

Feedstock-Conversion Interface Consortium Overview

energy.gov/fcic



The FCIC uses **first-principles-based science** to **de-risk biorefinery scale-up and deployment** by understanding and mitigating the impacts of feedstock variability on biomass conversion processes.

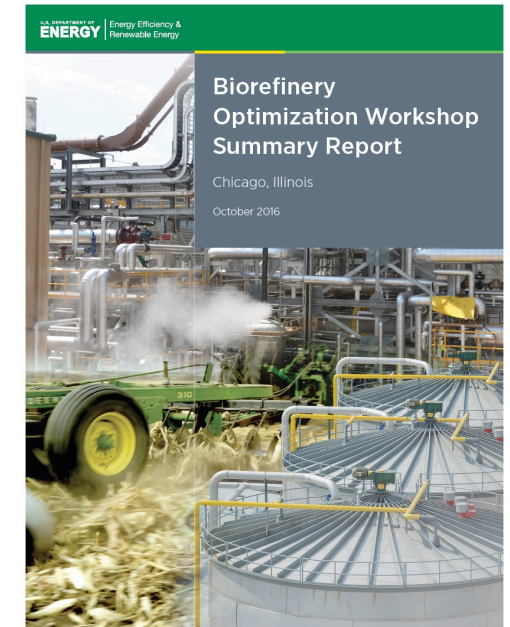
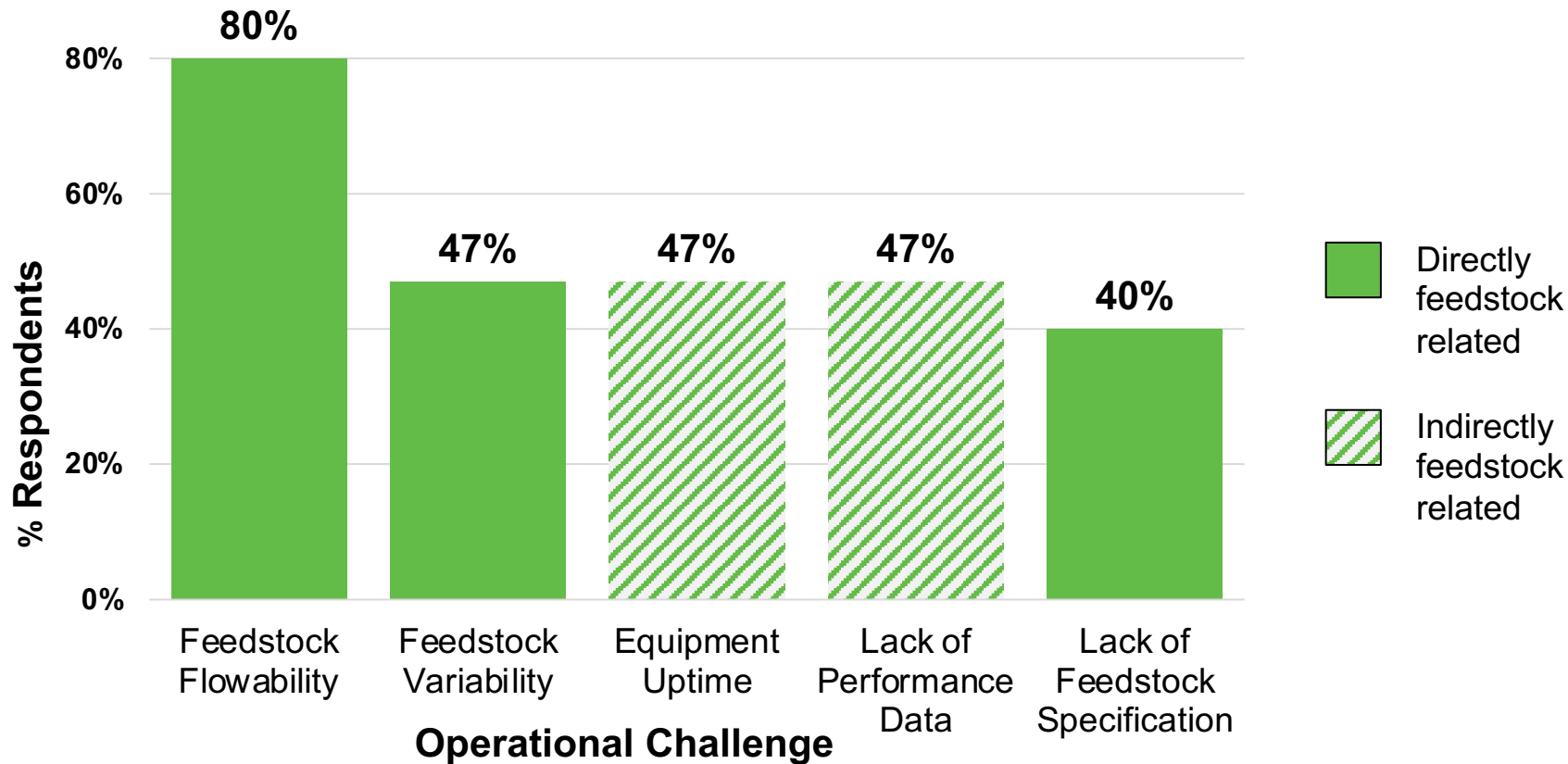
The Feedstock-Conversion Interface Consortium (FCIC) is a Bioenergy Technologies Office-funded collaboration of industry advisors and researchers at 9 U.S. Department of Energy (DOE) national laboratories.

Key Ideas:

- Biomass feedstock properties are **variable** and **different** from other commodities.
- **Empirical** approaches to address these issues have been **unsuccessful**.



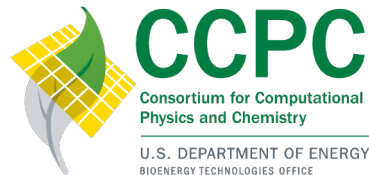
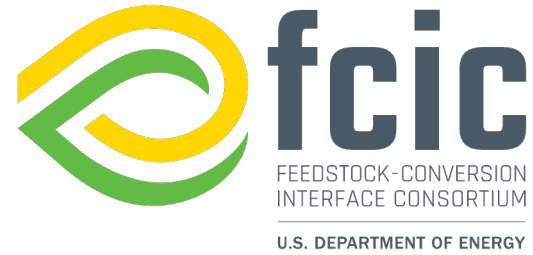
At the 2016 Biorefinery Optimization Workshop, over 100 bioenergy industry stakeholders representing public and private sector organizations, national laboratories, and academic institutions identified best practices, lessons learned, potential solutions, and resources needed to overcome current challenges facing integrated biorefineries.



<https://energy.gov/eere/bioenergy/downloads/biorefinery-optimization-workshop-summary-report>



FCIC Researchers Work Across the Bioenergy Value Chain





**Feedstock
Variability**



**Material
Handling**



Preprocessing



**Low-T
Conversion**




**High-T
Conversion**



**Data Integration
& Web Portal**



**Materials of
Construction**



**Cross-cutting
Analysis**



Industry Advisory Board Provides Feedback



**Prof. Foster
Agblevor**



<https://engineering.usu.edu/be/people/faculty/agblevor-foster>



**Mr. Brandon
Emme**



<https://www.linkedin.com/in/brandon-emme-6104ab67>



**Mr. Glenn
Farris**



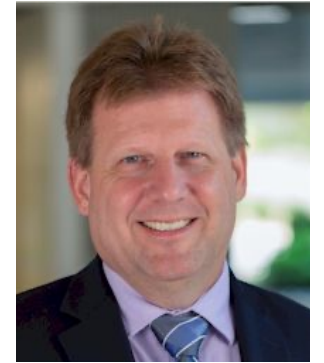
https://lee-enterprises.com/dt_team/farris-glenn



**Prof. Emily
Heaton**



<https://cropsciences.illinois.edu/people/profile/heaton6>



**Mr. Brad
Kelley**



<https://gbbinc.com/about/our-experts/bradley-kelley-bsme>



Analysis and Testing of Feedstock for Gasification Generation from Novel MSW-Processing Technology

Partners:



AMPTM



NREL
Transforming ENERGY



INL
Idaho National Laboratory

Improving the Durability and Efficiency of Wood Hogs by Investigating and Mitigating Wear Issues

Partners:



WOOD HOGS
RAWLINGS



OAK RIDGE
National Laboratory



Argonne
NATIONAL LABORATORY

MSW De-Baling and Material Separation

Partners:



Warren & Baerg
MANUFACTURING, INC.



INL
Idaho National Laboratory



Industry Impact – Previous CRADA Call Projects

Rational Design of Robust Reactor Feeding Systems for Heterogeneous Cellulosic and Agricultural Wastes Based on Biomass Quality Characteristics

Partners:



Moisture Management and Optimization in Municipal Solid Waste Feedstock Through Mechanical Processing

Partners:



“Smart” Transfer Chutes With In-line Acoustic Sensors for Bulk-Solids Handling Solutions

Partners:



Investigating and Addressing the Wear Issue of the Rotary Shear Biomass Comminution System

Partners:



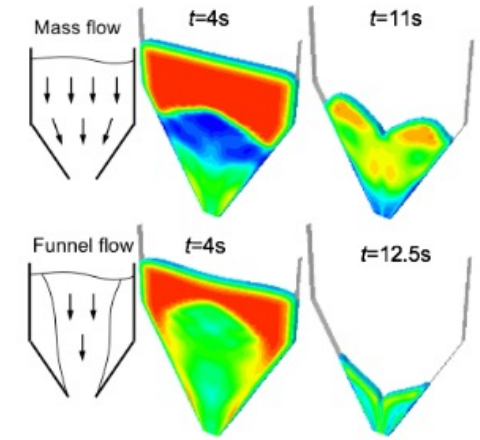
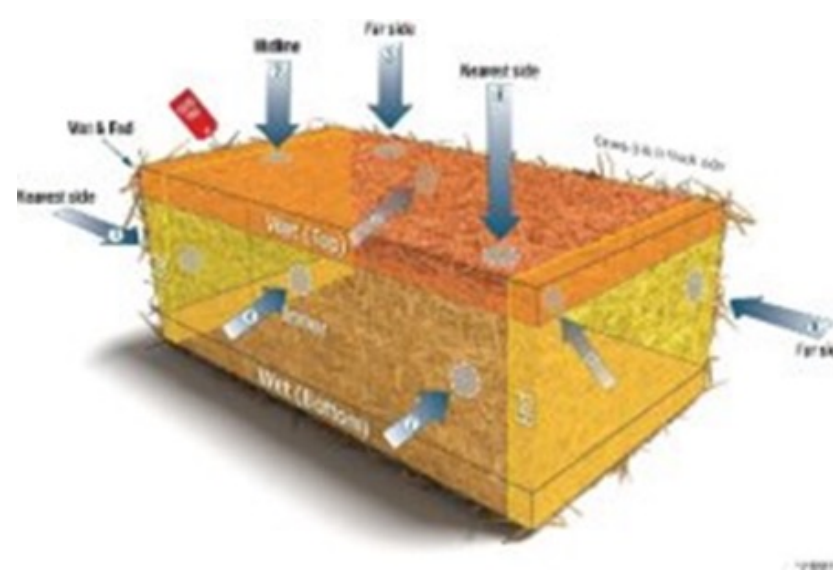
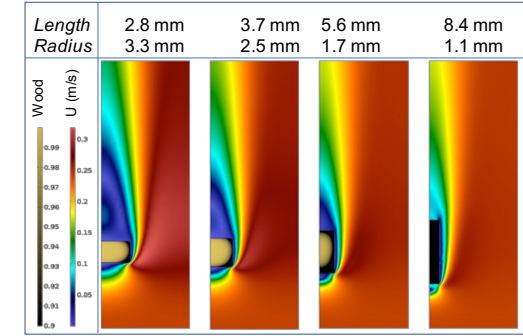
Real Time, Integrated Dynamic Control Optimization to Improve the Operational Reliability of a Biomass Dryer

Partners:



Summary

- **Feedstock variability** across the bioenergy value chain is a risk to biorefinery scale-up.
- The FCIC's deep **subject matter expertise**, detailed chemical, physical, and mechanical **characterization**, and robust and validated **modeling** are providing **knowledge and tools** to bioenergy stakeholders.



Visit us at energy.gov/fcic
for more information,
publications, news, and more.

Want to get in touch?
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