



October 21, 2010

Philip Giudice, Commissioner
Massachusetts Department of Energy Resources
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Submitted via email to doer.biomass@state.ma.us

Dear Commissioner Giudice:

On behalf of the Society of American Foresters (SAF), the national scientific and educational organization representing the forestry profession in the United States, please accept the following comments and information for the State of Massachusetts draft regulations (225 CMR 14.00) proposed by the Department of Energy Resources (DOER) to establish criteria for woody biomass facilities and fuel eligibility under the Massachusetts Renewable Portfolio Standard (RPS). As the organization chartered to advance the science, education, technology, and practice of forestry for the benefit of society, the SAF has been actively involved with the research, policy, and study of woody biomass energy since its inception. These comments have been developed and are submitted jointly by the Society of American Foresters representing over 14,000 professional foresters nationwide and by the Yankee Division of SAF, representing members in Massachusetts, Connecticut, and Rhode Island; and the Massachusetts Chapter of SAF.

Throughout the years, numerous articles on bioenergy have been published in the *Journal of Forestry* and many of SAF's other peer-reviewed journals. The most comprehensive of these was SAF's 2008 peer-reviewed report *Forest Management Solutions for Mitigating Climate Change in the United States* (available at http://www.eforester.org/publications/jof/jof_cctf.pdf). We believe it would be helpful for DOER to review the executive summary and chapters on biomass energy substitution and wood products substitution (pages 119, 132, and 136 respectively). DOER's current biomass assumptions do not properly consider the substitution value of wood products used in place of non-renewable building materials that require more energy to produce nor does it fully recognize the benefits of biomass energy in place of fossil fuel energy. While looking at biomass energy substitution alone may show a moderate carbon benefit, looking at energy substitution combined with wood products substitution generally has a *substantial* carbon benefit.

SAF must mention the Manomet Center for Conservation Sciences' "Biomass Sustainability and Carbon Policy Study" (Manomet) which analyzed a particular forested site that was hypothetically harvested for bioenergy. Manomet, as required by the parameters set by DOER, calculated the time for the site to replenish the carbon lost to harvest. This narrow temporal and spatial scale examined only a snapshot in time on one plot of land. SAF believes that to properly analyze the carbon impact on the forest, research

must look at all the ways that forests can address greenhouse gas emissions. Without focusing on all carbon pools (including forest and product pools), research results can be misleading or even incorrect (Lippke et al., 2010). Furthermore, analysis over long periods of time and large areas (Ryan et al., 2010) must be used for global pollutants with effective lifespans measured in centuries. DOER should consider other biomass research that analyzes all carbon pools at the appropriate scale. SAF recommends the references provided in this document.

SAF has the following specific concerns about the draft regulations:

1. *As proposed in 14.05 (8) (a) (1) (c), the arbitrary, scientifically unfounded limitation of eligible forest-derived fuels to 15% of the total weight of all forest products harvested in a given harvest operation (a) will encourage high grading¹, (b) is largely unverifiable, and (c) will reduce the economic viability of certain silvicultural operations and family forestland ownership.*

a. As defined in 14.02, “Forest-Derived Residues” include waste wood, unacceptable growing stock (UGS), thinning removals, and “other competing woody vegetation.” The 15% limit will be quickly met by utilizing the tops and waste of larger-diameter, high quality sawlog trees in a given harvest. There will be a disincentive to remove UGS, which is often necessary to improve forest resilience, wildlife habitat and for numerous other reasons, because the biomass associated with these trees would be in excess of the 15% limit. This unintended consequence could lead to degraded forest sites that provide poor wildlife habitat and little value to landowners. Foresters in Massachusetts have long lamented the lack of stable markets for low-grade forest products, and these proposed regulations do nothing to remedy this situation. These regulations indirectly support and further an economic environment which encourages maximizing current profit at the expense of long-term forest health and productivity. At the same time they sacrifice the forests' ability to provide society all those things upon which we depend including a rich mix of forest products, an esthetically pleasing forested environment, a full matrix of habitat features, and provision of clean drinking water.

b. The time and cost associated with verification of compliance with the 15% utilization limit will be extraordinary. The Commonwealth has never verified harvest volumes reported on Chapter 132 Forest Cutting Plans. Ensuring compliance with the proposed 15% utilization limit involves forest measurement, contracts between landowners, foresters, and timber harvesters; and a dramatic rise in complexity of forest practice regulation. Verifying utilization represents a level of complication in an order of magnitude greater than verification of volumes alone. The Department of Conservation and Recreation neither has the budget, staff, or ability to effectively enforce this policy. M.G.L. Chapter 132, its associated regulations, and the skill, expertise, and judgment of professional foresters – both practicing in the private sector and providing guidance in the public sector – provide the best mechanisms to ensure harvest practices do not degrade the harvest area.

¹ The definition of high grading is the removal of the most commercially valuable trees (high-grade trees), often leaving a residual stand composed of trees of poor condition or species composition —*note* high grading may have both genetic implications (i.e., dysgenic effects) and long-term economic or stand health implications. Available at: www.dictionarofforestry.org

c. The monetary value of biomass to landowners is often negligible – but there are numerous aesthetic, ecological, and silvicultural benefits associated with increased management opportunities. Biomass markets are just one part of a fully developed forest products industry utilizing sawlogs, firewood, pulp, and biomass. Well-developed biomass markets, for example, help provide forest managers the opportunity to remove poor trees and create the conditions necessary to regenerate important tree species. Red oak, an important, long-lived tree species for wildlife and economics, is declining on private land, while less valuable tree species (hickory, poplar, red maple) are increasing proportionally (US Forest Service FIA, 2008). This is a trend that will affect the economic viability of private forestland management in the future. Additionally, biomass markets can increase the overall feasibility of creation and management of early successional habitat for wildlife species dependent upon such habitat. Providing foresters the tools to regenerate desirable species and remove less desirable trees in a cost-effective manner is an important factor in retaining working private forestlands and enhancing rural economies.

The SAF recommends that the 15% limit be eliminated. To protect against nutrient loss, forests should be managed by trained, professional foresters who can manage based on site-specific information. We believe compliance with M.G.L. Chapter 132 would accomplish this goal.

2. Biomass fuels sourced from land-use change activities – specifically conversion of forest to residential, commercial, or industrial use – are eligible without limit, while the eligibility of forest residues sourced from the execution of sound silvicultural prescriptions is limited to 15% by weight of a given timber harvest.

Considering fuel from forest conversion activities eligible without limit for the production of RPS-qualifying electricity puts fuel derived from well-managed forests at a severe disadvantage, and creates a perverse incentive for land-clearing. Conversion of forest to residential or other uses converts a carbon sink to a carbon source, degrades local water quality, and reduces wildlife habitat – permanently. According to “Private Forests, Public Benefit: Increased Housing Density and Other Pressures on Private Forest Contributions”, 57 million acres of private forests are likely to see dramatic increases in housing development in the next three decades (USDA, 2009). For example, the Merrimack Watershed of Massachusetts and New Hampshire is threatened by housing development as over 400,000 acres of private forestland is projected to move from ‘rural’ to a higher housing density (USDA, 2009). Providing tools and incentives to keep forestland forested should be the primary goal – without harming the economic viability of small, rural businesses including timber harvesters.

Again, SAF recommends the 15% limitation be removed from the draft regulations. This would allow existing managed forests to compete with biomass from land-clearing. SAF believes the best way to prevent forestland conversion is to have robust markets for forest products thereby incentivizing forest landowners to keep their forestland forested.

3. *Foresters with the SAF Certified Forester credential are being asked to verify eligible forest biomass fuel (14.05 (8) (a) (1) (a) (iii)) without having been invited to participate substantially in crafting the regulations.*

We applaud the DOER for acknowledging and using the Society of American Forester's Certified Forester® (CF) credential. We ask that DOER properly use the Certified Forester trademark in the proposed regulations as follows: Certified Forester and/or CF followed by the registered trademark symbol. For more information on use of the Certified Forester trademark, please see: <http://www.safnet.org/certifiedforester/resources/trademark-new.pdf>. Relying on the SAF CF credential is a sound way to address the interstate forest licensing concerns associated with timber procurement. Foresters are uniquely qualified to balance concerns over ecological sustainability, harvesting practices, and economic concerns.

As proposed, however, the draft regulations offer no flexibility in interpreting the site or harvest intensity with respect to susceptibility of nutrient loss and other long-term sustainability concerns. Furthermore, foresters may be hired simply to prepare cutting plans described in 14.05 (8) (a) (1) (a) (iii) to fulfill only a regulatory role, and may not be actively supervising the harvest. To hold those foresters accountable for utilization decisions that are not in their control is inappropriate.

4. *The goals of the forest management programs and certification systems described in 14.05(8) (a) (1) (b) are unlikely to be met with the 15% retention limit and certification from the American Tree Farm program is omitted.*

The draft regulations only recognize the Sustainable Forestry Initiative (SFI), the Forest Stewardship Council (FSC), the US Forest Service's Forest Stewardship Program (FSP), or a host state's Current Use Program. Neighboring states make varying use of the Forest Stewardship Program, real estate tax current use programs (*i.e.* Massachusetts M.G.L. Ch. 61/61a/61b), and Best Management Practices. We would hope that, given the low enrollment rate (15% of eligible owners and 21% of eligible private forestland) in Massachusetts' current use program (Kittredge *et al.*, 2008), forest biomass eligibility is not based on current use enrollment.

This further illustrates potential problems in DOER's proposed regulation. First, it may be exceedingly difficult to comply with the certification and/or sustainable forest management programs listed in 14.05 (8) (a) (1) (b) and the 15% limit in 14.05 (8) (a) (1) (c) as this will significantly hamper forest management options. This also puts foresters in a terrible ethical dilemma; should they comply with the 15% limit in the regulations – and possibly restrict or forgo silvicultural prescriptions because of limited markets – or should they manage the forest sustainably based on their professional knowledge and experience?

Second, the individual harvest, stand, or parcel is the inappropriate place to assess sustainability in the arbitrarily short time-frame of 2050 imposed by DOER. The flow of benefits provided by forests must be evaluated in a temporal and spatial scale appropriate to forest development and function.

SAF recommends the elimination of the 15% requirement and that compliance with state and local timber harvesting and forest management ordinances – and any additional requirements imposed by voluntary forestland programs – be the requirement for forest biomass eligibility.

If DOER, however, insists on enrollment in voluntary forest programs as a requirement for forest biomass eligibility, SAF urges the inclusion of the American Tree Farm Program (Tree Farm). The omission of Tree Farm – which now offers highly credible forest certification and certifies the most acres of any certification system in Massachusetts – is unfortunate. There are approximately 124,000 acres enrolled in the Tree Farm program in Massachusetts, and a far smaller amount of private forestland is certified by either FSC or SFI. The Tree Farm program has long recognized the commitment of non-industrial small forest landowners who provide myriad benefits, and its contributions to encouraging ownership and sustainable management of private forestland should not be overlooked.

If DOER insists on enrollment in voluntary forest programs as a requirement for forest biomass eligibility, SAF recommends inclusion of the American Tree Farm Program.

5. Existing plants will be disqualified for RPS eligibility if they cannot meet all requirements of 225 CMR 14.00, which includes achieving 40% overall efficiency in any quarter (year) of operation.

Some parts of Massachusetts already benefit from nascent biomass chip markets, and forest landowners in these areas – while perhaps not receiving substantial monetary compensation for utilized chips – have benefited from removal of low-quality trees thereby enhancing growth rates of residual trees, improved forest aesthetics, and a wider variety of management practices available at lower costs. To rescind these benefits and limit their expansion to other areas of the Commonwealth will hinder forest management practices and possibly continue the disturbing trends outlined in (1) above – the increasing dominance of trees low in economic, wildlife, and other value, and limiting future forest management options.

SAF believes DOER should work with biomass energy producers to find a more appropriate efficiency percentage that both existing and new producers can reasonably meet.

6. There is no representation of timber harvesters on the proposed Advisory Panel in 14.05 (8) (a) (2) (a).

Foresters are well-trained to design a timber harvest that balances current and future economic viability with ecological sustainability, which is ensuring that future generations have the same, if not healthier, forest resources of our generation. However, for a variety of contractual or other reasons, foresters might not be able to provide round-the-clock harvest supervision, and will often not be in control of forest product utilization decisions. Utilization and adherence to utilization limits will ultimately, in many cases, be the responsibility of the timber harvester. Therefore, it is necessary and vital that the composition of the panel described in 14.05 (8) (a) (2) (a) be modified to mandate inclusion of a timber harvester.

SAF recommends that timber harvesters be added to the Advisory Panel.

7. *Requiring a life cycle analysis (LCA) by all biomass plants in 14:05 (1) (a) (7) (f) (iii) will be prohibitively expensive and prevent the production of biomass energy.*

Requiring biomass energy facilities to conduct individual life cycle analysis is too costly and will likely prevent biomass facilities from contributing towards the RPS. As long as carbon stocks remain stable or increase across the region, which is already measured through USDA's FIA program and other programs, the production of biomass energy is 'carbon neutral'.

SAF assumes that DOER would require LCA similar to the Manomet study. Again, this is incorrect as it does not include all carbon pools and was conducted at an inappropriate scale. The DOER regulations already take several measures to protect sustainability and forest regeneration (though oddly the current regulations also indirectly support land clearing).

SAF recommends the requirement for an LCA study by each producer be eliminated.

While SAF appreciates DOER's attempts to address many of the concerns associated with the production of biomass energy, we believe the draft regulations, if not amended, will have several negative unintended consequences on the forests in Massachusetts. The requirements for the participation of biomass energy are long, complicated, confusing, and expensive. We fear this will encourage, rather than discourage the conversion of forestlands to nonforest uses and/or lead to high grading of forests. Further, we believe it will be much more difficult for Massachusetts to meet its renewable energy goals as producing biomass energy will be prohibitively expensive.

We would like to thank the DOER for consideration of these comments and look forward to providing additional input and work with DOER to revise these regulations to ensure forest sustainability and regulatory practicability.

Sincerely,

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