

U.S. FOREST PRODUCTS INDUSTRY EMISSIONS DETAILED IN REPORT

By Rebecca Wallace

Public Affairs Specialist, Forest Products Laboratory

The first comprehensive evaluation of greenhouse gas impacts from the U.S. forest products industry has been released in an *Environmental Science and Technology* article titled “Greenhouse Gas and Carbon Profile of the U.S. Forest Products Industry Value Chain.”

As a joint effort of the USDA Forest Service’s Forest Products Laboratory (FPL) and Northern Research Station (NRS) office at Durham, New Hampshire, and the National Council for Air and Stream Improvement, Inc. (NCASI), in Raleigh, North Carolina, a greenhouse gas and carbon accounting profile was developed for the U.S. forest products industry value chain for 1990 and 2005.

Researchers estimated net atmospheric fluxes of CO₂ and other greenhouse gases using a variety of



methods and data sources. Major greenhouse gas emission sources include direct and indirect (from purchased electricity generation) emissions from manufacturing and methane emissions from landfilled products.

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WOODY BIOMASS UTILIZATION PROMOTING HEALTHY FORESTS AND RURAL ECONOMIES

By James T. Spartz,

Public Affairs Specialist (SCEP), Forest Products Laboratory

Federal grants support Forest Service Wildland Fire Management efforts aimed at reducing wildfire risks on National Forest land and providing economic incentives to rural communities.

U.S. Secretary of Agriculture Tom Vilsack recently announced the award of more than \$4.2 million in grants to 13 small businesses and community groups developing innovative renewable energy projects and new product development utilizing woody biomass from hazardous fuel reduction projects.

“Energy derived from woody biomass, switch-grass, and other sources has enormous potential benefits for reducing greenhouse gas emissions; developing clean, home-grown energy; and providing economic opportunities for rural America,” Vilsack said. “Markets for woody biomass can also bolster forest restoration activities on both public and private lands, improving the ecological health of our forests and reducing the impacts of global climate change.”



In June, Vilsack released a report providing a road-map on how America can meet the Renewable Fuel Standard. All regions can contribute to meeting America’s long-term energy needs, and the USDA Forest Service released its strategic direction for bioenergy and biobased products, tied directly to the Obama Administration’s push to develop alternatives to fossil fuel use in the U.S. The report (found

(continued on p. 6)

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UPCOMING EVENTS

SOCIETY OF WOOD SCIENCE AND TECHNOLOGY, 2010 INTERNATIONAL CONVENTION

October 11-15, 2010 Geneva, Switzerland

The Society of Wood Science and Technology will hold its 2010 International Convention in Geneva, Switzerland at the Palais des Nations together with co-hosts the United Nations Economic Commission for Europe-Timber Committee (UNECE-TC), on October 11-15, 2010. The theme of the convention is "Role of Wood Science in the Green Building Movement." You can view all conference information at <http://www.swst.org/meetings/AM10>.

WOOD YOU BELIEVE...

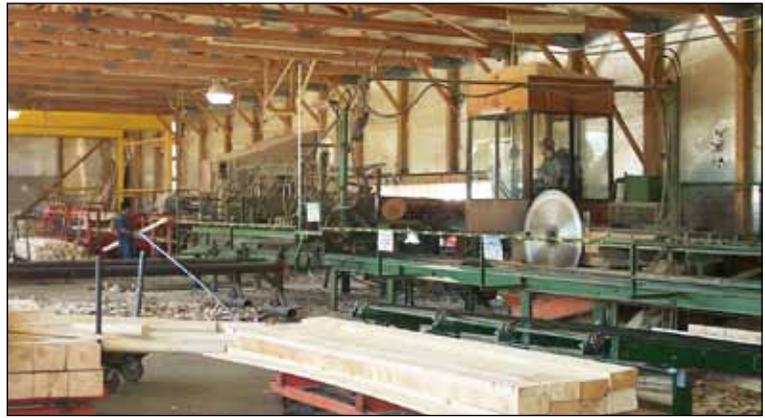
- The original Forest Products Laboratory was built in 1909 on the University of Wisconsin - Madison campus. Designed in the Georgian Revival style and located at 1509 University Avenue,



it currently houses the UW Materials Science and Engineering department. The building was added to the National Register of Historic Places in 1985.

- The current main building of the Forest Products Laboratory was built in 1932 less than a mile west of the original FPL. The structure is unique in style and typifies the American Perpendicular or Modernistic phase of the Art Deco or International Art Moderne style. The "new" FPL building is located at 1 Gifford Pinchot Drive and was added to the National Register of Historic Places on August 25, 1995.





EMISSIONS *(continued from p. 3)*

According to FPL research forester Ken Skog, the forest products sector differs from other industries because factors such as forest carbon sequestration, wood and paper product carbon storage, and wood and paper product end-of-life emissions must be studied along with direct emissions to obtain a more accurate estimate of the industry's impact.

“Although the forest products industry emits greenhouse gases, it also influences management of forests, which sequester carbon, and it generates wood and paper products that continue to store carbon,” said Skog. “For example, wood products store a significant amount of carbon in wood-framed housing. In 2001, the amount of carbon stored in residential single and multi-family housing was approximately 680 million metric tons of carbon, or 2.5 billion tons CO₂-equivalent.”

The newly published profile states that annual net addition of carbon to the stock of wood and paper products was sufficient to offset all direct emissions plus all indirect emissions associated with purchased electricity, which amounts to about half the industry's total emissions, or 104 of 212 million metric tons CO₂-equivalent in 2004–2005.

Additionally, results of the study indicate that one way to improve the industry's emissions profile is to increase the use of forest products manufactured from domestically grown wood, as many of the applications provide sequestration benefits and also avoid emissions by

substituting for more greenhouse-gas-intensive products and fuels.

Other notable findings include that between 1990 and 2005, energy-related manufacturing emissions decreased by almost 9% even though forest products output increased by approximately 15%, demonstrating increased efficiency within the forest products sector.

Researchers also found that stocks of carbon in forests supplying wood to the industry were stable or increasing, citing improved forest management practices, regeneration of previously harvested forest areas, and harvesting less timber than is grown as resulting in net uptake of carbon in U.S. forests each year from 1990 through 2006.

The full publication is available online at <http://pubs.acs.org/doi/pdf/10.1021/es902723x> with supplemental information available at <http://pubs.acs.org/doi/suppl/10.1021/es902723x>.



FOREST PRODUCTS LABORATORY

CELEBRATING 100 YEARS OF FOREST PRODUCTS RESEARCH

DEDICATION OF THE CENTENNIAL RESEARCH FACILITY

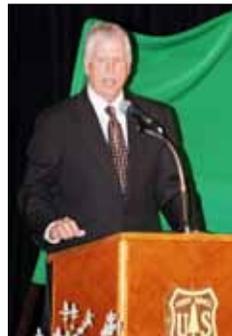
JUNE 23, 2010



Groundbreaking ceremonies for the Centennial Research Facility (CRF) were held in August 2007. ▲



▲ Construction continued through its many phases until Spring 2010.



▼ Chief Tidwell congratulates FPL Director Risbrudt as Under Secretary Sherman looks on after the unveiling of three signs that will hang in the CRF lobby.

▲ More than 400 individuals attended the dedication ceremony, including federal, state, local, and international dignitaries. Pictured here, from left to right, are USDA Under Secretary for Natural Resources and Environment, Harris Sherman; USDA Forest Service Chief, Tom Tidwell; USDA Forest Service Deputy Chief of Research and Development, Ann Bartuska; and University of Wisconsin–Madison College of Agriculture and Life Sciences Dean, Molly Jahn. Other speakers (not pictured) included the head of U.S. Senator Herb Kohl’s Madison office, Darcy Louma; Wisconsin Chief Forester, Paul DeLong, who read a commendation from Wisconsin Governor Jim Doyle; President of TAPPI, Larry Montague; and Executive Vice President of the Forest Products Society, Stefan Bergmann.





▲ The Centennial Research Facility houses three primary units: Preservation and Durability, Engineered Composites Sciences, and the Engineering Mechanics and Remote Sensing Laboratory (EMRSL). The Chamber for Analytic Research on Wall Assemblies exposed to Simulated weather (CARWASH) is part of Preservation and Durability. Scientists were on hand in the CRF throughout the dedication event to give talks and demonstrations on laboratory and test equipment. Pictured here, from left to right, are scientist Xiping Wang discussing nondestructive testing of tree specimens; the CARWASH used to test wind-driven rain intrusion; scientist Craig Clemons of the engineered composites unit; and a piece of a 50-year-old wooden bridge that was “tested to failure” (i.e., broken) as a demonstration in the EMRSL.



▲ Bringing a message of conservation and stewardship to the dedication event was the “official old-time string band of the U.S. Forest Service”—The Fiddlin’ Foresters. Pictured here clockwise from top left are banjoist Jim Maxwell, fiddler Lynn Young, guitarist Jane Leche, and guitarist Tom McFarland. Their harmonious vocal and musical message capped off a wonderfully successful dedication event celebrating both the history and the future of research at the USDA Forest Products Laboratory.



▲ Many other high-profile meetings were held at FPL throughout the centennial celebration week. Included were two landmark agreements with separate Chinese forest products research groups. Pictured here is FPL Director Chris Risbrudt signing an agreement with Madam Jiang of the International Center of Bamboo and Rattan and shaking hands with Chancellor Zhang of the Central South University of Forestry and Technology.

WOODY BIOMASS UTILIZATION (continued from p. 1)

at http://www.fs.fed.us/research/pdf/RD_Bioenergy_Strategy_March_2010.pdf) says there's an opportunity for America's forest resources to significantly contribute to U.S. energy security, economic development, and environmental quality.

Woody biomass includes small-diameter trees and undervalued wood residue such as tree limbs, tops, needles, and bark that are often byproducts of forest management activities. Innovative uses for such biomass can help offset the costs of expensive thinning operations and enhance the health and resilience of forest ecosystems. Lumber and small-diameter roundwood, engineered composites, paper and pulp, furniture, ethanol, chemicals, and energy feedstocks are all valuable products that can be derived from often overlooked forest resources.

Grant recipients are required to provide at least 20% of the total project cost. Non-federal matching funds total more than \$9 million. The 2010 recipients were chosen from 185 applications and have all developed innovative uses for an array of woody biomass products. In Arizona, for example, Cooley Forest Products can now purchase a mobile canter saw, allowing the processing of small logs at forest landings, thereby reducing transportation costs. West Range Reclamation in Colorado will use their award to acquire a delimeter/debarker for efficiently processing beetle-killed trees into fines for a soil amendment. And Del Logging in California is purchasing a chipper, effectively doubling the number of acres treated for hazardous fuel reduction activities on the Shasta-Trinity, Lassen, and Modoc National Forests.

The Forest Service Woody Biomass Utilization grant program, established in 2005, is administered by the State and Private Forestry Technology Marketing Unit at the FPL. The program has provided over \$30.6 million towards various projects ranging from biomass boilers for heating schools and prisons to helping forest-based businesses acquire equipment to improve processing efficiencies. In total, 123 grants have been awarded to small businesses, non-profits, tribes, and state agencies working to improve forest health while promoting jobs, green energy, and healthier communities.

2010 WOODY BIOMASS UTILIZATION GRANTEES

Headrick Logging

Anderson, CA, \$350,000

Sierra Resource Management

Jamestown, CA, \$329,000

Del Logging, Inc.

Bieber, CA, \$350,000

Cooley Forest Products

Phoenix, AZ, \$350,000

J.W. Bamford, Inc.

Oroville, CA, \$300,000

West Range Reclamation

Crawford, CO, \$350,000

Arizona Log and TimberWorks

Eagar, AZ, \$350,000

JL Shavings

Tularosa, NM, \$350,000

San Carlos Apache Timber Products

San Carlos, AZ, \$272,770

Warner Enterprises

Redding, CA, \$350,000

Foothills Firewood

Lyons, OR, \$325,014

Restoration Solutions

Corona, NM, \$350,000

ABCO Wood Recycling

Post Falls, ID, \$200,000

WOOD2ENERGY: DATABASE OF WOODY BIOMASS USERS AVAILABLE TO PUBLIC

The University of Tennessee Office of Bioenergy Programs recently announced the creation of a detailed database of industrial and selected community-scale users of wood-to-energy facilities across North America. The site, www.wood2energy.org, is a searchable database open to anyone with interest in the state of wood-to-energy conversion at a national, state/provincial, or local operating level.

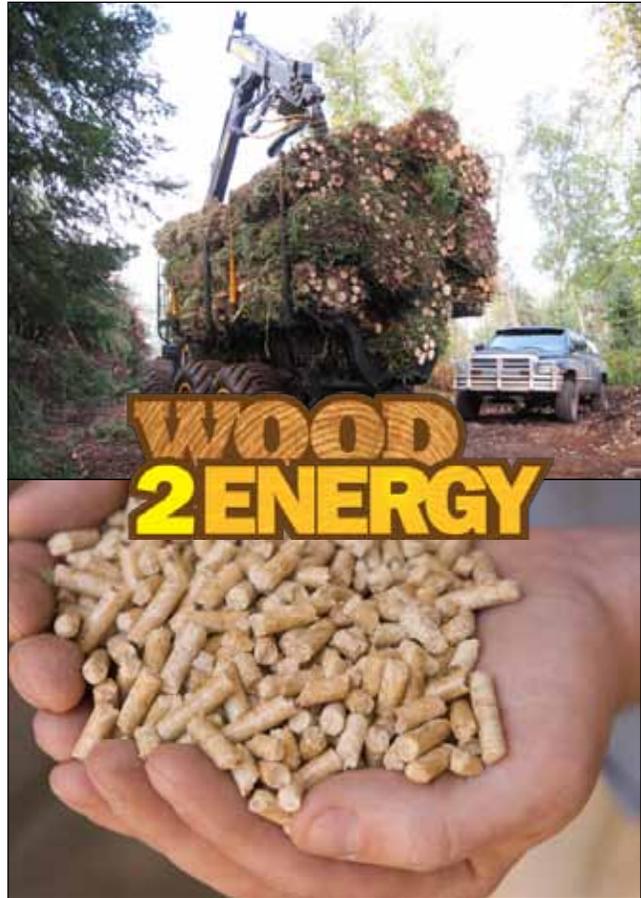
Data accessible in the Wood2Energy system includes “green energy” developed and used on-site as a byproduct of a primary manufacturing process, such as that produced by sawmills or pulp and paper mills, the largest single producers of energy from woody biomass. It also includes the growing number of facilities dedicated to conversion of wood to energy.

Henry Spelter, an economist at the USDA Forest Service Forest Products Laboratory, provided an overview of the pellet industry for the Wood2Energy project. One of the fastest-growing components in wood energy is wood pellet production. The pellet industry has grown from 1.1 million metric tonnes in 2003 to 4.2 million in 2008. The overview was based on Spelter’s publication *North America’s Wood Pellet Sector* (http://www.fpl.fs.fed.us/documnts/fplrp/fpl_rp656.pdf).

The Wood2Energy system is being continuously updated to ensure that it is as comprehensive as is practical. It presents information in tabular as well as map form, and includes a means for individual facilities to update their information to ensure that the most up-to-date data is available.

Additionally, a report entitled *Wood to Energy: A State of the Science and Technology* was released, which focuses on the state-of-the-science in utilizing wood for the production of energy through a review of current research and development.

This peer-reviewed report provides a complete overview of the state of wood-to-energy science and technology, including characterizations of conversion process design, stage of development or commercialization,



and suitability for the marketplace. It also provides an analysis of market sustainability, including opportunities and barriers, of wood-to-energy production. The full report is available at www.wood2energy.org

The Wood2Energy project and report were developed by the University of Tennessee Office of Bioenergy Programs with funding from the U.S. Endowment for Forestry and Communities, American Forest and Paper Association, Forest Products Association of Canada, the USDA Forest Service, and Natural Resources Canada. Additional assistance was provided by the Sun Grant Initiative.

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UPDATED WOOD HANDBOOK NOW AVAILABLE

The Forest Products Laboratory is proud to present the centennial edition of the *Wood Handbook—Wood as an Engineering Material*, updated and released in celebration of FPL's first 100 years of public service. First published in 1935, this is the seventh edition of the *Wood Handbook*. It can be found in full text online at <http://www.fpl.fs.fed.us/woodhandbook>

