

National Agricultural Research, Extension, Education and Economics Advisory Board

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National Agricultural Research, Extension, Education and Economics (NAREEE) Advisory Board's - Renewable Energy Committee (REC) Meeting Minutes

Location: Texas A&M University, College Station, Texas

March 29, 2012

NAREEE REC members participating: Carol Keiser-Long (Committee Chair), Dr. Carrie Castille, Dr. Steven Hamburg.

USDA staff participating: Dr. Carmella Bailey (NIFA), Dr. Daniel Cassidy (REE-Office of the Chief Scientist), Eric Dohlman (ERS), Dr. Bill Goldner (NIFA), Dr. Steven Shafer (ARS), Dr. Jeffrey Steiner (ARS), and Utpal Vasavada (ERS).

NAREEE staff: Rob Burk, Paul Phelps (recorder).

Other Attendees: Dr. Natalie Hummell (LSU).



The meeting was called to order at 1:30 p.m.

Carol Keiser-Long (chair) invited members to brainstorm about renewable energy priorities for the coming year. What are the scope and effectiveness of current renewable energy research programs – for example, strengthening training and manpower, or validating a cellulosic feedstock? What gaps or challenges exist?

Dr. Bill Goldner identified three critical issue areas:

1. Water for renewable energy and competing demands, notably fracking. Models and best management practices are needed.
2. Regional bioenergy systems (there seems to be some confusion on this score at EPA).
3. Logistics and preprocessing, which represent potential bottlenecks in the refining process. DOE has done some work on this topic.

More interaction with EPA is needed on #2; AFRI supports research in liquid transportation fuels and upstream support for biorefineries. This issue also includes uses of bioprocess energy. Since it lies at the intersection of several elements of the system, it is important to avoid double counting of feedstocks and to achieve optimal configurations and yields. Large differences exist between regions. Waste streams are not yet being utilized.

Dr. Carmela Bailey suggested that further attention is needed on the pyrolysis of biomass for bio-oils and carbon char, the latter for sequestration or soil amendment. Questions have been raised about the net effect of char sequestration on carbon emissions, and a metaanalysis of past studies shows that two-thirds have no net effect. It may be necessary to go back to the basic sciences. Some investigators are enthusiastic about finding new uses of biochar, but thus far the economics are not there. Jeff Steiner will distribute the metaanalysis to the committee. *Consensus favors keeping this idea in the hopper, since it is a sustainable supply-chain approach that would create jobs.*

Utpal Vasavada also identified three issues on which to focus:

1. Land use changes in feedstock production and the effects of those changes on food prices, greenhouse gas production, etc.
2. U.S. exports of biofuels, including ethanol, and their impacts on the balance of trade.
3. Impacts on jobs and rural communities – at present there are major data gaps and scientific questions.

NIFA is generating some data on social and economic impacts; these data should be available through the LCA Digital Commons. ARA is collaborating with MIT to generate similar data on regional biomass centers. In general, however, grant applicants are slow to develop robust LCA data and generally don't require modeling. Perhaps data analysis and modeling are areas ripe for collaboration with DOE's feedstock partnership; continued support from NAL will also be vital. *Consensus favors a series of workshops to establish data standards and encourage development of LCA systems.*

Dr. Jeffrey Steiner reported that ARS is committed to regional feedstock systems. Switchgrass and corn stover are the most mature, thanks to collaborations between DOE and EPA. Price points are still needed, as is further work on oil seed crops (for the Midwest) and invasive trees (for the tropics).

Dr. Bill Goldner suggested that EPA should certify dedicated biofuels feedstocks for each region based on a sound LCA of all potential feedstocks, natural or GMO. Thus far there has been little federal investment in this area, but it would save a lot of effort if at least some of the candidates could be eliminated (or certified) in advance. An example is GMO eucalyptus in the Southeast.

Dr. Daniel Cassidy added that baseline data are not sexy, but the certification of a regional feedstock has to be based on "true, unbiased numbers" bearing on job creation, water impacts, logistics (preparation and transportation), social utility, and the manpower needed to design, build and maintain regional systems. Coordination has emerged but still needs improvement, especially with germplasm researchers; both NAL and CES will be needed to compile and disseminate information to end-users.

Participants suggested that money will be available for all of these efforts if BRDI is reauthorized, but they recognized that BRDI preference still requires a roadmap to implementation. DOE will always be a more important buyer than the food and agriculture sector. There remains a need for long-term analysis of the price trajectory. *Consensus favors listening sessions with DOE and end-users to see what they want to buy, as well as the nexus between energy and water.*

Dr. Steven Hamburg noted that every agency seems to be working every issue, with little apparent coordination. Other participants agreed that these issues are ripe for better coordination, collaboration and integration. Consensus favors further discussions on four issues:

1. Life-cycle analysis (data collection, management, harmonization, etc.).
2. Water (regional impacts and differences; best management practices for recovery, reuse, recycling; tradeoffs between agriculture and energy; double counting).
3. Lack of coordination (need for systemwide analysis).
4. Land use changes.

The meeting adjourned at 3:30 pm.

Carol Keiser-Long
Chair

Rob Burk
Executive Director

APPROVAL BY COMMITTEE:

Date

Initials
Chair

Initials
Executive Director

Appendix 1: Transcribed wall charts developed at the meeting.

Topic/Issue	Agency	Notes
Water	NIFA / REE	Huge issue which is underserved by RE. Natural Gas Extraction compounds this issue. The topic of contaminated aquifers. Committee: A regional approach needs to be taken to water, not a state by state approach.
System Wide Look	NIFA	There is a need for better coordination with EPA, Forrest Service, etc. Regional approaches.
Logistics/Preprocessing	NIFA / REE	A bottleneck exists. There are limits to the ability to deliver the product to the refineries. Must weigh quantity versus quality versus cost. USDA should lead this discussion.
Sound scientific evaluation of GM	NIFA	NIFA is one of the only funding programs addressing this issue. Invasiveness must be addressed (example: eucalyptus)
Pyrolysis	NIFA	Some disagreement between agencies on its potential. ARS questions economics, and note that there is more value in the oil produced than the biochar.
Conversion	NIFA / REE / ARS	USDA needs to stay involved post farm gate. USDA ARS has had success with conversion, and we don't want to give up on this. The "3" legs need to be kept in mind.
Bio-based products	NIFA	The future looks bright.
Land use change	ERS	Feedstock value versus biomass. Effect on greenhouse gas emissions needs to be analyzed. Effect on water quality.
Global biofuel trade	ERS	We need to get a better handle on this topic. Need to analyze policy impacts, future expansion potential.
Job creating potential	ERS	Need to more adequately analyze the potential for expansion of the job market.
Life cycle analysis	ARS / REE	NAL should remain central to life cycle analysis. Keiser-Long questioned whether more data is needed for life cycle analysis. ERS = more data needed, NIFA = trying to populate data, ARS = referred to the need for digital commons.
Environment	ARS	Risk assessment
Need to work more with commercial and international partners	ARS	This work will better answer the questions of need, cost, and value.
Baseline data needed	REE	
Feedstock coordination	REE	
Extension	REE	The role of extension in education and translation of research to growers.
Social justice / Education	REE	??? Point by Daniel Cassidy was missed

Topic/Issue	Agency	Notes
Need to work more with 1890, and 1994 institutions.	REE	
Roadmap needed for bio-product development	REC	
USDA Biopreffered use	NIFA	The USDA should be a stronger user of the bio-preffered program.
REE should meet with airlines, military, and industry	ARS	REE needs to better gauge what products are needed by the largest users of the product.
Lack of coordination	Committee	There is a lack of coordination between departments, agencies, and industry (Inter and intra USDA). Example: SAB is opposed to the regional approach supported by USDA. Noted regional effieciency. The need for coordinaiton of data sets between NASS, FIA.