

Bioenergy Technologies Office

2017 Program Management Review

Feedstocks and Logistics

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Arlington, Virginia

July 13, 2017

FEEDSTOCK SUPPLY AND LOGISTICS REVIEW PANEL

NAME	AFFILIATION
Steve Searcy*	Texas A&M University
Emily Heaton	Iowa State University
Giovanna Aita	Louisiana State University Ag Center
Katherine Delany Behrman	University of Texas at Austin
Sudhagar Mani	University of Georgia
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- Examined project presentations in advance of the BETO Review
- Questioned presenters on points of interest/concern
- Shared comments on each project with Lead Reviewer at end of each day, and Lead Reviewer compiled those for team meetings
- Team discussed projects with divergent views and modified comments
- Lead Reviewer assembled draft Overall Comments for all projects into a single file that was shared with all members for response/edits
- Resulting Overall Comments for each project were provided as the team consensus, with specific mention of those with divergent views

Average scores ranged from 5.06 – 9.15, with a median of 7.95

Top performing projects (≥ 8.2):

- Design and Demonstration of an Advanced Agricultural Feedstock Supply System for Lignocellulosic Bioenergy Production
- Demonstration of an Advanced Supply Chain for Lower Cost, Higher Quality Biomass Feedstock Delivery
- Biomass Engineering: Harvest, Collection, and Storage
- Research, Extension, and Educational Programs on Bio-based Energy Technologies and Products
- Size Reduction, Drying and Densification of High Moisture Biomass
- Feedstock Supply Chain Analysis
- Supply Forecasts and Analysis
- Development of a wet logistics system for bulk corn stover

- Projects having positive effect on predictions of biomass availability and cost
 - Regional Feedstocks Program coordinated by NC Sun Grant Center
 - Supply Forecasts and Analysis (Billion Ton 2016)
 - Advanced logistics systems
 - INL projects on higher moisture biomass
- Projects having lesser impact
 - Predicting future resource allocations
 - Assessing future equipment manufacturing needs
 - Demonstration projects such as the NC Sun Grant Eco-Farm
 - Genetic improvement of biomass crops (team opinions were divergent)

- Majority of portfolio projects should be lower risk advancements of known technology to have the greatest impact on expanding the biofuels industry. However, particularly intransigent challenges should take greater risks
- Projects showing significant innovation
 - NIR sensing techniques for assessing the quality of biomass in bale form
 - High tonnage logistics projects funded in both FY11 and FY15
 - Vehicle design for whole log transport to facilitate log merchandising
- Topics requiring greater innovation
 - Treatments to reduce fire potential in stored biomass
 - Non-contact mapping of bale moisture variability
 - Bulk handling and storage of high moisture biomass

- Significant levels of synergy were shown between projects.
- Examples of significant synergy
 - Feedstocks Partnership providing basis for PRISM-ELM models of yield potential used by 2016 Billion Ton Study
 - Advanced logistics equipment and systems supporting Poet and DuPont biorefineries
 - Increased interactions between DOE national lab projects
 - Biomass Feedstock National User Facility
 - Feedstock-Conversion Interface Consortium (FCIC)
- Opportunities for increased synergies
 - Additional projects recommended for inclusion in FCIC
 - Incorporation of biomass quality measurement in more projects and use of that quality data for optimization of the processes

Overall Impressions: Focus

- BETO program has successfully projected future availability of biomass as well as equipment and labor needs to support a biofuels industry of a size to meet the RFS2 targets
- Challenge now is getting a viable industry started and demonstrating sufficient profitability to attract investment capital
- Going forward, the focus of the FSL program should be on solving the short to medium term challenges. Some current projects do address shorter term challenges, but more of these should be emphasized
- FY2015 review warned against mission creep, and that concern continues

- Relatively few BETO FSL project outputs have been commercialized
- Issue is primarily the size of the industry has not yet created demand
- Projects with potential for commercialization
 - High Tonnage Logistics machines
 - High moisture pelleting
 - Adaptive control of grinding
- Suggested strategy is to identify related industries that could adopt BETO outputs until the biofuels industry creates the demand
- Concern was raised over the self-funding expectations for the INL Process Development Unit. Potential conflicts exist between generating external income and performing directed research

- BETO FSL projects have been largely successful, with many lessons learned
- Review panel recommendations
 - More effective collaboration with USDA in setting priorities for research on biomass crops is needed
 - Increase emphasis on addressing the short to medium term feedstock and logistics issues that are a drag on biofuel industry efficiency and profitability.
 - Recommendation for a depot level demonstration project made in the FY2015 review is reiterated
- In summary, the biofuel industry will never reach a billion ton demand until successful million ton biorefineries exist. Assessment of long term future demands should be secondary to developing solutions to shorter term profitability challenges.