April 10, 2019

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The ABPDU will strongly enable and support the commercialization of industry-, academic- and DOE-driven biofuels and bio-products by providing a key technical resource and an agile, flexible team for process development and demonstration.

The project aims to have at least one industry sponsor per year commercially launch a biofuel / bio-product and secure private funding based on data generated at the ABDPU.
ABPDU enabling biofuel & bioproduct commercialization, verification and scaling

- 15,000 square foot Development & Demonstration Lab established by American Recovery and Reinvestment Act funds in 2009
- Closely engaged with DOE’s EERE Bioenergy Technologies Office (BETO)

- A bio-process research incubator / accelerator – streamlined contracting, full cost recovery project fee structure, experienced team, and Bay Area location
Broad product, technology and collaborator base

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<th>Biofuels &amp; biomass</th>
<th>Materials &amp; chemicals</th>
<th>Food &amp; health</th>
<th>Environment &amp; Ag</th>
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Bench-scale & pre-pilot prototyping, benchmarking and cross-training prior to partner process execution

- Process verification, integration and techno-economic analysis across varied bio-process configurations, feedstocks and products

Biomass deconstruction / extraction
- Many feedstocks
- Many processes

Sugars / oils / etc. → Fermentation (up to 300 L)

Chemical catalysis (up to 300 L batch) → Advanced recovery and purification
- Fuels / Chemicals
- Proteins / Enzymes
- Polymers
- Microbial biomass

- Can focus on individual unit operations or several processes in succession
Facility at a glance – from bench-to-pilot scale
Project development in close concert with IPO / SPO / OCFO

ABPDU Mission:
Partner with researchers from industry, the National Labs, and academia to optimize and scale technologies for bio-based chemicals / materials / fuels commercialization.
Working across wide array of BETO & Federal programs

Collaborations with other Labs and PDUs for process development & benchmarking

Mission-relevant industry projects from other agencies via subaward funding

Strong ties and project activities working with different DOE offices
Key outcomes for private sector collaborators

• Numerous partners have set up their own labs or pilot plants and secured private financing while / after working with ABPDU

• Product launches with commercial / pre-commercial scale-up & scale-down

Geltor

RIPPLE FOODS

GINKGO BIOWORKS™
THE ORGANISM COMPANY
Generating industry-relevant data and outcomes

Successful scale-up exceeding commercial target

Fermentation Scale-Up:
250mL to 50,000L

Accelerating fermentation process development and deployment in Ginkgo’s foundry

Emily Havens Greenhagen
30 October 2017

Ginkgo ambr250 EOF
Optimal Process (average of 20)

Ginkgo ambr250 EOF
Deployed Process (increased process robustness)

Pilot 250L

Commercial 50,000L

Elapsed Fermentation Time
Broader collaboration moving forward

PDU working group – cross-training, site visits and joint industry outreach

Leveraging other Berkeley Lab resources for DOE- and industry-sponsored projects