

**National Renewable Energy Laboratory  
Air Force Office of Scientific Research  
Workshop  
on  
Algal Oil for Jet Fuel Production  
February 19-21, 2008  
Arlington, VA**



### **Purpose, Objectives and Planned Outcomes**

The Air Force Office of Scientific Research (AFOSR) is a long-term, basic research funding organization that is interested in facilitating the production of bio-based jet fuel using lipids (oil) derived from microalgae. From 1976-1996 the National Renewable Energy Laboratory (NREL) was involved in a project known as the Aquatic Species Program (ASP). The main focus of the program was the production of biodiesel from high lipid content algae grown in open raceway ponds, utilizing waste CO<sub>2</sub> from coal fired power plants.

Over the last several years there has been a renewed interest in developing biofuels from algal-derived oils. The purpose of the joint AFOSR-NREL workshop will be to bring together a panel of outside experts in the microalgae field, mainly from academia and the National Laboratory system, to discuss a variety of basic science research issues related to microalgal oil production. Major topics to be covered during the algae to jet fuel workshop include a historical look at previous algae to biofuels efforts, algae bioprospecting from diverse aquatic environments, maintenance of algae culture collections and cryopreservation, algal genomics, use of algal model systems, algal growth and physiology, photosynthesis, general lipid metabolism in algae, triacylglyceride synthesis pathways, development of algal genetic tools, techno-economic analysis, cultivation of algae in open pond and closed photobioreactors, and biosafety, environmental and regulatory issues.

The overall goal of the workshop will be to identify specific hurdles that must be overcome in order to ultimately achieve cost-effective production of algal oil for jet fuel conversion. The workshop will also address the basic science research requirements needed to overcome these hurdles as well as to elucidate various novel scientific approaches that will be needed for developing a fundamental understanding of algal lipid biosynthesis and biomass cultivation principles. The major outcome from this workshop will be research guidance recommending future basic scientific funding opportunities for AFOSR and other federal agencies. To ensure that the workshop findings are indeed available to the broader research community, they will be submitted as proceedings to a scientific journal for publication as soon as possible.