

**AMERICAN FOREST & PAPER ASSOCIATION**

GROWING WITH AMERICA SINCE 1861

Written Statement**Donna Harman, Vice President, Congressional Affairs and
Lori A. Perine, Executive Director, Agenda 2020****American Forest & Paper Association****Submitted for the Record to the
U.S. House of Representatives
Committee on Appropriations
Subcommittee on Energy and Water Development****Fiscal Year 2006 Appropriations for Federal Energy Efficiency
and Renewable Energy R&D Programs**

The American Forest & Paper Association (AF&PA) welcomes this opportunity to present its views on the need for sustained and adequate funding of public-private partnerships through the federal Energy Efficiency and Renewable Energy (EERE) research and development programs. Keeping these partnerships strong and effective is vital to providing a research foundation for the forest products industry to meet competitive challenges, while contributing to strategic national needs associated with energy efficiency, energy security, diversified energy supply, and environmental performance. Therefore, we are writing to ***strongly recommend funding for the following EERE programs at the Department of Energy: \$10.5 million for forest products industry (consistent with the priorities of the current forest products industry technology roadmap) in the Industrial Technologies Program; and designation of \$15 million in the Office of Biomass Programs specifically for competitive research for both sugars and thermochemicals technologies and products related to the forest biorefinery. This includes \$5 million for pre-digester and \$10 million for post-digester activity, including black liquor gasification, leading to the industrial size forest biorefinery demonstration.***

AF&PA is the national trade association of the forest and paper industry and represents more than 200 member companies and related associations that engage in or represent the manufacturers of pulp, paper, paperboard and wood products. The forest products industry accounts for approximately 7 percent of total U.S. manufacturing output, employs 1.3 million people, and ranks among the top 10 manufacturing employers in 42 states with an estimated payroll of \$50 billion.

Through Agenda 2020, AF&PA members develop and implement our industry's technology vision via collaborative research. Established in 1994 in partnership with the U.S. Department of Energy (DOE), Agenda 2020 has achieved a decade of tangible results by leveraging partnerships with government and universities to develop technologies that hold the promise of reinventing our industry, while providing real solutions for national issues. Agenda 2020's world-class research is designed to address key breakthrough technical hurdles that no one

company can accomplish on its own, while meeting technical and economic performance criteria that are consistent with national goals.

The current technology portfolio of the DOE/Agenda 2020 partnership in the Industrial Technologies Program (ITP), if fully funded and developed, can help our industry cut energy use by 25 trillion British Thermal Units (TBTUs) per year by 2010. Additionally, these technologies can help to significantly reduce natural gas use, and cut emissions of NO_x, SO_x, and Carbon Dioxide and volatile organic compounds (VOCs). With adequate funding, Agenda 2020's partnership with the DOE Office of Biomass Programs (OBP) can significantly advance the vision of the Integrated Forest Products Biorefinery (IFPB). The IFPB would evolve existing pulp mills into geographically distributed production centers of renewable, sustainable power, fuels, and chemicals – all while preserving existing infrastructure and core business, creating higher skilled and better paying jobs, strengthening rural communities, and opening new domestic and international markets for American forest products companies. The IFPB would contribute substantially to DOE strategic goals to dramatically reduce dependence on foreign oil, to create new domestic bioindustry, and to improve industrial energy efficiency by reducing fossil energy consumption by over 250 TBTUs/yr, with an additional benefit of cutting approximately 40 million tons of carbon emissions annually.

Agenda 2020's partnerships with federal agencies are a necessary cornerstone for improving our competitive advantage, and for creating and capturing value through innovation in processes, materials, and markets. The partnerships accelerate our industry's adoption of innovative technologies, its effective use of capital, and its ability to attract the best and brightest people. They allow us to develop more energy efficient and environmentally friendly technologies to benefit both societal and industry needs and avoids forcing our industry to make unproductive investments in aging and inefficient technologies. The federal partnerships also help our industry continue to provide the world with essential, innovative and environmentally compatible products from abundant, sustainable and reusable biological raw materials.

DOE is Agenda 2020's primary federal partner in a portfolio of projects that leverages both industry and government investment. In 2004, the Agenda 2020 portfolio included a total shared DOE and industry investment of almost \$48 million, with nearly 55% coming from direct project cost shares by industry. This is a remarkable leveraging of federal investment, given that our industry faces considerable market pressures that hinder new investments of any kind. Agenda 2020's overall federal partnerships include projects with the U.S. Forest Service, CSREES (Cooperative State Research, Education and Extension Service) program of the US Department of Agriculture and the National Science Foundation.

As is the case with many U.S. manufacturing industries, we face serious domestic and international challenges. Since 1997, 101 pulp and paper mills have closed in the U.S., resulting in a loss of 70,000 jobs, or 32% of our workforce. An additional 67,000 jobs have been lost in the wood products industry since 1997. New capacity growth is now taking place in other countries, where forestry, labor, and environmental practices may not be as responsible as those in the U.S. In addition, globalization, aging process infrastructure, few technology breakthroughs, as well as recent financial performance and environmental concerns, hinder the

ability of U.S. companies to make new investments. Each year without new investments, new technologies and new revenue streams, we lose ground to our overseas competitors.

This situation has underlined the importance of a meaningful industry-government partnership to leverage industry RD&D funding, achieve shared industry and national goals, and bring technology risk down to acceptable levels. To capture the full range of value and benefits that can be derived from our wood-based raw materials, multidisciplinary research is increasingly required in emerging technologies, such as biotechnology and nanotechnology, coupled with breakthrough advances in process and conversion technologies. Addressing the associated technical barriers requires sophisticated collaborations bringing together those who conduct and fund research with those who can best translate its results into applications that have economic and social value. In today's world, the complex processes of technology development and product commercialization are inextricably intertwined with government policy and market interactions. It is not possible for the private sector to develop and deploy technology without collaboration with the marketplace and consideration of public policy.

The erosion of DOE support for forest products industry research over the past 4 years has had severe implications for our industry. The ITP has been cut by nearly 40% since FY2002, undermining our progress in achieving crucial energy efficiency and environmental benefits. FY2006 proposed ITP funding for forest products research (\$3 million) would result in a further 52% reduction. FY2006 proposed OBP will require complete elimination of most, if not all, basic research and technology development for forest biorefineries.

FY2006 proposed funding for ITP will not be sufficient even to sustain our industry's ongoing collaborative projects. Many will have to be halted before they are complete, and no new research could be funded. This comes at a crucial time when the forest products industry, like many energy-intensive industries, is facing unprecedented pressures due to the rising costs of energy, in particular natural gas. Although we are nearly 60 percent self-sufficient (using biomass), current natural gas prices translate into an additional cost to the industry of more than \$2 billion annually – and places us at a significant disadvantage compared with our international competitors. Thus we are in great need than ever for the technology-based energy efficiency solutions that could be provided through our partnership with ITP. ***AF&PA's recommended ITP funding for forest products research (\$10.5 million) would ensure these vital research needs are met.***

The proposed FY2006 budget virtually eliminates funding for research associated with the IFPB. The IFPB vision includes opportunities to produce high value, renewable bio-based fuels and energy at several points during the traditional manufacturing process. At the "pre-digester" stage, before the wood is pulped, the hemicelluloses can be extracted and converted to fuels and/or chemicals. After the wood has been pulped, or "post-digester", the residual pulping liquors (also known as "black liquor") can be gasified and the resulting synthetic gas converted into power, liquid fuels, and/or chemicals. The IFPB could help make the forest products industry even more energy self-sufficient, which serves the DOE strategic goal of reduced energy intensity in industry by reducing fossil energy consumption. In addition, the IFPB would permit the industry to become a producer of renewable, carbon-positive bioenergy and biofuels,

which contributes to the DOE strategic goals to dramatically reduce dependence on foreign oil and to create new domestic bioindustry.

In partnership with DOE/OBP, the national labs, and universities, Agenda 2020 has been pursuing vital research in a number of core technologies to enable the IFPB and its products. The shared objective has been to have in place before 2010 one or more facilities that demonstrate the large- scale production of power, chemicals and fuels. The IFPB demonstration is needed to assess technical and economic viability in meeting both industry and national performance criteria, and contribute to national needs for new, renewable fuel supplies.

A core technology for the IFPB is black liquor gasification (BLG). Agenda 2020 is engaged in the sixth year of pre-competitive BLG research to convert the by-product of the chemical pulping process into a synthetic gas. The synthetic gas can subsequently be burned to directly produce clean, efficient energy, or converted to other fuels such as hydrogen, renewable transportation fuels, and/or other high value chemicals. If fully developed and commercialized, these technologies could produce enormous energy and environmental benefits for the industry and the nation. This new technology provides the research foundation for the potential to produce a net 22 gigawatts of power from a renewable fuel source, displacing as much as 100 million barrels of oil per year. This translates into displacement of 900 BCF of natural gas consumption for power generation by the year 2020, assuming that BLG is placed in service by 2010.

The FY 2006 proposed budget eliminates nearly all funding for IFPB research (and its impacts on and integration with energy efficiency in the core manufacturing process), just as it is advancing to a stage where there can be a full assessment of its technical and economic feasibility. There is no funding for BLG. Even though IFPB-related research has been identified as priority by OBP, it would receive no support because of lack of sufficient funding in the proposed budget. Those research areas include: integrated biorefinery support for thermochemical biorefineries, forest biorefineries, and an FY08 industrial size demonstration solicitation; products core R&D in chemicals and fuels from syngas; thermochemical platform core R&D in BLG and syngas cleanup; sugar platform core R&D in optimization of lignin utilization and processes linking pretreatment and enzymes; and feedstock interface core R&D in energy crops. ***AF&PA is recommending that funding (\$15 million) be designated within the OBP budget for competitive research in these critical areas and to complete BLG core research and projects that are underway.*** This funding will provide the groundwork needed for next vital steps leading to for the large-scale demonstration of biofuels and biochemicals production in association with the industry's dominant Kraft pulping process.

We appreciate the Committee's interest in ensuring sustained and adequate funding for RD&D partnerships and look forward to working with you to advance industry and national interests.

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