

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

**A Report to Participants in the NE Regional Bioeconomy Forum  
 Wells Conference Center, University of Maine (co-hosts)  
 Orono, ME**

**October 18, 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](http://www.atipfoundation.com)

**Forum Structure and Role of the Foundation and Co-hosts**

The NE U.S. Bioeconomy Forum was moderated by Wes Jurey, CEO of the ATIP Foundation. Members of the BR&DB Operations Committee made presentations that reviewed the FARB and posed questions related to advancing the bioeconomy.

Table 1: Demographics by sector describe the demographics of invitees by sector, and the actual number that participated on October 18, 2016. As has been the case in the regional bioeconomy forum series, both industry and investment & finance have low positive response rates (or few participants) to invitation to participate.

<b>Table 1. Demographics (by sector) of invitees and participants, convened by ATIP Foundation and co-host University of Maine for NE Regional Bioeconomy Forum, October 18, 2016.</b>					
<b>Sector Designation</b>	<b>Invitee</b>	<b>% of invitee</b>	<b>No. Participate</b>	<b>%RSVP to Attend</b>	<b>% of Attendee</b>
Industry	42	51	12	29	24
State and local government	13	16	13	100	26
Economic and workforce development	4	5	4	100	8
Investment & finance	6	7	3	50	6
Academia	13	16	13	100	26
Agricultural and environmental	4	5	5	125	10
<b>Totals</b>	<b>82</b>	<b>100</b>	<b>50</b>	<b>61</b>	<b>100</b>

The agenda (see attachment) included welcoming comments by the ATIP Foundation, BR&DB representatives, and Mr. Fred Jarrett, Senior Deputy Executive, King County, and representatives from the offices of Senator Susan Collins, and Senator Angus King, and introductory comments also by Dr. Carl Lucero, U.S. Forest Service. Slide set presentation was made by the ATIP Foundation followed by Alison Goss-Eng (Bioenergy Technologies Office, DOE) with assistance from 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 “discussion document” questions. Notes were taken (attributed to the commenter) on the fly by Renee Kelly, Assistant Vice President for Innovation and Economic Development University of Maine, and Director of Economic Development Initiatives & Co-Director of the Foster Student

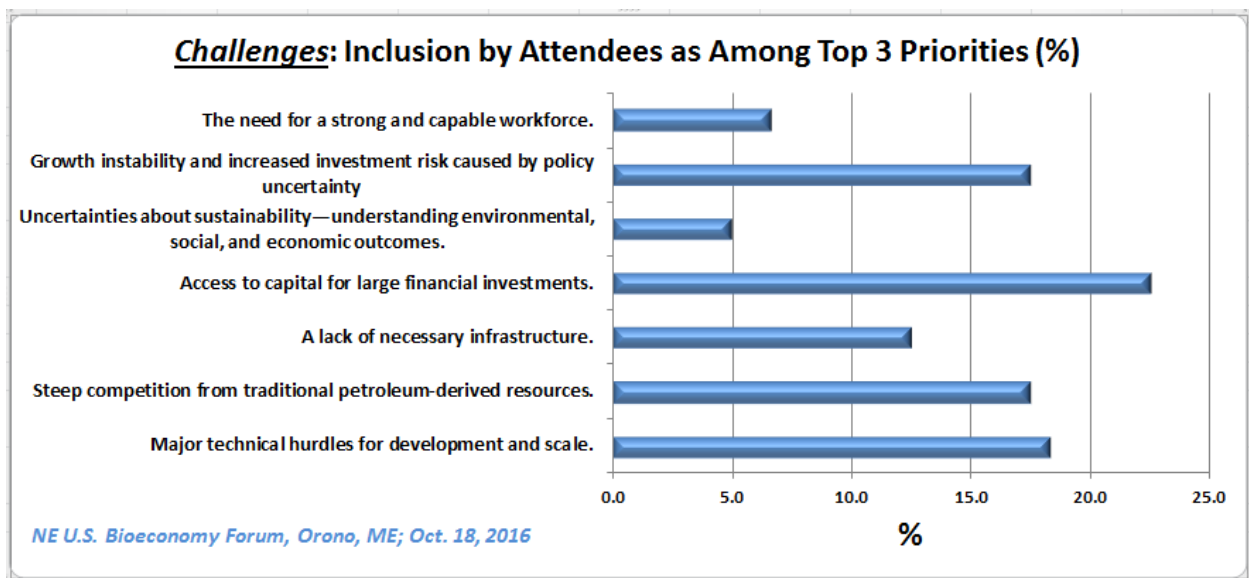
Innovation Center, Orono, ME, who projected these so all participants could review and correct as needed. The audio was also recorded from a laptop in case it was needed later to clarify comments.

Post forum, participants received a link to a Google Document and a two-week window to edit their specific comments, or add additional comment. Thereafter, the document was closed and the ATIP Foundation reviewed comments, clarified with authors as needed, redacted all names of comment contributors (rendering the comments “non-attributed,” and annotated with comments (RJB) from the Foundation. The complete NE Regional Bioeconomy Report that includes all comments by participants, as well as the slides presented, is available on the ATIP Foundation website, and serves as a comprehensive record of the event.

### **Reporting of Participant Priorities**

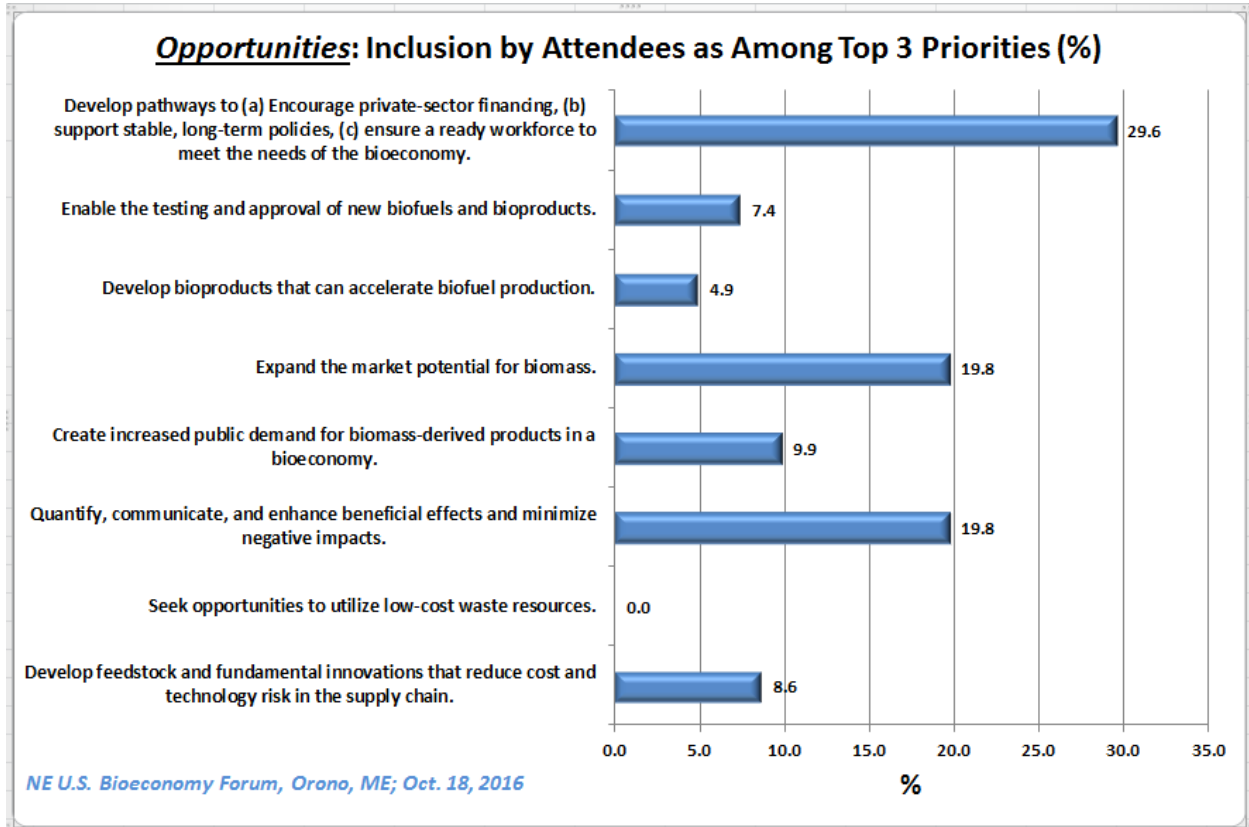
Participants prioritized each “challenge” and “opportunity” --- from their perspective --- to determine whether each was in the top 3 priorities of the NE U.S.

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



Having “access to capital for large financial investments” was considered to be the highest priority challenge in the NE (22.5%). Major technical hurdles for development and scale” was second (18.3%), with “growth instability & increased investment risk cause by policy uncertainty” and “steep competition from traditional petroleum-derived resources” tied for 3<sup>rd</sup> highest priority (17.5%).

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



The participants in Maine concluded that their top priority opportunities were a to develop pathways to (a) encourage private-sector financing, (b) support stable, long-term policies and (c) ensure a ready workforce to meet the needs of the bioeconomy; their score was 29.6%. Their other top two priorities were to “expand the market potential for biomass” and to quantify, communicate, and enhance beneficial effects and minimize negative impacts (19.8% each). Notably, participants had no interest to “seek opportunities to utilize low-cost waste resources,” ostensibly because of an abundance of woody biomass and the regional use for heat.

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

*Preface from the ATIP Foundation:*

*The NE Regional Bioeconomy Forum was unique among the five regional forums in the amount of questions and discussion that followed the welcoming remarks and preceded the formal presentations on the bioeconomy by the federal agencies, and the subsequent discussion by attendees. Attachment 4 includes over 5 pages of these preliminary comments from the participants (thank you note takers!). Accordingly, the Foundation recommends careful review of these notes as a precursor to the “Critical Discussion Points” conversations that occurred subsequently and are highlighted below. Specifically, the Foundation has provided many explanatory notes and internet URLs to address some of these comments raised in the preliminary comments.*

Regarding the “Critical Discussion Point” session, there were a number of comments from the NE region that characterized regional issues, but also many comments that were fairly common issues across the 5 regional

forums. Below, are non-attribute comments from participants, as well as notations by the ATIP Foundation; the latter are preceded below by “[NOTE:...],” and are also reflected in Attachment 4 of full report available on Foundation website as “Comment[RJB#].

***“What are state/local/regional challenges to the bioeconomy and how can the federal agencies help address these regional challenges?”***

- We need help scaling up from lab and bench scale – we need public private partnerships
- The private portion of the public/private partnership need to have representation from both the demand and the supply side. How can they better manage the valley of death.
  - **Note: the ATIP Foundation can assist in either / or any of these issues described in these first 2 bullets. Email [rbrenner@atipfoundation.com](mailto:rbrenner@atipfoundation.com) for further assistance.**
- Not doing a good enough job communicating to public - difficult to find the federal dollars to do that, for example, tall wood buildings in Boston, why and how it will benefit, public health, climate change, synthesize so we can communicate the story.
- Engineered wood products are a fine example of what we should be looking at as crucial building blocks of a bioeconomy that is not only sustainable but strengthen communities and serves such an improved profile for the region’s long term economic health.
  - **Note: Opportunity to partner with state PR, Chamber of Commerce, and federal agencies on successes? Communication appears to be a common theme from the Orono forum.**
- 30% tax credit for biomass ends this year; continues for others, lack of certainty is difficult for investments.
  - **Note: Lack of stable and predictable policy and incentives have been a common theme across all 5 forums.**

Comments on ***“What are state/local/regional opportunities to the bioeconomy and how can the federal agencies help leverage these regional opportunities?”***

- Consistent, identified agency point people ideally located in Maine.
- Workforce Innovation and Opportunity Act calls for alignment, Department of Labor and Education need to be here.
  - **Note: Excellent point, and both DOL and Dept. of Education are NOT part of the BR&D Board. It makes sense to pilot their inclusion. We suggest a dialogue with USDA Under Secretary for Research, Education, and Economics who co-chairs the BR&D Board; ATIP Foundation can help with that.**
- Educate public about value of bioeconomy to environment and rural economy led by marketing.
  - We need to state facts that tell the long-term story of the importance of a sound forest products industry to the region in both economic and environmental terms. For many the use of corn for fuel is not seen as an environmental problem. However ask the same question about forest products coming from natural forests managed under third party certification and the simple act of cutting a tree, regardless of the true sustainability is viewed as a negative outcome for many.
  - Further the rural economies of so many Northern Forest towns once thrived on the woods and can again, especially when you consider the impact of multiple use and how that deepens the economic vitality of a town or region.

- We need to develop a more effective narrative on this based on well done research and very well developed and presented marketing. The public really has to buy in to wood and any biomass feedstock use before we can move the bioeconomy forward in my view.
- We need private public partnership to communicate benefits
- Education for the workforce; there is an aging workforce in logging, equipment, operations. Need skills training. [Commenter's] truck drivers are all older than he is. *Need to keep kids in rural areas. Community College created program for 15 wind turbines but not for logging in Aroostook.*
- Maine uses natural forest management, but regulators reward plantation style management because ours is harder to quantify, *agencies should look to reward natural management with higher renewable credits*

#### ***How is the health of the venture capital in this region?***

- No shortage of capital if we come up with deals that look good, *need to work out a process to develop success stories of converting to biomass energy to show investment yields return.*
- Biomass processing should be done as close to the stump as possible to reduce transportation but shifts in how we move materials to market, *can DOT help us re-engineer?*
- Deep water port to Europe --- we have it, but how do we take advantage of that since there is no rail line there
  - **Note: Infrastructure was a key discussion in Orono because of geography, lack east-west connections, and being at the “end” of the NE corridor.**
- New diesel emissions standards EPA Tier 4 trucks aren't reliable. It's a big problem.
  - **Note: The Foundation suggests that EPA be invited into discussions on next NE Regional Bioeconomy Forum.**

#### ***What sets the NE Bioeconomy apart from other regions of the country? What inherent advantages do you have?***

- Currently supply and a well-developed infrastructure for forest management. Likely a less impactful results, at least short-term from climate change. Think fires out west and other weather and health related impacts in the southern US. *The supply issue is driven as noted earlier by the decline in the pulp and paper industry leaving a large source of forest products available.*
- The region has a high concentration of education institutions;
- Tremendous amount of innovation and entrepreneurship;
- Natural resource management and bioproducts advantage, continual need to weed, material that gets left in the forest --- pre-commercial thinning material is an opportunity available to the bioeconomy”

***What regulatory issues (or other) constrain success?***

- Many. Upstate NY and New England are not friendly to heavy industry like big biofuels plants. *Good reasons to let the South have those and focus on small scale distributed approaches.*
- *Transportation, need a regional study, regional infrastructure policy to reduce costs*
  - *Goal here is that we need both enhanced systems for trucks and rail, but also a consistent set of regulations for transportation across the 4 Northern Forest states and Quebec.*

***“What does success look like in the MW bioeconomy?”***

- Zero use of fuel oil for heating
- Great silviculture and forest management, *with markets*
- Full employment so kids can stay in rural areas
- Connectivity of biomass into the [electric] grid
- Every landowner participating if they want to – even a small woodlot
- Double or triple enrollment in the University’s forestry school
- Would like to see that a logger can get pine logs to the mill, pulp to the paper plant, and biomass to a biomass processor.
- Respect for foresters and landowners, credit for environmental and other benefits of the bioeconomy industry in Maine.

***What incentives would help you?***

- We need some way to provide price stability. Analogy to corn, milk, cotton, and rice supports. USDA knows some things about these things. Throwing massive federal grants at investors, or conducting masses of unfocused basic research haven’t worked very well and won’t until we faced the price volatility problem squarely.
- Capital gains on forest land - current tax policy is a liability for maintenance of forest lands and promotes liquidation
- Federal tax policy is a disincentive to long-term stewardship as capital gains are not indexed to inflation. Further there are other elements of the tax code that reward short-term owners and penalize long-term ownerships. We need to integrate other government policies to create a better economic climate for the ownership, management and harvesting of timberland. ... carrots not sticks will serve this bioeconomy project very well.
- Change definition of renewable credits to allow forest biomass from naturally regenerating forests.

***Would you support a recommendation to agencies to put grants out that insists on collaborative partnerships and structures 2-3 year with outcomes then phases out?***

- Group consensus: yes
- More beneficial to filter money through existing community development organizations for impact.
- We need industry roadmap to success, legislative support, with university
  - **Note: recommendation to the BRDB.**
- The Northeast is a mega region, 20% US population; build for a regional market as an advantage. Need regional economic allies.

***What other biomass would you like to consider in the discussion of advancing the bioeconomy? Animal wastes / carcasses / concentrated animal feeding operations / seafood industry wastes? Municipal landfill biorefineries? Others?***

- Municipal wastes, dairy and forest “products” and bi-products (don’t use the word “waste” because it has a negative image). Have a broad definition, such as “anything that can be grown ....” And then work on criteria.
- Aquaculture and fisheries wastes should be considered – there are lots of these

***As a region, how can you enhance your bioeconomy through new partnerships in the region, or on a more global basis?***

- federal agencies through Maine Forest Products Council
- Integration on both sides, across federal family and long-term commitment
- Roadmap partnership with industry and university, spruce budworm task force is a model for how this could work. Also look to benchmark what the Canadians across the border have been doing (i.e. Atlantic Canada Opportunities Agency;
  - **Note: see 3 URLs on page 14 of notes from Forum.)**
- We have unique situation because of the amount of privately held land. ... We are an importer of woods, but now markets have diminished (but we are still importers of certain species of the wood). *When policies change in Massachusetts, Rhode Island, Vermont, New York change, it affects them here.* Are scrambling to fill some markets that we have here?
- Need rail in this area for infrastructure. No major national rail carriers in this area. Most are small lines that have high turnover. ... The rail system must be enhanced to address the costs of rail transport due to multiple rail carriers and the “switching” costs from one carrier to the next.
- Ports. What are the barriers? *Underutilized, from a regional standpoint. Regional transmission of electricity, northern Maine is not connected.*

***Summary Statement from ATIP Foundation***

**NE 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 Northeast 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 the forum, there was significant discussion on what the bioeconomy 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.

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 the forum.

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 the University of Maine 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 bio economy can become a reality.

### ***Summary Statement from Co-Host***

### **Northeast Bioeconomy ATIP Forum Summary**



**Renee Kelly  
Hemant Pendse  
Stephen Shaler  
Regional Co-Hosts  
University of Maine**

The meeting was held on October 18, 2016 at the University of Maine. Forty-five participants represented all stakeholders of the forest-based economy in Maine. Sectors represented included forest landowners, pulp and paper mills, forest and bioproducts-related trade associations, state agencies (economic development, labor), federal agencies (USDA, DOE), University researchers, consultants, biomass energy producers, sawmills, environmental and other nonprofit organizations, investment and finance organizations and federal delegation staffers. One participant was from SUNY/ESF in New York with experience in woody bioenergy crops.

This meeting was held in juxtaposition with the current Economic Development Assessment Team (EDAT) process led by the U.S. Department of Commerce Economic Development Administration, which is focused on the forest-based economy in Maine. As such, the forum was timely and highly relevant with excellent representation from various stakeholder groups. The time frame of participant concerns and interests was predominantly immediate and near-term. The focus on forest-based aspects of the bioeconomy is particularly relevant for New England and northern New York - the landscape of which is predominantly forested.

Four themes emerged as consensus takeaways:

1. Maine's (and New England) forestland is sustainably managed and harvested, relying on natural-growth rather than plantation forestry. Sustainable biomass from Maine's forest needs to be treated fairly in federal definitions relevant to RFS2 compliance and qualification for RIN credits. This issue applies to the entire Northern Forest Region that includes Maine, New Hampshire, Vermont and New York. Tree residue from unmerchantable trees can provide sustainable biomass complementing slash, pre-commercial thinning and chipmill or sawmill wastes. The fact that naturally regenerated forests have no GMO stigma is a competitive advantage for selected markets.
2. Wood supply logistics in Maine and New England have not been globally competitive. Investment and policy changes are needed to improve rail, port, and trucking transportation infrastructure. This infrastructure is critical to sawlog, wood fiber, as well as biomass supply chains as well as to cost-competitive export of bio-based products to domestic and international markets.
3. An industrial eco-system exists for forest-based bioproducts that is characterized by extremely high utilization rates of all materials and significant business-to-business relationships. The success of new bioproducts will require an understanding of and integration within this cluster. Significant opportunity exists for co-product portfolios that include nanocellulose and/or cellulosic sugars using biomass feed. C6 or C5 sugar monomers can be used for conversion to biofuels and/or bioplastics. Cellulose nanofibers (CNF), more commonly called nanocellulose, offer emerging opportunities for use in a wide variety of applications such as polymer reinforcement, food packaging, 3D printing resins, adhesives, biocomposites, textiles, lightweight structural components, tissue implants, and foams. Targeted programs to support technology scale-up and deployments are key to de-risk new technologies and attract capital investment required for new manufacturing infrastructure.
4. With the recent loss of several pulp mills and biomass power plants, more than 3 million green tons of biomass - with an established logistics system - is available for new products/markets. A key for establishment of new manufacturing facilities will be the attraction of capital investments.

Near-term coordination with the Maine EDAT process will be very effective in providing Maine forest communities much needed economic development assistance, while laying a foundation for continued evolution of the forest bioeconomy for the Northeast region.

--- End of synopsis report ---

**Attachment: agenda and "discussion document"**

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## NW Regional Bioeconomy Forum Orono Maine Forum Agenda

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

**Date:** October 18, 2016 **Time:** 9 AM – 4 PM (local time)

**Location:** Wells Conference Center, University of Maine, Orono

**Meeting Purpose:** To introduce the “Federal Activities Report on the Bioeconomy,” and the subsequent “Bioeconomy Challenges and Opportunities for the Billion Ton Vision” report and to 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

- Dr. Susan Hunter, President, the University of Maine
- Wes Jurey, Chairman, ATIP Foundation
- Carl F. Lucero, Director, Landscape Restoration & Ecosystem Services Research, U.S. Forest Service
- Alison Goss Eng, BR&D Board, Operations Committee (Bioenergy Technologies Office, Energy Efficiency and Renewable Energy, U.S. Department of Energy)
- Todd Campbell, BR&D Board, Operations Committee (Senior Energy Adviser, US Department of Agriculture)

10:00 Overview of “Federal Activities Report on the Bioeconomy”, and “Bioeconomy Challenges and Opportunities for the Billion Ton Vision” (1 hr.)

- Presentation by Todd Campbell, BR&D Board, Operations Committee (Senior Energy Advisor, U.S. Department of Agriculture), and Alison Goss Eng, Bioenergy Technologies Office, Energy Efficiency and Renewable Energy, U.S. Department of Energy, and
  - 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

<sup>1</sup> 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.

## The Billion Ton Bioeconomy Initiative: Challenges and Opportunities

### *Overview and Outline of Topics*

#### **Purpose of the Billion Ton Bioeconomy Initiative: Challenges and Opportunities Report:**

In February 2016, the Board released the *Federal Activities Report on the Bioeconomy* (FARB) to highlight the potential for a stronger U.S. bioeconomy, specifically some of the impacts of increasing biomass utilization three-fold by 2030.<sup>1</sup> The goal of the Billion Ton Bioeconomy Initiative (Bioeconomy Initiative) is to develop and coordinate innovative approaches to expanding the sustainable use of America's abundant biomass resources, while maximizing economic, social, and environmental benefits.

Since the release of the FARB, the Board has engaged with the bioenergy stakeholder community to further develop the Bioeconomy Initiative. The new report, *The Billion Ton Bioeconomy Initiative: Challenges and Opportunities*, is the second in a three-part series intended to lay the foundation and serve as the public communication of the Bioeconomy. This report is foundational to the Board's objective to strengthen the commitment and coordination between the U.S. Government and the bioeconomy community. Early feedback from stakeholders has underscored the importance of biofuels, bioproducts, and biopower. This report details several challenges and opportunities that stakeholders have identified as critical to the success of the Bioeconomy Initiative.

#### **Summary of Challenges and Opportunities:**

This report discusses seven of the high-priority **challenges** recognized by the bioeconomy stakeholder community, identified below:

- Major technical hurdles for development and scale.
- Steep competition from traditional petroleum-derived resources.
- A lack of necessary infrastructure.
- Access to capital for large financial investments.
- Uncertainties about sustainability—understanding environmental, social, and economic outcomes.
- Growth instability and increased investment risk caused by policy uncertainty
- The need for a strong and capable workforce.

Specific **opportunities** within each challenge as potential growth areas for the future of the Initiative are detailed below:

- Create increased public demand for biomass-derived products in a bioeconomy.
- Quantify, communicate, and enhance beneficial effects and minimize negative impacts of an enhanced bioeconomy.
- Enable the testing and approval of new biofuels and bioproducts
- Encourage expansion of the market potential for biomass.
- Develop feedstock to meet market demands and potential
- Develop bioproducts that can accelerate biofuel production.

- Support fundamental innovations that reduce cost and technology risk in the supply chain.
- Seek opportunities to utilize low-cost waste resources.
- Develop pathways for:
  - private-sector financing.
  - Support stable, long-term policies.
  - Ensure a ready workforce to meet the needs of the bioeconomy.

**Disclaimer:**

*The Billion Ton Bioeconomy Initiative: Challenges and Opportunities* is a product of interagency collaboration under the Biomass Research and Development Board and does not establish any new or explicitly reflect United States Government policy. Some information is based on activities conducted by the Executive Agencies as of May 2016. However, some of the views expressed in this document reflect stakeholder perspectives and do not represent United States Government policy. This report is not a policy or budget document nor an action plan, and it does not commit the federal government to any new activities or funding.

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<sup>1</sup> [http://www.biomassboard.gov/pdfs/farb\\_2\\_18\\_16.pdf](http://www.biomassboard.gov/pdfs/farb_2_18_16.pdf)

**Critical Discussion Points  
(from Biomass R&D Board representatives)**

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?

**Additional Regional Discussion Points for Consideration  
(from ATIP Foundation)**

- a) From the “Challenges” section of the above document, what would you list as the 3 highest priorities to discuss and address from the NE region?
  - From that same list, what SHOULD be added to that list from our regional perspective? Does it change your prioritization scheme?
- b) From the “Opportunities” section of the above document, is anything missing from the list, and what would you list as the 3 highest priorities to discuss and address from the NE region?
- c) What sets the NE Bioeconomy apart from other regions of the country?
  - What inherent advantages do you have?
  - What regulatory issues constrain success?
  - What incentives would help advance business opportunities to advance the bioeconomy?
  - What does success in the bioeconomy look like in NE U.S. now? In 10 years? In 20 years?
- d) What other biomass would you like to consider in the discussion of advancing the bioeconomy? Animal wastes / carcasses / concentrated animal feeding operations / seafood industry wastes? Municipal landfill biorefineries? Others?
- e) As a region, how can you enhance your bioeconomy through new partnerships in the region, or on a more global basis?