



**BETO Small Business Vouchers  
Overview  
October 18, 2016**

**Bioenergy Technologies Office  
(BETO)**

# Purpose of this webinar

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- High level overview of the Bioenergy Technologies Office (BETO) and its participation in the Small Business Vouchers (SBV) Pilot
  - To address *BETO-specific* questions (taking Q&A at the end)
- Logistic, procedural, process, and general questions that pertain beyond BETO will be addressed by the upcoming SBV webinar
  - next Tuesday October 25, 2016 (see SBV website: <https://www.sbv.org>)
- This presentation along with BETO-specific FAQs will be posted on the BETO website

# Small Business Vouchers (SBV) Pilot Program - Bioenergy

- **Purpose:** To help small businesses bring clean energy technologies to market faster by enabling access to national lab expertise and tools *easily* and *affordably*
- SBV ([www.sbv.org](http://www.sbv.org)) is a pilot program coordinated by EERE that matches selected clean energy small businesses with experts from the national labs and awards the businesses vouchers valued at \$50K to \$300K that they can exchange for national lab technical assistance.
  - 5 lead national laboratories (ORNL, NREL, LBNL, PNNL, and Sandia)
  - All DOE national laboratories are eligible to participate
- **BETO has allocated \$1.6 million in FY16**, spread over two rounds.
  - Lygos (LBNL/NREL)
  - Visolis (NREL/PNNL)
  - Avatar Sustainable Technologies (NREL)
  - HelioBioSys (LBNL-Sandia)
  - Mango Materials (LBNL)
  - Virent (ANL)
  - Zymochem (LBNL)

# Bioenergy Technologies Office (BETO)



A thriving and sustainable bioeconomy fueled by innovative technologies

Developing and demonstrating transformative and revolutionary bioenergy technologies for a sustainable nation

- By 2017, validate at least one pathway for \$3/GGE\* hydrocarbon biofuel with  $\geq 50\%$  reduction in GHG emissions
- By 2022, validate at least two additional pathways at pilot or demonstration scale ( $>1$  ton/day)

\*Mature modeled price at pilot scale.

***BETO reduces risks and costs to commercialization through RD&D***

# BETO's Core Focus Areas

## Program Portfolio Management

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



## Research, Development, Demonstration, & Market Transformation

### Feedstock Supply & Logistics R&D

- Terrestrial feedstocks
- Advanced Algal Systems
- Supply, Production, and Logistics



### Conversion R&D

- Deconstruction and Fractionation
- Synthesis and Upgrading



### Demonstration & Market Transformation

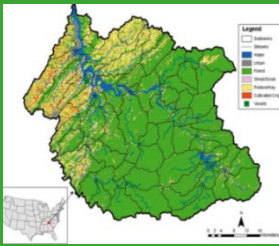
- Integrated Biorefineries
- Biofuels Distribution Infrastructure



## 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

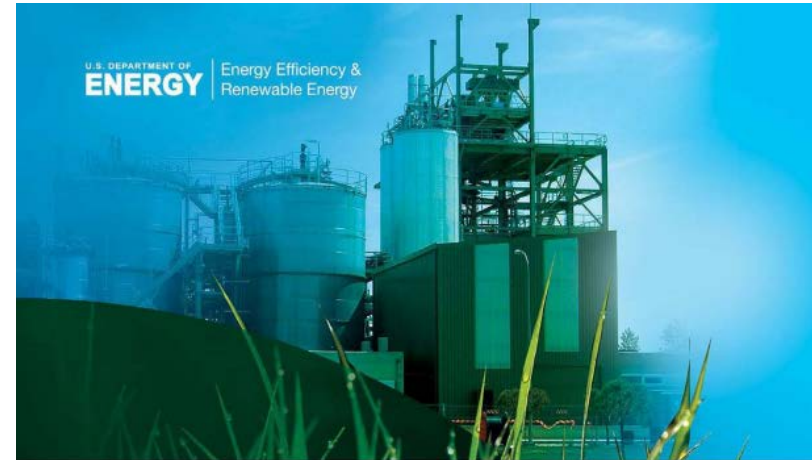
- Public Awareness and Support of Office Goals
- New Communications Vehicles and Outlets
- Benefits of Bioenergy/Bioproducts





# Multi Year Program Plan (MYPP)

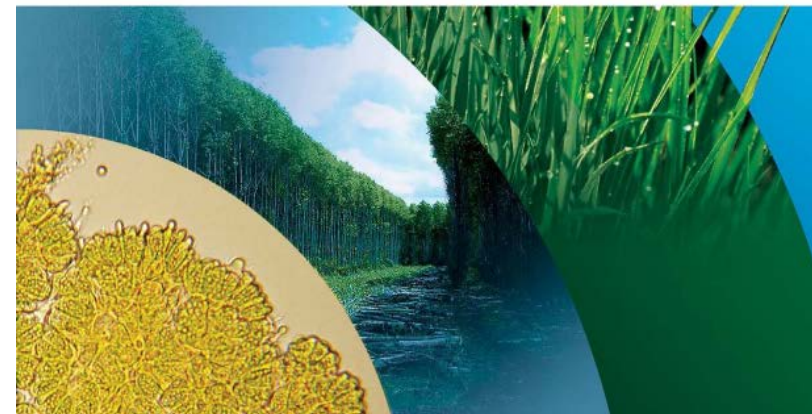
- Articulate BETO's mission and goals to internal and external stakeholders
- Provide budget request justification
  - Explain how pieces fit together and build to long term goals
- Operational guide
  - To help the Office manage and coordinate its activities
- 5-10 year planning horizon (2022 goals and beyond)
  - Office goals
  - Technology Area/Program Plans
  - Integrated across programs
  - Regularly updated using change control



BIOENERGY TECHNOLOGIES OFFICE

## Multi-Year Program Plan

March 2016



# MYPP March 2016 Update

## Key Changes:

- ✓ Revised BETO vision and mission
- ✓ Added Algae Farm design case
- ✓ Added new IBR strategy & related analysis results
- ✓ Added and updated program milestones
- ✓ Updated costs to 2014\$

**The MYPP 2016 Update is  
available at:**

**[energy.gov/sites/prod/files/2016/03/f30/mypp\\_beto\\_march2016\\_2.pdf](http://energy.gov/sites/prod/files/2016/03/f30/mypp_beto_march2016_2.pdf)**

## MYPP 2017 Future Plans:

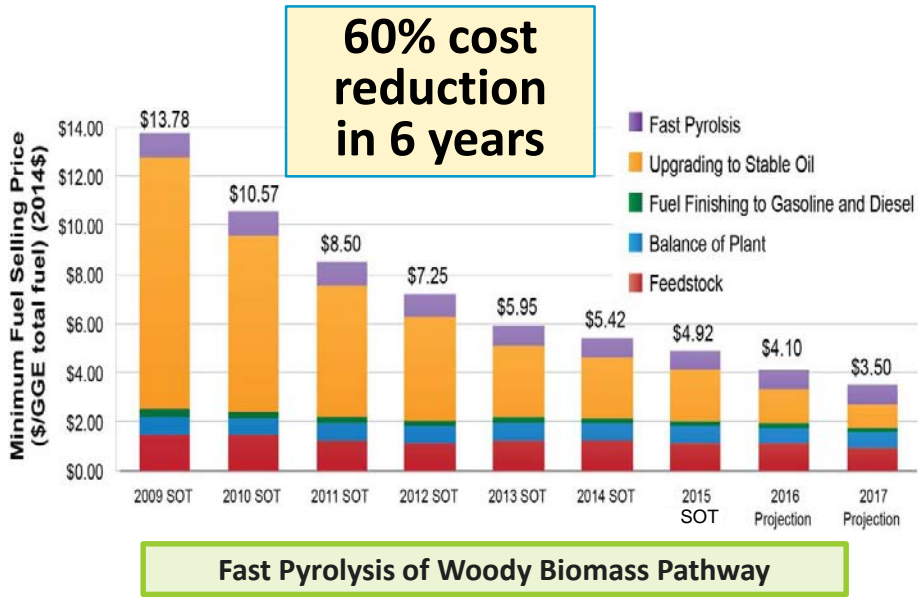
- ❑ Integrate changes from new BETO strategic plan and bioeconomy
- ❑ Expand wet waste-to-energy as strategy clarifies
- ❑ Continue to incorporate learning from RD&D portfolios into direction and goals
- ❑ Incorporation of goals and milestones for co-optimization of fuels and vehicles
- ❑ Next update planned for March 2017

# Bioenergy Technologies Office – Summary

Accelerate the commercialization of first-of-a-kind technologies designed to utilize the Nation’s abundant biomass resources for the production of advanced biofuels and biobased products.

## Portfolio with Strategies on:

- **Terrestrial Feedstock Supply:** By 2022, validate FSL systems to supply 285 million dry tons/year to a biorefinery at a cost of \$84/dry ton.
- **Conversion R&D:** By 2022, validate an n<sup>th</sup> plant modeled cost of \$3/GGE for a total of 3 pathways to hydrocarbon fuels with GHG emissions of >50% compared to petroleum.
- **Demonstration and Market Transformation:** By 2027, validate mature modeled performance goals for hydrocarbon fuels using data from an operating biorefinery.



## Challenges

- Feedstock Availability and Cost
- Risk of first-of-a-kind technology
- Inadequate distribution infrastructure
- Production costs and market uncertainty
- Public acceptance of bioenergy

## Opportunities

- RD&D to reduce feedstock logistics costs
- Cost-shared pilot and demonstration-scale facilities
- Focus on infrastructure-compatible hydrocarbon fuels
- Co-products to improve economics of biofuels
- Robust communications strategy and engagement with public stakeholders



# Questions?

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- <https://www.sbv.org/contact.html>
- [info@sbv.org](mailto:info@sbv.org)