IV. THE ETHANOL MARKET

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V. ALGENOL'S CAPABILITIES AND RESOURCES

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VI. ALGENOL'S VALUE PROPOSITION

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Algenol Biofuels Inc.

Intellectual Property Statement

Background:

Algenol Biofuels Inc. is developing and commercializing Direct to Ethanol™ technology invented by Mr. Paul Woods and Dr. John Coleman between 1984 and 1996 and patented in the U.S. in 2001 and 2004 (US Patent Nos. 6,306,639 and 6,699,696). Direct to Ethanol™ technology involves over-expressing in blue-green algae (cyanobacteria) the genes for fermentation pathway enzymes (pyruvate decarboxylase and alcohol dehydrogenase). These enzymes are found widely in nature. The resulting enhanced algae actively carry out photosynthesis and utilize carbon dioxide, sunlight and water to make ethanol inside each algal cell. The ethanol made inside the cell diffuses through the cell wall into the culture medium and then evaporates, along with water, into the headspace of an enclosed, sealed photobioreactor designed by Algenol. The ethanol-water vapor is harvested from the photobioreactor, ethanol is separated from the ethanol-water vapor, and then condensed and distilled into fuel grade ethanol.

Algenol has assembled a team of more than 100 employees and consultants to develop the technology from proof-of-principle to commercialization, including molecular biologists, marine biologists, biochemists, mechanical and chemical engineers, project managers and two full time patent attorneys. Since inception, the Company has filed several provisional and non-provisional patent applications covering recent inventions in the field and expects to continue this practice for the foreseeable future. In addition to the technologies for which the Company has obtained, or is pursuing, a patent, it has amassed significant knowledge and trade secrets related to the above detailed Direct to Ethanol™ technology.

All of the IP necessary to complete this project is owned, and has been developed, by Algenol and its wholly owned subsidiaries. Rights to use, commercialize and license the technology reside solely with Algenol. The above referenced patents were originally assigned to Enol Energy Inc., a Company started by Mr. Woods, which has since become a wholly owned subsidiary of Algenol. The license agreements transferring the rights to the technology to Algenol grants exclusive, worldwide, royalty-free right and license to use, sell, manufacture and otherwise commercialize the technology. Mr. Woods, pursuant to the agreement, assigned his rights to the technology to Algenol. Below please find further details regarding Algenol's patents and patent applications.

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The following patents and patent applications are owned by Algenol:

Exemption 4

In each instance, the inventors of the intellectual property that is the subject of these patents have either been an employee or a consultant of Algenol, or one of its wholly owned subsidiaries, at the time of the invention. Algenol's standard employment agreements and consulting agreements include the following language, or language substantially the same:

Proprietary Rights. All work arising from the Services performed hereunder all materials and products developed or prepared for Company by Employee in connection with the Services performed hereunder, and all resulting inventions, discoveries, processes, ideas, methods, designs, know-how, whether or not patentable, and other copyrightable materials (all of the foregoing being referred to as "Work Product") are the exclusive property throughout the world of Company, and all right, title and interest therein shall vest in Company and are hereby assigned to the Company. Whenever requested to do so by Company or any subsidiary and/or affiliate thereof, at Company's expense, and without further compensation or consideration, Consultant shall promptly execute any and all applications, assignments and other instruments and perform such acts which Company shall deem necessary or advisable in order to apply for and obtain copyrights, letters, patents and other applicable statutory

In addition to the above detailed patents and patent applications, Algenol has filed patent applications for these inventions in international jurisdictions, including Europe, Canada, Australia and the World Intellectual Property Organization.

Discussion:

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ALGENOL
BIOFUELS
DIRECT TO ETHANOL™

Pilot-Scale Integrated Biorefinery
Simplified Process Flow Diagram

Redacted
Exemption 4

Detailed blueprints for the Algenol pilot-scale integrated biorefinery are located in the final four pages of the PFD_Data document:
Sheet 1: Site Layout and Notes
Sheet 2: Operations Layout
Sheet 3: Detailed Process Flow Diagram
Sheet 4: Notes and Electrical Loads

Proprietary Information: All information in this document is proprietary. Algenol Biofuels requests all information in this document not be released to persons outside the Government, except for the purposes of review and evaluation.

Process Flow Diagram Step 1

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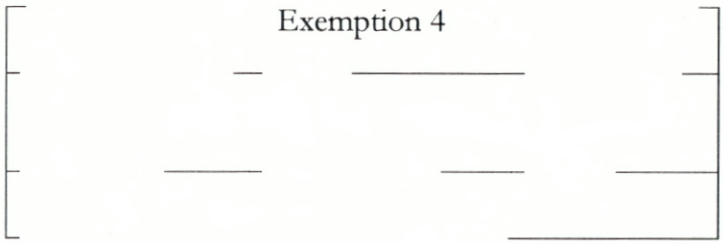

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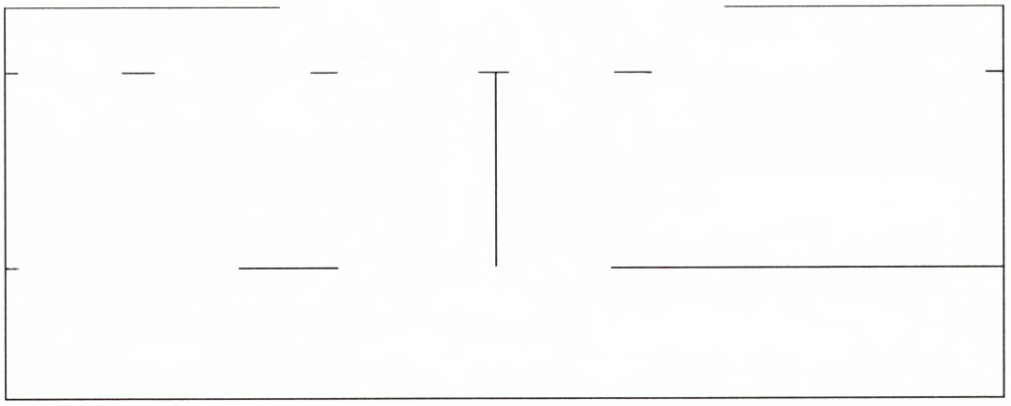

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Algenol Lifecycle Energy and Greenhouse Gas Emissions

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Georgia Institute of Technology

June 16, 2009

*Principal Investigators

Proprietary Information: All information in this document is proprietary. Algenol Biofuels requests all information in this document not be released to persons outside the Government, except for the purposes of review and evaluation.

1. Introduction

This report is a summary of the lifecycle energy and greenhouse gas emissions of the Algenol ethanol production system. The Algenol system aims at large-scale fuel ethanol production using genetically enhanced photoautotrophic cyanobacteria (algae). This analysis applies to the current vision of a full-scale commercial system.

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Table 1. LCA Data and Sources

Stage	Content	Data	Unit	Reference
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Algenol Biofuels Inc.

Petroleum Displacement Analysis

	Product	BTU or Joule Content per Gallon Exemption 4	Annual Output of Facility (in gallons)	BTU of Total Output per Year	Equivalent Barrels of Oil

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ALGENOL BIOFUELS INC.

Project Execution Plan

Table of Contents

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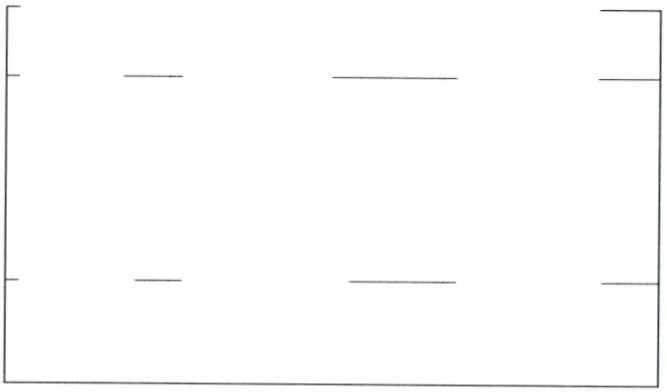

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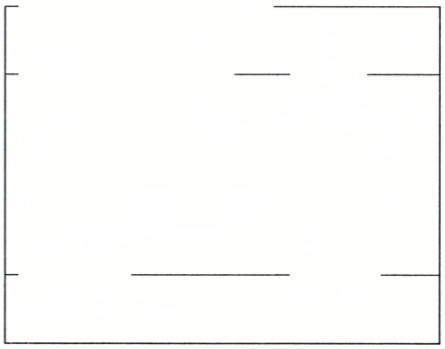

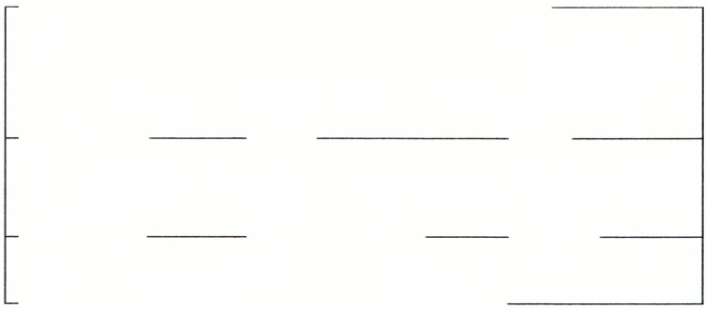

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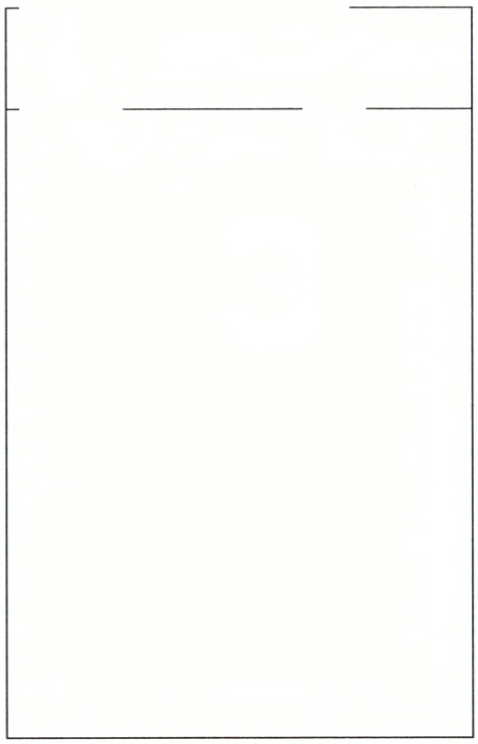

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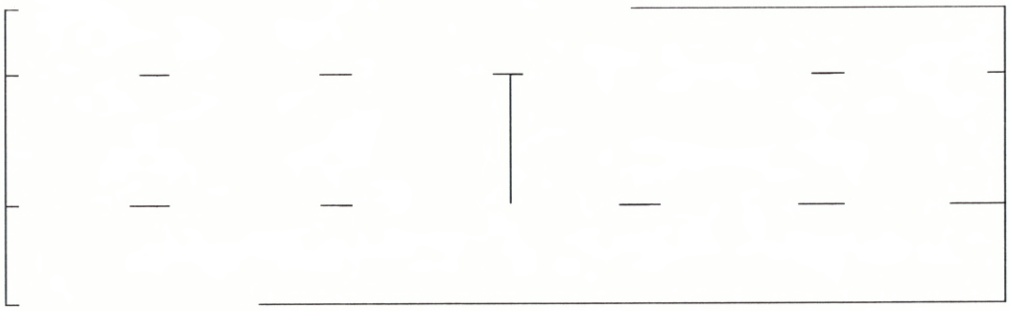

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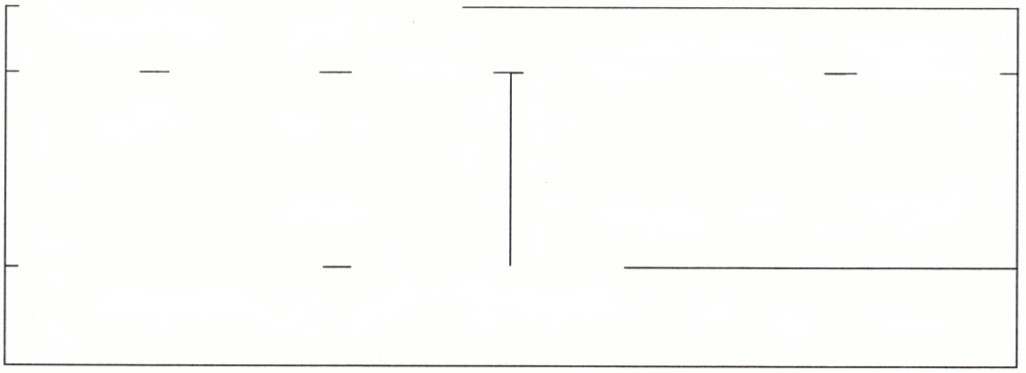

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Applicant Name: Georgia Institute of Technology - Cumulative Award Number:

Budget Information - Non Construction Programs

OMB Approval No. 0348-0044

Section A - Budget Summary

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds: Federal (c)	Estimated Unobligated Funds: Non-Federal (d)	New or Revised Budget: Federal (e)	New or Revised Budget: Non-Federal (f)	New or Revised Budget: Total (g)
1. DE - FOA - 0000096	81.087			$912,040	Exemption 4	
2.						
3.						
4.						
5. Totals		$0	$0	$912,040		

Section B - Budget Categories

6. Object Class Categories	Grant Program, Function or Activity: (1) DE - FOA - 0000096	(2)	(3)	(4)	Total (5)
a. Personnel *	Exemption 4				
b. Fringe Benefits *					
c. Travel *					
d. Equipment					
e. Supplies *					
f. Contractual University of Colorado (***GTchgs O/H on 1st $25K of contract year 1 only**)					
g. Construction					
h. Other					
i. Total Direct Charges (sum of 6a-6h)					
j. Indirect Charges (51%) (* indicates eligible for O/H)					
k. **Totals** (sum of 6i-6j)					
7. Program Income					$0

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Section C - Non-Federal Resources

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) **Totals**
8. DE - FOA - 0000096		Exemption 4		
9.				
10.				
11.				
12. **Total** (sum of lines 8 - 11)	$0			

Section D - Forecasted Cash Needs

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th quarter
13. Federal	$484,400	$154,398	$117,802	$117,802	$94,398
14. Non-Federal			Exemption 4		
15. **Total** (sum of lines 13 and 14)					

Section E - Budget Estimates of Federal Funds Needed for Balance of the Project

	Future Funding Periods (Years)			
(a) Grant Program	(b) First	(c) Second	(d) Third	(e) Fourth
16. DE - FOA - 0000096	$427,600			
17.				
18.				
19.				
20. **Total** (sum of lines 16-19)	$427,600	$0	$0	$0

Section F - Other Budget Information

21. Direct Charges	22. Indirect Charges

23. Remarks