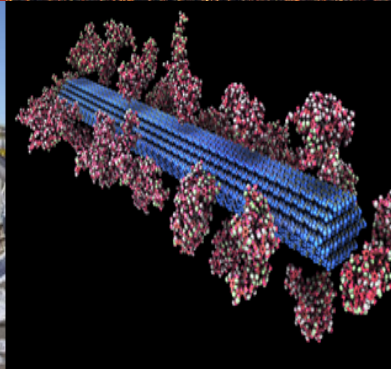




U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy



The Billion Ton Update

Advanced Bioeconomy Feedstocks Conference

Miami, FL

June 8 2016

Moderator: Dr. Alison Goss Eng, Program Manager,
Bioenergy Technologies Office | U.S. Department of
Energy

Dr. Tim Rials

Director, Tennessee Forest Products Center,
University of TN Agricultural Campus

Rachel Emerson

Bioenergy Material Characterization
Scientist, Idaho National Laboratory

Jonny Rogers

Energy Engineer, Energetics, Inc.

Dr. Matthew Langholtz

PI Resource Analysis, Oak Ridge National
Laboratory

BETO's Core Focus Areas

Program Portfolio Management

- Planning
- Systems-Level Analysis
- Performance Validation and Assessment
- MYPP
- Peer Review
- Merit Review
- Quarterly Portfolio Review
- Competitive
- Non-competitive
- Lab Capabilities Matrix

Research, Development, Demonstration, & Market Transformation

Feedstock Supply & Logistics R&D

- Terrestrial feedstocks
- Advanced Algal Systems
- Resource Assessment, Supply, and Logistics



Conversion R&D

- Deconstruction and Fractionation
- Synthesis and Upgrading



Demonstration & Market Transformation

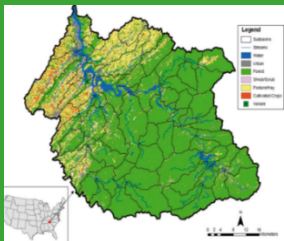
- Integrated Biorefineries
- Biofuels Distribution Infrastructure



Crosscutting

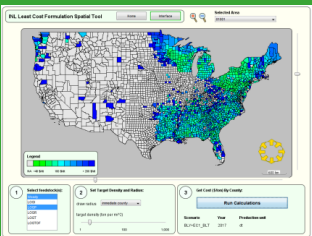
Sustainability

- Sustainability Analysis and Communication
- Sustainable System Design



Strategic Analysis

- Technology and Resource Assessment
- Market and Impact Analysis
- Model Development and Data Compilation



Strategic Communications

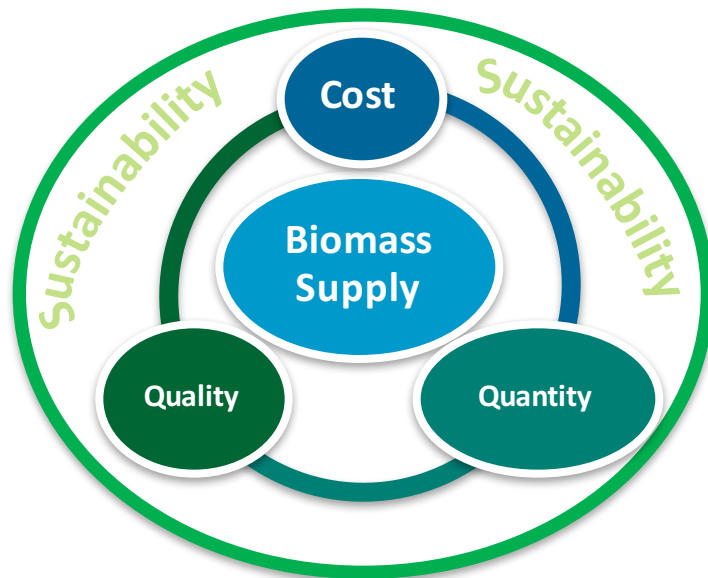
- Public Awareness and Support of Office Goals
- New Communications Vehicles and Outlets
- Benefits of Bioenergy/Bioproducts



Feedstock Supply and Logistics

Focus

- Fully integrate feedstocks into supply chain (multiple interfaces).
- Reform raw biomass into high-quality feedstocks.
- Use innovative technologies to ensure sustainable supply and reduce costs.
- Reduce risks to enable industry expansion.



Approaches

- Use basic and applied science to understand, model, and manage.
- Provide nationally, but solve locally.
- Meet environmental performance targets and goals while assuring sustainability.
- Work with stakeholders and partners.



History

Billion-Ton Study (BTS), 2005

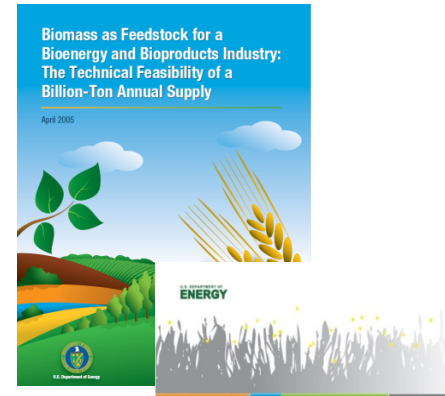
- Technical assessment of agricultural and forestry systems to supply low-valued biomass for new markets
- Identified adequate supply to displace 30% of petroleum consumption; i.e. physical availability

Billion-Ton Update (BT2), 2011

- Quantified potential economic availability of feedstocks for 20-year projection
- Publicly released county-level supply curves for 23 candidate biomass feedstocks through Bioenergy Knowledge Discovery Framework.

2016 Billion-Ton Report (BT16), 2016

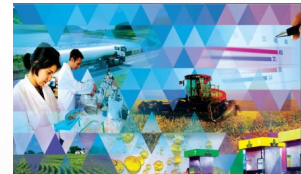
- Expansion of resource assessment to include additional feedstocks (algae and others) and delivered supply
- Two-volume approach



U.S. BILLION-TON UPDATE
Biomass Supply for a Bioenergy and Bioproducts Industry



August 2011



The 2016 Billion Ton
Report

Today's Panel: the making of a Billion Ton Study Update

- **Matthew Langholtz**—resource potential
- **Tim Rials**—ground-truthing yield assumptions for energy crops
- **Rachel Emerson**—feedstock composition and quality
- **Jonny Rogers**—the implications of a Billion Ton Bioeconomy