Source: Biomass R&D Technical Advisory Committee

Advisory To: Biomass R&D Board

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Issue: ***Recommendations of the Committee on Opportunities for Woody Bioenergy with Healthier and Safer Forests***

The Committee declared 2019 its *Year of the Tree*, focusing on new and emerging opportunities for using forests to support bioenergy and bioproducts industries while promoting healthier and safer forest management. We effectively launched this effort in our fourth quarterly meeting of 2018 when we identified regulatory barriers to advanced biofuels and made specific recommendations for breaking down those barriers, with a special focus on the fledgling domestic woody bioenergy and bioproducts sector.

I. The first quarterly meeting of 2019 explored the linkages between healthy forests, the growth of the advanced woody bioenergy and bioproducts sector, and their socioeconomic impacts, laying out the Committee's path forward for the rest of the year.

II. Recognizing that forest ecosystems and cultures are distinctly different across the country, the second quarterly meeting was conducted in and around Missoula, Montana, to learn about the mix of experiences and challenges specific to northwestern U.S. forests, especially with regard to managing public forest lands. The visit focused on new approaches to old problems—like preventing or diminishing forest fire damage and dealing with high-mortality diseases and infestations—and about the prospects for using forest materials sustainably for bioenergy and bioproducts.

III. The third quarterly meeting was held in New Bern, North Carolina. It focused on private forest landowner and stakeholder perspectives as well as challenges specific to the forest products industry, forest management, environmental perspectives and bioenergy and bioproducts opportunities in southern U.S. forestlands. We concluded that key building blocks are in place for the southeast to take a national leadership role in launching advanced bioenergy industries.

The sheer volume of forest resources potentially available across the U.S. is enormous and widely distributed. The Committee gained a heightened appreciation for the power of strong forest product markets to drive substantive co-benefits including carbon emission reductions and improvements in water quality and wildlife habitats. The Committee also developed a better understanding of why there is no one-size-fits-all solution to accelerating new uses of forest biomass for bioenergy and bioproducts. Financing—more specifically the inability for conventional financing paradigms to accurately assess risk associated with biomass feedstocks, technologies and markets—and government policy were identified as hurdles to deployment of large scale capital investments in woody biofuels. Drawing on the broad national and regional perspectives gained throughout the year, the Committee has now developed a set of recommendations to the federal government for improving research, policies and regulations for growing woody bioenergy and bioproducts while also improving forest health.

A RD&D Recommendations

- Strengthen research on multi-step biomass processing that initially segregates chemical from physical changes (i.e., Feedstock → Materials Preprocessing → Conversion vs. current paradigm of Feedstock → Conversion), focusing on producing a uniform industrial feedstock that is readily introduced as a pumpable fluid at the inlet of a biorefinery ahead of any thermal, chemical, catalytic and/or biological conversion.
- Explore possible fundamental shifts in research needs from former two-step paradigm of woody feedstocks-to-conversion route to a multi-step route of woody biomass-to preprocessed feedstock-to conversion while maintaining a systems approach.
- Reorient woody biomass R&D priorities to focus on maximizing each component of woody biomass to minimize carbon loss during the conversion process.
- Challenge research base to identify new pathways for distributed feedstock processing to stable intermediates.
- Seek regional solutions for woody biomass that recognize fundamental differences in forest eco-systems and ownership structure.
- Develop and demonstrate economically justified technical solutions for decentralized, mobile handling/processing of woody biomass with special focus on using diseased or damaged timber as well as forest restoration and thinnings.
- Emphasize products and co-products as an added value to fuel and power.
- Incorporate sustainability as a bedrock for R&D goals including (i) focusing on carbon accounting and impacts on biodiversity, (ii) increasing use of life cycle assessments in R&D efforts, and (iii) standardizing assessments of full range of social and environmental impacts.
- Include soil health and carbon sequestration as a goal for woody bioenergy research.

B Broader Woody Biomass Recommendations

- Seek policies that give value to societal co-benefits (e.g. fire suppression, water quality, air quality, rural development, carbon mgmt., etc.) through robust markets for bioenergy and bioproducts.
- Promote greater public awareness, understanding, and acceptance of sustainable bioenergy and bioproducts.
- Actively solicit community involvement on environmental and societal impacts to address important local concerns.
- Promote new private-public partnerships to include insurance companies, utilities, communities, and other groups not involved in industry development.
- Promote regional approaches to woody bioenergy solutions, actively seeking input from the public, industry, academia, state/local govts, non-profits in those areas.
- Seek examples of successful international approaches to woody bioenergy growth to inform and guide R&D in the U.S.
- Continue to emphasize the Committee's November 2018 recommendations for reforming the Environmental Protection Agency's regulations implementing the Renewable Fuel Standard in order to open new markets for woody biofuels.
- Continue DOE's emphasis on developing and supporting frameworks that can help financial markets assess feedstock, technical, market, environmental, and other risks to promote and accelerate investment in woody bioenergy and bioproducts projects.