

DOE Updates

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DOE Biomass Program
May 22, 2012

Travel Process

- Natalie Roberts is the point of contact for all questions related to TAC travel and reimbursement. She can be reached at natalie.roberts@ee.doe.gov or 202-586-2325.
- Reimbursement deadline for the May meeting: **June 15, 2012.**

Future Meeting Dates

- Tentative meeting dates for 2012 are tentatively scheduled as follows:
 - Q3: August 20-24, 2012
 - Q4: November 5-9, 2012
- The meeting dates and locations for 2013 Q1-Q4 will be discussed during the 2012 Q4 meeting and based on the consensus availability of the Committee members.

TAC Binder Contents

1. Agenda
2. Biomass R&D Act
3. Committee Charter
4. Committee Members
5. Board Members
6. Speaker Bios
7. DOE and USDA Biomass Updates
8. BRDI Report and Data
9. 2011 Recommendations
10. 2012 Meeting Dates
11. Site Visit Materials

Agenda at a Glance – Tuesday, May 22nd

Introduction and Welcome to New Committee Members

- 8:30-8:40: Ronnie Musgrove and Steve Briggs (TAC Co-Chairs)

DOE/USDA Updates

- 8:40-9:00: DOE Updates – Elliott Levine (DOE)
- 9:00-9:20: USDA Updates – Todd Campbell (USDA)

Presentations

- 9:20-9:45: BRDI Solicitation – Carmela Bailey (USDA)
- 10:00-12:00: Panel Discussion: R&D and Commercialization of Biofuels in the North West

Lunch (12:00-1:00: To be provided for Committee)

Committee Work

- 1:00-1:10: TAC Library Demo – Andrew Graves (BCS)
- 1:10-1:30: Committee Work – Ronnie Musgrove and Steve Briggs (TAC Co-Chairs)
- 1:30-3:45: Subcommittee Breakouts

Tours

- 4:00-6:30: Pacific Northwest National Laboratory – EMSL/BSEL Campus

Agenda at a Glance – Wednesday, May 23rd

Breakfast (8:00-8:30: To be provided for Committee)

Committee Work

- 8:30-8:45: Instructions – Ronnie Musgrove and Steve Briggs (TAC Co-Chairs)
- 8:45-9:45: Subcommittee Breakouts
- 10:00-11:15: Subcommittee Report Outs

Public Comments

- 11:15-11:30: Public Comments – TBD

Closing

- 11:30-11:45: Closing – Ronnie Musgrove and Steve Briggs (TAC Co-Chairs)
- 11:45-12:00: Pack lunch and Prepare for Departure

Tours

- 1:00-2:00: Tour of Green Wood Resources
- 2:30-3:50: Tour of ZeaChem Demonstration Biorefinery
- 4:10-6:00: Tour of Portland General Electric Power Plant

About the Facilities:



PNNL's Bioproducts, Sciences, and Engineering Laboratory (BSEL): A joint effort between WSU and PNNL. Tour will include fermenter tanks, pyrolysis units, gassifiers, and catalysis units. Research is focused on bio-oil production and upgrading, gasification and syngas cleaning and conditioning.



PNNL's Environmental Molecular Sciences Laboratory (EMSL): A DOE national user facility shared by researchers from around the world. Tour will include demonstrations of a variety of analysis tools developed at EMSL with the support of the DOE Office of Science.



ZeaChem Demonstration Biorefinery: Existing facility converts sugars to intermediate chemicals using a hybrid biochemical/thermochemical process. A pilot IBR project is under construction which will convert 10 tons per day of hybrid poplar trees and other cellulosic material into 250,000 gallons of cellulosic ethanol per year.



Portland General Electric's Boardman Power Plant: A 585 MW coal-fired power plant is examining the possibility of transitioning from coal to biomass and working with researchers to assess the use of Arundo Donax as a feedstock.

Meeting Goals

- Q2: First Draft of TAC Recommendations
 - Following discussion of unmet needs and the R&D needed to achieve them.
- Q3: Finalize TAC Recommendations
- Q4: Vote on TAC Recommendations

TAC Resources

- TAC Library and BRDI Spreadsheet
- Outside experts and panel discussions with government officials, industry executives, and scientists.
- One off-site field trip (outside of Washington) per year.
- Follow-up with other information requests related to the BRDI and other DOE/USDA funding initiatives.

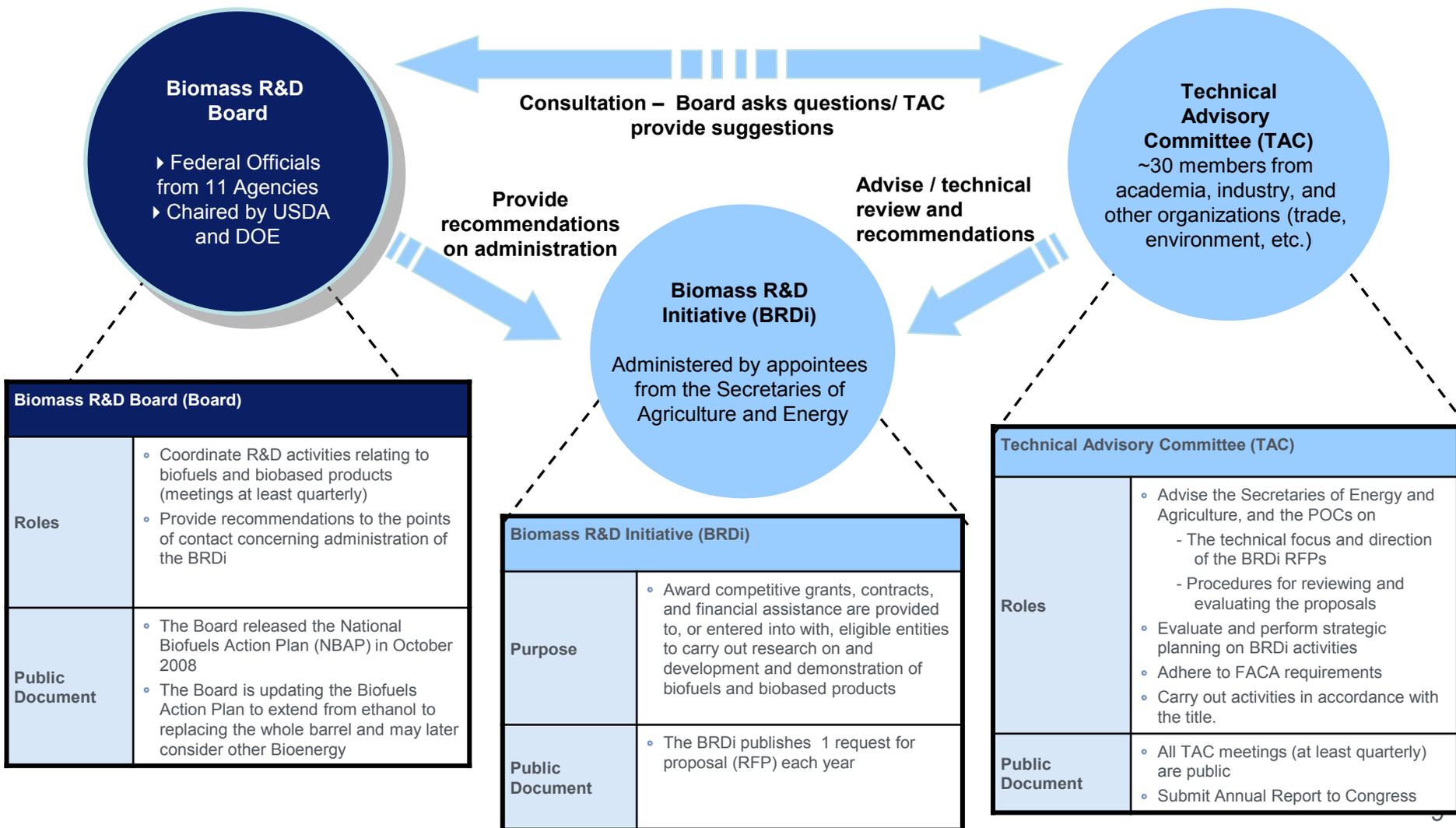
Authorizing Legislation

- The Biomass R&D Board (Board), the Biomass R&D Technical Advisory Committee (TAC), and the Biomass R&D Initiative were established by the Biomass Research and Development Act of 2000 (Biomass Act) and continued by the Food, Conservation and Energy Act of 2008 (FCEA).

Purpose of the Biomass R&D Initiative

- Competitively award grants and other financial assistance for eligible entities to carry out RD&D of technologies and processes necessary for the abundant commercial production of biofuels and high-value biobased products at prices competitive with fossil fuels, and to develop economically and environmentally sustainable domestic sources of renewable biomass.

BRDI Organizational Structure



The Biomass R&D Board

Co-Chairs:

- USDA Undersecretary Dallas Tonsager
- DOE Assistant Secretary David Danielson

Other members:

- USDA Under Secretary Cathie Woteki
- EPA Acting Administrator Lek Kadeli
- OSTP Assistant Director Steve Fetter
- DOT Acting Administrator Gregory Winfree
- DOE Associate Director of Science Sharlene Weatherwax

Other representatives from:

- National Science Foundation
- Department of Interior
- Department of Defense

The TAC must be comprised of individual(s) affiliated with the following:

- Biofuels industry
- Biobased industrial and commercial products industry
- Institution of higher education with expertise in biofuels and biobased products
- Engineers or scientists from government or academia that have expertise in biofuels and biobased products (2 individuals)
- Commodity trade association
- Environmental or conservation organizations (2 individuals)
- State government with expertise in biofuels and biobased products

And individual(s) with expertise* in the following fields:

- Energy and environmental analysis
- Economics of biofuels and biobased products
- Agricultural economics
- Plant biology and biomass feedstock development
- Agronomy, crop science, or soil science

*Experts are considered Special Government Employees (SGEs)

Official functions of the BRDI TAC include:

- Advise the Secretary of Energy, the Secretary of Agriculture, and their Points of Contact concerning:
 - The technical focus and direction of requests for proposals issued under the Initiative.
 - Procedures for reviewing and evaluating the proposals.

- Facilitate consultations and partnerships among federal and state agencies, agricultural producers, industry, consumers, the research community, and other interested groups to carry out program activities relating to the Initiative.

- Evaluate and perform strategic planning on program activities relating to the Initiative.

Annual Reports to Congress

- The Biomass Act requires the Secretaries of Energy and Agriculture to jointly submit an annual report to Congress on the Biomass R&D Initiative, for any year funds are provided to USDA.
- The Annual Report describes all awards funded under the BRD Initiative and describes the progress of bioenergy R&D and the status of interagency cooperation on bioenergy.
- The Annual TAC Recommendations to the Biomass R&D Board are a key component of the Annual Reports to Congress.
- Authorizing legislation also requires that the DOE and USDA respond to each recommendation by the TAC.

The TAC is explicitly charged with Recommendations to ensure:

- Funds authorized for the Initiative are distributed and used in a manner that is consistent with the objectives, purposes, and considerations of the Initiative.
 - Solicitations are open and competitive with awards made annually.
 - Objectives and evaluation criteria of the solicitations are clearly stated and minimally prescriptive, with no areas of special interest.
 - Funding proposals are selected on the basis of merit, as determined by an independent panel of scientific and technical peers predominantly from outside the Departments of Agriculture and Energy.
- Although the Charter calls for the TAC to make recommendations related specifically to the BRD Initiative, DOE and USDA General Counsel have advised that a broader biomass R&D scope is permissible.

On March 29, 2012, Dr. David Danielson was confirmed by the U.S. Senate as the Assistant Secretary for Energy Efficiency and Renewable Energy.

- Dr. Danielson previously served as the Program Director for DOE's Advanced Research Projects Agency-Energy (ARPA-E).
- Prior to joining ARPA-E in 2009, Dr. Danielson worked as a clean energy venture capitalist for General Catalyst Partners in Boston.
- Dr. Danielson will serve on the BRD Board and will be invited to attend future TAC Meetings.



Other recent changes in DOE leadership include:



Dr. Arun Majumdar – Director of ARPA-E and Acting Under Secretary of Energy has announced he will step down from those positions and leave DOE on June 9th.



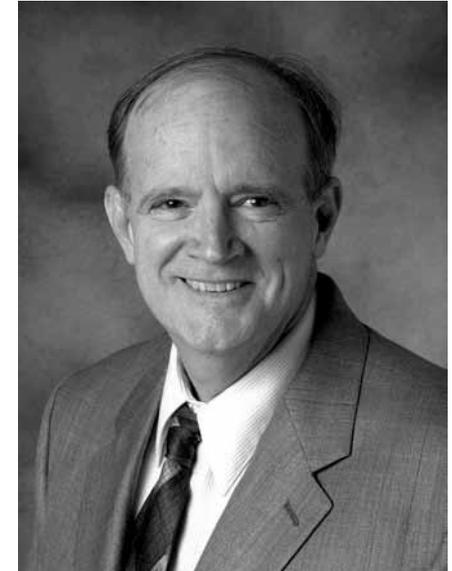
Dr. Eric Toone, currently the Deputy Director of ARPA-E, will take over as Acting Director of ARPA-E.



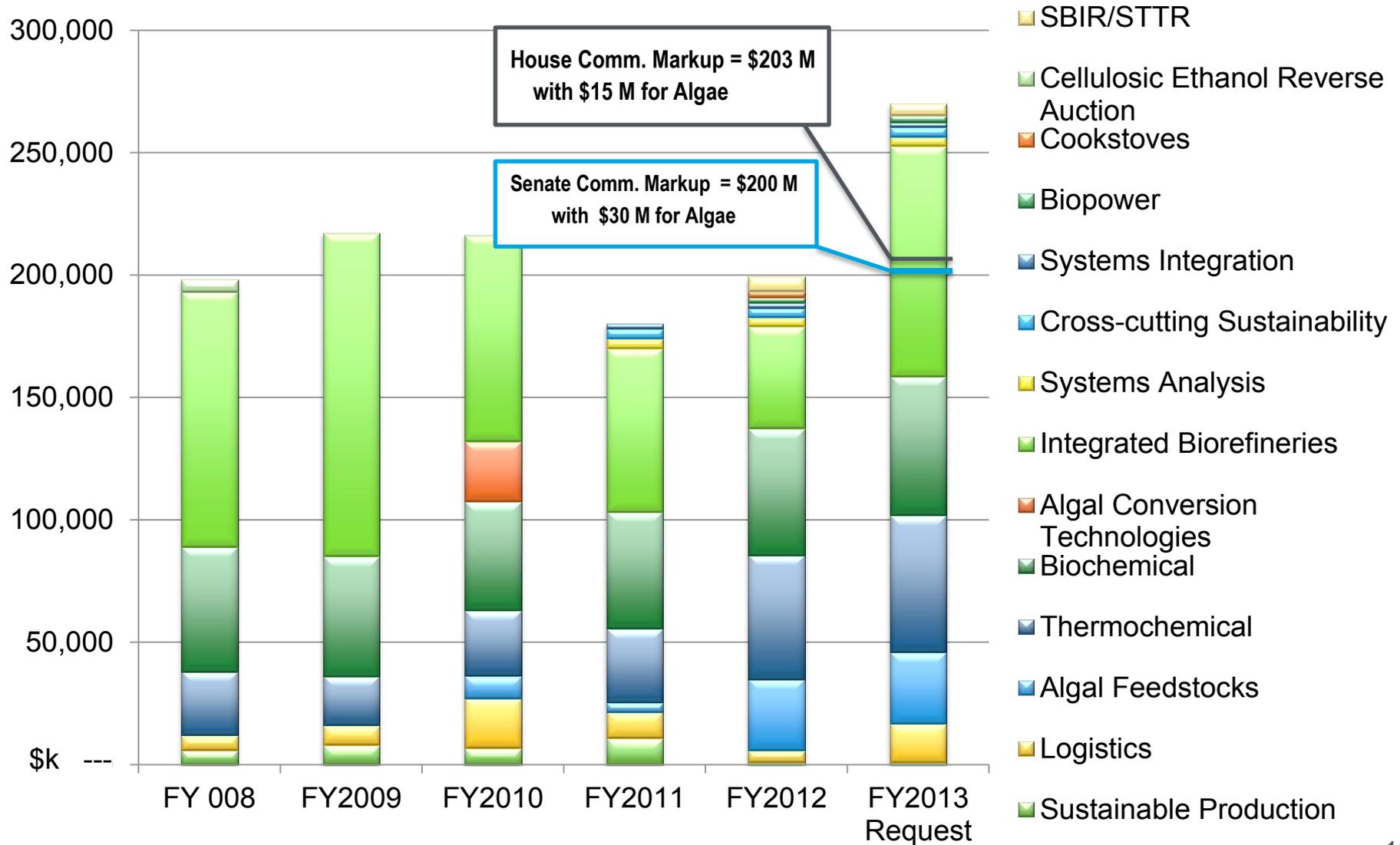
David Sandalow, currently the Assistant Secretary for Policy and International Affairs, will serve as the Acting Undersecretary of Energy.

On April 30, 2012, long standing Biomass Program staff member, John Ferrell was awarded the Raphael Katzen Award at the 34th Symposium on Biotechnology in New Orleans.

- The Raphael Katzen Award recognizes individuals who have made distinguished contributions to furthering the commercialization of biotechnology to produce fuels and chemicals.
- John has served with the DOE Biomass Program for over 20 years, working primarily on biomass feedstock and feedstock logistics issues. He previously served as the DFO for the TAC and was an important advocate for the *Update to the Billion Ton Study*.



Biomass Program Budget



Several Funding Opportunity Announcements (FOAs) have recently been released by the Biomass Program:

➤ 2012 BRDI FOA

- Up to \$35 million from the Department of Energy and the Department of Agriculture for projects which integrate science and engineering projects in three technical areas: feedstock development, biofuels and biobased products development, and biofuels development analysis.
- Submission deadline was April 23rd.

➤ Bio-Oil Stabilization and Commoditization

- Up to \$15 million for technologies that will accelerate the development of thermochemical liquefaction technologies to produce a bio-oil feedstock from biomass considered to be a high-impact feedstock or from algal biomass.
- The Bio-Oil feedstock must utilize existing petroleum refineries for processing into final fuels, such as renewable gasoline, diesel, and jet fuel.
- Submission deadline for a letter of intent was May 1st; full applications are due May 29th.

Recent FOA's continued:

➤ Algal Biofuels FOA

- \$14 million to support outdoor phototrophic algae research and development in two areas: 1) nutrient and water use in algal production systems and 2) the development of algal technology test bed facilities.
- Submission deadline was May 2nd.

➤ Clean Cookstoves FOA

- \$2.5 million for applied research to advance clean biomass cookstove technologies for use in developing countries.
- Research will support the development of innovative cookstove designs that improve efficiency and reduce smoke and carbon emissions.
- Submission deadline is May 23rd.

Upcoming FOA's include:

➤ Innovative Pilot FOA

- Production of hydrocarbon fuels at pilot or demonstration scale facilities that meet military blend specifications.
- Two topic areas will be supported:
 - Technologies that utilize algae (micro, macro, cyanobacteria, heterotrophic).
 - Technologies that utilize other renewable and waste feedstocks.

➤ BioPower

- Technical report about biopower co-firing has been drafted and is under review.

The Biomass Program's Social Aspects of Bioenergy Sustainability Workshop

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

Purpose: The Workshop focused 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.

Outcome:

A workshop summary report will help the program develop quantifiable metrics for social sustainability indicators.

TAC State of Technology Presentation

- Webinar, April 24, 2012

Purpose:

In response to a TAC information request, the Biomass Program's senior analyst Zia Haq delivered a webinar presentation for the TAC and the general public on the process of developing Design Cases and State of Technology Assessments, and how they inform the program's technical targets and cost goals.

Outcome:

7 TAC members and 35 members of the general public attended the webinar and submitted questions to Elliott. A copy of the presentation and a meeting summary is available on the BRDI website.

Technical Information Exchange on Pyrolysis Oil: Potential for a renewable heating oil substitution fuel in New England

- May 9-10, Manchester, New Hampshire

Purpose:

Workshop focused on biomass densification and liquefaction technologies to produce fuel oil substitutes, especially for use in the Northeastern United States.

Outcome:

Technical information generated at the workshop will guide the Biomass Program's strategic thinking regarding future potential funding in this area.

Defense Production Act (DPA) Industry Roundtable Advanced Drop-In Biofuels Initiative

- May 18, Washington, D.C.

Purpose:

The roundtable meeting provided an opportunity for the federal government to present further details on the partnership between the Department of Navy, Department of Energy, and Department of Agriculture to construct or retrofit multiple commercial scale advanced biorefineries. Additional general information will be provided regarding the Defense Production Act Title III, the Commodity Credit Corporation, and DoN's requirements for fuels. Federal government representatives will also be able to hear from stakeholders regarding their abilities to meet such requirements and/or barriers to such success.

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

July 10 – 11, Washington, D.C. Convention Center

Confirmed Speakers include:

- **Heather Zichal**, Deputy Assistant to the President for Energy and Climate Change
- **David Danielson**, Assistant Secretary of Energy Efficiency and Renewable Energy
- **Chris Coons**, Member of the Senate Energy and Natural Resources Committee
- **Dennis McGinn**, Retired Vice Admiral, President of the American Council on Renewable Energy
- **Sharon E. Burke**, Assistant Secretary of Defense for Operational Energy Plans and Programs

More information can be found at the following website:

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

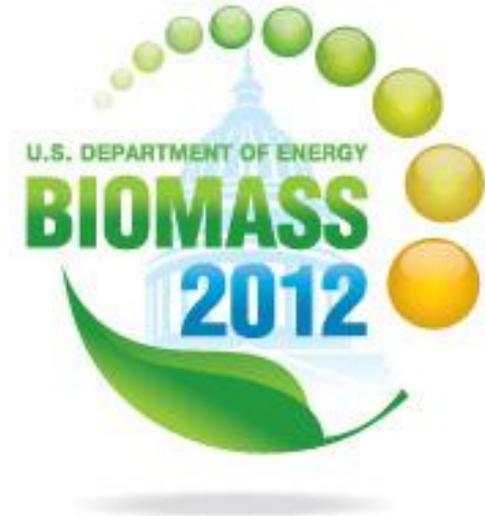


Biomass 2012 Poster Session

New this year, the DOE Biomass Program has issued a Call for Posters to be submitted at Biomass 2012.

- Poster abstracts can be submitted on a range of technical topic areas.
- Targeted primarily for graduate students and post-docs, but other university, national lab, and private researchers are encouraged to apply.
- Deadline has been extended to June 8, 2012.
- Submit an application on the Biomass 2012 website:

http://www1.eere.energy.gov/biomass/bio2012_posters.html



Useful web links:

1) Dave Danielson Confirmation

<http://energy.gov/articles/energy-department-nominees-confirmed-us-senate>

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) BRDI FOA

http://www1.eere.energy.gov/biomass/news_detail.html?news_id=18196

5) Bio-Oil FOA

http://www1.eere.energy.gov/biomass/news_detail.html?news_id=18251

6) Algae FOA

http://www1.eere.energy.gov/biomass/news_detail.html?news_id=18119

7) Cookstoves FOA

http://www1.eere.energy.gov/biomass/news_detail.html?news_id=18256