Colby

February 14, 2020

TO: Natural and Working Lands Working Group of the Maine Climate Council

FR: Annika Martell '20 and Will Seivwright '21
      Carbon Forest Team of the Colby Laboratory for Economic Studies (CL4ES)

RE: Thinking About Forest Carbon in Maine   Website: web.colby.edu/cl4es/ForestCarbon

On September 23rd, 2019 Maine's Governor Janet Mills issued an executive order pledging the state to be carbon neutral by 2045. Definitions of carbon neutrality differ and the underlying concepts and technical issues involved are complex. Based on our interpretation of the discussions of the Climate Council at its meeting on January 29th, 2020 we interpret the intent of the Governor's pledge to carbon neutrality as in-state carbon sequestration completely offsetting measured in-state carbon emissions by 2045. Recent reports show that Maine is on track to reach this goal through a combination of emission reductions and actions designed to increase carbon sequestration. However, new and innovative proposals will be necessary to keep us on the same trajectory. Maine's forested land covers about 90% of the state and can play a big role in achieving the Governor's goal of carbon neutrality.

The wood products and forestry industries have been an important asset to the state of Maine throughout its history. Manufactured wood products as well as forests are great ways to store carbon for many decades. Trees hold much of their carbon in the roots and trunks, therefore old growth forests are large pools of carbon – operating at close to equilibrium between growth and decomposition. However, when well maintained, any forest has the potential to sequester carbon above its current levels. Cleaning out decomposing debris and overgrowth alongside selective harvesting gives the existing forest room to grow, and therefore the ability to sequester more carbon. Because 94% of Maine's forests are privately owned, they run the risk of market failure with respect to achieving the Governor's goal of carbon neutrality. Thus, there is a need for policy initiatives designed to support the wood products and forestry industries that address the potential for such market failures in pursuit of the goal of carbon neutrality.

Our CL4ES Forest Carbon Team is developing a website to provide basic information about important terms and concepts related to policy initiatives that could help Maine achieve a goal of carbon neutrality. This digital storytelling of Maine's forest carbon ecosystem is meant to serve as an educational resource for subsequent policy proposals. Over the coming weeks, as we continue to build out this telling of Maine's forest carbon story, we plan to provide additional detail on some of the opportunities available to policy professionals and members of Maine's wood products and forestry industries to work together in achieving carbon neutrality in Maine. Here's a brief overview of the topics we're working on.

Carbon Offsets – One way to achieve carbon neutrality would be to purchase offsets, or 'credits', owned by institutions, land owners, or government entities for sequestered carbon. Colby College, JetBlue and Microsoft are three institutions that offset their carbon emissions through the purchase of

offsets. Paying for all of Maine's currently estimated 15.63 million metric tonnes of CO_2 emissions would cost the state approximately \$109 million annually at current offset prices.

Emissions Regulations – One approach to becoming carbon neutral is to regulate total allowable emissions by motor vehicles and industries in Maine. This approach can be politically unpopular, difficult to monitor, costly, and risks negative externalities for workers and employers in Maine.

Carbon Markets – This strategy is available for forests in Maine through the Regional Greenhouse Gas Initiative (RGGI) which includes many of the New England states in an emissions cap and trade carbon market for electricity generators. California has also implemented a carbon market, one in which carbon is 'priced' at \$15 per metric tonne. This approach has achieved success in reducing carbon emissions, is more lucrative, but requires a lot of planning and policy infrastructure.

Carbon Taxes – Taxes on carbon emissions take a variety of forms and can be enacted in a way that is both revenue neutral and a boost to the State's economy. British Columbia recently enacted a comprehensive system of carbon taxes that has proven to be quite successful.

Property Tax Incentives – Maine's Tree Growth Tax law is an example of one policy that currently exists that encourages small wood lot owners to set aside their forested lands from development and encourages responsible forest management practices. While the law may provide a framework for thinking about tax subsidies that promote carbon sequestration, the provisions in the current law are not well-aligned with this goal.

Income Tax Incentives – The Federal government currently offers corporations tax breaks for offsetting their carbon emissions and there are discussions of expanding this program. In terms of a Maine state income tax incentive, we offer up an illustrative proposal designed to provide small woodlot owners (<100 acres) with an incentive for sequestering carbon through responsible forest management practices. Briefly, this voluntary program would have participating land owners work with a Licensed Maine Forester to conduct a management plan focusing on a comprehensive forest carbon inventory of their property. Part of this management plan would include responsible land stewardship practices designed to sequester a specific target amount of carbon for the next 50 years. The landowner would then get an annual income tax credit for each metric tonne of CO_2 equivalent sequestered. In addition to the direct income subsidy for woodlot owners, some of the additional benefits of this proposal include job growth and skills development for Licensed Maine Foresters and positive investments in the wood products and logging industries through sustainable forestry practices. This option could also provide a source of local carbon credits as Maine's forest owners share in both the responsibilities and benefits of keeping Maine carbon neutral.

In closing, we would like to offer the resources of the CL4ES, including student engagement and educational outreach, to the Natural and Working Lands working group in pursuit of the broader goals for the Maine Climate Council.

Members of the CL4ES Carbon Forest Team include:

Annika Martell '20	Michael Donihue, Professor of Economics
Will Seivwright '21	Jennifer Meredith, Assistant Professor of Economics
Audrey Vaver '22	Tom Tietenberg, Emeritus Professor of Economics
Denison Gallaudet, Maine Sierra Club	