

There is Widespread Recognition of Forest Products Manufacturing Residuals as Carbon Neutral

- U.S. Environmental Protection Agency, Memorandum from Janet G. McCabe, Acting Assistant Administrator, Office of Air and Radiation, to Air Division Directors, Regions 1-10 (Nov. 19, 2014) (“Information considered in preparing the second draft of the Framework, including the [Science Advisory Board] peer review and stakeholder input, supports the finding that use of waste-derived feedstocks and certain forest-derived feedstocks are likely to have minimal or no net atmospheric contributions of biogenic CO₂ emissions, or even reduce such impacts, when compared with an alternative fate of disposal.”) (p. 2)
- U.S. Environmental Protection Agency, *Draft Framework for Assessing Biogenic CO₂ Emissions from Stationary Sources* (Nov. 19, 2014) (“The information in this appendix, including example calculations of alternative fate-related biogenic emissions, supports that a 0 or negative [biogenic] assessment factor for black liquor may be reasonable.”) (Appendix D, p. D-22); (calculating negative biogenic assessment factors for black liquor and stating that “avoided emissions associated with disposal of black liquor as compared with the current management practice (burning for energy and chemical recovery in a recovery furnace) resulted in hypothetical example [biogenic assessment factors] BAFs ranging from different negative values to 0, depending on the treatment method.”) (Appendix D, p. D-31)
- Dr. Timothy Searchinger and Ralph Heimlich “Avoiding Bioenergy Competition for Food Crops and Land.” World Resources Institute (2015) (listing “black liquor from paper making” as “advisable” sources of biomass energy use) (p. 22 and Table 3, p. 24)
- Dr. Timothy Searchinger, Dr. Steven Hamburg, et al., “Fixing a Critical Climate Accounting Error,” *Science* (Oct. 22, 2009) (“Instead of an assumption that all biomass offsets energy emissions, biomass should receive credit to the extent its use results . . . from the use of residues or biowastes.”)
- National Council for Air and Stream Improvement, Greenhouse Gas And Fossil Fuel Reduction Benefits of Using Biomass Manufacturing Residuals for Energy Production in Forest Products Facilities, Technical Bulletin No. 1016 (rev. Aug. 2014) (“. . . each year’s use of manufacturing residuals, including black liquor, in the U.S. forest products industry avoids the eventual release of approximately 181 million tonnes of CO₂E.”)
- Caroline Gaudreault and Reid Miner, *Temporal Aspects in Evaluating the Greenhouse Gas Mitigation Benefits of Using Residues from Forest Products Manufacturing Facilities for Energy Production*. *Journal of Industrial Ecology* (Dec. 2015), at 1,004-05 (“[The ongoing use of manufacturing residues for energy in the forest products industry has been yielding net benefits for many years. . . . [T]he use of biomass residues from forest products manufacturing, including black liquor, to produce energy in the U.S. forest products industry for 1 year avoids, over a 100-year period, 181 million t CO₂-eq/yr. The avoided disposal of the forest products

manufacturing residues alone (i.e., ignoring [fossil fuels] substitution and chemical recovery benefits) results in a GHG benefit of approximately 5 million t CO₂-eq/yr.”)

- Reid Miner, Robert Abt, et al., “Forest Carbon Accounting Considerations in U.S. Bioenergy Policy,” Journal of Forestry (Aug. 29, 2014) (“. . . if mill residues were not used for energy, most of these materials . . . would be wastes that would be either incinerated, in which case the atmosphere would see the same biogenic CO₂ emissions as if the material had been burned for energy, or disposed in landfills . . . [in which case] the net impact of burning for energy on biogenic emissions, in terms of warming (i.e., CO₂ equivalents), can actually be less than zero because of the warming potency of the methane generated in landfills.”)
- U.S. Environmental Protection Agency, “Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Final Clean Power Plan Rule,” 80 Fed. Reg. 64,661, 64,885-86 (Oct. 23, 2015) (“The EPA recognizes that the use of some biomass-derived fuels can play an important role in controlling increases of CO₂ levels in the atmosphere. The use of some kinds of biomass has the potential to offer a wide range of environmental benefits, including carbon benefits. . . . With regard to assessing qualified biomass proposed in state plans, the EPA generally acknowledges the CO₂ and climate policy benefits of waste-derived biogenic feedstocks and certain forest- and agriculture-derived industrial byproduct feedstocks, based on the conclusions supported by a variety of technical studies, including the revised *Framework for Assessing Biogenic Carbon Dioxide for Stationary Sources*.”)
- Linda A. Joyce (U.S. Forest Service), Steven W. Running (U. of Montana), et al., Climate Change Impacts in the United States: The Third National Climate Assessment, Ch. 7: Forests, U.S. Global Change Research Program, doi:10.7930/J0Z60KZC (2014) (“Forest biomass energy could be one component of an overall bioenergy strategy to reduce emissions of carbon from fossil fuels, while also improving water quality, and maintaining lands for timber production as an alternative to other socioeconomic options.”) (p. 182)
- U.S. Environmental Protection Agency, Accounting Framework for Biogenic CO₂ Emissions From Stationary Sources (Sept. 2011) (“For residues from [pulp and paper] mills . . . the assumption is that if not burned for energy at this plant, the feedstock would have been burned or decayed elsewhere, with or without energy production, resulting in the same level of emissions. Thus, burning it for energy is avoiding the same emissions elsewhere . . .”) (pp.99-100).
- Dr. Roger A. Sedjo, Resources for the Future, “Carbon Neutrality and Bioenergy: A Zero-Sum Game?” RFF DP 11-15 (April 2011) (noting that both sides in the carbon neutrality debate recognize that “some biomass, such as dead wood and forest debris, can constructively be used for bioenergy, since it will otherwise release carbon through natural decomposition . . . thus no net emissions result from its use as energy”) (p. 3)

- Dr. Bruce Lippke, Professor Emeritus, University of Washington School of Forest Resources, et al., Letter to Congress from Forest Scientists (July 20, 2010)
("equating biogenic carbon emissions with fossil fuel emissions . . . is not consistent with good science and, if not corrected, could stop the development of new emission reducing biomass energy facilities. It also could encourage existing biomass energy facilities to convert to fossil fuels or cease producing renewable energy. This is counter to our country's renewable energy and climate mitigation goals.")