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Commissioner Judith Judson
Massachusetts Department of Energy Resources
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This is not true - the plants qualified in MA do not represent 200 MW. In fact, DOER's own data show that there are only four biomass plants qualified for the MA RPS right now - Schiller, Covanta Jonesboro and Covanta West Enfield, and Seaman Paper. EIA data show that combined generation from burning biomass at these plants on a full-time basis was about 68 MW of power in 2014. There would have been more plants qualified, but a number of plants don't make the cut for the MA RPS because they don't meet the standards for conventional pollution - i.e., their particulate matter and nitrogen oxide emission rates are too high. This has nothing to do with the CO2 net emissions standards.

RE: Ex. Order 562 Comments: Maintaining the Eligibility of Biomass for the RPS

Dear Commissioner Judson:

On behalf of the Massachusetts Biomass Power Coalition,[1] I am pleased to submit the following comments to the Department of Energy Resources (DOER) in the context of your review of regulations pursuant to Executive Order 562. The Coalition is made up of companies that own and operate biomass power plants in New England. These power plants have an installed capacity of more than 200 MWs and have been delivering RPS-qualifying electricity to Massachusetts since the inception of the RPS program.

Pursuant to the review now being conducted under Executive Order 562, **the Coalition urges DOER to revise 225 CMR 14.05 (1) (a) 7 (f) (ii) by deleting clause (ii), hereafter referred to as the "fuel conversion efficiency standard."**

In a summary of revisions to the RPS regulations (issued in April of 2012), DOER indicated the purpose of the fuel conversion efficiency standard was to "…further increase the energy utilization of our limited sustainable biomass resource." Extracting the highest possible amount of energy from a given unit of fuel is a laudable goal.

However, the efficiency requirement is not a necessary or effective means to achieve that objective, for several reasons:

The reason the type of fuel is relevant is, in combination with efficiency, one can calculate net emissions. Plants meeting the fuel standard but not meeting the current efficiency standard would have massive net CO2 emissions.

- First, the RPS regulations already prevent overuse of the "limited" woody biomass resource by narrowly defining "Eligible Biomass Woody Fuel," limiting it to forestry residues and by-products.
- Second, power plant developers and operators already have powerful economic incentives to extract the maximum amount of electrical energy from every unit of fuel they consume. The efficiency standard will not increase those incentives. Rather, it will foster the use of other, non-renewable fuels to produce electricity.
- Third, existing biomass plants cannot reengineer their plants to convert fuel to electricity more efficiently than they already do. For many practical reasons, an existing electric-only plant cannot be converted to operate as a combined heat and power plant.
- Finally, for both economic and operational reasons, no new CHP plants using biomass as a fuel will be built in New England. That is the only way the required levels of fuel conversion efficiency could be achieved. Therefore, the standard will not prompt technological innovation; rather, it will stifle the use of a legitimate renewable fuel.

A baseless statement

Given that there are a number of programs at both the state and federal level to encourage use of CHP, claims that "no new plants" will be built seem unjustified.

[1] Coalition members include the Biomass Power Association, Covanta, ReEnergy Holdings, GDF Suez, N.A., Burlington Electric Light Department, EWP Renewable Corporation and Eversource.

In the attached document, we elaborate on these reasons in detail. We also argue that the efficiency standard would reduce the diversity of fuels eligible for compliance with the RPS, thereby making compliance more difficult and expensive for retail electricity suppliers. Finally, we point out that the efficiency standard is inconsistent with scientific findings and federal regulations related to biomass recently promulgated by the U.S. EPA in its Clean Power Plan.

A misleading statement which we address in the next document.

We would be happy to answer any questions and look forward to working with you to accomplish this urgently needed change in regulation.

Sincerely,

Robert Cleaves
President
Biomass Power Association, and on behalf of the
Massachusetts Biomass Power Coalition

Over 100,000 Massachusetts residents signed a petition to advance a referendum that would have taken biomass out of the RPS altogether. The regulations, which were drafted based on findings of the State-commissioned Manomet Study, were promulgated as part of a good-faith agreement that the referendum would not go forward. Reversing the regulations now, which were supported by thousands of people, including all of the state's major environmental groups, would represent a major breach of good faith and overturn a hard-won compromise. See http://www.boston.com/news/local/massachusetts/articles/2010/09/20/biomass_industry_slams_proposed_mass_regulations/

Rescinding the RPS Biomass Fuel Efficiency Regulation
under
Executive Order 562

In Governor Baker's Executive Order 562,[1/] Massachusetts agencies are directed to rescind or streamline regulations that impose "unnecessary cost, burden and complexity" on companies doing business in this state. Selling renewable energy credits to MA retail electricity suppliers certainly constitutes doing business in this state, and advances several important public policy goals such as those found in the Renewable Portfolio Standard, the Global Warming Solutions Act and others.

In reviewing current regulations, the agencies are directed to retain only those regulations which are "mandated by law" or are "essential to the health, safety, environment or welfare of the Commonwealth's residents."

The biomass efficiency standard set forth in 225 CMR 14.05(1)(a)(7) (f) (ii), hereafter the "fuel conversion efficiency standard" or the "efficiency standard," does <u>not</u> meet the criteria set forth by Order 562[2/], for the reasons described below, and should be rescinded by the Department of Energy Resources (DOER) as soon as possible.

In addition, to conform the RPS regulation to the previously described change, the Department should also rescind or appropriately modify the following portions of that regulation: 225 CMR 14.05 (8) (c) (1)-(4) and 225 CMR 14.05 (8) (e) (3).

a. *Is there a "clearly identified need for governmental intervention" that is best addressed by the agency or another governmental body?*

This statement is false. A stringent efficiency standard was clearly identified as a necessary component to ensure that net emissions from bioenergy, measured over a period of 20 years, are not greater than emissions from burning fossil fuels.

No, there is not a clearly identified need for a fuel conversion efficiency standard to be imposed on biomass fueled power plants by DOER or any other agency.

In a summary of its revisions to the Renewable Portfolio Standard (RPS) regulations (issued in April of 2012), DOER indicated the purpose of fuel conversion efficiency standard was to

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1/ Baker, Charles; Executive Order 562 To Reduce Unnecessary Regulatory Burden, March 31, 2015; See http://www.mass.gov/governor/legislationexecorder/execorders/executive-order-no-562.html

2/ Executive Order 562 states: " …To find that a regulation meets this standard, an agency must demonstrate, in its review, that:
- a. there is a clearly identified need for governmental intervention that is best addressed by the Agency and not another Agency or governmental body;
- b. the costs of the regulation do not exceed the benefits that would result from the regulation;
- c. the regulation does not exceed federal requirements or duplicate local requirements;
- d. less restrictive and intrusive alternatives have been considered and found less desirable based on a sound evaluation of the alternatives;
- e. the regulation does not unduly and adversely affect Massachusetts citizens and customers of the Commonwealth, or the competitive environment in Massachusetts;
- f. the Agency has established a process and a schedule for measuring the effectiveness of the regulation; and
- g. the regulation is time-limited or provides for regular review…"

"…further increase the energy utilization of our limited sustainable biomass resource." Extracting the highest possible amount of energy from a given unit of fuel is a laudable goal. However, the efficiency requirement is not an effective means to achieve that objective, for several reasons.

First, the concern that the woody biomass resource in New England is "limited" is misleading and inaccurate. In fact, a study done in 2014 for the New England Forestry Foundation indicated that usable woody biomass residues are plentiful in New England and growing larger over time. That study found that each year New England currently adds in excess of 3 million green tons of usable, but unutilized woody biomass material.[3/] In short, there is more than enough biomass material to provide fuel for existing biomass plants, as well as new biomass plants, should any ever be built.

This section is incoherent and it's difficult to tell what they are actually trying to say. One thing is clear, however, and that is that they are misrepresenting Manomet's findings. Manomet found that the carbon debt payoff time for net bioenergy emissions to be ***equal*** to those from a coal plant was more than 40 years for a biomass plant burning a combination of residues and thinnings. That is not a "relatively short period of time."

Second, maintaining a fuel conversion efficiency standard will not reduce greenhouse gas emissions or otherwise provide any environmental benefit. Indeed, it is arguable that the efficiency standard will have the unintended effect of increasing GHG emissions. That is because the RPS regulation strictly limits the material from forestry activities that can be used to obtain RPS credits. The regulation defines "Eligible Biomass Woody Fuel" as "forest derived residues," "thinnings" and "salvage." The Manomet study and others have shown that use of these materials to generate energy produces a net GHG reduction in a relatively short period of time compared to alternative fates, such as leaving them to decompose in the forest or in landfills. Ironically, imposing a fuel conversion efficiency standard that discourages use of these materials to generate energy has the perverse impact of causing opportunities to reduce GHG emissions to be missed, the opposite of what may have been the regulation's intended effect.

Again, misleading, because in the absence of an efficiency standard, it doesn't matter what wood you burn, net emissions are going to be high.

Third, a fuel conversion efficiency standard, for practical reasons, will not result in more efficient use of biomass fuel than is already occurring in existing plants or arguably than would otherwise occur in new plants. Power plant developers and operators have a pressing need to extract the maximum amount of electrical energy from every unit of fuel they consume. This is dictated by the relatively large influence that the cost of fuel has on a power plant's overall operating costs and the intense competitive nature of the wholesale generation market. Power plant operators must bid competitive prices in the wholesale generation market for every hour they wish to run. Any inefficiency in converting fuel to usable energy reduces their competitive position and puts their profitability at risk. Thus, they have every incentive to maximize the efficiency with which they convert fuel to energy. Having the government reward them with RPS incentives for what market forces already amply incentivize them to do is wasteful and ineffective. This reality is reflected in the fact that no other state renewable portfolio standard imposes a fuel conversion efficiency standard or anything like it. They know it will not result in any greater efficiency in the utilization of wood resources to produce energy than already exists.

Clearly, the market does not "force" plants to switch to CHP and maximum efficiency, which is unfortunate.

Existing biomass plants cannot convert their fuel any more efficiently than they already do. These plants currently convert fuel at a rate of about 25% per unit of fuel consumed. Doubling that rate to 50% as the regulation would require is a practical impossibility for existing plants.

3/ Kingsley, Eric, Innovative Natural Resource Solutions; "The Potential for Wood To Replace Fossil Fuels in New England" in "New England Forests: The Path To Sustainability"; New England Forestry Foundation; Griffen, Alec B, Editor; June, 2014, p. 15; see http://www.inrsllc.com/11._Reduce_Use_of_Foreign_Oil_061314.pdf

For comparison, the average efficiency of the US coal fleet is about 33% - that includes very old, inefficient units.

This is not really correct. Washington DC took electricity-only biomass power plants out of their RPS by imposing an efficiency standard. See http://www.pfpi.net/wp-content/uploads/2015/03/DCBiomassLaw2015B20-0418-SignedAct.pdf

The only way this could be accomplished would be to alter the design and operation of the plant so that, in addition to exporting electricity, it also captured and usefully employed the heat generated in the process, what is known as a combined heat and power (CHP) plant. The complicated engineering and large cost of converting an existing electric-only plant to a CHP plant, along with the immense difficulty of securing a nearby host facility to make use of the captured heat, present insurmountable obstacles to retrofitting an existing plant into a CHP plants.

At the same time, no new biomass plants have been or will be designed and built as CHP plants in New England. Indeed, in the three years since the fuel conversion efficiency standard has been codified in the RPS regulations with an effective date of January 2016, not a single new biomass fueled plant that could meet the fuel conversion efficiency standard has been proposed to be built in Massachusetts or elsewhere in the region. This because even a new CHP plant that uses biomass fuel is almost impossible to construct in New England. CHP facilities must be near large, heat-consuming hosts, such as hospitals (which would never want to be near a large industrial facility like a power plant, especially one that receives its fuel delivery by a steady stream of large trucks loaded with wood) or greenhouses (which rarely want to be located in the woods of Maine or New Hampshire requiring long truck trips to bring their produce to market). The additional revenue from the sale of renewable energy credits cannot solve these intractable obstacles to siting biomass-fueled CHP plants. Such plants might be theoretically desirable, but will never be built in New England.

This is a startling admission from an industry that constantly repeats how "clean" and low-impact bioenergy is.

b. Would the costs that result from imposition of this regulation be less than the benefits that might result from it?

This is obviously not the case, as demonstrated by the letter written by Palmer Renewable Energy and sent on the same day as this letter from BPA. That plant, which is a 38 MW electricity-only facility in one of the most polluted regions of the state, is still moving forward.

No, there would be no practical benefits from imposition of this standard. Instead, the regulation would cause the reduced use or even closure of biomass facilities around the region. The regulation currently requires that, as of January 1, 2016, all biomass fired generating units must achieve the aforementioned 50% fuel conversion rate to qualify for RPS credits, or a 40 % rate if they are designated an "Advancement of Biomass Conversion Generation Unit." Current technology will make it impossible for both existing and new units to meet this standard. The pending imposition of the regulation has long since caused developers contemplating developing a new plant to abandon any intention of doing so. A May 2011 letter on these regulations, sent to the DOER by the legislature's Joint Committee on Telecommunications, Utilities, and Energy agreed with this assessment, stating that "existing facilities would likely be disqualified from the RPS." Put simply, the efficiency requirement would effectively eliminate a resource that has at times provided up to 15% of the energy used by retail electricity suppliers to comply with the RPS.

The withdrawal of biomass support comes as Massachusetts and New England face unprecedented challenges in meeting electricity needs. ISO-NE estimates that by 2017 some 3,300 MWs of current generation, roughly 10% of existing capacity, will shut down, and by 2020 an additional 5,000 MWs are at risk of closure. The recent decision by Entergy Corporation to close the 680 MW Pilgrim nuclear power plant in 2019 will remove an important source of baseload, low carbon power generation from the state's portfolio. Meanwhile, natural gas has

These are big numbers. Even if bioenergy *were* still promoted under the MA RPS, meeting any meaningful proportion of the alleged emerging need that's claimed here would be impossible, using woody fuels. Even building just 150 MW of biomass capacity in MA would require a ***massive*** increase in forest cutting to provide the approximately 1.9 million tons of fuel that would be required per year. This would be accompanied by a comensurately massive increase in GHG emissions, and a relatively large increase in emissions of conventional air pollutants. Costs: very high. Ostensible "benefits": minimal.

emerged as a dominant fuel, as its use for annual power generation has increased from 18% in 2000 to 46% in 2013. With constraints on delivery of a sufficient gas supply, the state has seen winter price spikes that are not forecasted to subside. Denying RPS eligibility for biomass power plants would further reduce the diversity of the state's electricity supply, at the same time that lack of fuel diversity is bedeviling the state and region.

This is a deceptive statement in two ways. First, of *course* biomass plants aren't regulated under the Clean Power Plan - they are not "electric generating units" as defined under the rule, which regulates fossil-fueled plants only. So making a big deal out of this like EPA just figured it out is just silly. Second, isn't this the point? That MA doesn't want to promote a "renewable energy" technology that can't meet, or isn't required to meet, GHG limits? why would we want to give subsidies to biomass alongside zero-emissions tech like wind and solar?

c. Is the regulation consistent with federal requirements and policy?

No, the Massachusetts regulation is not consistent with federal regulation and policy. The U.S. EPA, in promulgating its Clean Power Plan (CPP), has determined that biomass fueled plants are not included among the power plants that must achieve compliance with GHG limits. Moreover, the EPA has found that biomass plants, under certain circumstances, may contribute to achieving GHG reductions required by the CPP.

EPA has not yet defined what these "circumstances" are, and has not yet produced modeling that demonstrates that bioenergy can "reduce" GHG emissions.

In August of this year, EPA promulgated the final version of the CPP and in it stated that "states' reliance on…sustainably-derived forest-derived feed stocks may also be an approvable element of their compliance" with Section 111(d). In short, sustainably sourced biomass can be used by states to meet their obligations to reduce CO2 emissions under the Clean Air Act and the CPP. The Plan noted that wood wastes (like non-forest wood, sawdust, etc.) "…are likely to have minimal or no net atmospheric contributions of biogenic CO2 emissions, or even reduce such impacts, when compared with an alternate fate of disposal."[4/] Moreover, the Plan noted removal of waste material created by forestry activity contributed to achieving the critically important role of "sustainable land management" in "achieving the goals" of the CPP. The Plan pointed out that the alternative fate for biomass, if not used for energy, must be considered in any evaluation of its greenhouse gas emissions. For example, waste sources of biomass, if left in the forest, would decay over time. In those circumstances, the decaying material releases even more potent GHG emissions, such as methane, compared to the CO2 emitted from combustion.

Notice the swift transition from "may" in EPA's text to "can" in BPA's text...

This methane myth is misleading, as explained in box at bottom of page. However, a legitimate source of methane is increasingly recognized in the large fuel piles at biomass and wood pellet plants, which can go anaerobic and produce methane. It's time the industry was held accountable for these emissions, which are caused *solely* by chipping and storing wood in massive piles.

In a related finding, the National Climate Assessment, published by the Obama Administration May of 2014, noted the valuable role of biomass power generation in keeping forests healthy through thinning and other sustainable forestry practices. Healthy forests serve as a carbon "sink" that capture hundreds of millions of tons of carbon per year.

Healthy forests do sequester carbon, but cutting and burning that wood puts it into the atmosphere. You don't get to have it both ways - cutting forests degrades the carbon sink.

d. Are there less restrictive and intrusive alternatives that would be more desirable way to accomplish the objective of the regulation?

Yes, there are other means to achieve the highest possible efficiency in the conversion of fuel to energy.

As described above, the competitive pressures of the electricity market will motivate power plants owners and operators to maximize the efficiency with which they convert fuel into

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4/ Environmental Protection Agency, 40 CFR Part 60; Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units. See http://www3.epa.gov/airquality/cpp/cpp-final-rule.pdf

The "methane myth" repeated here is false. EPA's Draft Framework for biogenic carbon accounting makes it clear that in-woods methane generation from decomposing forestry residues is not an important factor in calculating net GHG fluxes, stating at page 10: "*in the United States, **CH4 is not a significant contributor** to landscape carbon-based emissions related to the growth and harvest of biogenic feedstocks because most forest- and agriculture-derived feedstocks are produced in upland areas rather than in areas with higher moisture content, such as rice paddies or wetlands (see Figure 4). These areas do not typically generate CH4 emissions (Anderson et al., 2010) or, in some cases, have a small negative net CH4 fluxes (EPA, 2013b).*" page 10 at http://www3.epa.gov/climatechange/downloads/Framework-for-Assessing-Biogenic-CO2-Emissions.pdf

electricity. There is no need for government intervention to establish an efficiency standard. Indeed, as discussed earlier, the standard will not result in more efficient fuel conversion. Rather, it will have the unintended and costly consequence of causing these plants to operate less or even shut down altogether.

If plants are not producing a GHG benefit, then they don't deserve subsidies under the MA RPS any more than other polluters do, like coal plants.

e. Would this regulation unduly and adversely affect Massachusetts citizens and customers of the Commonwealth, or the competitive environment in Massachusetts?

Yes, the regulation would unduly and adversely affect electric ratepayers of the Commonwealth because it would deprive retail electricity suppliers from a source of supply of renewable energy that would otherwise be available for their use to comply with the requirements of the state's Renewable Portfolio Standard (RPS). That regulation requires retail suppliers to purchase minimum percentages of renewable power. According to a report from the legislature's Joint Committee on Telecommunications, Utilities, and Energy, power from biomass plants provided 27% of the renewable energy purchased by retail electricity suppliers in Massachusetts in order to comply with 2009 RPS requirements. While biomass would remain eligible, theoretically, to be used to comply with the regulation, it would be not be technically feasible to achieve the efficiency standard, for reasons described above. As a result, keeping the efficiency standard in the regulation would effectively deprive suppliers of a legitimate source of renewable energy, potentially increasing costs to comply with the RPS.

To qualify for renewable energy credits, the portions of the regulation currently in effect require these plants to adhere to very specific, sustainable forestry practices to obtain their fuel and the must limit the GHG emissions they can emit to less than half of those from a gas-fired plant. These restrictions are more than adequate to minimize GHG emissions from these plants.

This is a flat-out misrepresentation. It would be impossible to meet the net emissions regulations without the efficiency standard.

f. Has the Agency been able to measure the effectiveness of the regulation?

The efficiency standard has been included in the RPS regulation for almost two years but its effective date will not be reached until January of 2016. As a result, the future effect of the standard has not been tested in the intervening years. However, anticipation of the requirement has had an effect. Several new biomass fired plants that were under development at the time the rule was enacted were cancelled soon thereafter because even newly designed plants could not be converted to CHP facilities and remain economically viable. Since then, studies have demonstrated that the efficiency standard cannot be met by existing plants and will prevent any new plants from being built.[5/]

The letter sent to the DOER by the Joint Committee on Telecommunications, Utilities, and Energy in response to the proposed regulation correctly noted that "significant investments…have been made in the biomass industry in reliance of the original RPS framework." Thus, a consequence of the efficiency standard will be to make those investments

[5/] Woods, Brad, McHale & Associates, Report to the Biomass Power Association; "Biomass Technology Review"; October 2010 Its Executive Summary states its main conclusion: that "… no new existing, financeable, commercially proven technology is available to meet the proposed efficiency standards."

It took about three years from commissioning the Manomet Study to promulgating final regulations. The state provided NUMEROUS opportunities for comment, public meetings, etc. It was all incredibly labor-intensive for state employees and advocates alike. The process worked, the regs were hammered out with some compromises. Apparently, the Biomass Power Association assumes that because the Baker Administration is Republican, they'll just fall down and do the biomass industry's bidding as soon as the industry says they don't like a regulation. They had an opportunity to comment - they did comment - they didn't get everything they wanted. That's how the system works.

"stranded;" that is, unusable and wasted. Moreover, the Committee warned of the "chilling effects" this rule change would have on investment in and development of biomass plants.

The Committee was right to point to the potentially harmful ramifications of imposing this new requirement on biomass plants. The Commonwealth created a financial incentive like the RPS to induce owners of existing and new biomass plants to make major investments in order to comply. If it then effectively restricts eligibility for that incentive so as to make the incentive unachievable by those very same plants, even after those owners have made the desired investments, plant owners and investors will be right to distrust the reliability of such incentives in the future. They will be discouraged from making a wide range of desired investments otherwise sought by the Commonwealth.

Note - the Vermont Public Service Board also rejected a biomass plant proposed in that state because of its carbon emissions. The PSB concluded that "***the evidentiary record supports a finding that the Project would release as much as 448,714 tons of CO2e per year, and that sequestration of those greenhouse gases would not occur until future years, possibly not for decades, and would not occur at all in the case of forest-regeneration failures***." The full decision can be viewed at http://www.pfpi.net/wp-content/uploads/2014/02/7833-VT-PSB-on-NSSEP.pdf