

Bioenergy Technologies Office – Federal Partnerships

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Alicia Lindauer
Technology Manager, Strategic Analysis
Biomass R&D Board Liaison

Introduction

Perception: *“..there continues to be a lack of coordination between platforms within DOE and between other federal agencies...”*

– 2011 Biomass Program Peer Review Report

Fact: The Bioenergy Technologies Office works with other agencies and offices to address critical issues related to bioenergy. Existing collaborations allow the Office to:

- leverage existing initiatives in other government programs,
- keep abreast of the latest innovations in the field,
- address major cross-cutting challenges that face the bioindustry today.



Inter- and Intra-agency Collaboration

The Office partners with other offices within the Department of Energy, as well as with other agencies in the Federal Government, to overcome challenges in effectively deploying biofuels, biopower, and bioproducts.

Federal Collaboration

- Biomass Research & Development Board
- Offices and programs within the following:
 - Department of Agriculture
 - Department of Defense
 - Department of the Interior
 - Department of Transportation
 - Environmental Protection Agency
 - National Aeronautics and Space Administration
 - National Science Foundation
 - Office of Science and Technology Policy

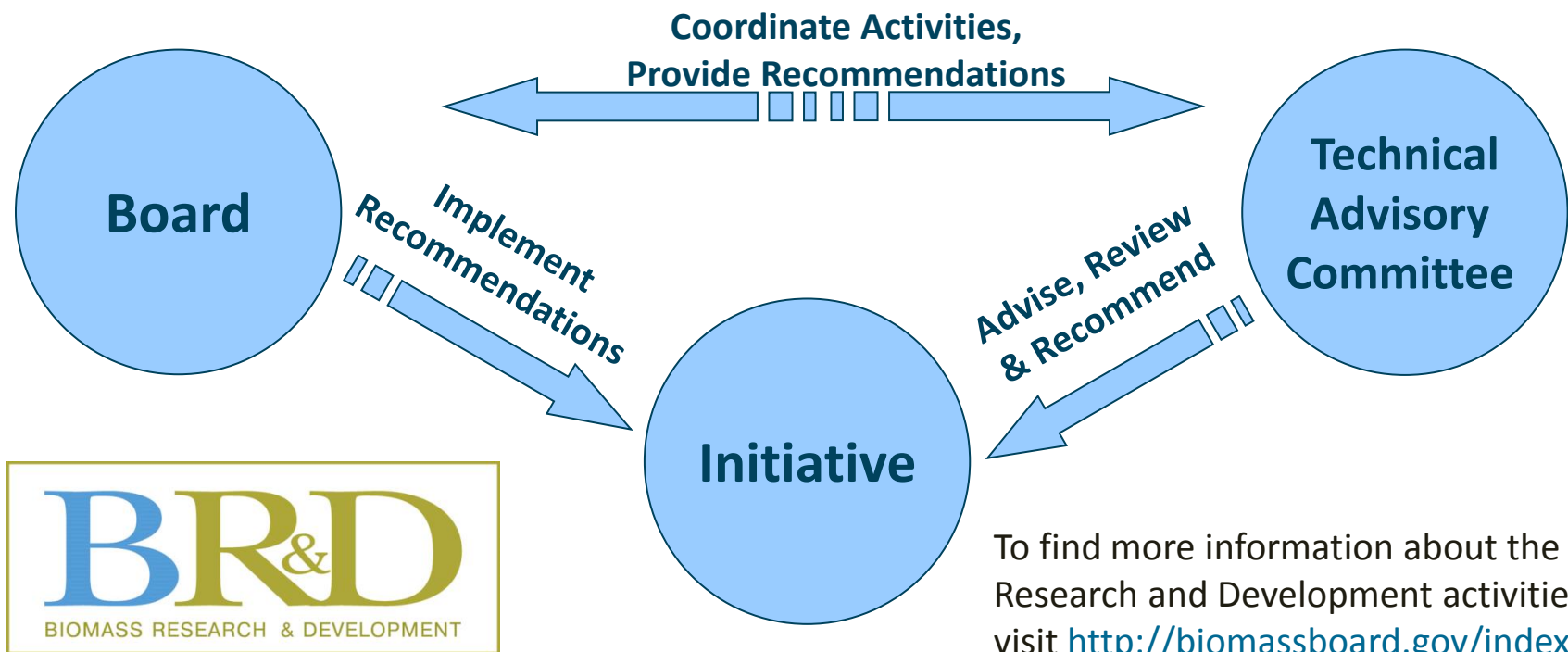
DOE Internal Collaboration

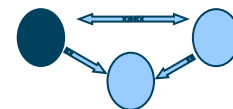
- Energy Efficiency and Renewable Energy
 - Bioenergy Technologies Office
 - Vehicle Technologies Office
 - Advanced Manufacturing Office
 - Fuel Cell Technologies Office
- Policy and Intergovernmental
- Fossil Energy
- Office of Science
- ARPA-E
- EIA



Biomass Research and Development Act

- The Biomass Research and Development Act was established in 2000, and has been amended several times.
- The Act established the Interagency Biomass R&D Board, the Biomass R&D Technical Advisory Committee, and authorized funds for the Biomass R&D Initiative.





Interagency Biomass R&D Board

- The Board is a panel consisting of Senate confirmed Co-Chairs from USDA and DOE and senior-level representatives from executive branch agencies:
 - Department of Agriculture: Co-Chair Cathie Woteki, REE
 - Department of Energy: Co-Chair Dave Danielson, EERE
 - Environmental Protection Agency
 - Department of Interior
 - National Science Foundation
 - Office of Science and Technology Policy
 - Department of Transportation
 - Department of Defense

Membership

Co-Chair

Co-Chair

U.S. DEPARTMENT OF ENERGY

USDA

DEPARTMENT OF DEFENSE

U.S. DEPARTMENT OF THE INTERIOR

DEPARTMENT OF TRANSPORTATION

NSF

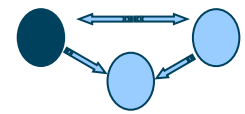
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF SCIENCE AND TECHNOLOGY POLICY

U.S. DEPARTMENT OF ENERGY

Energy Efficiency & Renewable Energy

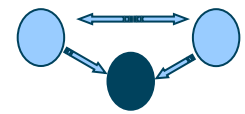
Biomass R&D Board Work



- The Biomass Board was created by statute to coordinate strategic planning for biomass activities across all Federal agencies.
- The Board convenes Interagency Working Groups to coordinate broad tasks across the entire supply chain.
- Public deliverables include case studies, supply chain reports, and inventories of government-wide Biomass R&D activities.
- In 2012, the Board completed an update to the 2008 National Biofuels Action Plan.

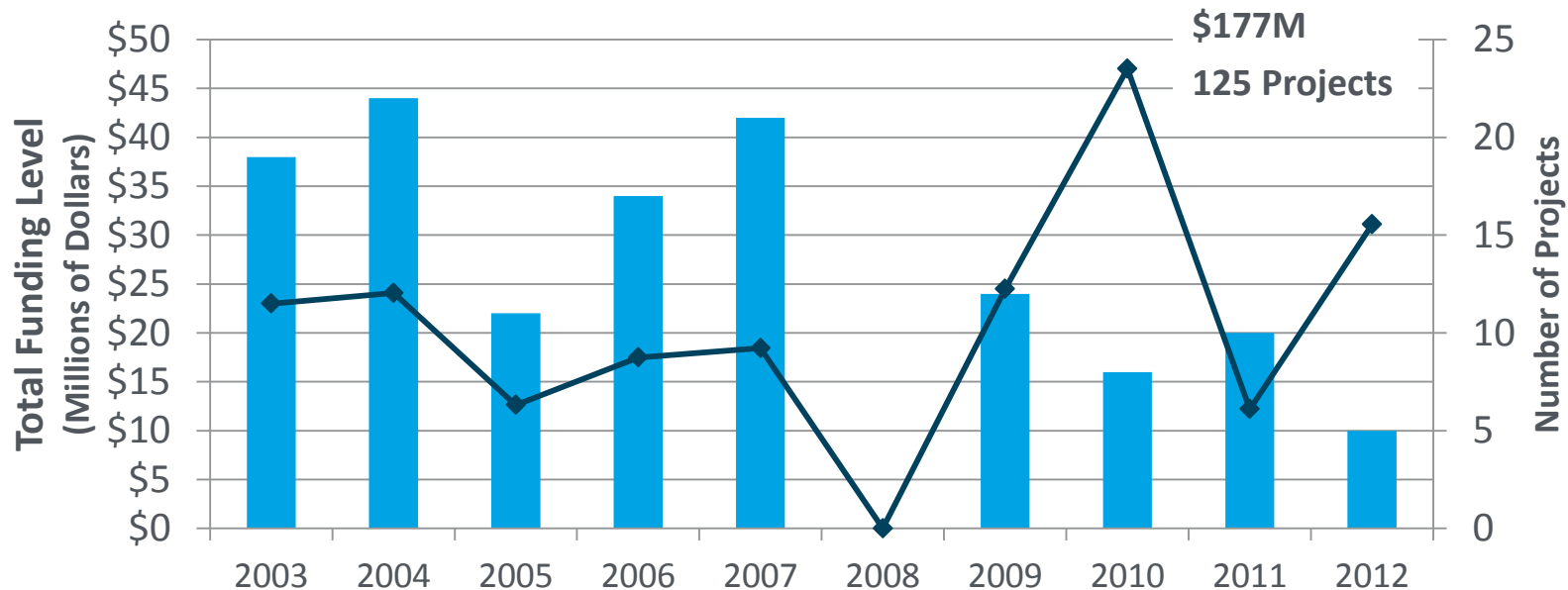


Biomass R&D Initiative



- The Biomass R&D Initiative (BRDI) provides funding for research and development projects in the areas of:
 - Feedstocks Development
 - Biofuels and Biobased Products Development
 - Biofuels Development Analysis
- The BRDI solicitation is jointly run by staff at DOE and USDA

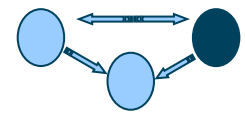
BRDI Award History 2003-2012



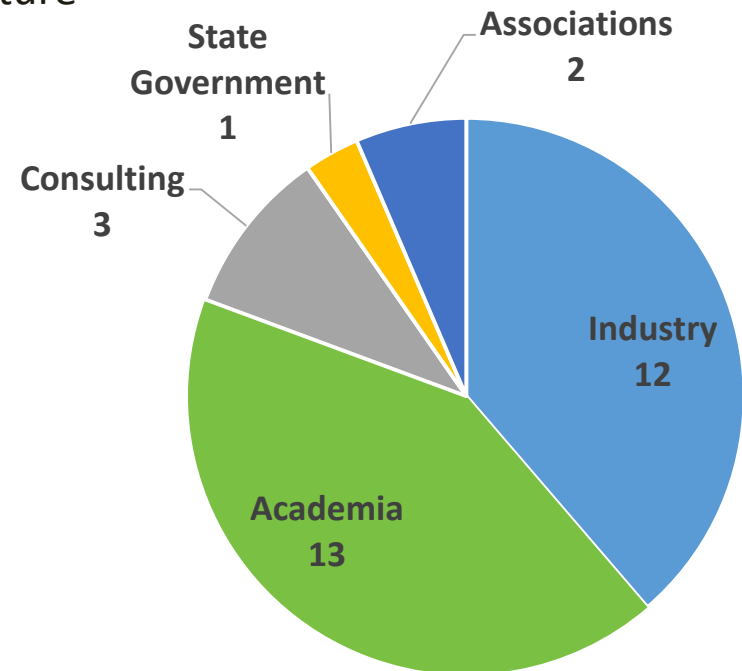
* No awards were issued in 2008

■ Number of projects
◆ Funding

Technical Advisory Committee



- The TAC is required to advise the Secretaries of Agriculture and Energy on the Biomass R&D Initiative, and makes additional recommendations from three subcommittees:
 - Feedstocks
 - Conversion
 - Logistics, Storage, Handling and Infrastructure
- Members are jointly appointed by the Secretaries of Energy and Agriculture.
- The TAC is comprised of approximately 30 external stakeholders with diverse expertise.



Collaborations with Department of Agriculture

USDA is a major partner with the DOE and the Bioenergy Technologies Office in particular, focusing on several biomass efforts related to feedstocks production, management, and supply.



Selected DOE collaboration activities with USDA include:

- USDA/DOE Biomass Feedstocks Coordination Meetings
 - Regular discussions on common feedstocks deployment issues, such as invasive species.
- Woody Biomass Utilization Group
 - Coordination between agencies on issues related to woody biomass feedstocks.
- Farm to Fly 2.0
 - BETO provides technical expertise on initiative out of USDA and DOT for renewable jet fuel.
- Defense Production Act
 - DOE partners with USDA and DOD on initiative for advanced drop-in fuels for the military.

Collaborations with Department of Defense

The DOE is supportive of DOD's mission to secure sustainable and reliable sources of energy:

- The DOD uses ~5 billion gallons a year – approximately 80% of the federal government's total fuel usage.
- In 2009, Secretary of the Navy Ray Mabus announced an energy goal of deploying the "Great Green Fleet" by 2016.



The Bioenergy Technologies Office works with the DOD on several tasks including:

- Defense Production Act
 - MOU signed by Secretaries Mabus, Vilsack, and Chu to support commercial-scale biorefineries to produce drop-in jet fuels and diesel.
- BETO Solicitation
 - BETO recently announced selections for the Innovative Pilot solicitation for biofuels that meet military specifications. DOE coordinated efforts for the solicitation closely with the Department of Navy.

Collaborations with the Department of Transportation

DOT focuses on developing and regulating infrastructure, and promoting transportation safety in the Research and Innovative Technology Administration (RITA).

The Federal Aviation Administration (FAA), funds alternative aviation fuel research, development, environmental analysis, and testing for approval.



BETO is collaborating with DOT by:

- Assessing infrastructure needs and capacity constraints with RITA
 - 2011 Interagency Biofuels Infrastructure Workshop
- Partnering with FAA to help develop alternative jet fuels
 - 2012 *Sustainable Alternative Fuels Cost Workshop* focused on the techno-economic analysis of jet fuel
 - OSTP led effort to develop alternative jet fuel roadmap

Collaborations with the Environmental Protection Agency

The EPA supports the bioenergy industry through various analysis and testing activities and is responsible for implementation of the RFS.

The Office of Transportation and Air Quality (OTAQ) regulates air pollution from motor vehicles, engines, and the fuels used to operate them.

The Office of Research and Development (ORD) is the scientific research arm of EPA.

BETO coordinates on tasks with the EPA including:

- DOE-EPA Coordination Group
 - Monthly meetings to share information on topics such as EPA's RFS pathway analyses and BETO's R&D efforts and sustainability activities
 - Efforts focus on improved data sharing



Selected Collaborations within EERE

Sustainable Transportation

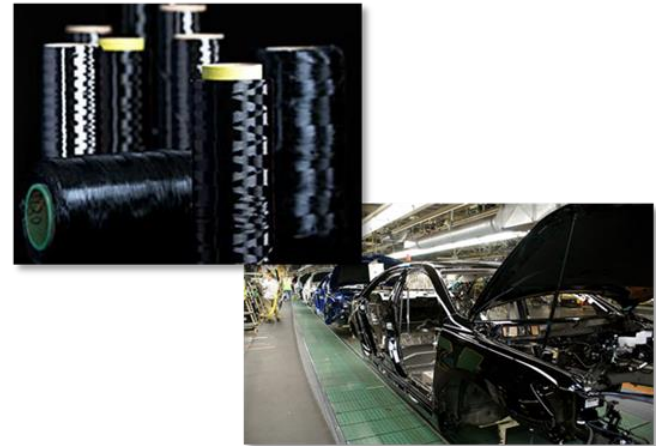
- Bioenergy Technologies Office
- Fuel Cell Technologies Office (FCTO)
- Vehicle Technologies Office (VTO)

VTO partners with the BETO to support:

- Fuel characterization and combustion testing for biofuels and biofuel blends
- Infrastructure and materials analysis to facilitate biofuel deployment

EERE recently launched the Clean Energy Manufacturing Initiative (CEMI)

- BETO partnered with the Advanced Manufacturing Office and VTO to host a workshop on renewable, low-cost carbon fiber for lightweight vehicles.



Collaboration with Fossil Energy

BETO has partnered with Fossil Energy to host a workshop on Natural Gas-Biomass to Liquids fuels on September 3rd.

The objective of this workshop is to obtain input from stakeholders on pre-competitive R&D barriers to GBTL, and effective roles for the DOE.

Areas of focus include:

- Technical Barriers
- Resources Assessment
- Greenhouse Gas Reduction Potentials



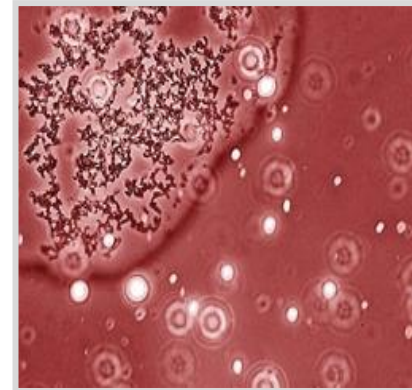
For more information about this event please visit:

http://www1.eere.energy.gov/bioenergy/gbtl_workshop.html

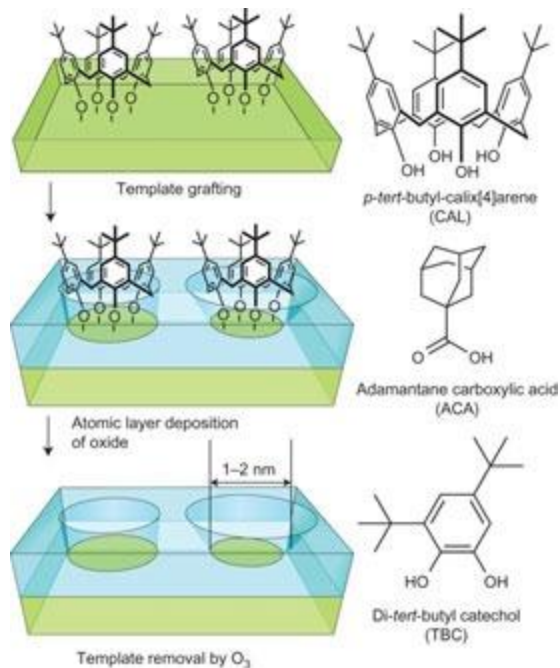
Collaboration with the Office of Science

Biological and Environmental Research Program (BER) Basic Energy Sciences Program (BES)

- Overlapping R&D areas of interest
 - Energy crops (BER)
 - Systems biology (BER)
 - Climate change and sustainability (BER)
 - Photosynthesis (BES)
 - Catalysis (BES)



Microbe secreting hydrocarbons (Credit: Eric Steen, JBEI)



Nanosieves to improve catalyst specificity (Credit: Brandon O'Neil, Argonne EFRC)

- Biomass R&D Act
 - Biomass R&D Board and Working Groups
 - Biomass R&D Technical Advisory Committee
- Bridging Gaps Through Partnerships
 - Bioenergy Research Centers (BER)
 - Energy Frontiers Research Centers (BES)
 - Advanced Biofuels Process Demonstration Facility (BETO)

Collaboration with ARPA-E



*Chromatin Plant-Based
Sesquiterpene Biofuels*

Advanced Research Projects Agency-Energy (ARPA-E)

- Regularly coordinate by sharing information on relevant projects, especially those from the ARPA-E PETRO* biomass-based fuels and Electrofuels Programs.
- Shares upcoming announcements, communications and talking points about related initiatives, such as the REMOTE Program**



*PETRO: Plants Engineered to Replace Oil

**REMOTE: Reducing Emissions using Methanotrophic Organisms for Transportation Energy

Conclusions

- The Bioenergy Technologies Office works directly within the Department of Energy and with other cabinet agencies on a number of high-level initiatives.
- By coordinating efforts across agencies, our Office can tap into others' expertise, leverage existing initiatives in the Federal government, and stay informed on the latest innovations in the field.
- BETO works diligently to ensure steady collaboration across the entire supply chain – bringing together experts in the field to solve the major challenges facing the industry today.



Feedstock Supply



Biomass Conversion



Bioenergy Distribution



Bioenergy End Use

DOE, USDA, NSF

DOE, USDA , NSF

DOE, DOD,
DOT, EPA

DOE, EPA, USDA
DOD, DOT



Thank You

Alicia Lindauer

alicia.lindauer@ee.doe.gov

www.biomass.energy.gov