) of wood burning devices many outdated technologies are still in use across the landscape. As such, many stakeholders conflate the performance of modern wood burning systems with early, much lower performing systems. In automotive terms this comparison could be seen as pitting a Ford model T against a Tesla roadster.

In an effort to address concerns regarding ambient particulate emissions the DOER funded Dr. Richard Peltier's (Umass Amherst School of Public Health) research. Early presentations of these findings publicly reported that modern wood heating systems emitted similar or less particulate levels to distillate-fueled systems. Dr. Peltier further stated that the chemical "species" emitted from distillate systems are known to contain carcinogenic compounds. Wood emissions are not hypothesized to be as toxic.

3. Do you believe the APS program should prioritize technologies which provide the most benefits, such as greatest greenhouse gas emissions reductions?

We heartily agree that the APS program should prioritize technologies that provide the most environmental & cultural benefits per ratepayer investment. However, as previously mentioned we are deeply concerned that Daymark's assessment undervalued the annual AEC income as well as failed entirely to recognize that pellet systems are eligible to earn AESs for their entire operational lifespans (25 years). When coupled with a fuel supply that would have (unavoidably) emitted its stored carbon, we strongly disagree with the Daymark's statement that "small renewable thermal systems achieve emissions reductions for the lowest cost compared to other renewable thermal and CHP systems."

4. From 2015 through the present, what have been the average quarterly Alternative Energy Certificates (AEC) sale prices?

As a supplier of Modern Wood Heating systems we at MES recognize the importance of AEC pricing as a valuable incentive to choose our technology. However, we have not tracked pricing with the same vigilance as an aggregator might. As such we recall early AEC pricing ranging from \$18-20 and are mindfully aware that these environmental attributes sank as low of \$1.50. As such and in the expectation that regulatory modifications will result in a market recovery we would like to propose that the DOER consider setting a basement AEC price. This action, modeled on constructs within the SREC and SREC II programs will allow lenders to overlook market volatility by determining a worst case scenario. This simple mechanism has the potential to avail significant investment to a sector sorely in need of stimulation. We propose setting the minimum AEC price at \$15.

5. Is the current APS minimum standard and the annual rate of increase adequate? Please include details and any data supporting why or why not, where possible.

Maine Energy Systems supports Daymark's assertion that the primary flaw within the APS is an oversupply of AECs, largely attributable to gas-fired CHP systems. Curtailing this eligibility (perhaps via a fractional multiplier) will establish significant market space to allow for resurgent AEC pricing. That said, MES supports the addition of language associated with 225 CMR 21.00 regarding market oversupply. We suggest adding language similar to the following:

If the Market Supply is greater than 100% in any Compliance Year before 2030, the APS Minimum Standard shall increase by 0.5% the following Compliance Year. If the Market Supply is greater than 120% in any Compliance Year before 2030, the CPS Minimum Standard shall increase by 0.75% the following Compliance Year. If the Department determines that an APS Minimum Standard adjustment is necessary, the Department shall provide public notice.

6. Do you anticipate a growth or decline in the supply of AECs in the APS program over the next 5 years? 10 years? If so, how would you quantify this increase in growth rate? Please include details and any data supporting your conclusions.

As previously mentioned MES recognizes the minority status that wood fuel represents within the Commonwealth's heating sector. That said, we hope resurgent AEC pricing coupled with a reestablished technology rebate program (MassCES or similar) will allow for the continued

adoption of our merited technology. If AEC's were assuredly valued at > \$15 with enhanced generation eligibility (multiplier or similar reflecting carbon offsets) and a base rebate of ~35% we believe the Commonwealth could see wood-derived carbon offsets double every year.....there are countless failing oil systems across the Commonwealth, many of whom are in LNG constrained areas.

7. Are there modifications to the APS program that could be made to reduce the volatility of the APS market?

As stated in answer to question #4, we believe adding a basement AEC price and a mechanism to prevent market oversupply are critical modifications to the APS. We also see fit to add the oversupply-triggered obligation accelerator as mentioned in answer #5.

8. Has the APS incentive had an impact on the decision of system owners to invest in APS eligible technologies? Why or why not.

Yes. We have seen the promise of AEC-related fuel savings drive installations. However, the collapse of the AEC market has been particularly difficult to overcome. That said, as modern wood heating is not eligible for pre-minted AECs it is equally important to recognize that rebate programs (such as MassCEC) are equally important to the decision making of potential adopters.

9. How could the APS program be improved to better influence residential or commercial purchasing behaviors?

Thank you for asking this question. I firmly believe that we are all working to a common goal; the implementation of varied technologies with the intent to reduce our carbon emissions and subsequently mitigate climate change. As such we at Maine Energy Systems are grateful for all that the Commonwealth has done to facilitate responsible wood heating. We recognize that this support has come at a cost as many in our communities are vehemently opposed to burning wood and will go to great lengths to prevent its use. However, I believe we can agree that modern wood heating technologies are merited for their use of local waste fuels, subsequent reduction in fossil fuel use, and remarkable carbon impacts. While this potential is holds great promise, the technology's high initial capital investment has severely limited its broad implementation. The APS is an excellent response to this challenge as it holds considerable promise to both drive the market towards the very best technologies but also provide a mechanism of affordability. That said, to amplify the benefit of the APS, we would like to propose both a basement AEC price (\$15) as well as an AEC earning modifier (~2x) to reflect the considerable carbon emissions reductions effected by modern wood heating. Maine Energy Systems broadly endorses the Massachusetts Forest Alliance's recommendation for a Carbon Conservation Index to reflect the varied capacities of APS technologies to reduce carbon emissions.

10. Are there currently eligibility criteria in the APS program that you believe are a barrier to participation in the program? How would you address these barriers?

We believe the APS would be more applicable if system size thresholds were listed in Kilowatts instead of BTU's as is the case for European technologies which constitute the majority of APS

eligible modern wood heating devices. Additionally, we think it would be far simpler (and perhaps more accurate) if biomass fuel suppliers were able to submit the fuel consumption of their APS-eligible customers directly to the DOER and aggregators. We see this model as allowed in the liquid biofuels section of the APS and believe its application with modern wood heating will both reduce system owner confusion as well as the resulting paperwork for the DOER program coordinators.

11. What revisions to the existing APS eligibility criteria would you propose to improve and simplify the APS program, if any?

We at Maine Energy Systems recognize the importance of fuel tracking and the verification of sustainable feedstock origins. However, we believe the APS obligation of that fuel be unbranded “bulk delivered” could be differently interpreted. Notably, many of our boilers are fueled by pellets produced by Lignetics in either their Jaffery (NH) or Strong (ME) facilities. However, these mills also produces numerous other “branded” pellets which are typically bagged and sold by the pallet ton. It is important to recognize that these bagged pellets are exactly the same pellets as those delivered with Sandri or North East Biomass’ blower trucks. Allowing this new interpretation (tons on a pallet vs tons in the silo) opens the market for boilers to be matched with “super bins” instead of silos. Super bins are simply enlarged versions of the current “day bins” as seen on every pellet boiler (combustion performance is unaffected). Naturally, this approach would require system owners to manually load bags of pellets (weekly) an action that may not be acceptable to some. However, by eliminating the need for a pellet silo (or flex bag) significantly reduces the system’s cost. We believe reducing initial costs (via rebates or otherwise) is crucial to market adoption.

12. Is there any additional information you believe DOER should consider in its 2020 APS Minimum Standard Review?

While we greatly appreciate the efforts made by the DOER and Daymark we believe that flaws in annual fuel consumption (3.16 tons/yr.) as well as limiting the assessment (and subsequent AEC incomes) to 10 years resulted in skewed results/conclusions. Modern Wood Heating systems should have been attributed the AECs for their entire functional lifespan (25 years vs. 10). We also think that it is merited to recognize that refined wood chip systems will have their own emissions reductions/ratepayer investment and should be investigated. However, perhaps most importantly, we hope that the DOER will see fit to accurately recognize the remarkable carbon signature of burning preordained wood fuel. As such we have faith that you will include modern wood heating in any efforts to modify AEC earning per delivered BTU.