



April 14, 2009

Secretary Ian A. Bowles
Executive Office of Energy and Environmental Affairs
Attn: MEPA Office
Nicholas Zavolas, EOEEA #14388
100 Cambridge Street, Suite 900
Boston MA 02114

Re: **EOEEA #14388, Pioneer Renewable Energy, Greenfield**

Dear Secretary Bowles:

On behalf of Mass Audubon, I submit the following comments on the Environmental Notification Form (ENF) for this 47 MW woody biomass energy facility project. A full Environmental Impact Report (EIR) should be required, including analysis of alternatives including energy efficiency and other forms of renewable energy that do not emit Greenhouse Gases (GHG); woody biomass supply and effects on forest carbon sequestration and forest ecosystem services; water impacts including quality and quantity; and cumulative impacts of this and other biomass facilities pending in Massachusetts. Mass Audubon supports the responsible development of renewable energy in order to reduce GHG emissions. The analysis we request in relation to this project is needed to ensure an objective evaluation of the role and effects of biomass in the commonwealth's overall energy mix, and its effects on the ability of Massachusetts' forests to continue to support essential ecosystem service functions including carbon sequestration, habitat, air and water quality, and tourism and recreational values.

The ENF indicates that the project will alter approximately 29.5 acres of land. However, this does not appear to include impacts associated with construction of a 5.1 mile reclaimed water pipeline and .14 mile water and sewer extension. Although the reclaimed water pipeline will be constructed primarily within existing roadways, this is nevertheless part of the project footprint and should be included in the calculation of area of impact. If the area of impact exceeds 50 acres, an EIR is required. It should also be noted that supplying the needed 500,000 tons per year of woody biomass to this facility will require harvesting of wood from over 10,000 acres of land¹. The amount of supply required would demand removal of biomass from harvested sites above and beyond the rates and intensities presently conducted for sawtimber. Therefore, the footprint of such a facility is considerable, affecting land and water resources over a large area. This is one of several industrial-scale biomass burning plants proposed in western Massachusetts. These facilities could consume all of the sustainably available woody biomass from Massachusetts forests², and statements regarding availability of wood from surrounding states also need to be taken in the context of biomass facilities proposed or operating in those states. An EIR is needed to address the specific impacts of this project and to review the cumulative impacts of proposed industrial scale biomass facilities in Massachusetts on GHG emissions, forest carbon sequestration, and forest sustainability.

Biomass Supply and GHG Emissions

The ENF states that production of energy from woody biomass is "widely considered" to be carbon neutral. However, this assumption should be subject to thoughtful analysis as a fundamental part of the

¹ Based on sustainable harvesting methods recommended in Kelty, M.J., D'Amato, A.W., and Barten, P.K. 2008. *Silvicultural and Ecological Considerations of Forest Biomass Harvesting in Massachusetts*. Department of Natural Resources Conservation, University of Massachusetts, Amherst, MA.

² Ibid.

commonwealth's policies and programs on renewable energy and GHG emission reductions. The ENF cites a 1997 report from the Intergovernmental Panel on Climate Change (IPCC)³. More recent reports from the IPCC have pointed to a need to carefully consider various factors including effects on carbon sequestration and changes in land use. The 2007 IPCC report⁴ points to a need to develop carbon dioxide capture and storage systems for biomass facilities and to reduce deforestation and improve forest management. The IPCC National Greenhouse Gas Inventories Programme's *Report on Good Practice Guidance for Land Use, Land-Use Change and Forestry* (2003) addresses issues associated with land use and forestry and how these affect carbon sequestration and emissions. The carbon-neutrality of burning woody biomass for energy is being reexamined⁵. And the forest products industry has identified a number of issues regarding the effects of large scale burning of woody biomass on other uses of wood, wood costs, and forest management sustainability⁶.

Mature forests in Massachusetts sequester significant amounts of carbon, thereby offsetting some of the carbon emissions produced in the state. Cutting and burning of living trees releases carbon into the air, whereas leaving trees growing or producing durable forest products keeps carbon sequestered for long periods of time. It is a serious oversimplification to assume that cutting and burning trees from mature Massachusetts forests will be "carbon neutral." A great deal depends on the status of the stand with and without management, and the type of management employed. Even careful, partial harvesting in these forests can reduce the carbon sequestration rate of the stand for five years or more⁷. Harvard Forest has published a number of studies on forest carbon sequestration and carbon cycling⁸. The Forest Guild's report on *Climate Change, Carbon, and the Forests of the Northeast*⁹ makes recommendations regarding protection and management of forests to maintain and increase their carbon sequestration and other functions. Emissions associated with harvesting and transportation of biomass also need to be factored into carbon accounting.

The ENF states that Massachusetts forest cutting regulations ensure that material supplying the plant will be harvested sustainably. In fact, the Massachusetts Forest Cutting Practices Act and regulations (MGL Ch. 132, 304 CMR 11.00) do not ensure sustainability in harvesting practices nor do they in any way ensure that biomass harvesting and burning will be carbon neutral. As the ENF notes (p. D-4), "the vast majority of forestry operations in the region employ the method of high-grading, in which only high-value timber is harvested and the small and low-grade trees are left standing or are cut and left on the forest floor. This practice degrades the forest, reducing future timber productivity, and damaging the forest's role in protecting wildlife habitat and wetland resources." The ENF and Massachusetts Sustainable Forest Bioenergy Initiative documents go on to claim that development of biomass facilities will increase the market for lower quality wood, thereby remedying this situation. However, the economics of careful thinning of lower value wood from forests are unlikely to yield this intended result, absent additional regulatory safeguards and appropriate limits on the size and scale of biomass facilities. Mass Audubon supports amendments to the Forest Cutting Practices regulations to strengthen provisions related to forest sustainability, broadly defined to encompass the full range of ecosystem services provided by forests. The ENF also claims that material will be supplied from tops and other material typically left after a timber harvest, and that these materials would otherwise rot and contribute to GHG emissions. Yet the UMass study commissioned for the state's bioenergy initiative (Kelty et. al, 2008, cited above) noted the importance of leaving woody material on the forest floor to replenish soils. Other sources cited such as land conversion are neither sustainable nor adequate to supply the facilities proposed to date in Massachusetts.

³ Intergovernmental Panel on Climate Change. *Greenhouse Gas Inventory Reference Manual: Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, Vol. 3, Pg. 6.28, (Paris France 1997).

⁴ <http://www.ipcc.ch/index.htm>

⁵ Johnson E, *Goodbye to carbon neutral: Getting biomass footprints right*, Environ Impact Asses Rev (2008), doi:10.1016/j.eiar.2008.11.002

⁶ <http://www.risiinfo.com/technologyarchives/risi-wood-biomass-market-report-woodfiber-supply.html>

⁷ O'Donnell, F. C. 2007. *Carbon Dynamics of a New England Temperate Forest Five Years after Selective Logging*. Thesis, Harvard. 85. http://harvardforest.fas.harvard.edu/publications/pdfs/odonnell_thesis_2007.pdf

⁸ <http://harvardforest.fas.harvard.edu/publications.html>

⁹ http://www.forestguild.org/publications/research/2007/ForestGuild_climate_carbon_forests.pdf

The papers and reports cited in this letter are but a small sampling of the literature available on the subject. It is very important that energy policy in the commonwealth carefully take into account the net carbon and other effects of large scale biomass burning before embarking on construction of several industrial-scale facilities that will consume all of the sustainably available woody biomass in the state. State biomass policies, incentives, and programs should be carefully tailored to promote efficient, local use of biomass, scaled to avoid excessive demand that would undermine good forest management or require transporting material over long distances. In general, Combined Heat and Power (CHP) facilities are much more efficient than power-only facilities, and should be given preference in state programs and incentives. The role of public lands in supplying biomass material to these facilities also needs to be addressed, and must not be allowed to degrade the other public interest values in those lands including habitat; air and water quality; and recreation and tourism. The Pioneer Energy facility has received a \$250,000 pre-development grant from the Massachusetts Technology Collaborative. An EIR should be required to address the carbon neutrality and forest sustainability issues associated with this project.

Water Resources

This facility will evaporate between 500,000 and 800,000 gallons per day of water. Although the primary source is proposed to be reuse of treated wastewater, this nevertheless represents a permanent loss of water to the Deerfield watershed. The facility will also concentrate pollutants and return them to the Greenfield wastewater treatment plant. An EIR should be required to evaluate the effects of the facility in relation to federal and Massachusetts Clean Water Acts.

Alternatives Analysis

The EIR for this project should include evaluation of available and feasible alternatives that will meet the commonwealth's energy needs, including energy efficiency and conservation and other renewable energy sources that do not generate GHG emissions.

Conclusion

An EIR should be required to more fully evaluate the biomass sources and GHG effects of this project in the context of the commonwealth's goals for reducing GHG emissions and sustainably managing forests on public and private lands.

Thank you for considering these comments.

Sincerely,



E. Heidi Ricci
Senior Policy Analyst

cc: Corinne Snowdon, Epsilon Associates
David Cash, EEA
Robert O'Connor, EEA
Richard Sullivan, Commissioner, DCR
Dwayne Breger, DOER