Advancing the Bioeconomy: A Sustainable, Scalable, Replicable Model for Rural Economic Development

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CAAFI Biennial General Meeting
June 3, 2022
The Agricultural Technology Innovation Partnership (ATIP) Network

Map of the 8 “Areas” of USDA Agricultural Research Service (2012)

Established June 2011
To provide both a unifying entity for member organizations, as well as flexibility to engage other organizations that have a vested interest in seeing USDA research outcomes adopted by the private sector to create goods and services for public benefit, wealth creation, and rural economic development.
ATIP Foundation 2016 Regional Bioeconomy Forums:
“Addressing the Challenges & Opportunities of Advancing the Billion Ton Bioeconomy”

Venues and Regional Co-hosts

Southeast: September 16, Atlanta, GA (Georgia Institute of Technology)
Southwest: September 29, Mineral Wells, TX (Chamber of Commerce)
Northwest: October 3, Seattle-Tacoma, Washington (Washington State University)
Northeast: October 18, Orono, ME (University of Maine)
Midwest: November 15, Columbus, OH (The Ohio State University)

National Sponsors

NEW HOLLAND AGRICULTURE
POET
DSM Advanced Biofuels
ATIP Foundation Biojet Fuel 2017 Regional Forum Series: “Accelerated Commercial Development of Hydrotreated Renewable Jet Fuel (HRJ) from Redesigned Oilseed Feedstocks Supply Chains”

Venues and Regional Co-hosts

June 5-6, Richland, WA (Washington State University)

June 13, Fargo, ND (ND Department of Commerce / ND State University)

July 11, Wichita, KS (Wichita State University / Kansas State University)

Research Grant Participants & Partners

AeCAP
Agrisoma Biosciences
ATIP Foundation
Cornell University
Kansas State Univ.
Keygene

Michigan Technological Univ.
North Central Regional Sun Grant Center
South Dakota School of Mines and Technology

University of Idaho
University of Maryland
University of Tennessee
UOP/Honeywell

USDA Agriculture Research Service
USDA National Institute of Food and Agriculture
USDA Natural Resource Conservation Service
Four Critical Forum Issues

- Development of diversified supply chains that are financially sustainable
- The support of the financial investment community
- Consistent public policy
- An extensive public education and awareness campaign
DEVELOPING SCALABLE, REPLICABLE MODELS

The fundamental premise: demonstrate how the informed integration of six stakeholder sectors can serve as a catalyst for a strategic approach that will translate federal and academic research outcomes into rural wealth creation, thereby fostering the bioeconomy.

The approach: ATIP Foundation is working with USDA and other federal agencies to establish and work with our regional project steering committees to develop paths forward to establish a bioeconomy industry in the region.

- Launched in 2017
- Currently working in Texas, California & Ohio
- Launching in Virginia, Wisconsin later this year
Virginia SAF Implementation Team In Place
ECONOMIC DEVELOPMENT 101

Three things happen in economic regions

- Production Generates Wealth
- Suppliers & Service Providers Recirculate Wealth generated
- Wealth migrates to other regions
ATIP Established Replicable Model Based on Industry Cluster Model

Strengthening the 5 primary economic foundations in alignment with and support of our primary industry clusters is equally critical to our economic sustainability.
BIOECONOMY INDUSTRY CLUSTER

Clusters require 5 economic foundations

- Access to technology
- Access to infrastructure
- Supportive public policy
- Access to capital
- Access to a trained skilled workforce
SECTOR ENGAGEMENT

Economic Development provides the integration & alignment of the stakeholders in the 6 sectors

- Academia, provides access to technology
- Government provides infrastructure, public policy
- Financial Services provides capital
- Education & Workforce development providers the workforce
- Business & Industry provide supplies & service providers
- Supply Chain from biomass source to end users provides the logistical support
ESTABLISHING THE MODEL

Three primary components:

- Biomass and Support Service Inventories via GIS Database
  - CA: https://arcgis.com/apps/webappviewer/index.html?id=ca5799270e4b4fe68ef7c57fcd1d861c
  - OH: https://arcgis.com/apps/webappviewer/index.html?id=8861b925efcc47c2b6bc448d76ec75b0
  - TX: https://arcgis.com/apps/webappviewer/index.html?id=e4e4ae3e65304d3593a03819f3915ece

- Building the Economic Foundations

- Job Creation from:
  - Start Up businesses
  - Expansion of existing businesses
  - Recruitment of businesses
Thank you!

Q & A

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Identifying Business Opportunities

- **Generate Regional Feedstock Resource Assessment & Inventory Reports and Heat Maps; identifying volume of biomass feedstocks for conversion to bioenergy and co-products through conversion units to be deployed**
  - Dairy wastes
  - Commodity crop residues
  - Downed trees (storm damage), utility right-of-way trimmings
  - Food and Food Processing wastes
  - Purpose-grown crops for remediation of phosphorus levels, waste-water treatment facility (WWTF) spray fields
  - Invasive plant spp. management

- **Database of resources** will also include infrastructure & services (people, product, information flow; logistical capabilities); informed & engaged financial services sector; economic development organizations, academic & workforce systems; and supportive state & local governments.
Inventory of biomass: Wastes from Animal Production
Inventory of biomass: EPA Estimates of Food Waste
Inventory of biomass: EPA Estimates of Food Waste
Query: If installing biomass conversion facilities, where are the optimal locations relative to manure sources, gas pipelines, other infrastructure?

(from Northcentral TX 2019 RBDG project)
Example Tulare County: Optimal location for 6 facilities, 15 mi radius, 8,000 Tons/day limit on amount of manure each facility can process.
Inventory of Service Providers: Economic Development