Section C - Non-Federal Resources

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) **Totals**
8. DE - FOA -0000096	$28,377	Exemption 4		
9.				
10.				
11.				
12. **Total** (sum of lines 8 - 11)	$28,377			

Section D - Forecasted Cash Needs

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th quarter
13. Federal	$148,854	$37,214	$37,213	$37,214	$37,213
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	$615,304	$114,382	$113,508	$0
17.				
18.				
19.				
20. **Total** (sum of lines 16-19)	$615,304	$114,382	$113,508	$0

Section F - Other Budget Information

21. Direct Charges

22. Indirect Charges

Provisional rate, Exemption 4 , includes all allowable indirect costs.

23. Remarks

Applicant Name: **Membrane Technology and Research, Inc.** Award Number: **CUMULATIVE**

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		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. DE - FOA -0000096	81.087			$992,048	Exemption 4	
2.						
3.						
4.						
5. Totals		$0	$0	$992,048		

Section B - Budget Categories

6. Object Class Categories	Grant Program, Function or Activity				Total (5)
	(1) 81.087	(2)	(3)	(4)	
a. Personnel	Exemption 4				
b. Fringe Benefits					
c. Travel					
d. Equipment					
e. Supplies					
f. Contractual					
g. Construction					
h. Other					
i. Total Direct Charges (sum of 6a-6h)					
j. Indirect Charges					
k. **Totals** (sum of 6i-6j)					
7. Program Income	$0				$0

Section C - Non-Federal Resources

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) **Totals**
8. DE - FOA -0000096	$248,013	Exemption 4		
9.				
10.				
11.				
12. **Total** (sum of lines 8 - 11)	$248,013			

Section D - Forecasted Cash Needs

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th quarter
13. Federal	$148,854	$37,214	$37,213	$37,214	$37,213
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	$615,304	$114,382	$113,508	$0
17.				
18.				
19.				
20. **Total** (sum of lines 16-19)	$615,304	$114,382	$113,508	$0

Section F - Other Budget Information

21. Direct Charges

22. Indirect Charges
Provisional rate, Exemption 4 includes all allowable indirect costs.

23. Remarks

MTR Membrane Technology & Research

May 5, 2009

Algenol Biofuels Inc.
Craig R. Smith, M.D.
Executive Vice President, Chief Operating Officer
28100 Bonita Grande Drive, Suite 200
Bonita Springs FL 34135

Re: Commitment Letter: "Pilot-Scale Integrated Biorefinery Operations for Producing Ethanol From Algae"

Dear Dr. Smith,

The purpose of this letter is to confirm our support for and participation in the project **"Pilot-Scale Integrated Biorefinery Operations for Producing Ethanol From Algae,"** which will be submitted as a proposal to the US Department of Energy under Funding Opportunity DE-PS36-09GO99038.

As you know, MTR has an ongoing development program in the area of membrane permeation applied to the separation of ethanol/water mixtures. The technology we are developing, called BioSep™, has the promise of reducing the energy required for the ethanol/water separation by a factor of two compared to conventional distillation. This energy savings could be a significant factor in reducing the carbon footprint of ethanol produced by the Algenol process. We believe our background will help the Algenol-led team to successfully complete the project.

As described in detail in the Algenol proposal, MTR will

REDACTED
EXEMPTION 4

We look forward to working with you and the distinguished team that Algenol has assembled to successfully complete the goals of this project and prepare the technology for commercialization.

Sincerely,

Richard W. Baker, Ph.D.
Principal Scientist
Membrane Technology and Research, Inc.

1360 Willow Road, Menlo Park, CA 94025, USA Phone: (650)328-2228 http://www.mtrinc.com

Applicant Name: NREL 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		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. DE - FOA - 0000096	81.087				Exemption 4	
2.						
3.						
4.						
5. Totals		$0	$0	$0		

Section B - Budget Categories

6. Object Class Categories	Grant Program, Function or Activity (1)	(2)	(3)	(4)	Total (5)
a. Personnel			Exemption 4		
b. Fringe Benefits					
c. Travel					
d. Equipment					
e. Supplies					
f. Contractual					
g. Construction					
h. Other					
i. Total Direct Charges (sum of 6a-6h)					
j. Indirect Charges					
k. **Totals** (sum of 6i-6j)					
7. Program Income					$0

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					
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				
17.				
18.				
19.				
20. **Total** (sum of lines 16-19)	$0	$0	$0	$0

Section F - Other Budget Information

21. Direct Charges	22. Indirect Charges

23. Remarks

Algenol Biofuels Inc.

Petroleum Displacement Analysis

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

Exemption 4

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

Exemption 4

Exemption 4

Exemption 4

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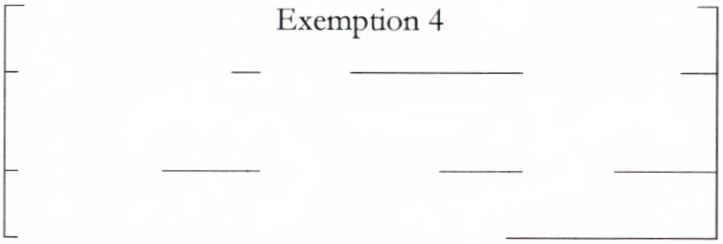

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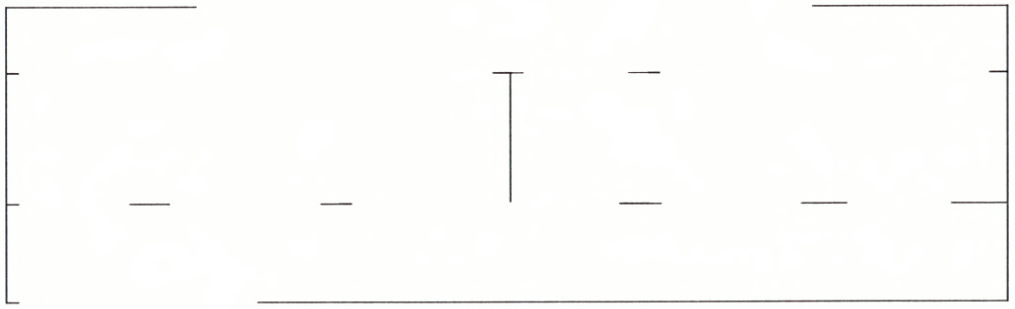

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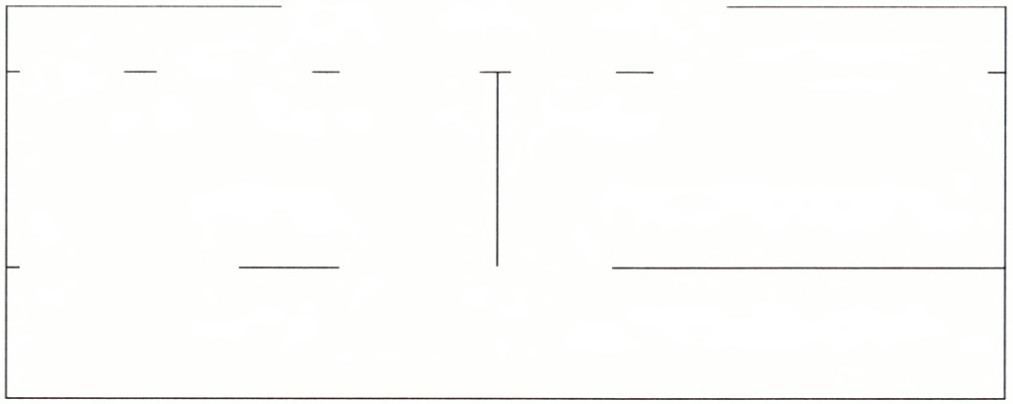

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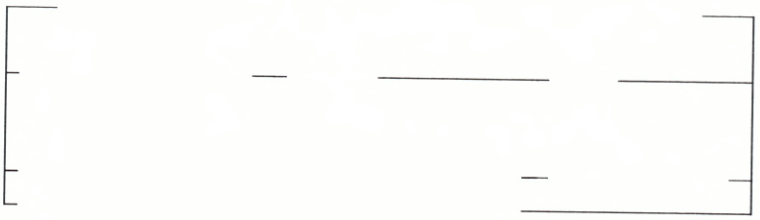

Exemption 4

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Exemption 4

Instructions and Summary

Award Number: DE-FOA-0000096
Award Recipient: Algenol Biofuels Inc.

Date of Submission: Jun-09
Form submitted by: Algenol Biofuels Inc.
(May be award recipient or sub-recipient)

Please read the instructions on each page before starting.
If you have any questions, please ask your DOE contact. It will save you time!

On this form, provide detailed support for the estimated project costs identified on the SF-424A form (Budget).

- **The dollar amounts on this page must match the amounts on the associated SF-424A.**
- The award recipient and each sub-recipient with estimated costs of $100,000 or more must complete this form and a SF-424A form.
- The total budget presented on this form and on the SF424A must include both Federal (DOE), and Non-Federal (cost share) portions, thereby reflecting TOTAL PROJECT COSTS proposed.
- **For costs in each Object Class Category on the SF-424A, complete the corresponding worksheet on this form (tab at the bottom of the page).**
- **All costs incurred by the preparer's sub-recipients, vendors, contractors, consultants and Federal Research and Development Centers (FFRDCs), should be entered only in section f. Contractual. All other sections are for the costs of the preparer only.**

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.

SUMMARY OF BUDGET CATEGORY COSTS PROPOSED

(Note: The values in this summary table are from entries made in each budget category sheet.)

CATEGORY	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Total Costs	Project Costs %	Comments (Add comments as needed)
a. Personnel	Exemption 4					
b. Fringe Benefits						
c. Travel						
d. Equipment						
e. Supplies						
f. Contractual						
Sub-recipient						
FFRDC						
Vendor						
Total Contractual						
g. Construction						
h. Other Direct Costs						
i. Indirect Charges						
Total Project Costs						

Additional Explanations/Comments (as necessary)

a. Personnel

Task #	Title	Position Title	Budget Period 1			Budget Period 2			Budget Period 3			Project Total Hours	Project Total Dollars
			Time (Hours)	Pay Rate ($/Hr)	Total Budget Period 1	Time (Hours)	Pay Rate ($/Hr)	Total Budget Period 2	Time (Hours)	Pay Rate ($/Hr)	Total Budget Period 3		
1. Generation 2A Receiver Design			10000		$423,000	600		$24,000	800		$31,000	11400	
EXAMPLE		Sr. Engineer	2000	$85.00	$170,000	200	$50.00	$10,000	200	$50.00	$10,000	2400	
ONLY!!!		Electrical engineers	6200	$35.00	$217,000	400	$35.00	$14,000	600	$35.00	$21,000	7200	
		Technician	1800	$20.00	$36,000	0	$0.00	$0	0	$0.00	$0	1800	

Exemption 4

Exemption 4

Exemption 4

		Total Personnel Costs	Exemption 4									

Additional Explanations/Comments (as necessary)

For existing employees, salary rates were based on actual. For new hires, their salary was based on industry standards for their respective position, experience and education. In all cases, we will be Davis-Bacon compliant. /s/ Craig R. Smith, M.D.

b. Fringe Benefits

	Budget Period 1	Budget Period 2	Budget Period 3	Total
Rate applied:	Exemption 4			
Total fringe requested:				

A federally approved fringe benefit rate agreement, or a proposed rate supported and agreed upon by DOE for estimating purposes is required if reimbursement for fringe benefits is requested. Please check (X) one of the options below and provide the requested information, if it has not already been provided to the Contracting Officer, OR if it has changed since it was. Calculate the fringe rate and enter the total amount in Section B, line 6.b. ("Fringe Benefits") of form SF-424A.

____ **A fringe benefit rate has been negotiated with, or approved by, a federal government agency. A copy of the latest rate agreement is included with this application, and will be provided electronically to the Contracting Officer for this project.**
(When this option is selected, a presentation of the budget that demonstrates the appliction of the approved rate, to arrive at the proposed fringes benefits dollars should also be provided.)

XXX **There is not a current, federally approved rate agreement negotiated and available.**
(When this option is checked, the entity preparing this form shall submit a rate proposal in the format provided at the following website, or a format that provides the same level of information and which will support the rates being proposed for use in performance of the proposed project. Go to https://www.eere-pmc.energy.gov/forms.aspx and select PMC 400.2 Sample Rate Proposal.)

ditional explanation/comments (as necessary)

The Fringe Benefits rate is based on current actual and adjusted in the future periods for projected hiring salary levels.Currently a larger portion of our employess are senior level and as we expend they will represent a smaller portion of our staff. Since the majority of our fringe benefits is for healthcare insurance, the effect of this demographic change is that fringe benefits will be a higher percent of compensation. Please see the Indirect tab at the end of this file for the Fringe calculation.

c. Travel

PLEASE READ!!!

Provide travel detail as requested below, identifying total Foreign and Domestic Travel as separate items. Purpose of travel are items such as professional conference, DOE sponsored meeting, project management meeting, etc. The Basis for Estimating Costs are items such as past trips, current quotations, Federal Travel Regulations, etc.

All listed travel must be necessary for performance of the Statement of Projecct Objectives.

Add rows as needed. If rows are added, formulas/calculations may need to be adjusted by the preparer.

Purpose of travel	No. of Travelers	Depart From (not required for domestic travel)	Destination (not required for domestic travel)	No. of Days	Cost per Traveler	Cost per Trip	Basis for Estimating Costs
Budget Period 1							
Domestic Travel							
EXAMPLE ONLY!!! Visit to PV cell mfr. to set up vendor agreement	2			2	$650	$1,300	Internet prices
Exemption 4	Exemption 4						
Domestic Travel subtotal							
International Travel							
Exemption 4							
International Travel subtotal							
Budget Period 1 Total							
Budget Period 2							
Domestic Travel							
Exemption 4							

Purpose of travel	No. of Travelers	Depart From (not required for domestic travel)	Destination (not required for domestic travel)	No. of Days	Cost per Traveler	Cost per Trip	Basis for Estimating Costs
Exemption 4	Exemption 4						
Domestic Travel subtotal							
International Travel							
Exemption 4							
International Travel subtotal							
Budget Period 2 Total							
Budget Period 3							
Domestic Travel	Exemption 4						
Exemption 4							
Domestic Travel subtotal							
International Travel							
Exemption 4							
International Travel subtotal							
Budget Period 3 Total							
PROJECT TOTAL							

Additional Explanations/Comments (as necessary)

In the interest of having a more reader-friendly schedule, column B above represents the number of trips, not the number of travelers on each trip (e.g. Exemption 4 trips will be made by a combination of the personnel assigned to that task). The general assumption (based on past experience) is that each trip would be Exemption 4 . We anticipated lower hotel rates due to the volume and ability to book in advance.

d. Equipment

PLEASE READ!!!

Equipment is generally defined as an item with an acquisition cost greater than $5,000 and a useful life expectancy of more than one year. Further definitions can be found at 10 CFR 600 found on the PMC Recipient Resources Forms page at https://www.eere-pmc.energy.gov/Forms.aspx#regs .

List all proposed equipment below, providing a basis of cost such as vendor quotes, catalog prices, prior invoices, etc., and briefly justifying its need as it applies to the Statement of Project Objectives. If it is existing equipment, and the value of its contribution to the project budget is being shown as cost share, provide logical support for the estimated value shown. If it is new equipment which will retain a useful life upon completion of the project, provide logical support for the estimated value shown.

For equipment over $50,000 in price, also include a copy of the associated vendor quote or catalog price list.

Add rows as needed. If rows are added, formulas/calculations may need to be adjusted by the preparer.

Equipment Item	Qty	Unit Cost	Total Cost	Basis of Cost	Justification of need
Budget Period 1					
EXAMPLE ONLY!!! Thermal shock chamber	2	$20,000	$40,000	Vendor Quote	Reliability testing of PV modules- Task 4.3
	Exemption 4				
Budget Period 1 Total					
Budget Period 2					
	Exemption 4				
Lab equipment - see attached detail sheet					
Office equipment and set-up - see attached detail					
Budget Period 2 Total					
Budget Period 3					
	0		$0		

Equipment Item	Qty	Unit Cost	Total Cost	Basis of Cost	Justification of need
	Exemption 4				
Budget Period 3 Total					
PROJECT TOTAL					

Additional Explanations/Comments (as necessary)

At the end of this file there are 2 tabs, one for Lab equipment the other for Office equipment which details the above amounts by item. Basis for quotes include vendor quotes, known actual and catalogs.