

Biomass Research and Development Technical Advisory Committee

**Capitol Skyline Hotel
10 I Street SW
Washington DC 20024
November 19-20, 2019**

Quarter 4 Meeting Summary

I. Purpose

On November 19 and 20, 2019, the Biomass Research and Development (R&D) Technical Advisory Committee (“Committee”) held its fourth and final meeting of 2019. The Committee’s 2019 theme was “Year of the Tree.” This meeting focused on synthesizing the state of the woody biomass industry in the U.S. Presentations were made by individuals from the Commercial Aviation Alternative Fuels Initiative, Bureau of Land Management, Ecostrat, and Faegre Baker Daniels. The Committee also received an update from the U.S. Department of Energy’s Bioenergy Technologies Office (BETO). See Appendix A for a list of Committee attendees and Appendix B for the meeting agenda. Appendix C contains a summary of findings from the Committee. Meeting presentations can be viewed on the Biomass R&D Board website.

II. Swearing In and Ethics Training

Lisa Savage, DOE, Office of Corporate Executive Management

Melinda Comfort, DOE, Office of the Assistant General Counsel

- Swearing in of New Members was conducted
- The annual ethics training was presented to members.

III. Opportunities and Challenges for Woody-based Biofuels for SAF (PowerPoint)

Steve Csonka, Commercial Aviation Alternative Fuels Initiative

- Presented on sustainable aviation fuels including challenges, opportunities, and future research needs of the industry.
- Stressed that more research was needed.
- Social considerations are hard to quantify but the industry is looking at ways to incorporate.

IV. Bureau of Land Management and Woody Biomass (PowerPoint)

Wade Salverson, Bureau of Land Management

- Presented on state of woody biomass within the Department of the Interior’s Bureau of Land Management
- Discussed implications and implementation strategies for [Executive Order 13855](#).
- There is an agreement with the Forest Service and Bureau of Indian Affairs for the [Tribal Biomass Demonstration Project](#).

V. Accelerating Bioeconomy Project Finance: Key Initiatives to De-Risk Capital and Drive Investment (PowerPoint)

Jordan Solomon, Ecostrat

John Kirkwood, Faegre Baker Daniels

- Covered the major barriers of markets, technology, and feedstocks to advancing the biomass economy.
- A lack of effective and consistent standards causes an increase in perceived risk and hampers investment.

VI. Remarks by DOE Acting Deputy Assistant Secretary- Transportation

Michael Berube, DOE, Office of Energy Efficiency & Renewable Energy

- Provided an update on the current DOE strategy for diversifying affordable technologies.
- Currently looking at low carbon biofuels for aviation, then heavy duty transportation, and then small duty.
- Proposed a number of focus areas for the Technical Advisory Committee to examine:
 - How can scale-up of low carbon biofuels be accelerated?
 - What are bioproducts that can add value to the process?
 - CO2 utilization

VII. Welcome

Doug Faulkner & Kelly Tiller, Committee Co-Chairs

- Provided an overview and background of the Committee, including its purpose, and the goal of the meeting, which was to determine the current state and scope of woody biomass in the U.S. to support “The Year of the Tree.”
- The Q1, Q2, and Q3 Recommendations were reviewed to inform the purpose of the meeting.

VIII. DOE Updates and Biomass R&D Activities

Ian Rowe, Technology Manager, Bioenergy Technologies Office, DOE

- Dr. Rowe provided updates on behalf of DOE’s Bioenergy Technologies Office (BETO).
- New members for 2020 are currently in the approval process by DOE and USDA.

XI. Public Comment

- There were no public comments.

XIII. Subcommittee Breakouts

- There are three standing subcommittees: Conversion, Sustainable Feedstocks Production and Logistics, Products, Markets, and Systems Group

XIV. Closing comments

- The Co-Chairs provided the final set of recommendations for the Year of the Tree (Appendix C).
- The focus of 2020 was discussed and will be finalized at the Q1 meeting in April.

Appendix A: Committee Member Attendance—November 19-20, 2019

Co-Chairs	Affiliation	Attended
Kelly Tiller	Genera Energy Inc.	Yes
Doug Faulkner	Leatherstocking, LLC	Yes

Members	Affiliation	Attended
Charles Abbas	IBiocat	Yes
Rob Anex	University of Wisconsin, Madison	Yes
Brent Bean	United Sorghum Checkoff Program	Yes
Jacques Beaudry-Losique	Algenol Biotech LLC	Yes
Esteban Chornet	Enerkem	Yes
Katrina Cornish	Ohio State University	Yes
William Frey	Georgia-Pacific	Yes
Jerry Gargulak	Borregaard-Lingotech	Yes
Aviva Glaser	National Wildlife Federation	Yes
Beth Hood	Arkansas State University	Yes
Raymond Huhnke	Oklahoma State University	Yes
Randy Jennings	Tennessee Department of Agriculture	No
Madhu Kanna	University of Illinois at Urbana-Champaign	No
Alan Keller	POET	No
Michael Ladisch	Purdue University	Yes
Pete Madden	Drax Biomass	Yes
Michael McAdams	Advanced Biofuels Association	Yes
Shelie Miller	University of Michigan	No
Manuel Garcia Pérez	Washington State University	Yes
Tim Rials	University of Tennessee-Knoxville	Yes
Matthew Rudolf	SCS Global Services	Yes
Susan Rupp	Enviroscapes Ecological Consulting, LLC	Yes
Basudeb Saha	University of Delaware	Yes
Patricia Scanlan	Scanlan Environmental LLC	No
Steve Searcy	Texas A&M University	Yes
David Shonnard	Michigan Technical University	Yes
Larry Sullivan	The Citadel	Yes
Valerie Thomas	Georgia Tech	Yes
Michael Wolcott	Washington State University	Yes

Total – 26 of 31 Members present

Appendix B: Agenda—November 19-20, 2019

Meeting of the Biomass Research and Development
 Technical Advisory Committee
 Capitol Skyline Hotel
 10 I Street SW, Washington DC 20024
 November 19-20, 2019

DAY 1	Technical Advisory Committee Meeting	November 19, 2019
8:00 – 8:30 am	Continental Breakfast	
8:30 – 9:00	Welcome, Introductions, and Swearing In of Members	<i>Co-Chairs Designated Federal Officer</i>
9:00 – 10:00	<u>Presentation:</u> Opportunities and Challenges for Woody-based Biofuels for SAF	<i>Steve Csonka, Commerical Aviation Alternative Fuels Initiative</i>
10:00 – 10:15	Coffee Break	
10:15 – 11:15	<u>Presentation:</u> Bureau of Land Management and Woody Biomass	<i>Wade Salverson, Bureau of Land Management</i>
11:15 – 12:15 pm	<u>Presentation:</u> Accelerating Bioeconomy Project Finance: Key Initiatives to De-Risk Capital and Drive Investment	<i>Jordan Solomon, Ecostrat John Kirkwood, Faegre Baker Daniels</i>
12:15 – 12:30	Public Comment	
12:30 – 1:30	Lunch	<i>Michael Berube, DOE, EERE</i>
1:30 – 3:00	Subcommittee Assignments & Breakouts	<i>Co-Chairs</i>
3:00 – 3:15	Coffee Break	
3:15 – 4:45	Subcommittee Breakouts	<i>Subcommittees</i>
4:45 – 5:00	Subcommittee Day One Reports	<i>Full Committee</i>

DAY 2**Technical Advisory Committee Meeting****November 20, 2019**

7:30 – 8:00 am	Continental Breakfast	
8:00 – 8:30	Review of Draft Report Framework & Subcommittee Instructions	<i>Co-Chairs</i>
8:30 – 10:00	Subcommittee Breakouts	<i>Subcommittees</i>
10:00 – 10:15	Coffee Break	
10:15 – 12:15 pm	Subcommittee Breakout Reports, Committee Discussion, and Recommendations Vote 2020 Work Plan Discussion	<i>Full Committee</i>
12:15 – 12:30	Public Comment	
12:30 – 1:30	Lunch	
1:30	Adjourn	

NOTES

¹ *Full Committee Meetings, Presentations, and Public Comment Hearings are open to the public.*

² *Subcommittee Meetings are closed to the public.*

³ *Meals and Break Service are closed to the public and provided for Committee Members only.*

Appendix C: Q4 Committee Recommendations

Source:	Biomass R&D Technical Advisory Committee	 <p>B I O M A S S R & D T A C T e c h n i c a l A d v i s o r y C o m m i t t e e</p>
Advisory To:	Biomass R&D Board	
Report Date:	11/20/2019 (Q4 2019)	
Issue:	<i>Recommendations of the Committee on Opportunities for Woody Bioenergy with Healthier and Safer Forests</i>	

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.