

**ATIP Foundation Regional Bioeconomy Forums:
 “Addressing the Challenges & Opportunities of Advancing the Billion Ton Bioeconomy”**

**Synopsis of Report to Participants in the SE Regional Bioeconomy Forum
 Georgia Tech co-host (Professor Valerie Thomas)**

Atlanta, GA

September 16, 2016

Wes Jurey, Foundation CEO, and R.J. Brenner, Director, ATIP Foundation

Note: full report with 4 attachments can be found at www.atipfoundation.com

Forum Structure and Role of the Foundation and Co-hosts

The SE U.S. Forum was moderated by co-host Professor Valerie Thomas, Anderson Interface Professor Industrial and Systems Engineering at Georgia Tech, assisted by Richard Brenner, Ph.D. , Director of the ATIP Foundation.

The agenda (see attachment) included welcoming comments by the ATIP Foundation, BR&DB representatives, and Norman Marsolan, State Host. A slide set presentation was made by the ATIP Foundation and co-host, followed by Harry Baumes, Ph.D., Director, Office of the Chief Economist, USDA with assistance by Todd Campbell (USDA). In addition, a “discussion document” was provided to the participants (see attachment). The remainder of the day consisted exclusively of stakeholder attendees from the six sectors participating in discussions on these six questions.

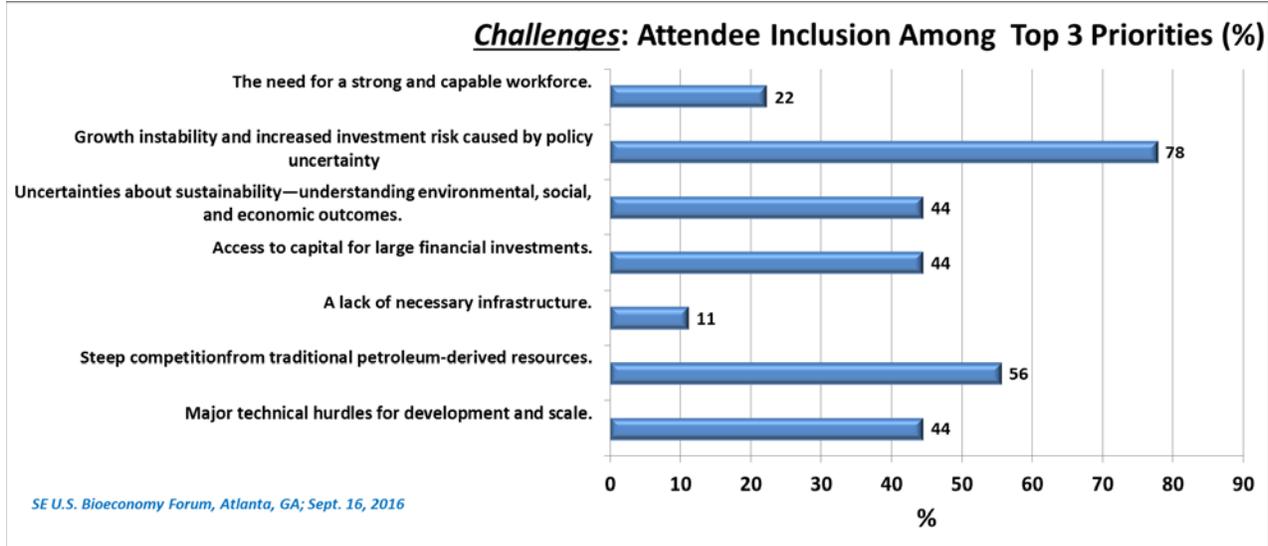
Notes were taken (attributed to the commenter) and were projected so all participants could review and correct as needed. The audio was also recorded from a laptop in case it was needed to clarify comments. Participants of the forum received a link to a Google Document and a two week window of opportunity to edit their specific comments, or add additional comment. Thereafter, the document was closed by Dr. Brenner, who reviewed comments, clarified with authors as needed, redacted all names of comment contributors, and annotated with his comments and/or Wes Jurey’s from the Foundation (noted by “Comment#(RJB)”. The document, as a record of the event, is available on the ATIP Foundation website along with participant reviews of each “challenge” and “opportunity” --- from their perspective --- and their assessment as to whether each was in the top 3 priorities of the SE U.S. It should be noted that the list of “Challenges and Opportunities was not available for the “voting” exercise at this first of five regional forums. Therefore, a separate poll was taken post-forum using an online survey tool. Only about a third of the forum attendees responded.

Table 1 describes the demographics of invitees by sector, and the actual number able to participate on September 16.

Table 1. Demographics (by sector) of invitees and participants, convened by co-host Georgia Tech, in SE Regional Bioeconomy Forum, Atlanta, GA, September 16, 2016 .				
Sector Name	Invited	No. Participants	% RSVP to Attend	% of Attendees
Industry	60	7	12	22
State and local government	12	4	33	13
Economic and workforce development	18	3	17	9
Investment & finance	1	0	0	0
Academia	26	15	58	47
Agricultural and environmental organizations	7	3	43	9
	124	32	26	100

Reporting of Participant Priorities

Figure 1a (below) reflects their perspective on these “Challenges”.



Participants considered “growth instability and increased investment risk caused by policy uncertainty” as the dominant challenge faced by the bioeconomy industry, followed by steep competition from petroleum-derived resources. Access to capital for large financial investments, technical hurdles, and uncertainty of sustainability were tied for the 3rd priority.

Categorize as... Filter by Category Search responses

Showing 3 responses

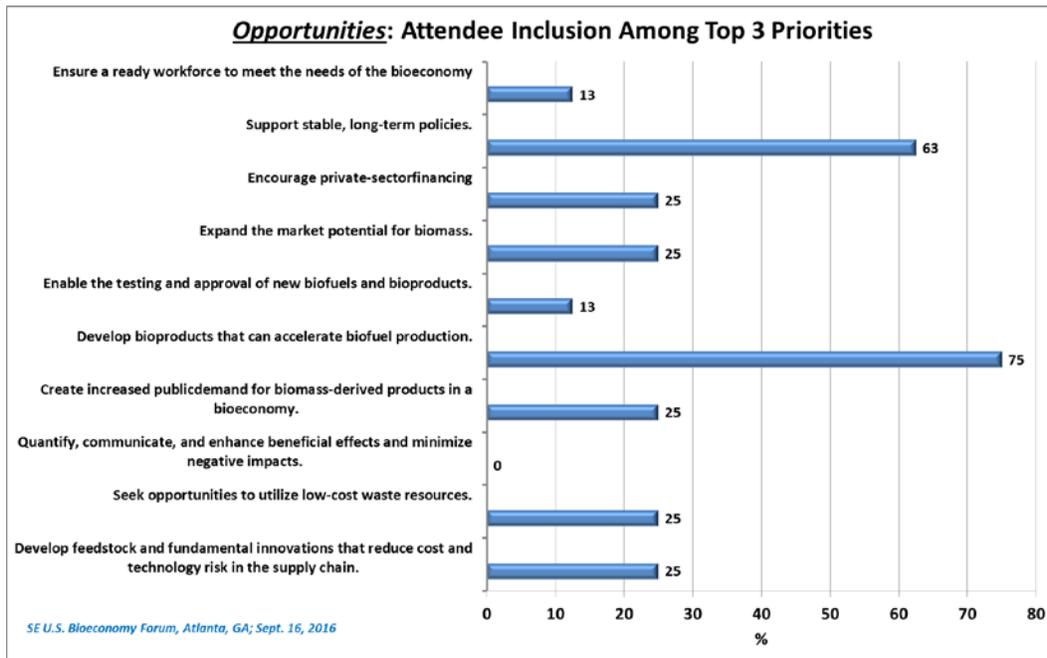
Initiate use of biomass for high value products
10/25/2016 7:45 AM [View respondent's answers](#)

Nanolignin
10/17/2016 6:45 PM [View respondent's answers](#)

Most risks are associated with the current biomass=>biorefinery=>energy with others as co-products. Focus on developing performance properties for renewable materials because users require such performance is a better path forward.
10/17/2016 6:25 PM [View respondent's answers](#)

Some respondents to the online poll also provided comments or some additional “challenges”:

Figure 1b (below) reflects their priorities on “Opportunities.”



Developing bioproducts that can accelerate biofuel product was seen as the top “opportunity” (75% of respondents) for the SE Region. Stable long-term policies was a close second (62% of respondents), and all other opportunities received 25% or less in prioritization.

Discussion: ATIP Foundation & Co-host Assessment of Themes, Issues, Regional Challenges & Opportunities

This section illustrates highlights of actual comments, selected by the Foundation, made by forum participants.

The full non-attribute comments by participants are available at the ATIP Foundation website.

On the issue of “**what are state/local/regional opportunities for the bioeconomy,**” specific comments suggested:

- Strengthening partnerships with federal agencies that were located in their region, as well as state agencies and regional stakeholders.
- Opportunity for regional production of biofuels, given the proximity of the Atlanta Hartsfield Airport, and a Gulfstream jet factory in Savannah. Currently, bioaviation fuel is trucked in from Southern California.
- Improved feedstock chains for the region utilizing many feedstocks such as those from the poultry industry, peanut industry, and woody biomass industry.
- Proximity to two oceans (Atlantic, Gulf of Mexico) meant good port facilities (infrastructure).
- With good ports, export market is strong for pellets, but should be expanded to include products for domestic markets (*enhance value proposition*).
- Strengthen research ties with universities and federal labs for product improvement (pelletizing) for more efficient transport.
- Strengthen workforce development by engaging Department of Labor and Department of Education to develop training programs that allow greater cross-over of skilled petroleum workers to biomass refiners;
- Communication plan to address health and environmental issues; workforce development to build skill sets, and to find niche markets that have environmental benefits.

- Broaden partnership network to include Government, University, Industry, Research Roundtable (GUIRR), perhaps suggesting a “bioeconomy initiative” to expand demand for biomass products.
- Clarify and strengthen both state and federal policies on biomass to favor investment and finance of projects to better utilize damaged woods (fire-damaged, diseased) and healthy woods for more efficient management of our SE forests. i.e., increase product demand from low value biomass and high value biomass (lumber) with incentives to use biomass.

There were some key points made on “how can we help create a regional demand for the bioeconomy”

- Enhance partnerships: Consider consortia and coops to provide value to production from small operations, serving as “biomass accumulators” locally for more efficient transport to local / regional biorefineries and processing plants.
- Strong consensus partner among industry players to maximize utilization of materials and make more bioproducts.
- Coordination / consortium to optimize supply chain (including logistics of transport) and provide stability for a bioeconomy market.
- Government should provide incentives that encourage small company growth in new / risky areas of the bioeconomy. Government policy can create new stable market opportunities.
- *There was strong consensus among participants that government incentives are needed to advance the bioeconomy.*

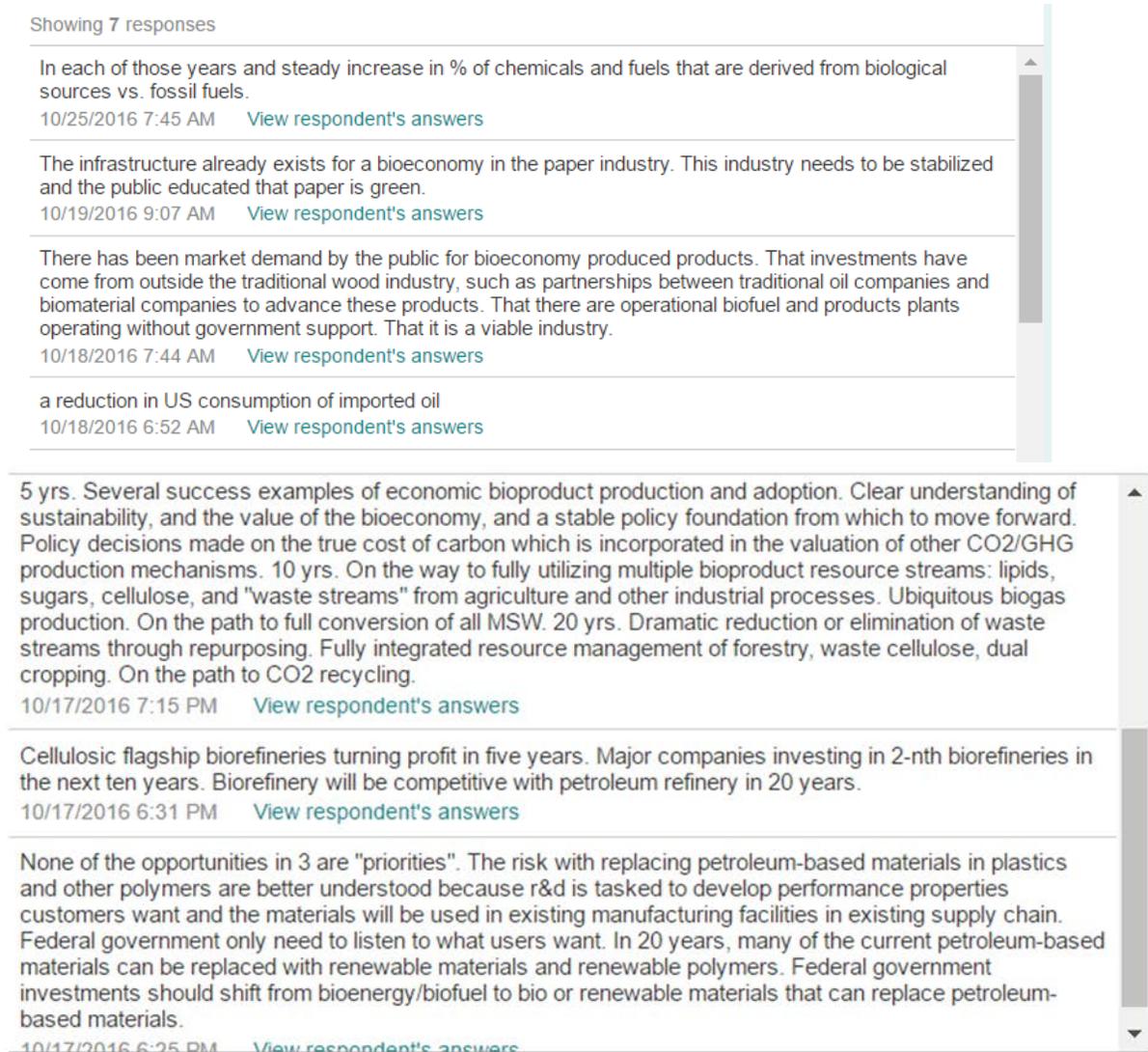
On the topic of “how can we best engage the interested public in the Southeast in the process of developing a “billion Ton Bioeconomy,” there was much discussion that focused on how best to market the bioeconomy products through some specific campaigns with industry, universities, and the Department of Education to begin getting the message to youth.

What would success look like in the coming years?

- Steadily increasing % of fuels and chemicals derived from biological sources and not fossil resources.
- There has been market demand by the public (through enhanced communication efforts), such that investments have come from outside the traditional wood industry, such as partnerships between traditional oil companies and biomaterial companies to advance these products.
- Following early government incentives, that there are operational biofuel and products plants operating without government support --- evidence that it is a viable and sustainable industry.
- Dramatic reduction or elimination of waste streams through repurposing; fully integrated resource management of forestry, waste cellulose, dual cropping --- on the path to CO₂ recycling.

Using the survey tool, the following questions were also asked post forum: **What would success look like in 5 years? >5 years?**

Seven responses were received, and are captured below (because survey responses necessarily were captured as an image of the online screen, resolution is not crisp):



Can you identify other groups in the SE that support the bioeconomy?

- The participants proposed that they develop a “SE Bioeconomy Planning” organization and plan for an annual event.

What can federal agencies do to increase likelihood of private financing the SE to build the bioeconomy?

- Discussion was clear around two points:
 - Find ways to reduce financial risk --- if you don't, you won't get private financing in any meaningful way. Aviation is starting to see a change --- have unlocked a couple \$B from institutional finance. Why? In part, competitive price point for biofuel (long term off-take

- agreements, and a high capacity biorefinery repurposed / renovated from a defunct petroleum refinery.
- Tax incentives for longer term investment. “With bioproducts on the cusp of commercialization, it is hard to get commercial investors because they don’t know how sustainable the effort will be.”

Summary Statement from ATIP Foundation

SE Regional Bio-Economy Forum Summary Wes Jurey, CEO, ATIP Foundation

The ATIP Foundation was established in 2011 at the request of the US Department of Agriculture (USDA), Agricultural Research Service (ARS), to serve as a third-party intermediary, engaging a variety of stakeholders with ARS research, programs, and initiatives. The initial goal of the Foundation was to enable a more collective, collaborative approach on behalf of the private sector, with each member representing one of the eight agricultural research regions in the USDA ARS infrastructure.

The fundamental premise behind this approach was the need to create greater awareness of the breadth and scope of USDA intramural research activity (and that of their federal and state partners such as Department of Energy, Department of the Interior, National Science Foundation), and possibly other collaborative agencies of USDA (e.g., Rural Development, Natural Resource Conservation Services, National Institute of Food and Agriculture), conducted in collaboration with 90 + ARS labs throughout the United States, and to foster an understanding that the federal research outcomes are available for use by business and industry, ultimately resulting in economic growth and development, in the agribusiness sector.

The Foundation was incorporated by eight state and regional technology-based economic development organizations, each individually serving as a federal partnership intermediary to USDA’s ARS, with many members also having facilitation agreements with other federal agencies, as well as their own network of in-state / regional non-federal stakeholders on many aspects of federal / private sector partnerships.

The Foundation’s approach to establishing the five “Advancing the Bioeconomy” forums was premised on identifying regions within the United States whose stakeholders were receptive to the idea that each forum would serve as a springboard to launch one or more demonstration projects within the region. These projects would utilize the scope of research and related outcomes resulting from the massive amount of federal research coordination overseen by the seven federal agencies comprising the Biomass Research & Development Board, formed by statute in 1999.

The ultimate purpose of the regional projects is to demonstrate that the federal research outcomes--- combined with other federal / state / local agencies whose scope is in “implementation” of research outcomes, can result in economic growth and development, particularly in rural areas of the country, creating new businesses and enabling existing businesses to expand, resulting in job creation.

From the Foundation's perspective, based on the response from forum participants, we believe our premise is sound. At the conclusion of the Southeast forum, participants were unanimous in support of reconvening in a year, and working to formulate a specific demonstration project tailored to their region in the interim.

It is noteworthy to the foundation that, while each of the five regional forums offered some unique perspectives, relative to their region, six common themes resonated throughout all five forums, relative to each region's ability to make use of the federal research to enhance the growth of regional economies.

First, the need for public awareness is considered a major challenge. At the beginning of most forums, there was significant discussion on what the bio economy actually was, beyond biofuel.

Second, the lack of knowledge of and about the federal resources within the seven agencies was cited. Throughout the discussion it became apparent that most attendees knew little, if anything, about the scope of research conducted; the number of federal labs that existed; or the significant number of research scientists employed. Additionally, there was little knowledge in terms of how to access the federal resources available, even if one were aware of them.

Third, the need to develop a talent pipeline for current and future workers was a strong concern. It was noted that although seven federal agencies were members of the BR&D Board, the Departments of Education & Labor were not engaged at the federal level. At the Southeast Regional forum, there was discussion on the need to include them in subsequent forums and pilot projects; none participated in this regional forum.

Fourth, development of the type of supply chain necessary to sustain the bio economy was expressed as a critical priority. It was noted that moving agricultural by-products and waste more than 100 miles was a significant inhibitor of the growth of this industry.

Fifth, the need to finance the growth of demonstration projects, establish new businesses, and expand existing businesses, by seeking federal, state, and private sector financial assistance is a critical concern. It was further noted that the financial community was the least represented in all forums (none in Atlanta).

Sixth, it was noted that federal policy is one of the most critical issues, and is an underlying issue to the first five cited. Policy uncertainty means high risk to institutions that provide financial assistance. It determines the allocation of federal resources, the priorities of the public workforce system, discourages the establishment of a supply chain uncertain of the sectors future, and makes articulating a vision for the bio economy more challenging.

In our report to the BR&D Technical Advisory Committee in November 2016, and the BR&D Board in December, our findings, and particularly the six commonalities, were well received.

In conclusion, the Foundation looks forward to working with Georgia Institute of Technology and the participants in the initial forum, to expand the stakeholder base, in order to begin the development of a regional demonstration project.

We look forward to doing so in partnership with the seven member agencies of the BR&D Board, optimistic that the vision of a billion ton bioeconomy can become a reality.

Summary Statement from Co-Host

Southeast U.S. Bioeconomy ATIP Foundation Forum Summary

Valerie M. Thomas

Regional Host

Anderson Interface Professor

Georgia Institute of Technology

This meeting was co-sponsored by the Renewable Bioproducts Institute and the Strategic Energy Institute at the Georgia Institute of Technology.

The Southeast forum brought together representatives of the forest industry, the paper industry, the biofuel industry, the wood pellet industry, aviation, agriculture, and researchers from several southeastern states.

Key highlights and findings are summarized below.

- The pulp and paper industry is substantial and can be a springboard for growth of the bioeconomy. This industry has a basis of expertise, infrastructure, supply chains, workforce, and successful operating markets.
- The wood pellet industry is strong and could expand from its current export focused structure to also include somewhat different products for the domestic market. The wood pellet industry has developed and adapted existing wood products industry infrastructure; this approach could be successful for a wider range of products.
- A number of biofuel companies are in place in the region with potential for and interest in production activities. There have been biofuel failures in the southeast which have left many in the region cautious and negative about biofuels; however this experience also provides hard-learned lessons and a healthy skepticism in which strong programs can succeed.
- The southeast has coastline on two sides and excellent ports, rail, and air transport infrastructure. These provide a supply chain basis for domestic and international markets. The wood pellet industry is an example of successfully building industry for international markets. Other opportunities could also benefit from potential for export as well as for domestic shipping.
- Substantial progress on the bioeconomy requires either a significant policy signal or a disruptive market change. Weak policy signals have resulted in incremental change. There was discussion throughout the meeting of the need for a sustained policy, technology or economic impetus sufficient to support bioeconomy initiatives.
- There was extended discussion of a range of factors which might affect bioeconomy prospects in the southeast: current forest ownership and management patterns, workforce availability and training, competing industries, state and local policies, and others. While all of these factors have some influence, there was general consensus that these issues could be sorted out if there were sufficient impetus for bioeconomy initiatives.
- The meeting was well-received. Participants suggested that this event should become an annual meeting; this is a signal of the positive potential of engagement and commitment to the bioeconomy.

--- End of synopsis report ---

Attachment: agenda and “discussion document”



SE BIOECONOMY REGIONAL FORUM AGENDA

“Garnering stakeholder perspectives and input to help shape the vision, strategic planning, and implementation to promote and expand the bioeconomy”

Date: Friday, September 16, 2016

Time: 9:30 AM – 5 PM

Location: Renewable Bioproducts Institute, 500 10th Street NW, Atlanta, GA 30332

Purpose: To outline the “Federal Activities Report on the Bioeconomy,” introduce a synopsis of the subsequent “Billion Ton Bioeconomy Initiative: Challenges and Opportunities” report (not yet formally released), and hear from stakeholders in (1) industry; (2) state and local government; (3) economic and workforce development; (4) investment & finance; (5) academia; and (6) agricultural and environmental organizations in order to accelerate the development of the bioeconomy.

8:30 AM—Registration / Check-in

9:30 AM—Welcome and Introductory Remarks

- Rick Brenner, Director, ATIP Foundation
- Jonathan Male, Biomass Research and Development (BR&D) Board¹, Operations Committee (Director, Bioenergy Technologies Office, U.S. Department of Energy)
- Todd Campbell, BR&D Board, Operations Committee (Senior Energy Advisor, U.S. Department of Agriculture)
- Norman Marsolan, State Host

10:00 AM–11:00 AM—Overview of the “Federal Activities Report on the Bioeconomy” and the “Billion Ton Bioeconomy Initiative: Challenges and Opportunities” Report

- Presentation by the BR&D Board, Operations Committee, led by Dr. Harry Baumes (Director, Office of Energy Policy and New Uses, Office of the Chief Economist, U.S. Department of Agriculture)
 - o Establishes issues from the federal agencies and frames the topics for discussion

11:00 AM–3:45 PM—Stakeholder Comments and Discussion

- 12:30 PM—Working Lunch

4:00 PM–4:30 PM—Facilitator Report Out and Next Steps

- Key comments, findings, and recommendations of the 6 sectors
- Includes next steps (timeline to review, prepare, and disseminate report) and feedback on session format

4:30 PM–5:00 PM—Closing Remarks / Adjournment



Critical Discussion Points

1. What are state/local/regional challenges to the bioeconomy?
2. How can the federal agencies help address these regional challenges?
3. What are state/local/regional opportunities to the bioeconomy?
4. How can the federal agencies help leverage these regional opportunities?
5. What is the value proposition of a bioeconomy?
6. How can you contribute to the Billion Ton Bioeconomy?
7. What are specific regional barriers that need to be addressed to grow a bioeconomy?
8. How can we help create a regional demand for the bioeconomy?
9. Where do you perceive, if any, a lack of workforce readiness to support the bioeconomy?
10. How can we best engage the interested public in the Southeast in the process of developing a Billion Ton Bioeconomy?
11. What would success look like in the short term (<5 years), and in the long term (>5 years)?
12. What can federal agencies do to increase likelihood of private financing in the Southeast to build the bioeconomy?
13. How do biomass-derived feedstocks benefit the Southeast region?
 - What is the potential for these benefits to grow?
 - Can feedstock commoditization help reach this potential?

¹ The Biomass R&D Board consists of representatives from the U.S. Department of Energy, U.S. Department of Agriculture, U.S. Department of the Interior, U.S. Department of Defense, U.S. Department of Transportation, the National Science Foundation, the Environmental Protection Agency, and the Executive Office of the President of the United States.