Building the Carbon Markets to Improve Forest Management

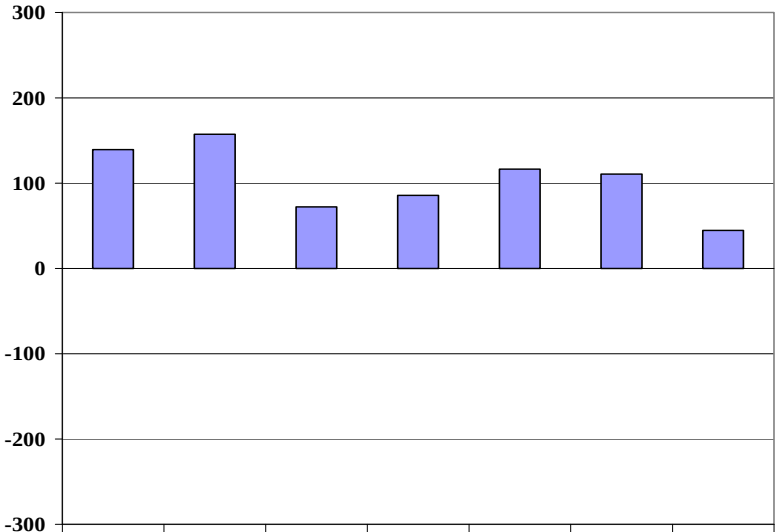
Markets for carbon emissions, normally measured in metric tons of CO_2 emissions or their equivalent in other gases, are created when companies are required to, or voluntarily agree to, limit their emissions. Emitters buy carbon allowances when it is cheaper for them to so than it is to reduce their emissions. Emitters sell allowances when they can reduce their emissions more cheaply than what the allowances are worth. Allowing trading in carbon allowances spurs creativity and reduces the overall cost of reducing atmospheric greenhouse gases.

The global markets for carbon allowances are expected to be worth more than $100 billion by the end of the year, and if the US adopts an emissions cap-and-trade scheme, more than 3 trillion by 2020 – one of the largest commodity markets in the world. Beyond reducing atmospheric greenhouse gas levels, cap-and-trade programs, and the markets for carbon allowances and offsets which result, present an opportunity to improve forest management, provide a new revenue stream for landowners; and hence, an additional incentive for keeping forests as forests. The benefits to forests could be achieved either through offset projects, or by using the proceeds from the sale of carbon allowances (essentially permits to emit carbon) to support programs which promote keeping forests as forests and forest management which sequesters additional carbon when compared with business-as-usual management. The last session of Congress considered several bills that would have established a national cap-and-trade program, and President-Elect Obama has indicated his support for dealing effectively with climate change through such a program.

The Maine Forest Service has been in the forefront of state, regional, and national discussions about how to capitalize on the opportunities that forests present for reducing atmospheric greenhouse gas levels. In these regards, the Maine Forest Service has been working with the USDA Forest Service, Environment Northeast, and the Manomet Center for Conservation Sciences, as well as the Maine Department of Environmental Protection to understand how different forest management regimes affect all of the carbon pools associated with forests. Those include, in addition to carbon stored onsite, carbon stored in forest products, carbon stored and emitted from landfills, carbon emitted when wood is burned, and the emissions avoided from substituting wood for other materials or fuels. The results of the Maine Forest Service modeling of seven different management regimes on northern hardwood poletimber stands is shown below.

The bottom line is that different forms of forest management can indeed influence atmospheric greenhouse gas levels, and that management regimes which simultaneously produce wood to meet society's needs while maintaining as intact a crown canopy as possible, will, over the next 100 years, maximize reductions to atmospheric greenhouse gas levels.

Net Carbon Impacts on Atmospheric Greenhouse Gas Levels, 2003-2095



	1	2	3	4	5	6	7
Net Carbon Impacts on Atmospheric Greenhouse Gas Levels, 2003-2095	139.37	157.37	72.29	85.66	116.42	110.55	44.76

1 No Harvest
2 Harvest only what would die
3 Grow for 35 years, then harvest limbs on tops left onsite
4 Grow for 35 years, then harvest limbs and tops used for biomass
5 Two 5 cord removals, taking the least dominant
6 Two 8 cord removals taking the least dominant
7 Three 9 cord removals taking the least dominant

As a result of this work, the Maine Forest Service was asked by the Regional Greenhouse Gas Initiative to develop recommendations for what should be included in the category of eligible forestry offset projects under RGGI. The Maine Forest Service, working with its partners, has recommended to RGGI that the category of forestry offset projects be expanded beyond afforestation to include: 1) active forest management; 2) carbon-friendly development, practices, which keep a portion of developed sites as forests; 3) urban and community forestry; and 4) certain biomass plantations.

In addition to these activities, Director Alec Giffen of the Maine Forest Service is one of the leads for the National Association of State Foresters on climate change issues and the development of carbon markets. Giffen also serves on the Forest Climate Working Group – a national group of stakeholders working on this issue, and the American National Standards Institute group assembled by the American Forest & Products Association, who are also working to develop a National Standard.