

Mr. Chairman, Members of the Committee, as the Chairman of the Biomass Research and Development Technical Advisory Committee (Advisory Committee) and as House sponsor of the Biomass Research and Development Act of 2000 (Title III of P.L.106-224), I appreciate the opportunity to discuss the Advisory Committee's activities in addition to the developments of the Biomass Research and Development Initiative (BioInitiative) established by the Act. I do not want to proceed further to discuss this Act without giving due credit to Senator Richard Lugar, whose brainchild this initiative was.

The Biomass R&D Act recognizes the "outstanding potential for benefit" offered by biomass technologies. The Act also acknowledges the need to integrate and coordinate the diverse R&D efforts currently taking place across the federal government, in industry, and at the state-level. By creating the BioInitiative, the Act establishes the framework for coordinating and implementing Federal biomass research.

The primary objective of the BioInitiative is to coordinate the development of environmentally sound and cost-effective bioenergy and biobased products and technologies in order to increase the availability and use of those products and technologies. This includes the development and demonstration of low-cost, value-added feedstock conversion processes that serve as precursors to producing power, steam, fuels, chemicals, and consumer products. Reaching this objective entails developing the process chemistry, biochemistry, separation and recovery technologies, and power generation knowledge needed to process biomass streams to final products.

As part of the BioInitiative, the Biomass R&D Board aids in the review of existing R&D programs and to assist in offering advice on strategic direction. The Biomass R&D Board is co-chaired by Mark E. Rey, the Under Secretary of Natural Resources and Environment for the U.S. Department of Agriculture (USDA), and David Garman, the Assistant Secretary for Energy Efficiency and Renewable Energy of the U.S. Department of Energy (DOE). Biomass R&D Board members also include the Department of Interior, the Environmental Protection Agency, the National Science Foundation, the Office of Science and Technology Policy, and the Office of Federal Environmental Executive. The Biomass R&D Board is guided by an Advisory Committee of which I am the Committee Chair.

The Advisory Committee comprises individuals from industry, academia, non-profits, and the agricultural and forestry sectors to provide to the Secretaries of Agriculture and Energy and

their points-of-contact (the Under Secretary for Natural Resources and Environment, U.S. Department of Agriculture and the Assistant Secretary for Energy Efficiency and Renewable Energy, Department of Energy) advise on the technical focus and direction of requests for proposals issued under the BioInitiative, and advice on the procedures for reviewing and evaluating the proposals.

The Advisory Committee also facilitates consultations and partnerships among Federal and State agencies, agricultural producers, industry, consumers, the research community, and other interested groups to carry out program activities relating to the BioInitiative, and evaluates and performs strategic planning on program activities relating to the BioInitiative.

For each fiscal year in which funds are made available to carry out the BioInitiative, the Advisory Committee provides a report to the Secretaries of Energy and Agriculture on whether funds appropriated for the BioInitiative have been distributed and used in a manner that is consistent with the purposes described in the Act, whether those funds were appropriated using the criteria established in the Act, and whether any recommendations that have been made by the Advisory Committee have been taken into account.

The Advisory Committee recently ended its third year of activities. To date, the Committee's activities have resulted in five major products:

? In December 2001, the Committee submitted a preliminary set of recommendations to the Secretaries of Energy and Agriculture on the potential of biomass research and development.

? In June 2002, the Secretaries of Agriculture and Energy requested that the Committee develop Vision and Roadmap documents to guide future biomass research and development activities. The Vision and Roadmap were developed over the next several months in 2002, and comprised a major portion of the Committee's work that year. These documents now serve as a resource for the agencies in planning their biomass research and development portfolios. The Vision for Bioenergy and Biobased Products in the United States was released in October 2002 and set far-reaching goals for increasing the role of biomass in our nation's economy in three categories: biomass power (biopower), biobased transportation fuels (biofuels), and biobased products (bioproducts).

o **BIOPOWER:** The Vision goals for biopower were to increase "biomass consumption in the industrial sector at an annual rate of 2 percent through the year 2030, increasing from 2.7 quads in 2001 to 3.2 quads in 2010, 3.9 quads in 2020, and 4.8 quads in 2030." The Vision goals for biopower also included "biomass use in electric utilities to double every ten years through

2030". Overall, the Vision goals stated that "biopower will meet 4 percent of total industrial and electric generator energy demand in 2010, and 5 percent in 2020."

- o BIOFUELS: For transportation fuels, the Vision goals outlined that "transportation fuels from biomass will increase significantly from 0.5 percent of U.S. transportation fuel consumption in 2001 (0.147 quads) to 4 percent of transportation fuel consumption in 2010 (1.3 quads), 10 percent in 2020 (4.0 quads), and 20 percent in 2030.

- o BIOPRODUCTS: In the third category, Biobased products, the Vision goal was that "production of chemicals and materials from biobased products will increase substantially from approximately 12.5 billion pounds, or 5 percent of the current production of targeted U.S. chemical commodities in 2001, to 12 percent in 2010, 18 percent in 2020, and 25 percent in 2030."

The Committee recognizes that economic, international, and many other factors can impact the future demand for and development of biomass technologies, but feels these goals are technically feasible. The Committee believes, however, that it is appropriate that long-term goals be challenging and feel that this Vision puts forth the challenge of pursuing the opportunities that biomass technologies hold for the United States.

? In January 2003, the Committee released the corresponding Roadmap for Biomass Technologies. The purpose of this document was to outline a research and development roadmap and identify public policy measures for promoting and developing environmentally desirable biobased fuels, power, and products. It represents the collective assessment and expertise of the Committee. The research strategies outlined in this roadmap will help achieve the goals established by the Committee in their Vision document. The Roadmap is organized by the major categories of research and development that will be needed to achieve the Vision goals.

? In December 2002, the Committee submitted a set of R&D recommendations to the Secretaries of Energy and Agriculture based on the research strategies outlined in the Roadmap categories,

? In 2003, the Advisory Committee reviewed the USDA-DOE joint solicitation request for proposals (RFP), solicitation process, and awards in order to develop its recommendations. In 2003, the Advisory Committee also evaluated the USDA and DOE biomass research portfolios and investments. The Advisory Committee developed its assessment of the portfolios and developed recommendations to the Secretaries of Energy and Agriculture. The Advisory Committee used its Vision and Roadmap documents as a baseline to develop its recommendations on biomass research and development. The Advisory Committee also made specific recommendations to more aggressively pursue federal procurement of biobased products. In December 2003, the Advisory Committee provided its recommendations to the agencies and the agencies considered the Advisory Committee's recommendations and implemented a number of them for the 2004 joint solicitation RFP and process currently underway.

As part of the BioInitiative, the USDA and DOE have conducted joint solicitations in the fiscal year 2002 and 2003 and a joint solicitation is currently underway for fiscal year 2004. In total for the FY 02 and FY 03, 27 projects have received federal funds under the joint biomass solicitation. Total federal funds that were made available in FY 02 were \$76M over five years from DOE, and \$2.7M from USDA. For FY 2003, \$23M of federal funds were made available; \$7M from DOE and \$16M from USDA. In FY 2004, the total federal funds currently made available are \$22M, with \$10M from DOE and \$12M from USDA.

The Advisory Committee is pleased to find that the USDA and DOE have increased their level of coordination and collaboration as a result of the BioInitiative. The Advisory Committee also did not find significant duplication of biomass R&D by the USDA and DOE in the area of feedstock production. However, the Advisory Committee does not believe that the U.S. government's current funding for biomass programs is sufficient to implement the Roadmap.

Underlying the Advisory Committee's FY 03 recommendations is the consensus that an effective research and development program in the biomass area must work in a coordinated fashion, with the goal of demonstrating technologies at a commercial scale and implementing public policies, including public education, incentives, government purchasing, and removal of regulatory roadblocks. A role for USDA, DOE, and other sectors of the federal government exists across these areas, including financial support prior to transfer to the private sector. This fundamental premise is the foundation on which the Vision and Roadmap were built.

The Advisory Committee does not believe that the Departments' current biomass programs, in the current policy context, are adequate to achieve the goals set forth in the Vision. While the specific recommendations were designed to help the agencies modify current programs to bring them into conformity with the Roadmap, one overall recommendation is that the Roadmap cannot be effectively implemented and the Vision goals cannot be achieved without an order of magnitude increase in financial and policy support for biomass. Specific first steps in this direction should include:

1. A request for \$60 million to support the construction of three cellulose-to-ethanol plants capable of processing a variety of cellulose raw materials and using different production technologies to be operational by 2008.
2. Active support for substantial procurement and incentive policies that will dramatically

increase the production of biomass energy and biobased products.

In response to the Advisory Committee's recommendations, the DOE has stated that in FY 2005 it is requesting \$81.3 million for biomass program activities, which is \$30.1 million more than the unencumbered appropriation it received last year. However, the FY 2004 Biomass Program appropriation included nearly \$41.0 million, or nearly half of the biomass budget, targeted to specific projects not identified in program plans. Congressional earmarking has also delayed progress toward the program goals and diminished core research capabilities at the National Laboratories. The DOE was recently forced to dismiss research personnel at the National Renewable Energy Laboratory (NREL) and other national laboratories because of the lack of funding available for their planned program activities.

As of 2004, the Committee currently includes 30 industrial and other biomass experts that advise DOE and USDA on program technical focus. In 2004, the Committee plans to complete the following:

- ? Respond to reports from USDA and DOE regarding aggressive federal purchasing of biobased products.
- ? Develop detailed recommendations regarding the USDA/DOE joint solicitation. Develop a matrix to track the progress of R&D funded under the solicitation.
- ? Track progress in achieving the Committee's Vision goals.
- ? Discuss cellulosic ethanol, gasification, and co-firing, and the history of the federal government's efforts in those areas.
- ? Discuss hydrogen power.
- ? Create a subcommittee to develop a definition of "biorefinery."

Conclusion

Mr. Chairman, that completes my prepared statement. I would be happy to answer any questions at this time.