**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 microalgal 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 microalgal 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.