

Air Pollution Research in the Forest Products and Bioenergy Industries



RTI International has provided decades of technical leadership in the development and implementation of air pollution regulations for the forest products sector. RTI is on the forefront of bioenergy industry carbon accounting, a major issue for forest products facilities.

Overview

RTI has more than 20 years of experience related to air pollution research in the forest products industries. We have in-depth knowledge of forest product industrial processes that lead to air pollutant emissions and their mitigation measures. We have specialized experience with carbon accounting issues in the forest products and bioenergy industries. Our research includes

- Pulp and paper mills
- Wood building products surface coating facilities
- Plywood and composite wood products facilities
- Lumber producers
- Wood furniture manufacturing facilities
- Wood treatment operations
- Cellulose products producers
- Bioenergy industries and facilities that consume biomass energy

Areas of Expertise

RTI offers research assistance related to the forest products and bioenergy sectors for federal, state, and local governments as well as private organizations. We have conducted research to assist the U.S. Environmental Protection Agency (EPA) in the development and implementation of air emissions regulations for the forest products sector, and we have assisted the U.S. Department of Energy's Energy Information Administration (EIA) in the analysis of biomass energy.

RTI conducts information collection requests (surveys); prepares emissions inventories; and researches technologies for mitigation of greenhouse gases (GHG), air toxics, and criteria air pollutants such as particulate matter (PM), nitrogen oxides (NO_x), and sulfur dioxide (SO₂).

We tabulate and analyze emissions test data and develop emission factors. We identify and characterize the performance of air pollution mitigation measures and determine their cost-effectiveness.

Project Highlights

Greenhouse Gas Reporting Program (GHGRP). RTI provides support to the U.S. EPA for implementation of the GHGRP, which collects annual GHG emissions data from the pulp and paper industry. We review and verify submitted GHG data and assist in preparation of data summaries to inform various programs.

Pulp and Paper Sector Rule Reviews. RTI assisted the U.S. EPA with information gathering and analyses to support Clean Air Act (CAA)-required regulatory reviews of three federal air emission standards for the pulp and paper industry: the National Emission Standards for Hazardous Air Pollutants (NESHAP) for pulp and paper production, the NESHAP for chemical recovery combustion sources, and the new source performance standards (NSPS) for kraft pulp mills. We developed a three-part, multipollutant

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information collection request (ICR), which pulp and paper producers completed in early 2011. We compiled the ICR data into databases to support residual risk and technology reviews (RTR) of the two NESHAP and a review of the NSPS. Regulatory reviews of the pulp and paper production NESHAP and kraft pulp mill NSPS were completed in 2012 and 2014, respectively.

Accounting Framework for Biogenic CO₂ Emissions from Stationary Sources. RTI provided research assistance for the U.S. EPA's biogenic CO₂ assessment framework published for Science Advisory Board review in 2014. We conducted literature reviews on national and international GHG accounting methodologies at the facility, region, and country levels. RTI's agricultural economists performed modeling using a future anticipated baseline approach; evaluated existing sustainability and certification programs; and gathered information pertinent to biomass supply, waste-derived feedstocks, agricultural and forest feedstock storage losses, industrial by-products, and biomass energy projections.

Developing a Comprehensive Understanding of GHG from U.S. Bioenergy Facilities. RTI compiled information on U.S. bioenergy industries and their biogenic CO₂ emissions, including electric utilities burning biomass, stationary combustion (e.g., industrial boilers, process heaters, incinerators burning biomass), pulp and paper, lumber and wood products, waste-to-energy, manure management, wastewater treatment, landfills, fermentation processes (e.g., ethanol), and wood pellet manufacturing. The project studied the implications of different biogenic CO₂ accounting methodologies under various EPA climate change programs, such as the mandatory GHGRP and the prevention of significant deterioration (PSD) and Title V permitting programs. Work included synthesis of hundreds of public comments, collection of references, support for U.S. EPA's 2011 PSD/Title V deferral rule and associated permitting guidance, public hearing coordination, and assistance with developing accounting methodologies for selected bioenergy sectors such as landfills and solid waste incineration.

Wood Furniture Manufacturing RTR. RTI assisted the U.S. EPA in development of the CAA-mandated RTR for wood furniture manufacturing operations. This project involved gathering data; evaluating surface coatings, application equipment, and control techniques; analyzing regulatory options, including environmental and energy impacts; and drafting federal register documents.

Past Projects

- Plywood and Composite Wood Products Manufacturing NESHAP (U.S. EPA)
- Industrial Sector Integrated Solutions Modeling for the Pulp and Paper Industry (U.S. EPA)
- Technical Support for Pulp and Paper Multi-Pollutant Initiative (U.S. EPA)
- Analysis of Biomass Energy Consumption in the Forest Products Industry (U.S. EIA)
- Pollution Abatement Cost Expenditures Survey Project (U.S. EPA and Bureau of Census)
- Pulp and Paper Combustion Sources NESHAP (U.S. EPA)
- Miscellaneous Cellulose Products Manufacturing NESHAP (U.S. EPA)
- Wood Building Products Surface Coating NESHAP (U.S. EPA)

More Information

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