National Alliance of Forest Owners
Investing in the Future of America's Forests

Carbon Mitigation Benefits of Working Forests

Working forests are fundamental to reducing overall greenhouse gas (GHG) concentrations in the atmosphere.

- Trees absorb carbon dioxide from the air through photosynthesis and store it in the roots, stem, limbs and leaves of the tree as part of natural tree growth. This process, called carbon sequestration, occurs most rapidly in growing trees and slows down as trees age. Sequestered carbon is stored in the forest in trees, soil, and the wood debris on the forest floor and in long-lasting products made from harvested wood.
- Forests in the United States, 57% of which are privately owned[1], offset about 15% of annual U.S. emissions from burning fossil fuels[2]. According to the EPA, this amount represents 86% of the carbon sequestered by all land uses[2].

Working forests long have been recognized as a source of real and verifiable reductions in greenhouse gases and a cost-effective source of industrial GHG offsets.

- The United Nations' 2007 Intergovernmental Panel on Climate Change ("IPCC") highlights forest management as a primary tool to reduce GHG emissions. The IPCC states that, "In the long term, a sustainable forest management strategy aimed at maintaining or increasing forest stocks, while producing an annual sustained yield of timber, fiber or energy from the forest, will generate the greatest mitigation benefit."
- Similarly, the EPA has identified responsibly managed forests as one of five key "groups of strategies that could substantially reduce emissions between now and 2030."[3]
- Using the sequestration and storage capabilities of responsibly managed working forests in an industrial emissions offset marketplace can reduce the overall cost of achieving mandatory emissions reduction targets. Thus, most established GHG trading regimes credit forestry activities.
- For example, trading platforms and registries that recognize forest management include California's Climate Action Registry, the Chicago Climate Exchange, and the Voluntary Carbon Standard, while the Regional Greenhouse Gas Initiative and the Western Climate Initiative both intend to consider forest management offsets in the very near future.

Wood removed from working forests can provide a reliable source of secure, domestic low-carbon energy, including electricity, heat and transportation fuel.

- The EPA has concluded that there is "'scientific consensus'… that the carbon dioxide emitted from burning biomass will not increase CO2 in the air if it is done on a sustainable basis."[4] This position is supported by the IPCC, the Energy

Information Administration, the World Resources Institute and other credible scientific bodies.

- Wood sources of renewable transportation fuels significantly reduce GHGs. The Department of Energy determined that for every BTU of gasoline replaced by cellulosic ethanol, the total lifecycle GHG emissions that would have been produced from that BTU of gasoline would be reduced by 86 percent.

Products like building materials, furniture and other consumer goods made of wood harvested from working forests are an important means of storing carbon over long periods.

- The EPA estimates that the amount of carbon stored annually in forest products in the U.S. is equivalent to removing more than 100 million tons of CO2 from the atmosphere every year.
- Research on private forestlands has shown that more intensively managed forests and the products they produce can sequester and store as much as 150% more tons of carbon per acre than less intensively managed forests.
- Independent studies show that wood products used in construction store more carbon and use less fossil fuels than other materials, like steel and concrete. Wood framing in a home produces 26% less net CO2 emissions than steel and 31% less than concrete.

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[1] Society of American Foresters. *State of America's Forests*. 2007.
[2] U.S. Environmental Protection Agency. 2009. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007.*
[3] U.S. Environmental Protection Agency. July 30, 2008. *Regulating Greenhouse Gas Emissions Under the CAA*. 73 *Federal Register*. Pages 44354 and 44405.
[4] U. S. Environmental Protection Agency Combined Heat and Power Partnership. September 2007. *Biomass Combined Heat and Power Catalog of Technologies*. Page 96. Retrieved from the Internet at http://www.epa.gov/chp/documents/biomass_chp_catalog.pdf on March 11, 2010.