Biomass Research and Development TAC Meeting
22 August 2018

USDA Activities Update
USDA Bioeconomy Research Focus Areas

**Feedstocks**

**Conversion**

**Products and Markets**
ARS Work

• Creating enzyme ladders to convert crop waste to green chemicals

• Liberty switchgrass is competitive with corn in generating high yields of bioethanol

• Using sorghum to produce milo oil and high-value waxes

• Production of high value phenol and furan coproducts from catalytic pyrolysis
9003 Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program

• This program assists in the development, construction, and retrofitting of new and emerging technologies for **advanced biofuels**, **renewable chemicals** and **biobased products** by providing loan guarantees up to $250 million.

• Loan amount cannot exceed 80% of eligible project cost
  • Total federal participation may not exceed 80% of eligible project cost
  • 20% of total eligible project costs must be funded from non-Federal sources

• New technology is eligible

• Not limited to rural locations

• Competitive application process

• Loan Note Guarantee may be issued prior to construction
9003 Application Process

• The 9003 Program uses a **2-phase application** process:
  • **Phase 1 applications** are the initial application submissions, must provide information to determine Lender, Borrower and Project eligibility; preliminary economic and technical feasibility; and the priority score of the application. Based on the priority score ranking, the Agency will invite applicants to proceed to Phase 2 of the process.
  • **Phase 2 applications** include the environmental report, technical report, financial model, and the lender’s credit evaluation. The Phase 2 materials are submitted as the ongoing project develops and the planning and engineering is finalized.

• Two application cycles each fiscal year.
• Letter of Intent deadlines are 30 days prior to the application closing date, next letter of intent is due by Sept 1, 2018
• Application closing dates are October 1 and April 1 (Annually)
National Institute of Food and Agriculture

- The Bioenergy, Bioproduct Bioeconomy (B3) Portfolio historically provides unique approaches to building supply chains and value propositions through research, education, and Extension
- Supports Bioeconomy through competitive and capacity grant programs

- **AFRI**: Agriculture and Food Research Initiative
  - **Coordinated Agricultural Projects (CAPs)**: FOCUS + SCALE = IMPACT
    - Integrate research, development, demonstration, education/workforce development, Extension/outreach/tech transfer to farmers and processors
    - Regional biomass supply chains linked to bioeconomic value propositions (biofuels, biobased chemicals and products)
  - **Foundational Program** grants address bioproducts (e.g. lignin, nano-cellulosics), policy, social and environmental impacts, crop development and evaluation

- **SBIR**: Small Business Innovation Research

- **USDA & DOE Joint Solicitations**
  - Plant Feedstock Genomics Program (with DOE-OS-BER)
  - Biorefinery Optimization (with DOE-BETO)
  - Biomass Research and Development Initiative (with DOE-BETO)
CAP Feedstocks and Project Regions
USDA NIFA AFRI CAPs

• Northwest Advanced Renewables Alliance
  – Washington State, Weyerhaeuser, Gevo, ICM, Andritz, Oregon St, Alaska Airlines, Boeing, Regional Tribes, FPL, and many others
  – Demonstrated system forest residuals, mill waste → jet fuel
  – 11/2016: World’s first commercial cellulosic biofuels flight
  – MOU and infrastructure study Port of Seattle, Boeing, Alaska
USDA NIFA AFRI CAPs

- Biomass Alliance Network of the Rockies (BANR)
- Colorado State, Cool Planet, Confluence Energy, USFS, many others
- Insect damaged conifers
- Developed and tested analysis and decision tools economic, environmental, social
- Planning commercial demo
Two NEW AFRI CAPs Join the Community

**SPARC led by University of Florida**
- Partnering with Agrisoma and ARA, others
- Targeting alternative jet fuel and animal feed from the
  oilseed crop Brassica carinata (Carinata)

**SBAR led by University of Arizona**
- Partnering with Bridgestone America, New Mexico State, others.
  Targeting natural rubber, industrial chemicals, and alternative jet
  fuel from the dry land crops guayule (why-oo-ley) and guar.
Future of BRDI