

Feedstock Sources/Supply Working Group

Status and Work Plans

Biomass Research & Development Board Meeting
Washington, DC
September 23, 2010



Priority Focus Areas for Feedstock Sources/Supply Working Groups

Assess R&D needs to promote next generation biofuels and bioproducts with minimum impacts on natural resources. Consider issues and R&D needs at the scale of feedstock development and production or supply.

Action Areas

Genetic Improvement

- ▶ Intensify and expand plant breeding for feedstock crops
- ▶ Accelerate development of genomic tools and resources to enhance feedstock improvement and deployment

Feedstock Best Management Practices

- ▶ Accelerate improving unit productivity and cost- and resource-use efficiency in purpose-grown and integrated biofuel feedstock production systems
- ▶ Accelerate development and testing of sustainable feedstock production and management systems for agriculture and forestry
- ▶ Evaluate opportunities for optimizing benefits from the full suite of ecosystem services associated with feedstock production
- ▶ Develop indicators on best management practices for adaptive management and evaluation of long-term effectiveness
- ▶ Improve accessibility of information on site-specific efficacy of BMPs for land managers, land owners and policymakers

Resources and Inputs

Genetic Improvement

- ▶ Board IWG report– Federal Research and Development Planning for Sustainable and Adequate US Biofuel Feedstock Production
- ▶ Agency strategic plans and multi-year program plans
- ▶ National Academy reports
 - ▶ *Achievements of the National Plant Genome Initiative and New Horizons in Plant Biology* (2008)
 - ▶ *A New Biology for the 21st Century: Ensuring the United States Leads the Coming Biology Revolution* (2009)

Feedstock Best Management Practices

- ▶ Long-term research on sustainable productivity and crop and forest management
- ▶ State forestry best management practice guidelines and syntheses
- ▶ EPA's triennial Biofuels Report to Congress
- ▶ Ongoing DOE, USDA , EPA, DOI and partners' research on feedstock production systems, practices and effects on ecosystem services and productivity

Priority Focus Areas for Feedstock Sources/Supply Working Group

Working Group scope: Review and assess gaps in R&D needs on performance traits that make biomass production more cost- and environmentally effective.

Issue/Focus Area	Deliverable/Date	Participants
Genetic Improvement	<ul style="list-style-type: none"> • Board briefing on status and coordination priorities, 9/10 meeting • Plan to address research needs and gaps, 12/10 meeting • Update on work across agencies to address research gaps, 3/11 meeting 	<p>DOE/SC: Sharlene Weatherwax USDA/ARS: Kay Simmons DOE/SC: Cathy Ronning USDA/NIFA: Ed Kaleikau USDA/FS: Randy Johnson USDA/NRCS: John Englert USDA/ARS: Jack Okamuro EPA: Lidia Watrud DOE/ARPA-E: Chad Haynes USDA/APHIS: Neil Hoffman NSF/BIO: TBD</p>

Priority Focus Areas for Feedstock Sources/Supply Working Group

Evaluate best practices and define needed federal, state and research and business actions needed to reduce inputs and stress for crop and forest energy feedstock production, management, and supply systems while maintaining or enhancing ecosystem services; develop and help deploy sustainable feedstock production and management systems for agriculture and forest systems.

Issue/Focus Area	Deliverable/Date	Participants
Best Management Practices	<ul style="list-style-type: none"> • Prepare White Paper on regionally relevant best practice (BP) indicators, 12/10 meeting (tentative) • Prepare inventory of BP assessments and field trials/demonstrations, 4/11 (tentative) • Work with stakeholders and federal and state agencies to educate and implement new best practices, 6/11 (tentative) 	<p>USDA/FS: Marilyn Buford EPA: Betsy Smith USDA/NRCS: Norm Widman USDA/ARS: Jeff Steiner USDA/NRCS: Bruce Wight USDA/FSA: Martin Lowenfish DOE/OBP: John Ferrell DOI/BLM: McKinley-Ben Miller DOI/OWFC: Henry Bastian</p>

Feedstock Logistics and Fuels Distribution Infrastructure Working Group

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Priority Focus Areas for Feedstock Logistics and Fuels Distribution Infrastructure Working Group

Challenges for Feedstock Logistics

- Increase bulk/energy density
- Moisture management/stability
- Improve feedstock uniformity/quality
- Systems approach needed at demonstration/industrial scale: harvest and collection; storage; preprocessing; and transport

Resources and Inputs

- Interagency Workshop – Joint Collaboration with DOT, USDA, and EPA (April/2011)
- Biomass R&D Board *Feedstock Logistics* Report (September/2010)
- Uniform – Format Feedstock Supply System Design, INL (April/2009)
- *Roadmap for Agricultural Biomass Feedstock Supply in the United States* – DOE (November/2003)

Priority Focus Areas for Feedstock Logistics

Issue/Focus Area	Deliverable/Date	Participants
<p>Feedstock Logistics</p> <p>Feedstock logistics systems approach to lower costs, improve delivered properties and extend potential collection range.</p> <p>Explore linkages between the supply and conversion scale of supply and conversion technologies.</p>	<p>Board brief on status and coordination priorities, 9/23/10 meeting</p> <p>DOE Feedstock Platform Peer Review April/2011 – USDA and DOT involvement</p> <p>USDA Feedstock Logistics Projects Update – ARS, FS, and NIFA, April/2011</p> <p>1 ½ day visit, Board and/or Operations Committee, Idaho National Laboratory Process Demonstration Unit, July/2011</p> <p>Site Visit to major DOE industrial project – September/2011</p> <p>Board Brief: Research status and gaps from DOE Peer Review and USDA update by September/2011</p>	<p>John Ferrell, DOE Richard Hegg, USDA Robert Rummer, USDA/FS Shawn Johnson, DOT</p>

Priority Focus Areas for Feedstock Logistics and Fuels Distribution Infrastructure Working Group

Challenges for Fuel Distribution

- Capacity limitations and compatible storage options for the transport of richer mixes of ethanol and other biofuels
- Regulations, codes, and standards for future fuels needed to address safe transportation
- Identification of international best practices and potential barriers to transporting alternative fuels

Resources and Inputs

- Interagency Workshop – Joint Collaboration with DOE, USDA, and EPA April/2011
- U.S. DOT White Paper submitted to the Board June 2010
- Dedicated Ethanol Pipeline Feasibility Study EISA of 2007 Section 243
- Geographic Information System Inventory Synopsis

Priority Focus Areas for Fuels Distribution Infrastructure

Issue/Focus Area	Deliverable/Date	Participants
<p>Feedstock Fuels Distribution Infrastructure</p> <p>Evaluate storage and transportation options and trade-offs for both upstream downstream fuel distribution and end use requirements</p>	<p>Board Proposal on Interagency Joint Workshop, 9/23/10 – Joint collaboration between DOE and DOT</p> <p>Finalize agenda for Workshop, obtain input and approval on participants, and invite speakers, October/2010 through February/2011</p> <p>Hold Workshop on synergies/gaps, April/2011</p> <p>Board Brief: Research status and gaps from the interagency workshop September/2011</p>	<p>Jan Brecht-Clark DOT Travis Tempel DOE Shawn Johnson DOT Marina Denicoff USDA/AMS</p>



Conversion Working Group

Status and Work Plans

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Tentative Priority Focus Areas for Conversion Working Group

Action Areas

- ▶ **R&D Coordination**
 - ▶ **Apply technical, economic, social, human health and environmental performance standards across project portfolio**
 - ▶ **Foster delivery of R&D project outputs**
 - ▶ **Best practices synthesis: technoeconomic and life cycle analyses studies**
 - ▶ **Identify gaps and shortfalls: intra-project and intra-technology**
 - ▶ **Potential funding mechanisms for accelerated response**

- ▶ **Stimulate Movement to Commercialization for Biomass Conversion Technologies**
 - ▶ **Better define hand-off points**
 - ▶ **Identify gaps and shortfalls: meeting EISA targets**
 - ▶ **Mechanism for feedback for research during commercialization**

Resources and Inputs

- ▶ **Prior Conversion Working Group report to R&D Board**
- ▶ **Prior inventories of funded RD&D projects (to be updated)**
- ▶ **Federal and select stakeholder inputs**
- ▶ **Industrial Contacts and Input**

Tentative Priority Focus Areas for Conversion Working Group

Stimulate movement of conversion technologies to commercialization.

Issue/Focus Area	Deliverable/Date	Participants
<p>Leverage existing interactions and conduct additional work across agency R&D portfolios to continually assess commercial practicality, state of technology, and ability to meet EISA targets.</p>	<ul style="list-style-type: none"> • Board brief on status and coordination priorities, 9/23 meeting • Define each performance standard • Regular dashboard/stage-gate assessments, and semi-annual reporting on commercial readiness of conversion technologies, beginning in 12/10 • Adopt similar or common methodologies to establish and monitor project deliverables and assess progress 	<p>Co-chair: NSF Co-chair: DOE/OBP *Potential Participants: USDA/NIFA USDA/ARS USDA/FS DOD EPA DOE/SC</p> <p>*official start-up meeting in early Oct due to schedule conflicts</p>

Tentative Priority Focus Areas for Conversion Working Group

Assess R&D needs to improve and/or optimize the technical, economic, social, health and environmental performance of biomass conversion technologies.

Issue/Focus Area	Deliverable/Date	Participants
<p>Evaluate existing conversion technologies: identify potential new areas for development and assess any environmental, safety and/or genetic impacts.</p>	<ul style="list-style-type: none"> • Identify and report out on gaps, shortfalls, and proposed corrective actions, beginning in 12/10 • Make recommendations on leveraging of existing, or additional interagency funding mechanisms to initiate flagship project/s that fill key gaps, FY11 Q1-2 • Consider collaboration on FOAs in area/s of mutual high priority, FY11 Q1-3 • Combined RD&D Investigator workshop, 5/11 	<p>NSF DOE/OBP EPA USDA DOE/SC</p>