



# Microalgal Production of Jet Fuel

## Cooperative Research and Development Final Report

**CRADA Number: CRD-07-208**

NREL Technical Contacts:

Eric E. Jarvis and Philip T. Pienkos

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**CRADA Report**  
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In accordance with Requirements set forth in Article XI.A(3) of the CRADA document, this document is the final CRADA report, including a list of Subject Inventions, to be forwarded to the Office of Science and Technical Information as part of the commitment to the public to demonstrate results of federally funded research.

**CRADA Number:** CRD-07-208

**CRADA Title:** Microalgal Production of Jet Fuel

**Parties to the Agreement:** Chevron

**Joint Work Statement Funding Table showing DOE commitment:**

<b>Estimated Costs</b>	<b>NREL Shared Resources</b>
Year 1	\$ 00.00
Year 2	\$ 00.00
Year 3	\$ 00.00
TOTALS	\$ 00.00

**Abstract of CRADA work:**

Microalgae are photosynthetic microorganisms that can use CO<sub>2</sub> and sunlight to generate the complex biomolecules necessary for their survival. These biomolecules include energy-rich lipid compounds that can be converted using existing refinery equipment into valuable bio-derived fuels, including jet fuel for military and commercial use. Through a dedicated and thorough collaborative research, development and deployment program, the team of the National Renewable Energy Laboratory (NREL) and Chevron will identify a suitable algae strain that will surpass the per-acre biomass productivity of terrestrial plant crops.

**Summary of Research Results:**

Research over the course of the five-year project led to some significant advances in the field of algal biofuels. The primary focus of the project was in the area of species selection, strain improvement, and growth studies in order to enhance the biological productivity of algal cultivation. Analysis has shown that such biological improvements will have the greatest impact on the ultimate fuel selling price. Another area of focus was on the development of precise and accurate methods for compositional analysis of algal biomass to allow reliable quantitation of lipids and other components. Finally, technoeconomic models describing the entire algal biofuels process were brought to new levels of accuracy, and sensitivity analyses were employed to highlight those areas where improvements could have the biggest impact. Overall, the NREL-Chevron CRADA project was an excellent collaboration that generated both technical advances and unbiased analysis data that will continue to be of value to both parties into the future.

**Subject Inventions Listing:**

U.S. Provisional Application No. 61/554,729

NREL Record of Invention No. 11-62

NREL Record of Invention No. 12-11

**Report Date:** May 3, 2012

**Responsible Technical Contact at Alliance/NREL:** Eric E. Jarvis and Philip T. Pienkos

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