National Alliance of Forest Owners
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Manomet Renewable Biomass Study Analysis

In June 10, 2010, the Manomet Center for Conservation Sciences issued a report on woody biomass energy in Massachusetts. The report was commissioned in November 2009 by the Massachusetts Department of Energy Resources (DOER) to help the Commonwealth determine if renewable forest biomass energy should continue to be a qualifying source under Massachusetts' renewable energy goals.

The report's findings were largely misinterpreted by the media and DOER, resulting in headlines, and biomass energy opponents, claiming that "Wood Power Emits More Carbon than Coal." This is not what Manomet and its authors concluded, causing them to release clarifying statements (see below).

While the Manomet study affirms the carbon benefits of renewable forest biomass, there are some concerns with the methodology Manomet uses. Specifically, Manomet takes a plot level, rather than whole forest or landscape, approach to assessing the carbon impact of biomass energy and uses the concept of "carbon debt" and "carbon dividend."

Clarifying Statements from Study's Authors and Reviewers

Manomet

New York Times Q&A with John M. Hagan, the president of the Manomet Center, and Thomas Walker, the study's team leader. http://green.blogs.nytimes.com/2010/06/22/q-and-a-woody-biomass-pros-and-cons/

> All three headlines fail to recognize that over time using wood for energy can lead to lower atmospheric greenhouse gas levels. While emissions from burning wood are initially higher than from fossil fuels, regrowing forests sequesters carbon, a process that eventually can yield greenhouse gas levels lower than would have resulted from continued burning of fossil fuels.

Manomet's clarifying statement (http://www.manomet.org/sites/manomet.org/files/Manomet%20Statement%20062110b.pdf)

> One commonly used press headline has been 'wood worse than coal' for GHG emissions or for 'the environment.' This is an inaccurate interpretation of our findings, which paint a much more complex picture. While burning wood does emit more GHGs initially than fossil fuels, these emissions are removed from the atmosphere as harvested forests re-grow. As discussed in more detail below, the timing and magnitude of the recovery is a function of forest productivity, land management choices, and technology and fuel characteristics.

Biomass Energy Resource Center (BERC)
(http://www.biomasscenter.org/about-berc/berc-in-the-news/256-manomet-study.html)

BERC was a partner on the study performed from the DOER. The policy actions and recommendations as expressed by the Commonwealth of Massachusetts come entirely from the Commonwealth, not the study.

The Associated Press (AP) story by Steve LeBlanc, and subsequent reporting by much of the media, stated: "A new study has found that wood-burning power plants using trees and other 'biomass' from New England forests release more greenhouse gases into the atmosphere than coal over time." This statement is incorrect. The study shows that woody biomass for energy initially has higher CO_2 emissions than the fossil fuel equivalent, but, as noted above, over time this carbon "debt" is recovered and becomes a carbon "dividend" in all scenarios analyzed. As noted below, the study also only looked at green woody biomass from forests. It did not look at "other biomass" as suggested by AP, much of which may add no new carbon to the equation (example: forest residues or other wood that would decompose quickly anyway). Finally, the headline associated with the AP report: "Mass. Study: Wood Power Worse Polluter than Coal" is not a conclusion that can be gleaned from this study, and is entirely inaccurate. Pollution includes other emissions of concern present in coal and absent in wood, such as mercury, arsenic, and sulfur dioxides that were not considered in this study.

As with any study of this kind, there are key assumptions that must be understood that affect how the study should be used and interpreted. For the most part, these are explicitly described in the study, but include:

- The study makes no distinction between carbon already in the atmospheric cycle and geologic carbon currently sequestered, and the study does not attempt to address the implications of loading the atmospheric system with new additive carbon from geologically sequestered sources (e.g., fossil fuels).
- The wood supply analysis is an ***economic and social analysis*** of how much wood is likely to be available in Massachusetts. It does not provide an assessment of how much wood is actually available on an ***ecological basis*** in Massachusetts, which is considerably more.
- Forest harvesting and carbon recovery rates are specific to Massachusetts' land base and are not applicable elsewhere.
- All harvesting examples assume "business as usual (BAU)" continues, with biomass harvesting added to the BAU case, so there is no analysis about what biomass harvesting alone might look like and no change in harvesting methods for biomass relative to other harvesting. In other words, there was no attempt to optimize the harvesting of biomass and forest management relative to CO_2.

- This study addresses CO_2 only. Mercury, arsenic, sulfur dioxide, particulates, etc. were not evaluated.
- A key assumption in calculating the relative benefits of burning wood versus fossil fuel is that in the fossil fuel examples, forests must remain forests for the fossil fuel debt to be as low as it is. When burning fossil fuels, those forests are assumed to be there storing carbon on behalf of the fossil fuels.

Pinchot Institute for Conservation
(www.pinchot.org/news/294)

> In addressing the specific question of whether wood biomass electricity can reduce carbon emissions relative to fossil fuels, the study concluded that carbon emissions per unit of electricity generated can be higher with wood, based on the more concentrated energy content of fossil fuels such as coal or natural gas. However, this conclusion is not meant to address the additional significant environmental, economic, and social effects of fossil fuel use, nor does it reflect that electric power generation from forest residuals and waste wood results in minimal if any net carbon emissions. Both of these factors are important to consider in policymaking relating to opportunities to substitute renewable energy sources for fossil fuels.