

Algal Biomass for Fuel

Overdependence on CO₂ producing and imported fuels is not sustainable and has become the single biggest threat to our environment, economy, and national security. Solutions are urgently needed to deliver a low carbon, high independence energy future. The Hatcher Group, as part of the Virginia Coastal Energy Research Consortium (VCERC), is meeting this challenge by developing *Algal Biofuel* production technologies ideally suited to VA's vast coastline, natural waterways and abundant sunshine. Biofuels are in production at the pilot scale using wastewater to feed algal growth while simultaneously removing polluting nutrients and CO₂ from effluent. This technology is gaining press and industry attention and is primed for expansion. Continued research will make VA a global leader in algal wastewater treatment and biofuel production, bringing prestige, employment and investment to the region and insuring that the technology advances rapidly to maturity increasing VA's energy independence and sustainability, while at the same time reducing greenhouse emissions and the release of polluting nutrients to the Chesapeake Bay.

Subprojects:

- 1) Designing and optimizing algal growth facilities that make use of and clean-up otherwise polluting waste streams including CO₂ from combustion sources and nutrient supplies from municipal and agricultural waste streams.
- 2) Adapting and refining solid-water separation technologies for the harvesting of algae at industrial scales.
- 3) Inventing and optimizing processes for the extraction and conversion of algae to fuels, including biodiesel, ethanol and jet fuel.
- 4) Carrying out feasibility assessments of the economic, energetic and environmental benefits and constraints associated with algal biofuel production.