

Attached Algae Flow Ways for Biofuels Production Utilizing Air-CO₂

Applicant: MicroBio Engineering Inc.
 Principal Investigator: Dr. Tryg Lundquist
 Topic: Topic Area 1: Pre-Pilot Scale-Up of Integrated Biorefineries.
 Subtopic Area 1b: Pre-Pilot Scale (Ambient CO₂ via Algal Systems)
 Major Participants: Sandia National Laboratory, Livermore, CA. (Livermore, CA)
 Cal Poly State University, San Luis Obispo, CA (Cal Poly
 Pacific Northwest National Laboratory, Richland, WA (PNNL)
 HydroMentia Technologies LLC (Ocala, FL)
 Indian River County, Vero Beach, FL (IRC)
 Heliae Development LLC, AZ. (Heliae)
 AECOM (Ft. Lauderdale, FL).
 Joseph C. Weissman, Consultant (HighBridge, NJ)

Project Objectives and Description:

This project will develop and demonstrate, at the pre-pilot scale , an innovative microalgae biomass and biofuels production process using air-CO₂ and Attached Algae Flow Ways (AAFW).

Will advance current technology this project will cultivate selected filamentous algal species to maximize 1) biomass production, 2) air-CO₂ utilization, 3) biofuel yields and 4) nutrients (N and P) recovery

Demonstrate 12,500 GGE algae biofuels production potential on air CO₂ at an operating facility.

Potential Impacts:

- AAFW systems can treat very large flows of contaminated water sources with low levels of nutrients, while using air CO₂ for microalgae biomass production
- Cultivation of selected species for improved biomass quality addresses a limitation of current technologies (low value, high ash biomass). Improved biomass quality can be used in HTL conversion to oil, to be demonstrated in this project.
- Source of sustainable biofuels and bioproducts. See below schematic.

