

THE NATIONAL ACADEMIES

Advisers to the Nation on Science, Engineering, and Medicine

Expanding Biofuel Production: Sustainability and the Transition to Advanced Biofuels

Lessons from the Upper Midwest for Sustainability

Date: June 23-24, 2009

Location: The Lussier Family Heritage Center
3101 Lake Farm Rd, Madison, WI 53711

Workshop Objectives:

- Create an opportunity for dialogue between researchers and policy makers on the sustainability impacts of expanding biofuel production at a state/regional level
- Explore the lessons that can be learned from the experience with corn-based ethanol and the likely impacts of advanced biofuels.
- Identify policy objectives and challenges facing state officials related to biofuels
- Provide examples of research that may be useful to state decision-makers
- Evaluate various tools and indicators that may be of use to state policy makers in assessing likely sustainability impacts and tradeoffs of policy choices.

Tuesday, June 23, 2009

LUSSIER FAMILY HERITAGE CENTER

9:00 AM

Introduction

Emmy Simmons, Co-Chair, Roundtable on Science and Technology for Sustainability, The National Academies

Welcome

Molly Jahn, Dean, College of Agricultural and Life Sciences, University of Wisconsin

9:15 AM

Workshop Overview

Gary Radloff, Wisconsin State Department of Agriculture

SETTING THE STAGE

9:30 AM

U.S. Energy Independence and Security Act (EISA), Implications for State Biofuels Policies

Paul Argyropoulos and Bruce Rodan, U.S. Environmental Protection Agency

9:45 AM

Overview: Regional Biofuels' Policies (Wisconsin, Minnesota, and Iowa)

Brendan Jordan, Great Plains Institute

Judy Ziewacz, Director, Wisconsin Office of Energy Independence

John Yunker, Office of the Legislative Auditor, Minnesota

10:15 AM

Discussion

10:30 AM

BREAK

10:45 AM

A Transition to Advanced Biofuels: Where Are We?

John Miranowski, National Research Council Panel Member, *Report: Alternative Liquid Transportation Fuels*

John Regalbuto, National Science Foundation, *Federal Inter-Agency Biomass R&D Board, Conversion Technologies' Assessment Report*

11:15 AM Questions and Discussion

11:30 AM **Sustainability and A Transition to Advanced Biofuels**

John Sheehan, University of Minnesota, Institute on the Environment

- The Economy -- economics of production; economic benefits, effects on other industries.
- Affected Environment -- water quality and quantity, watersheds, air quality and health, soil erosion/nutrient-level changes (including cross-media effects), land use changes, habitat protection, including agroforestry and wood energy crops.
- Social Impacts--effects on local communities and institutions of expanding production arrival or disappearance of refineries, acceptability/willingness to adopt new fuels/technologies; changes in labor force, culture, education.

12:00 PM Questions and Discussion

12:30 PM LUNCH

REGIONAL IMPACTS OF BIOFUEL PRODUCTION AND USE IN THE UPPER MIDWEST

1:30 PM **The Economics of Expanding Biofuel Production in the Upper Midwest (Panel Discussion)**

Panel Moderator: Bruce Babcock, Center for Agricultural and Rural Development, Iowa State University

What have we learned from experience with corn-based ethanol? What is required to make the industry viable going forward? What are likely impacts of expanding production and the deployment of advanced cellulosic biofuel technologies on state economies, employment, agricultural production and prices for land and agricultural commodities? How will these impacts differ with various feedstocks? What are likely impacts on competing users for land and biomass feedstocks? (food, feed, fiber, and other bioenergy feedstocks)

- David Swenson, Iowa State University
- Randall Fortenbery, University of Wisconsin
- Doug Tiffany, University of Minnesota

2:30 PM **Social and Community Level Impacts of Biofuel Production in the Upper Midwest (Panel Discussion)**

Panel Moderator: Michael Bell, University of Wisconsin-Madison

What social impacts have been observed and might be seen in the future? How can adverse social impacts be minimized as we move forward with a transition to advanced biofuels? Who benefits, and who stands to lose in various production scenarios including transition from corn based ethanol to cellulosic ethanol?

- Carmen Bain, Iowa State University
- LeAnn Tigges, University of Wisconsin

- Jim Kleinschmit, Institute for Agriculture and Trade Policy (IATP)

3:30 PM

The Environment and Health (Panel Discussion)

Panel Moderator: Phil Robertson, GLBRC and Michigan State University

What have been the environmental impacts of expanded corn ethanol production in the Upper Midwest and what are likely impacts of expanding production of both cellulosic biofuels and corn based ethanol. What does this mean for environmental sustainability in this region and what are appropriate metrics and indicators? Discussion to include land use changes

- Chris Kucharik, University of Wisconsin
- Donna Perla, U.S. Environmental Protection Agency
- Peter Nowak, University of Wisconsin

4:30 PM

Breakout Discussions: Lessons Learned and A Transition Forward

Each breakout group of participants will be asked to answer the set of questions below based on their expertise and information presented during the workshop's earlier sessions.

- Identify a comprehensive set of potential impacts associated with a transition to advanced biofuels:
 - List potential environmental impacts (both positive and negative)
 - List potential economic impacts (both positive and negative)
 - List potential social/cultural impacts (both positive and negative)
- What are potential strategies for mitigating consequences/negative impacts of a transition to advanced biofuels?
- What are greatest uncertainties as we move forward with advanced biofuels (e.g. winning feedstocks)?

5:15 PM

Breakout Groups Report Back

5:30 PM

ADJOURN

6:00-7:30 PM Reception, Hosted by the Wisconsin Bioenergy Initiative, Nelson Institute for Environmental Studies, and the College of Agricultural and Life Sciences, Brodach Irish Pub 7 W. Main Street, Second floor, Madison, WI

Wednesday, June 24, 2009

LUSSIER FAMILY HERITAGE CENTER

9:00 AM

The Business of Biofuels: Perspectives from the Investment Community and Industry (Panel Discussion)

Moderator, Pat Atkins, Pegasus Capital Advisors

- Ruth Scotti, BP Biofuels, North America
- Paul Batcheller, PrairieGold Venture Partners
- Bruce Babcock, Iowa State University

10:00 AM

Questions and Discussion

10:30 AM

BREAK

10:45 AM

Research for Decision-Makers (Panel Discussion)

Moderator: Elisabeth Graffy, U.S. Geological Survey

What are some examples of federal research relevant to sustainability in the Upper Mid-West? Additional examples of relevant research related to sustainability and biofuels in the region?

- Jeffery Steiner, U.S. Department of Agriculture
- Alison Goss Eng, U.S. Department of Energy, Biomass Program
- Alisa Gallant U.S. Geological Survey
- Theresa Selfa, Kansas State University

11:45 AM Questions and Discussion

12:00 PM LUNCH

1:00 PM **Tools to Inform Policy Choices (Panel Discussion)**

Moderator: Jason Hill, University of Minnesota

What tools are available to inform policy choices? What are the strengths and weaknesses of existing tools?

- Marilyn Buford U.S. Forest Service
- Alan Hecht, U.S. Environmental Protection Agency
- Greg Nemet, University of Wisconsin
- Nathanael Greene, NRDC

2:00 PM **Breakout Session: State Policy Objectives and Research Needs: Going Forward**

Each breakout group of participants will be asked to answer the set of questions below based on their expertise and information presented during the workshop's earlier sessions.

- Is there a need for new state/federal policies?
- What is the most pressing type of additional research needed by state decision-makers?
- Are there examples of policy inconsistencies which create inefficiencies and hinder the adoption of more sustainable production techniques and use of biofuels?
- How can scientific research be better used to inform the adoption of sustainable production practices during the transition to advanced biofuels?

3:00 PM **Breakout Groups Report Back**

3:30 PM BREAK

3:45 PM **Breakout Session: Policy Evaluation of Trade-offs, Benefits & Challenges: Going Forward**

Each breakout group of participants will be asked to answer the set of questions below based on their expertise and information presented during the workshop's earlier sessions.

- What are greatest risks and vulnerabilities associated with expanded production and use?
- What will be necessary (beyond technology development) to commercialize production and use of advanced biofuels?
- What are greatest challenges? (Getting farmers to plant new crops, reducing risks to investors)

4:45 PM **Breakout Groups Report Back**

5:15 PM **Wrap-Up: Summary of Workshop Discussions**
Moderator: Gary Radloff, Wisconsin State Department of Agriculture

5:30 PM ADJOURN