Commercial Scale Summit: The Business of Bioeconomy: Preparing for FOAK while in demonstration stage.

October 22, 2026

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Mercurius intro – Business of Bioeconomy ABLC

ABLC Day 1 – Themes

- **Abundance** – Strategic Supply
  - Woody Biomass for volume
  - Feedstock flexibility: moisture, sources
  - Site locations distributed
- **Use Existing Infrastructure** – Sites
  - Pulp-Paper Sites
  - MSW transfer stations
  - Sugar mills
  - HEFA/Petroleum Refineries
  - Jobs in local communities
- **Resilience** – The world changes
  - SAF and Marine fuel - primary focus
  - Char for carbon sequestration
  - Plastics as an alternative

Mercurius REACH Technology:

- Converts cellulosic biomass into SAF hydrocarbons
- Low cost
- Carbon negative
- Solves HEFA feedstock problem

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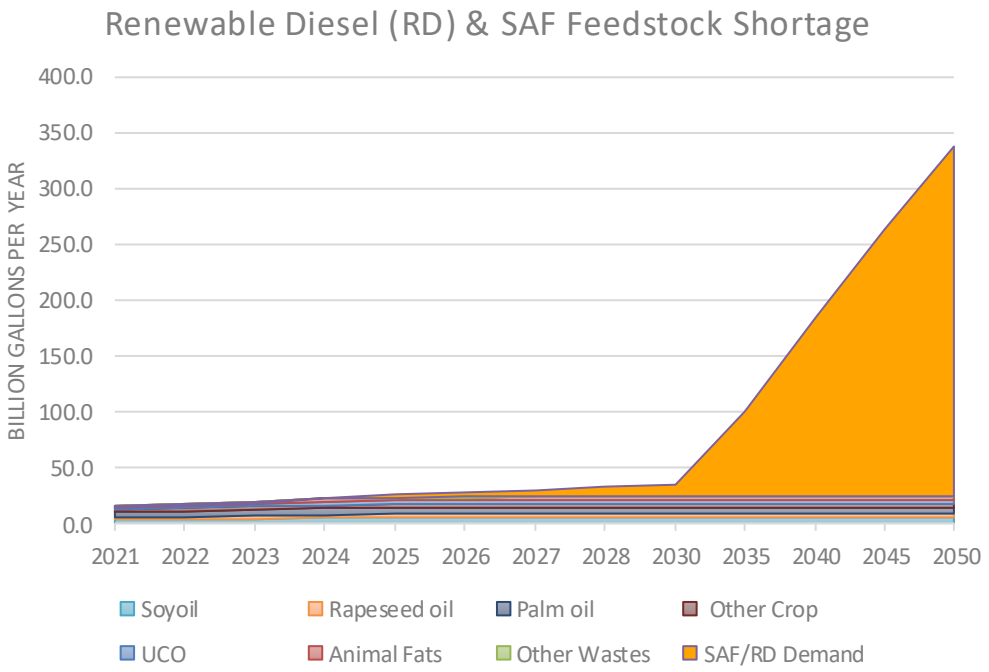
HEFA Feedstock Supply Constraint

350 Billion Gallons SAF & RD Demand by 2050 – Current Solutions Can't Deliver

- Limited supplies of lipid feedstocks to HEFA Process(1)
- E-fuels and current cellulosic conversion technologies 3-10x cost of fossil jet fuel and diesel



(1) IEA (2022), Is the biofuel industry approaching a feedstock crunch?,
(2) IEA (2024), Renewables 2023, IEA,
(3) IATA, Net zero 2050; sustainable aviation fuels – May 2024

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Feedstock Flexible Conversion Technology

Flexible properties:

- High moisture content
- Larger particle sizes
- Insensitive to inhibitors
- Lipid co-processing in HEFA Facilities

High potential feedstocks:

- Sugarcane bagasse
- Corn stover
- Forestry residues
- Orchard Biomass
- Rice straw and processing waste
- Biogenic MSW
- Poultry Litter

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Low Cost Cellulosic Biofuel Technology

Mercurius Biorefining Conversion Liquid Phase Catalytic (LPC):

- **Low volumes with liquid phase**
- **Fast reactions and low residence times (hours)**
- ***Low temperature / pressure***
- ***Converts raw biomass***
  - *Larger particle size*
  - *High moisture*

REACH

Thermochemical Conversion:
- Gasification and pyrolysis
- Large equipment needed to handle vapor volumes
- Pyrolysis oil not compatible in existing refineries

Biochemical Conversion:
- Fermentation to alcohols
- Requires sugars as feedstock
- Very long residence time (days)

Liquid phase:
smaller equipment

+

Catalytic:
faster process,
smaller equipment

=

Lower Capital Costs

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REACH Technology

RE — **Renewable**

Low-temperature
Low-pressure
Enzyme-free

A — **Acid-hydrolysis**

Biomass
↓
Non-sugar intermediates

CMF → other bio-products

C — **Condensation**

Molecule formation:
Can customize carbon chain length for desired product

H — **Hydrotreating**

Deoxygenation:
Final drop-in hydrocarbon fuel

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Mercurius REACH – Progress

Benchtop Completed → Pilot Completed → Demo 2026 → Commercial

Technical Proof

- Proof of concept
- Pilot design
- Batch process
- Multiple feedstocks
- $2MM Grant

U.S. DEPARTMENT OF ENERGY

UC DAVIS UNIVERSITY OF CALIFORNIA

Queensland Government

QUT Queensland University of Technology

Scale up

- 100 kg/day continuous process
- Bagasse feedstock
- Alpha & Beta SAF Prescreening
- Mackay, Queensland, Australia
- $3MM Grant

KOLON INDUSTRIES

Queensland Government

QUT Queensland University of Technology

Demonstration

- 3 TPD feedstock
- Renewable Diesel Certification
- SAF - Tier 1 & 2
- Multiple feedstocks
- Site TBD

First-of-a-Kind

- Biocrude production
- 500 TPD feedstock
- Renewable diesel production
- Finalize ASTM Certification for SAF
- Site TBD

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Completed! Pilot Project - Australia

State and Federal support for

- Located in regional Queensland (Mackay)
- Rural economic development
- Conversion of sugarcane bagasse at high yields
- Recovery of process chemicals
- SAF pre-screening

Project partners:

QUT Queensland University of Technology

Queensland Government

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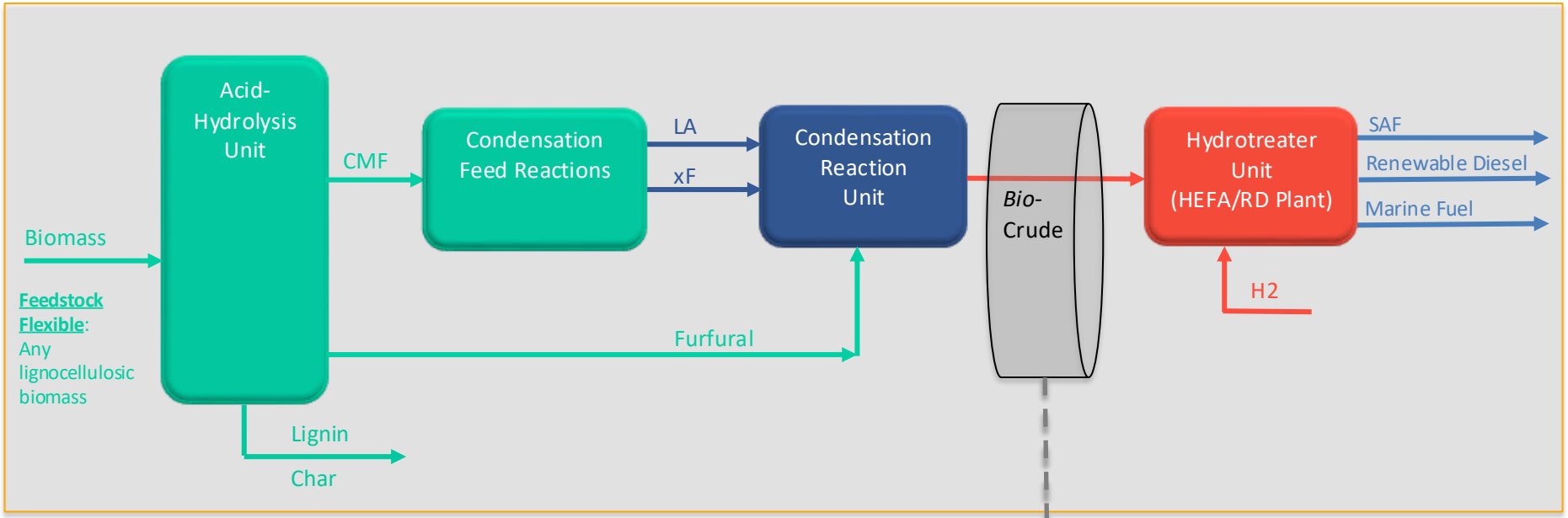
REACH™ Technology Block Flow



Distributed Model: Local Processing | Central Processing

REACH Lifecycle Analysis Block Flow

Biogenic CO2

Refined Sugars
Molasses

Minimal Heat

Surplus Bagasse

Acid Hydrolysis

CMF & Furfural

Condensation & Hydrotreating

Renewable Diesel

SAF

Marine Fuel

Biogenic CO2

CO2 from Renewable Fuels Offsets Fossil Fuel Emissions

Lignin Biochar

Carbon Sequestration/ Soil Enhancement

Traditional Hydrogen

Green Hydrogen

Sugarcane Growing, Harvest & Processing

REACH Process

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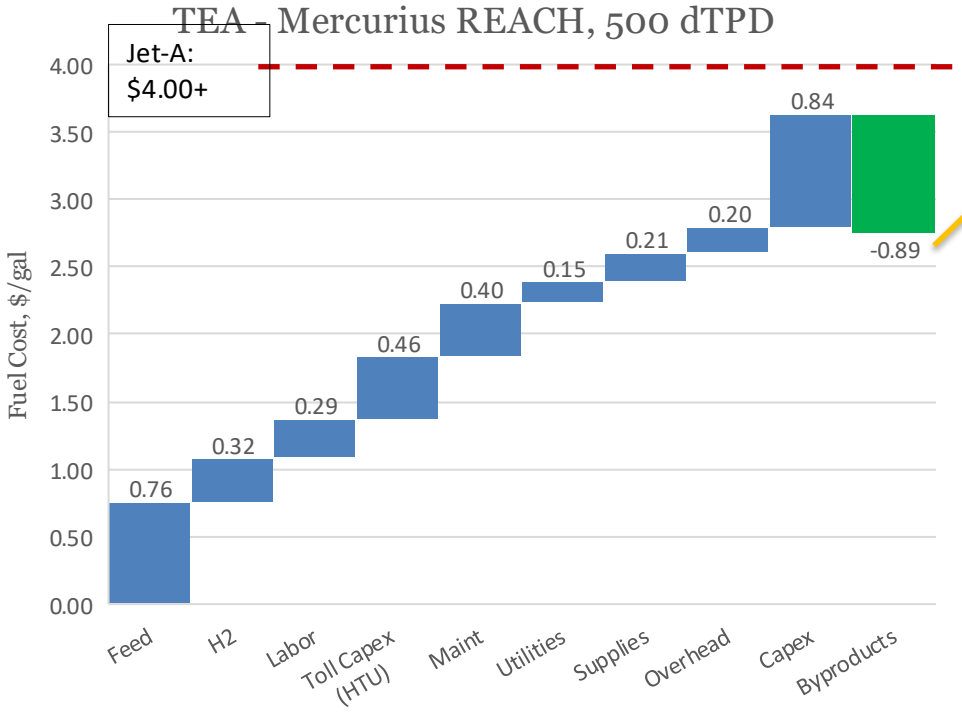
Techno-Economic Analysis – 500 TPD



Fuel cost =2.75 USD/gal

Byproducts:

- Char valued as solid fuel
- Formic Acid

First-of-a-Kind Plant
18 MGPY Capacity
In North America

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Mercurius at ABLC

- Learning from **Jim Lane and Biofuels Digest** since 2011
- Success and failure scenarios as insights
- Mercurius is a **startup** (US and Europe)
- **Industry partnerships** necessary
- Risk management of **REACH Technology**
- **Demonstration plant** (ASTM certification)
  - Planning
  - Fundraising
- FOAK commercial plant site discovery: **start early**
  - Guiding criteria: robust partnerships, local workforce and community, co-location, co-processing

Mercurius Biorefining REACH

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Thank you!

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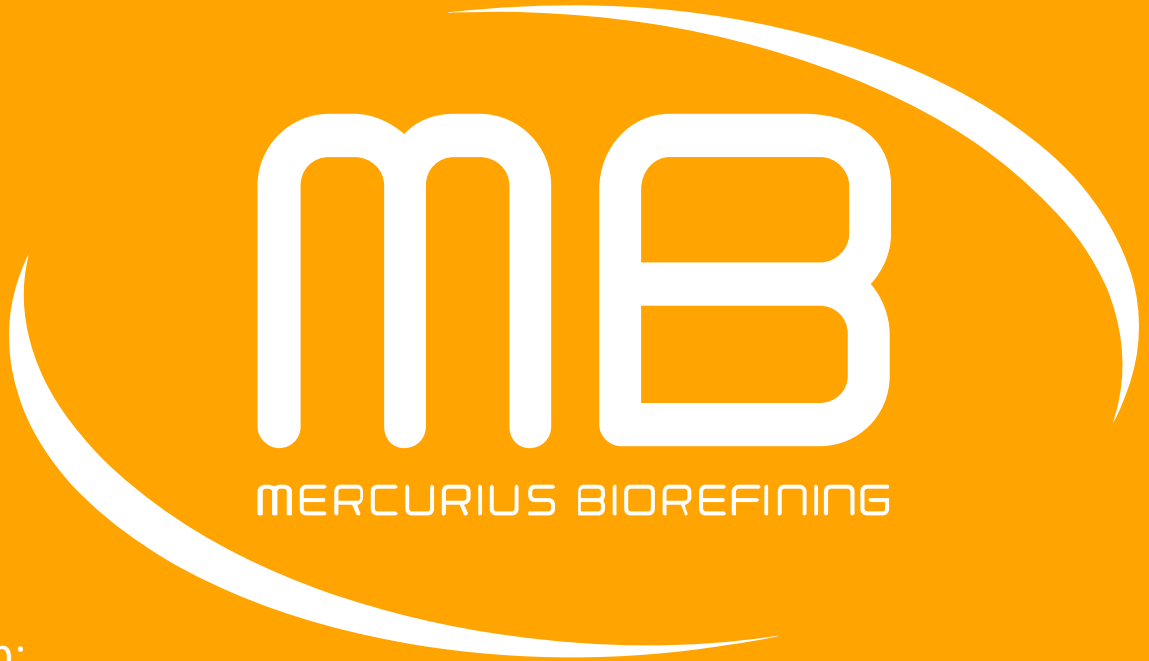

For follow-up:
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