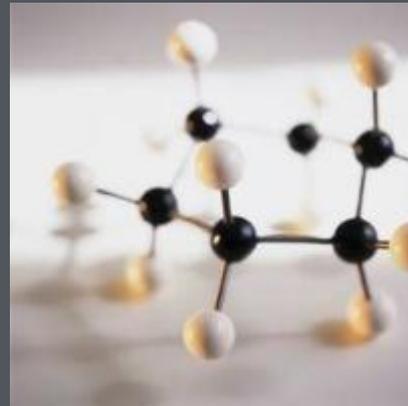


Biomass R&D Technical Advisory Committee (TAC)

U.S. DEPARTMENT OF
ENERGY | Energy Efficiency &
Renewable Energy



**Quarterly Meeting –
DOE Updates**

**Elliott Levine
DOE Biomass Program
March 1, 2012**

Biomass Program Manager Update

- The Biomass Program is still looking for a Program Manager to replace Paul Bryan, after his departure at the end of November 2011.
- Valerie Sarisky-Reed is serving as the Acting Program Manager until a full-time replacement is hired.

Valerie will be attending the TAC meeting at 1:15 this afternoon to discuss:

- FY 2012 Biomass Program Budget and FY 2013 Budget Request
- Upcoming FOAs for:
 - Advancements in Sustainable Algae Production
 - Synthetic Biology Applications for Biofuels and Bioproducts
 - Bio-Oil Stabilization and Commoditization
 - Clean Cookstoves
 - Innovative Pilot.

The Biomass Program's Conversion Technologies for Advanced Biofuels workshop (CTAB)

- December 6–8, 2011, in Washington, D.C.
 - Expand upon existing R&D roadmaps
 - *Breaking the Biological Barriers to Cellulosic Ethanol*
 - *Breaking the Chemical and Engineering Barriers to Lignocellulosic Biofuels*
 - Areas of focus: R&D barriers and activities
 - R&D progress as laid out in existing roadmaps, evaluate gaps
 - Identification and inclusion of hybrid routes
 - Dedicated focus to hydrocarbon fuels and products
 - Gather input from industry, national labs, and academia



Advanced
Conversion
Technology
Roadmap

- Workshop focused on 5 key technology areas
 - Enzymatic and non-enzymatic routes to carbohydrate derivatives
 - Biological and chemical conversion of carbohydrate intermediates
 - Bio-oil production and upgrading – Chemical composition modification
 - Bio-oil production and upgrading – Destabilizing component mitigation
 - Bio-oil production and upgrading – Selective fractionation

- Post-workshop timeline
 - Results of the CTAB workshop were presented in a webinar on February 9, 2012
 - Comments will be solicited on the first draft of the Roadmap between May–August 2012
 - The Roadmap is scheduled for publication by October 31, 2012

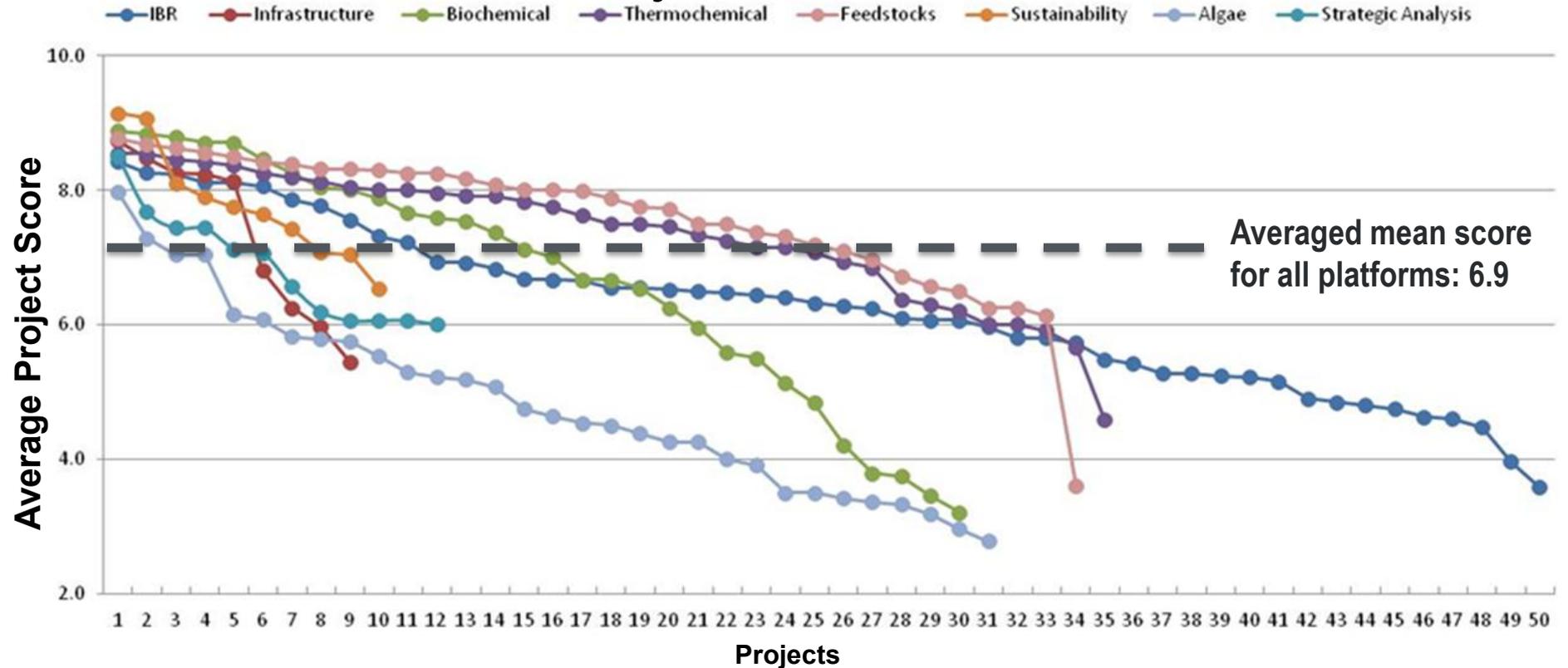
- Roadmap will identify key barriers to commercialization for advanced processing technologies and guide OBP out-year R&D activities.

Biomass Program Peer Review

All EERE programs are required to host biennial peer reviews to obtain independent outside assessments of each program's current R&D portfolio.

- A total of 217 projects across 8 platforms were reviewed in meetings held between February and April 2011.
- Platforms Reviewed included:
 - ✓ Thermochemical Platform
 - ✓ Biochemical Platform
 - ✓ Integrated Biorefineries Platform
 - ✓ Feedstock Platform
 - ✓ Algae Platform
 - ✓ Analysis Platform
 - ✓ Sustainability Activities
 - ✓ Infrastructure Activities
- The final reports, including score information, reviewer comments, and principal investigator responses have now been finalized and are available to the public.
- The Biomass Program will use the results of the 2011 review process to help make strategic decisions about project funding and balance priorities across the RD&D portfolio.

Distribution of Project Scores Across Platforms



Superior		Good		Satisfactory		Marginal		Unsatisfactory	
10	9	8	7	6	5	4	3	2	1
All aspects of the criterion are comprehensively addressed. There are significant strengths, and no more than a few weaknesses that are easily correctable.		All aspects of the criterion are adequately addressed. There are significant strengths and some weaknesses. The significance of the strengths outweighs most aspects of the weaknesses.		Most aspects of the criterion are adequately addressed. There are strengths and weaknesses. The significance of the strengths slightly outweighs aspects of the weaknesses.		Some aspects of the criterion are not adequately addressed. There are strengths and significant weaknesses. The significance of the weaknesses outweighs most aspects of the strengths.		Most aspects of the criterion are not adequately addressed. There may be strengths, but there are significant weaknesses. The PI fails to demonstrate the project's capability to meet objectives.	

Biomass Program Peer Review Final Reports

- **Reports are now posted live on Biomass Program Website:**
http://www1.eere.energy.gov/library/pir_publicationsnew.aspx/page/1
- **Program Peer Review Report:**
www.eere.energy.gov/biomass/pdfs/2011_program_review.pdf
- **Platform Peer Review Reports:**
 1. IBR Platform Review: www.eere.energy.gov/biomass/pdfs/2011_ibr_review.pdf
 2. Infrastructure Platform Review:
www.eere.energy.gov/biomass/pdfs/2011_infrastructure_review.pdf
 3. Biochemical Conversion Platform Review:
www.eere.energy.gov/biomass/pdfs/2011_biochem_review.pdf
 4. Thermochemical Conversion Platform Review:
www.eere.energy.gov/biomass/pdfs/2011_thermochem_review.pdf
 5. Analysis Platform Review: www.eere.energy.gov/biomass/pdfs/2011_analysis_review.pdf
 6. Sustainability Platform Review:
www.eere.energy.gov/biomass/pdfs/2011_sustainability_review.pdf
 7. Feedstock Platform Review: www.eere.energy.gov/biomass/pdfs/2011_feedstocks_review.pdf
 8. Algae Platform Review: www.eere.energy.gov/biomass/pdfs/2011_algae_review.pdf

The Biomass Program's Social Aspects of Bioenergy Sustainability Workshop

- April 24, 2012, in Washington, D.C.

One-day Workshop will focus on social aspects of bioenergy sustainability including:

- Social well-being: employment, food security, household income, etc.
 - Social acceptability: public opinion, transparency, and stakeholder participation
 - Energy security and external trade: fuel supply stability, energy security premium, terms of trade, trade volume.
- A workshop summary report will help the program develop quantifiable metrics for social sustainability indicators.

If TAC members wish to participate or have suggestions for participants (more academic participants are needed) please contact Aaron Crowell at acrowell@bcs-hq.com or visit the webpage at http://www1.eere.energy.gov/biomass/events_detail.html?event_id=6686.

Biomass 2012: Confronting Challenges, Creating Opportunities – Sustaining a *Commitment to Bioenergy*

- **Date: July 10 – 11**
- **Location: Washington, D.C. Convention Center**
- The conference will examine the dynamic playing field of bioenergy in 2012 as exciting new technologies move forward within a shifting policy and economic landscape.
- Last year's conference featured keynote speeches from DOE Secretary Steven Chu, USDA Secretary Tom Vilsack, and Senator Amy Klobuchar.



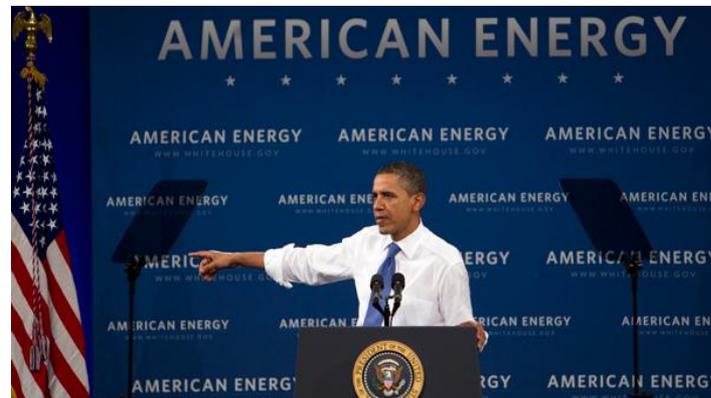
More information can be found at the following website:

www.eere.energy.gov/biomass/biomass_2012.html

On February 23, 2012, President Obama delivered a major speech outlining an “all of the above” energy strategy in which he highlighted the potential for algal biofuels:

“We’re making new investments in the development of gasoline and diesel and jet fuel that’s actually made from a plant-like substance – algae... Believe it or not, we could replace up to 17 percent of the oil we import for transportation with this fuel that we can grow right here in the United States. And that means greater energy security. That means lower costs. It means more jobs. It means a stronger economy.”

-- Barack Obama, Miami, Florida



DOE Role and Impacts

- The 17% figure was sourced to a 2011 paper on a national algae resource assessment published by researchers at the DOE’s Pacific Northwest National Laboratory
- The White House press release also highlighted a new DOE FOA for Sustainable Algal Production for awards of up to \$21 million,* with \$14.3 million available in FY 2012 for two topic areas:
 - Topic Area 1: Support the development and demonstration of integrated cultivation and recycling technologies for algal biomass production that demonstrate minimal water and external nutrient inputs and/or the use of waste/effluent nutrients
 - Topic Area 2: Establish Regional Algal Feedstock Test bed (RAFT) partnerships.
- Valerie Reed will provide more details about the FOA this afternoon.

Reviews:

- Bioenergy Research Center Reviews (on site) (Fall, 2011)
- Joint Genome Institute Review (on site) (December 5–6, 2011)

Reports:

- Biosystems Design: Draft workshop report released January 9, 2012
<http://genomicscience.energy.gov/biosystemsdesign>
- Switchgrass Research Group: Progress Report
<http://genomicscience.energy.gov/pubs/switchgrassreport.pdf>

Program Meetings:

- USDA-DOE Plant Feedstocks Genomics for Bioenergy Annual Principal Investigators Meeting (Jan.13, 2012), San Diego, CA
- Genomic Science Principal Investigator's Meeting (Feb. 26–29, 2012), Bethesda, MD
- *Upcoming* DOE Joint Genome Institute Annual User Meeting, “Genomics of Energy and Environment” (March 20–22, 2012), Walnut Creek, CA:
➤ <http://www.jgi.doe.gov/meetings/usermeeting/>

Solicitations

- Joint DOE-USDA Plant Feedstock Genomics Notice
(DE-FOA -0000598)
 - Translation of genomics information into cultivar improvement for bioenergy crops; phenotyping bioenergy crop germplasm collections and breeding lines
 - Up to \$6M in funding anticipated, award sizes expected to range from \$200,000 to \$500,000
 - 61 full proposals received Feb. 24, 2012; currently planning for panel review.
- Genomic Science: Biosystems Design to Enable Next-Generation Biofuels
(DE-FOA-0000640)
 - Microbial systems design for biofuels; Plant systems design for bioenergy
 - Up to \$20 million available in annual funding, award sizes expected to range from \$1-5 million
 - FOA issued Jan. 13, preapplications due Feb. 13, encouraged proposals due April 2.

POET's Project Liberty

- A groundbreaking ceremony for Project Liberty is scheduled for March 13, 2011
- Project Liberty will be a 20 million gallon per year cellulosic ethanol facility in Emmetsburg, Iowa
- The project will be a 50/50 joint venture with the Netherlands-based DSM, known as Poet-DSM Advanced Biofuels, LLC.

DOE Role

- On January 23, POET announced that it would decline the \$105 million DOE Loan Guarantee
- DOE is providing POET with up to \$100 million in financial assistance for design, construction, equipment, start-up, commissioning, and feedstock logistics development
- POET has developed and continues to refine best practices for stover harvesting, storage, and logistics with DOE funds
- POET has also credited the DOE LG due diligence process as an important milestone on the quest to commercialize cellulosic ethanol
- Secretary Chu or another representative from DOE is expected to attend the groundbreaking ceremony

Useful web links:

1) Biomass Program Review Reports can be found here:

www.eere.energy.gov/biomass/pdfs/2011_program_review.pdf

2) Sustainability Workshop

http://www1.eere.energy.gov/biomass/events_detail.html?event_id=6686

3) Biomass 2012

www.eere.energy.gov/biomass/biomass_2012.html

4) Biosystems Design: Draft workshop report released January 9, 2012

<http://genomicscience.energy.gov/biosystemsdesign>

5) Switchgrass Research Group: Progress Report

<http://genomicscience.energy.gov/pubs/switchgrassreport.pdf>

6) Upcoming DOE Joint Genome Institute Annual User Meeting, “Genomics of Energy and Environment”

<http://www.jgi.doe.gov/meetings/usermeeting/>