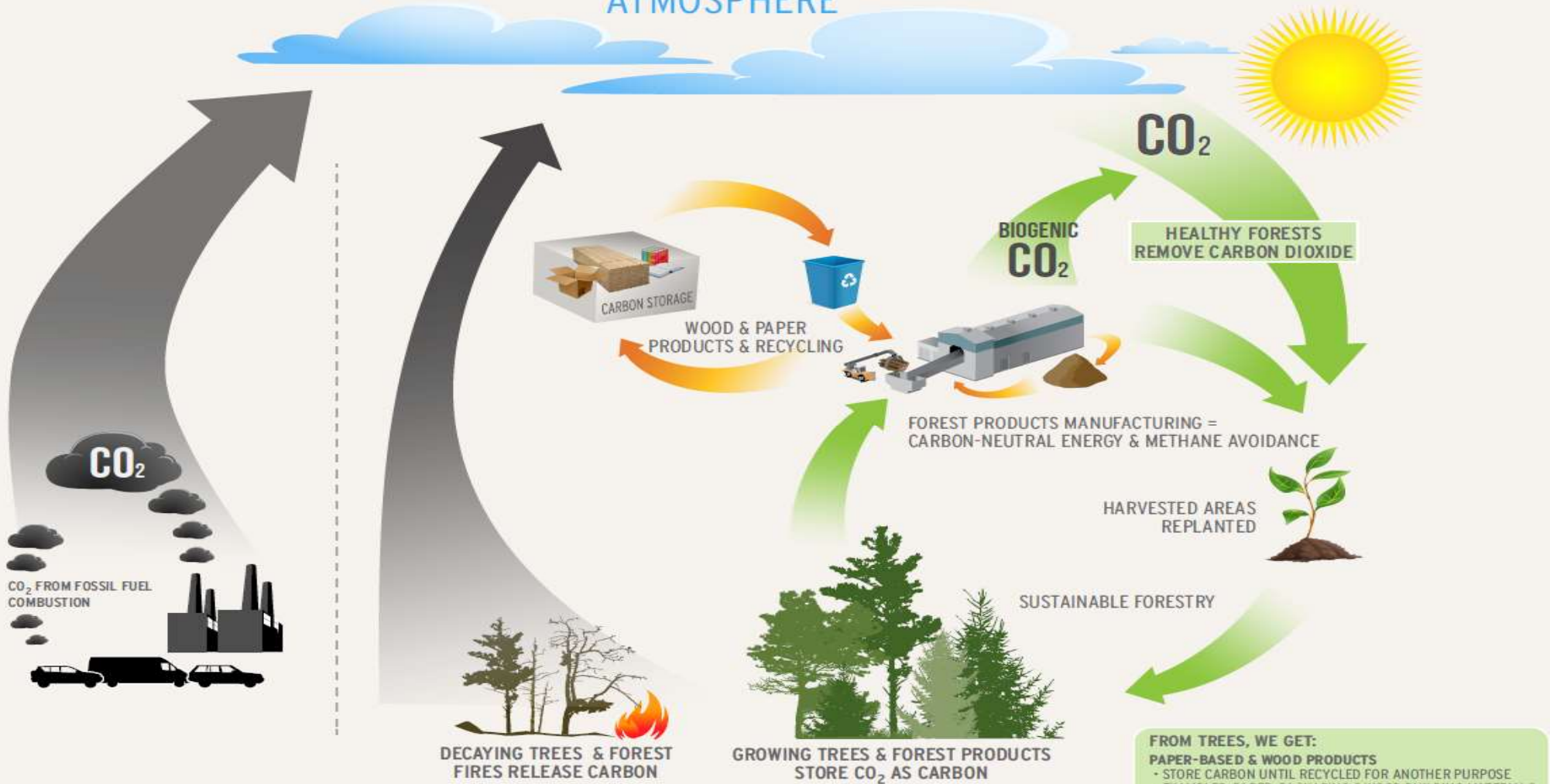


Bioenergy Production of Paper and Wood Products Manufacturers

Council of Industrial Boiler Owners

Wednesday, June 9, 2021, 3:15 pm ET

ATMOSPHERE



CO₂ FROM FOSSIL FUEL COMBUSTION

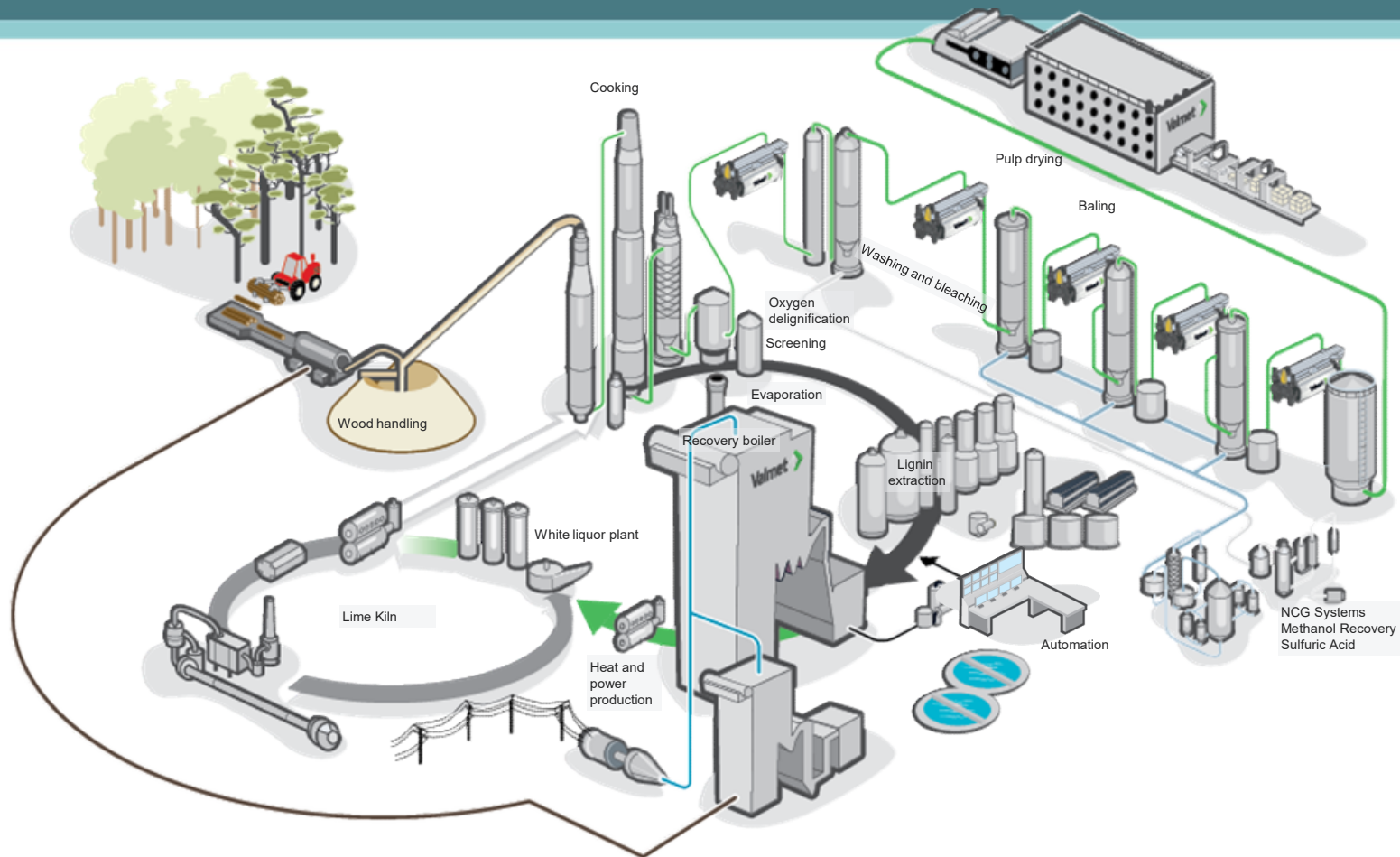
DECAIVING TREES & FOREST FIRES RELEASE CARBON

GROWING TREES & FOREST PRODUCTS STORE CO₂ AS CARBON

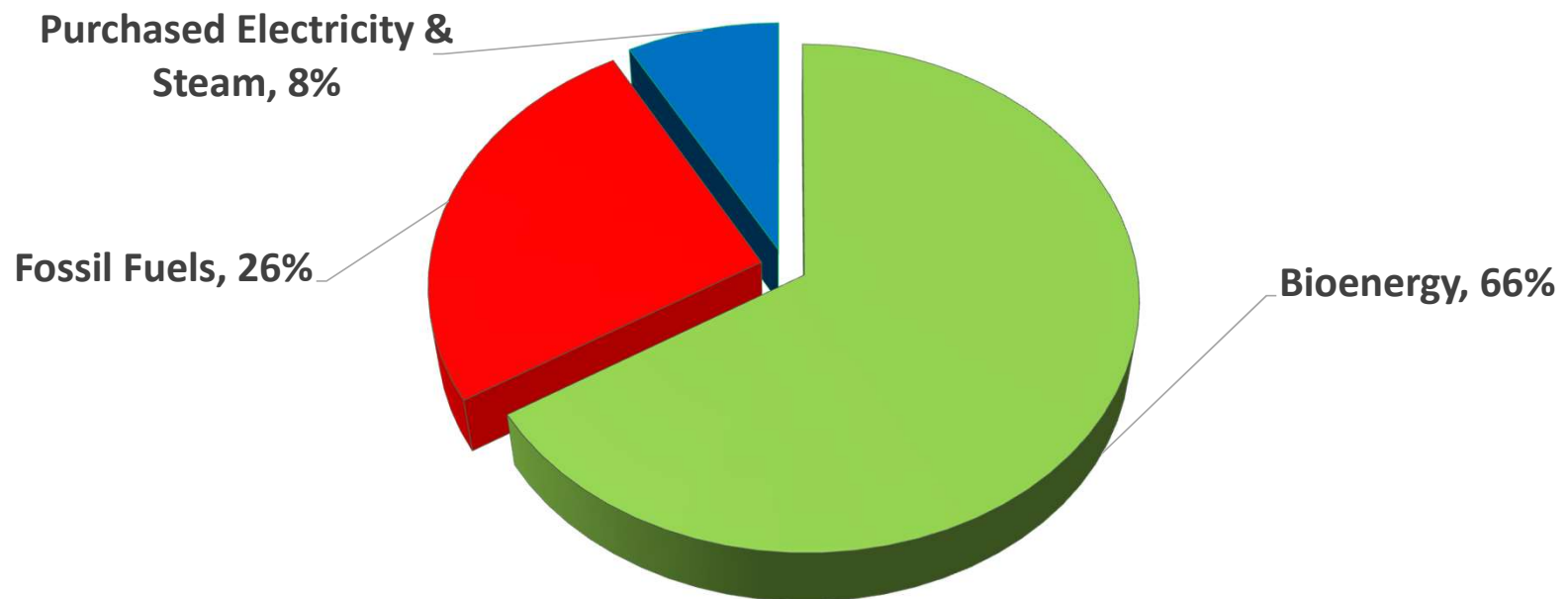
FROM TREES, WE GET:
PAPER-BASED & WOOD PRODUCTS
- STORE CARBON UNTIL RECYCLED FOR ANOTHER PURPOSE
- EXAMPLES: PAPER, PACKAGING & WOOD BUILDING MATERIALS
CARBON-NEUTRAL ENERGY
- WOOD RESIDUALS FROM THE MANUFACTURING PROCESS
- USING THESE FUELS HARNESSSES ENERGY VALUE & AVOIDS METHANE CREATION FROM DISPOSAL (24X MORE POTENT GHG)
- EXAMPLES: BARK, SAWDUST, LIQUID BIOMASS

FOREST PRODUCTS INDUSTRY ROLE IN A SUSTAINABLE CARBON CYCLE

Bioenergy Production at Integrated Pulp and Paper Mill – Including the Pulping Liquor Cycle

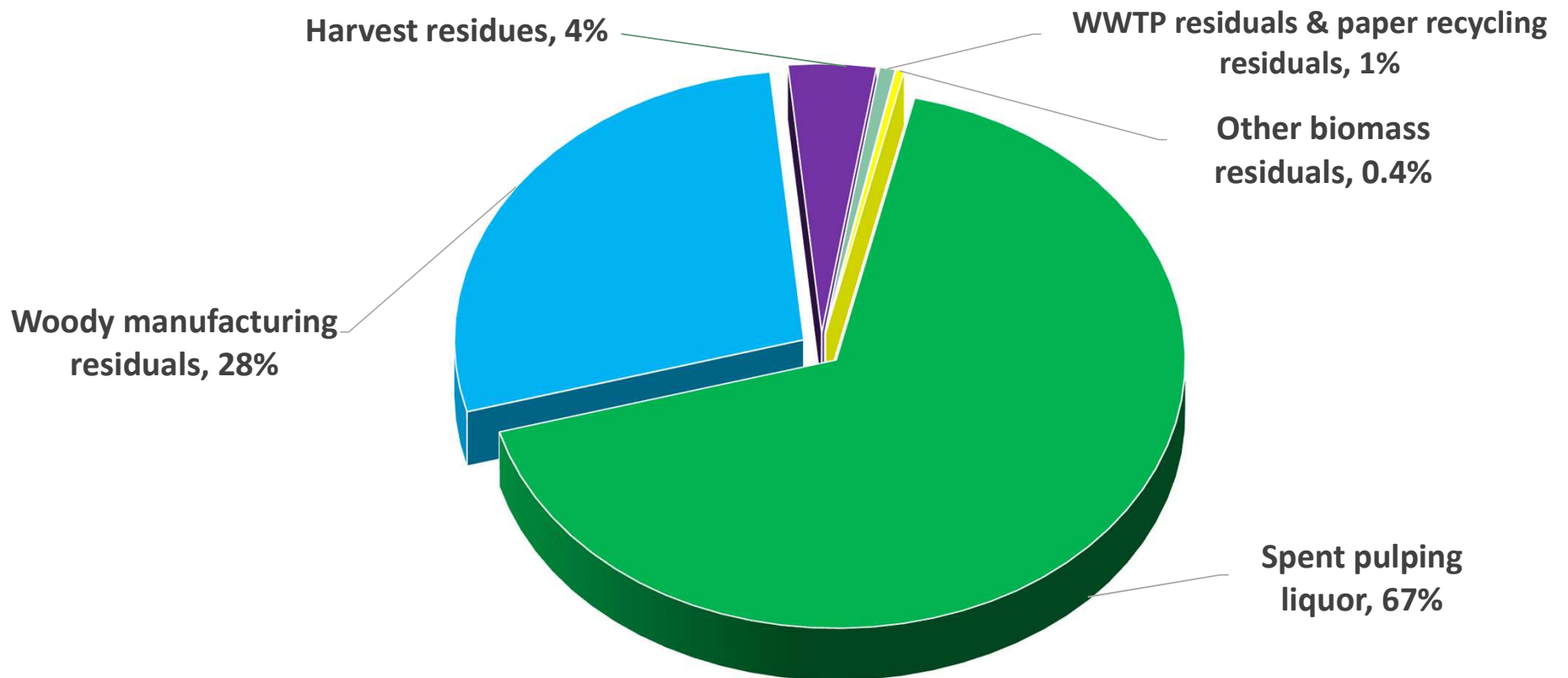


Total Energy of Paper and Wood Products Manufacturers



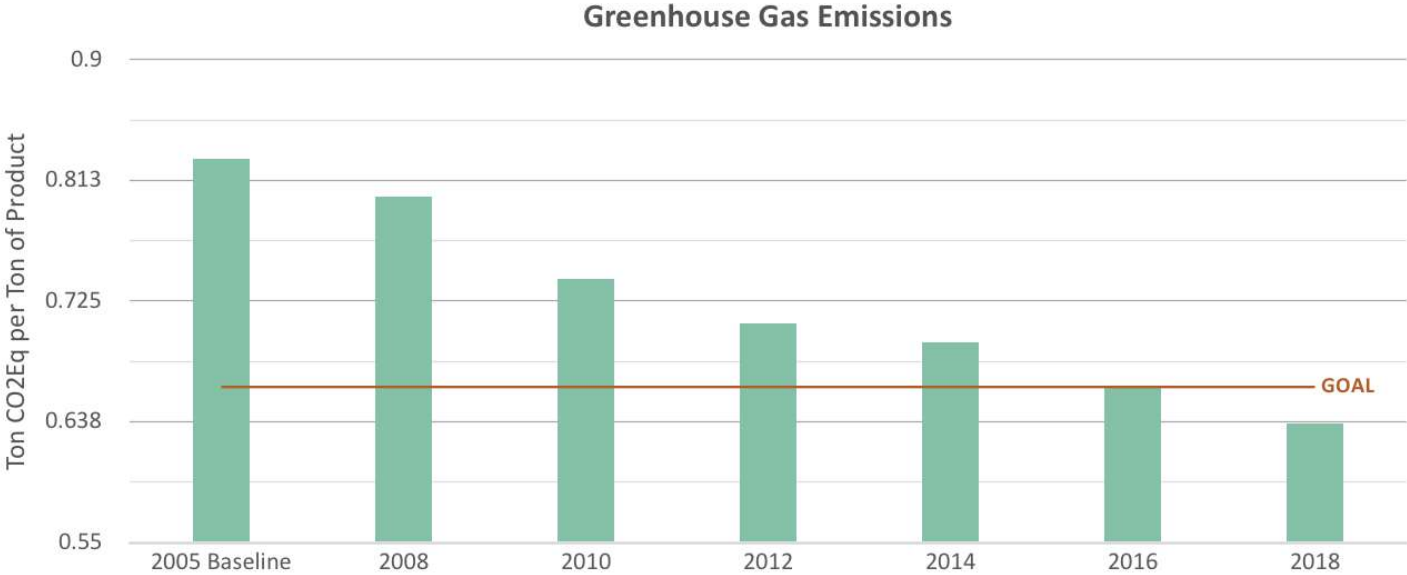
* 2018 data, American Forest & Paper Association and American Wood Council members

Bioenergy of Paper and Wood Products Manufacturers



* 2018 data, American Forest & Paper Association and American Wood Council members

Greenhouse Gas Emissions: 23.2% reduction (Goal Surpassed)



Examples of Academic Support for the Carbon Benefits of Forest Products Bioenergy

- Timothy Searchinger, Steven Hamburg et al., “Fixing a Critical Climate Accounting Error,” *SCIENCE* (2009) (questioning unqualified assumption of biomass carbon neutrality, but clearly acknowledging among other things that “. . . biomass should receive credit to the extent its use results from . . . residuals or biowastes.”)
- 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.”)
- 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” source of bioenergy) (p. 22 and Table 3, p. 24)
- 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.”)

NCASI Study on Carbon Benefits of Forest Products Manufacturing Residuals (2014)

- Using forest products manufacturing residuals for bioenergy avoids emissions from disposal (e.g., methane from landfilling, CO₂ from incineration), and displaces fossil fuels and enables recycling pulping chemicals.
- Accounting for fossil fuel displacement and avoided emissions associated with disposal, the use of biomass residuals each year avoids the emission of approximately 181 million metric tons of CO₂e. (Equivalent to removing about 35 million cars from the road.)
- Even ignoring carbon benefits of fossil fuel displacement and pulping chemicals recovery, the avoided disposal of the forest products manufacturing residues alone results in a GHG benefit of approximately 5 million t CO₂-eq/yr. (Equivalent to removing about 1 million cars from the road).

McCabe Memo and EPA Revised *Framework for Biogenic CO₂* (Nov. 2014)

- Memorandum from Janet McCabe, EPA Acting AA, OAR, to 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)
- EPA, *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 BAFs [biogenic assessment factors] ranging from different negative values to 0, depending on the treatment method.”) (Appendix D, p. D-31)

EPA Clean Power Plan (2015)

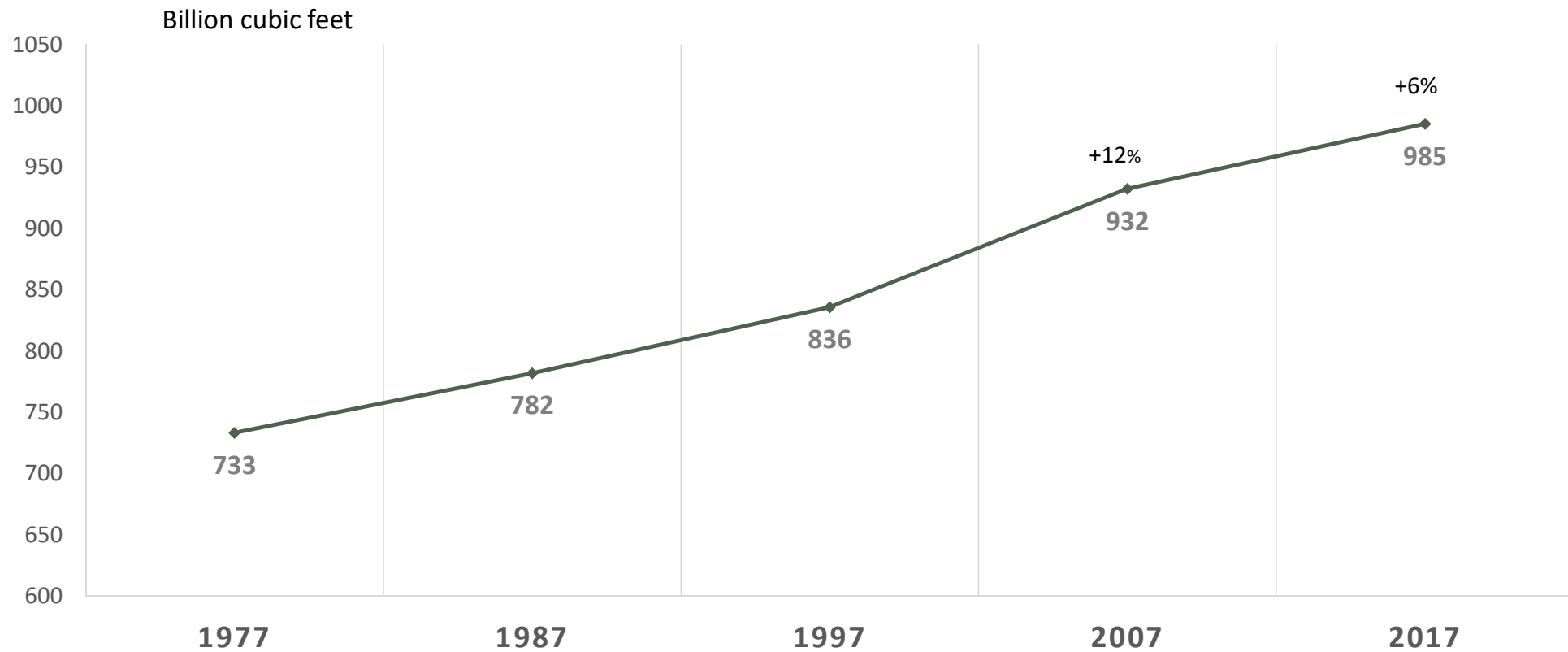
“The EPA recognizes that the use of some biomass-derived fuels can play an important role in controlling increases of CO₂ levels in the atmosphere. The use of some kinds of biomass has the potential to offer a wide range of environmental benefits, including carbon benefits. . . . With regard to assessing 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*.”) Final Clean Power Plan Rule,” 80 Fed. Reg. 64,661, 64,885-86 (Oct. 23, 2015)

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Biden Administration, Nationally Determined Contribution

- Biden Administration NDC: U.S. economy-wide target to reduce our net greenhouse gas emissions by 50-52% below 2005 levels by 2030.
- Places U.S. on pathway to achieve President's net-zero by 2050 goal.
- Biomass energy emissions are measured in the forest and land sector to calculate the U.S. NDC, rather than at the point of combustion.
 - (U.S. Environmental Protection Agency, "U.S. Greenhouse Gas Emissions and Sinks: 1990–2019," EPA-430-R-21-005 (April 14, 2021), p. ES-14, n. 16.)
- Thus, if U.S. forest carbon stocks are stable or rising at the national level, biomass is carbon neutral.
- U.S. forest carbon stocks have been rising for many years.

Net Volume of Growing Stock on U.S. Timberlands



Source: U.S. Forest Service

Need for Regulatory Certainty on Forest Products Manufacturing Bioenergy

- Over 11 years since EPA's GHG Tailoring Rule (2010), there still is a lingering cloud of regulatory uncertainty over the bioenergy produced by paper and wood products manufacturers.
- Raises risks for about \$3 billion investment in renewable energy production made by the forest products industry in the last decade, plus about \$30 billion of biomass energy system assets at mills.
- Bioenergy = 2/3 of our current energy needs, from biomass that otherwise could be wasted (i.e., "anyway emissions") – and if landfilled, turn into methane (25X more potent climate-forcing agent than CO₂).
- Absent carbon neutrality, our future potential GHG exposure triples in a carbon constrained world, threatening our competitiveness in our global marketplace, as well as our future.

Need for Regulatory Certainty (con't)

- The reputation of forest products depends significantly on their production largely from carbon neutral bioenergy. Wood products also sequester carbon compared with other materials. Distributors and consumers are demanding products with smaller carbon footprints. EPA is a powerful and trusted source of information, and its determination on the carbon benefits of our bioenergy is essential.
- Classification of biomass as carbon neutral reinforces biomass' renewability attributes, important for other programs such as State renewable portfolio standards (RPS) or climate programs. Mills sell valuable renewable energy credits into RPS programs.
- The international marketplace values environmentally beneficial products, so affirming forest products are derived from carbon neutral bioenergy would help U.S. forest products succeed in a highly competitive global market.
- No other country in the world treats biogenic emissions from forest products manufacturing residuals as a GHG; indeed, competitors in Europe are rewarded with renewable energy credits. U.S. policy is a global outlier.
- Counting biogenic CO₂ emissions like fossil fuel GHGs when evaluating control options under BACT permit reviews adds unnecessary complexity, delay and uncertainty to an already burdensome permit process to upgrade facilities even as other pollutants go through PSD review. Successful businesses in the current economy must be able to meet quickly changing market demands.
- Failure to recognize the carbon benefits of our bioenergy undermines the ability to achieve net-zero by 2050; we need clear signals in the marketplace that our bioenergy is a fuel of the future.

Climate Policy Implications

- As an Intergovernmental Panel on Climate Change (IPCC) report notes:

“In the long term, a **sustainable forest management strategy** aimed at maintaining or increasing forest carbon stocks, **while producing an annual sustained yield of timber, fiber, or energy from the forest, will generate the largest sustained mitigation benefit.**¹” (Emphasis added).

1) Climate Change 2007 – Mitigation of Climate Change. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, Chapter 9 (2007), at p. 543.

What's at Stake

- U.S. paper and wood products manufacturers annually generate about 127 million metric tons of CO₂ from bioenergy.
- If these biogenic carbon emissions were not treated as carbon neutral, greater reductions of GHG emissions from the regulated community -- by about 5% -- would be necessary to meet the Administration's economy-wide goal of a 50-52% GHG reduction by 2030 relative to 2005 levels.
- If the cost of carbon is \$100 per metric ton as some experts anticipate, reducing the additional 127 million metric tons would cost \$12.7 billion annually.

QUESTIONS/COMMENTS?

- Thank you!