



IEA Bioenergy
Technology Collaboration Programme



USA Country Update

IEA - Task 33 Meeting

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Technology Collaboration Programme

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Fulcrum Bioenergy/Sierra Biofuels



Fulcrum Bioenergy/Sierra Biofuels, Reno NV: (11M GPY nameplate)

- 1) MRF operational since 2016; at landfill 10 miles from biorefinery
 - a) 350,000 tons per year raw MSW, 175,000 tons per year prepared MSW
 - b) 120 TPH throughput
- 2) Gasification/FT
 - a) MSW feedstock/TRI into a catalyzed fluid bed steam reforming gasifier
 - b) Johnson Matthey DAVY process for fixed-bed FT (CANS reactor)
- 3) Phase I is for Fischer-Tropsch process
 - a) Wax to be refined by a third party
 - b) Other off-takers include United and Pathway Pacific, BP Air, World Fuels
 - c) FT jet fuel capability to be added in Phase II
- 4) Plant is 'full scale'; scale up (3X) planned with parallel trains
 - a) 12 new projects currently planned/underway
- 5) Status: First gallon of product in December, 2022; **status unclear**

New Commercialization Activities

Continuing: SunGas Renewables

- July 26, 2023 – announced the formation of Beaver Lake Renewable Energy, LLC
- New green methanol production facility in Central Louisiana (Pineville LA)
- 400,000 MTA carbon-negative methanol for marine fuel from woody biomass
 - With 1 MTA CCS
- Offtaker: Maersk



Continuing: Aemetis

- Currently producing bio-gas & 1-G ethanol
- September 13, 2023 - received a Use Permit from the City of Riverbank to build a 90 million gallon per year sustainable aviation fuel and renewable diesel plant (from FOGs) in Riverbank, California
 - Will incorporate 'cellulosic hydrogen' from woody biomass
 - Extensive use of CCS
- Details of technology providers not clear at this time

Other Commercialization Activities

Continuing: DG Fuels



- 12,000 BPD renewable fuels (primarily SAF) project announced
- Gasification/FT – MyRechemical (NEXTCHEM) gasification, JM F-T, and Topsoe upgrading
- Low CI products with extensive renewable hydrogen (and oxygen) utilization and CO2 abatement (CCS)
- First project announced in Louisiana; application with DOE LPO moving forward

Continuing: SGH2 Energy

- Low carbon hydrogen from mixed paper waste; Lancaster CA
- Gasification: proprietary “plasma-enhanced thermal catalytic gasifier”
- 3,800 tonnes H2 per year from 40,000 tons waste per year

Other Commercialization Activities

New: SunGas Renewables

- ABEL Energy - Bell Bay Powerfuels Project, northern Tasmania; \$1.4 billion facility
- SunGas pressurized oxygen-blown fluid bed gasifier
- Johnson Matthey syngas upgrading technologies
- 300,000 tonnes of green methanol per year from wood
- Integrated with green hydrogen from water electrolysis

