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
	0		$0		
	0		$0		
	0		$0		
	0		$0		
	0		$0		
	0		$0		
	0		$0		
Budget Period 1 Total			$0		
Budget Period 2					
	0		$0		
Lab equipment - see attached detail sheet	Exemption 4				
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.

e. Supplies

PLEASE READ!!!

Supplies are generally defined as an item with an acquisition cost of $5,000 or less and a useful life expectancy of less than one year. Supplies are generally consumed during the project performance. 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 supplies below, providing a bases of cost such as vendor quotes, catalog prices, prior invoices, etc., and briefly justifying the need for the Supplies as they apply to the Statement of Project Objectives. Note that Supply items must be direct costs to the project at this budget category, and not duplicative of supply costs included in the indirect pool that is the basis of the indirect rate applied for this project.

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

General Category of Supplies	Qty	Unit Cost	Total Cost	Basis of Cost	Justification of need
Budget Period 1					
EXAMPLE ONLY!!! Wireless DAS components	10	$360.00	$3,600	Catalog price	For Alpha prototype - Task 2.4
	0		$0		
	0		$0		
	0		$0		
Budget Period 1 Total			**$0**		
Budget Period 2					
	0		$0		
	0		$0		
	0		$0		
	0		$0		
Budget Period 2 Total			$0		
Budget Period 3					
	0		$0		

General Category of Supplies	Qty	Unit Cost	Total Cost	Basis of Cost	Justification of need
Analytical supplies	Exemption 4				
Chemicals, solvents, polymers					
Disposable lab supplies (e.g. gloves)					
Safety supplies					
Minor engineering equipment					
Budget Period 3 Total					
PROJECT TOTAL					

Additional Explanations/Comments (as necessary)

For Phase I and II, lab supplies are part of the overhead allocation. In Phase III, the costs are only for those at the pilot scale biorefinery. Estimates are based on our experience.

f. Contractual

Sub-Recipient Name/Organization	Purpose/Tasks in SOPO	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
EXAMPLE ONLY!!! XYZ Corp.	Partner to develop optimal fresnel lens for Gen 2 product - Task 2.4	$48,000	$32,000	$16,000	**$96,000**
Georgia Tech	Exemption 4				
MTR - Membrane Technology and Research, Inc.					
The Dow Chemical Company					

Vendor Name/Organization	Product or Service, Purpose/Need and Basis of Cost (Provide additional support at bottom of page as needed)	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
EXAMPLE ONLY!!! ABC Corp.	Vendor for developing custom robotics to perform lens inspection, alignment, and placement (Task 4.) - Required for expanding CPV	$32,900	$86,500		$119,400
					$0

Exemption 4

Sub-Recipient Name/Organization	Purpose/Tasks in SOPO	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
Exemption 4					

Sub-Recipient Name/Organization	Purpose/Tasks in SOPO	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
Exemption 4					

FFRDC Name/Organization	Purpose	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
NREL- National Renewable Energy Laboratory	Exemption 4				
Total Contractual		Exemption 4			

g. Construction

PLEASE READ!!!

Construction, for the purpose of budgeting, is defined as all types of work done on a particular building, including erecting, altering, or remodeling. Construction conducted by the award recipient is entered on this page. Any construction work that is performed by a vendor or subrecipient to the award recipient should be entered under f. Contractual.

List all proposed construction below, providing a basis of cost such as engineering estimates, prior construction, etc., and briefly justify its need as it applies to the Statement of Project Objectives.

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

Overall description of construction actiivities:

Example Only!!! - Build wind turbine platform

General Description	Cost	Basis of Cost	Justification of need
Budget Period 1			
Three days of excavation for platform site EXAMPLE ONLY!!!	$28,000	Engineering estimate	Site must be prepared for construction of platform.
Budget Period 1 Total	$0		
Budget Period 2			
Budget Period 2 Total	$0		

General Description	Cost	Basis of Cost	Justification of need
Budget Period 3			
Budget Period 3 Total	$0		
PROJECT TOTAL	**$0**		

Additional Explanations/Comments (as necessary)

Construction will be sub-contracted, one of our sub-recipient partners, The Dow Chemical Company, will provide ground clearing/ land prep work while the actual construction contractor is TBD. These amounts have been included on the Contractual tab. At the end of the this file there is a tab, Construct Recon, which summarizes the the capitalized costs.

h. Other Direct Costs

PLEASE READ!!!

Other direct costs are direct cost items required for the project which do not fit clearly into other categories, and are not included in the indirect pool for which the indirect rate is being applied to this project. Examples are meeting costs, postage, couriers or express mail, telephone/fax costs, printing costs, etc.

Basis of cost are items such as vendor quotes, prior purchases of similar or like items, published price list, etc.

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

General description	Cost	Basis of Cost	Justification of need
Budget Period 1			
EXAMPLE ONLY!!! Grad student tuition	$16,000	Established UCD costs	Support of graduate students working on project
Budget Period 1 Total			
Budget Period 2			
Exemption 4	Exemption 4		
Budget Period 2 Total			
Budget Period 3			
	$0		

General description	Cost	Basis of Cost	Justification of need
Exemption 4			

i. Indirect Costs

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

A federally approved indirect rate agreement, or rate proposed supported and agreed upon by DOE for estimating purposes is required if reimbursement of fringe benfits is requested. Please check (X) one of the options below and provide the requested information if it has not already been provided as requested, or has changed. Calculate the indirect rate dollars and enter the total in the Section B., line 6.j. (Indirect Charges) of form SF 424A.

____ **There is a federally approved indirect rate agreement. A copy is provided 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 application of the approved rate, to arrive at the proposed indirect charges proposed should also be provided.)

X **There is no current, federally-approved indirect rate agreement.**
(When this option is checked, the entity preparing this form shall submit an indirect cost rate proposal in the format provided at the following website, or in a format that provides the same level of information and which supports the rate(s) being proposed for use in estimating the project. Go to https://www.eere-pmc.energy.gov/forms.aspx and select PMC 400.2 Sample Rate Proposal.)

Additional Explanations/Comments (as necessary)

Please see the Indirect Proposal tab at the end of this file for indirects calculation. The amount for Phase I of Exemption 4 per the indirects sheet times the Algenol Direct costs.

Cost Share

PLEASE READ!!!

A detailed presentation of the cash or cash value of all cost share proposed for the project must be provided in the table below. Identify the source & amount of each item of cost share proposed by the award recipient and each sub-recipient or vendor. Letters of committment must be submitted for all third party cost share (other than award recipient).

Note that "cost-share" is not limited to cash investment. Other items that may be assigned value in a budget as incurred as part of the project budget and necessary to performance of the project, may be considered as cost share, such as: contribution of services or property; donated, purchased or existing equipment; buildings or land; donated, purchased or existing supplies; and/or unrecovered personnel, fringe benefits and indirect costs, etc. For each cost share contribution identified as other than cash, identify the item and describe how the value of the cost share contribution was calculated.

Funds from other Federal sources MAY NOT be counted as cost share. **This prohibition includes FFRDC sub-recipients. Non-Federal sources include private, state or local Government, or any source not originally derived from Federal funds. Documentation of cost sharing commitments must be provided, if not already provided with the original application and they have not changed since its submission.**

Fee or profit will not be paid to the award recipients or subrecipients of financial assistance awards. Additionally, foregone fee or profit by the applicant shall not be considered cost sharing under any resulting award. Reimbursement of actual costs will only include those costs that are allowable and allocable to the project as determined in accordance with the applicable cost principles prescribed in 10 CFR 600.127, 10 CFR 600.222 or 10 CFR 600.317. Also see 10 CFR 600.318 relative to profit or fee.

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

Organization/Source	Type (cash or other)	Cost Share Item	Budget Period 1 Cost Share	Budget Period 2 Cost Share	Budget Period 3 Cost Share	Total Project Cost Share
ABC Company EXAMPLE ONLY!!!	Cash	Project partner ABC Company will provide 40 PV modules for product development at 50% off the of the retail price of $680	$13,600			$13,600
Algenol Biofuels Inc	Exemption 4					
The Dow Chemical Company						
The Dow Chemical Company						
Membrabe Technology and Research, Inc.						
						$0
						$0

Organization/Source	Type (cash or other)	Cost Share Item	Budget Period 1 Cost Share	Budget Period 2 Cost Share	Budget Period 3 Cost Share	Total Project Cost Share
						$0
						$0
						$0
						$0
		Totals	Exemption 4			

Total Project Cost: $Exemption 4

Cost Share Percent of Award: Exemption %

Additional Explanations/Comments (as necessary)

Applicant Name: The Dow Chemical Company 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			$4,625,118	Exemption 4	
2.						
3.						
4.						
5. Totals		$0	$0	$4,625,118		

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	$1,996,280	Exemption 4		
9.				
10.				
11.				
12. **Total** (sum of lines 8 - 11)	$1,996,280			

Section D - Forecasted Cash Needs

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th quarter
13. Federal	$2,150,008	$1,156,280	$1,156,280	$1,156,280	$1,156,280
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	$1,454,642	$428,295	$292,522	$299,651
17.				
18.				
19.				
20. **Total** (sum of lines 16-19)	$1,454,642	$428,295	$292,522	$299,651

Section F - Other Budget Information

21. Direct Charges	22. Indirect Charges

23. Remarks

Instructions and Summary

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

Date of Submission: Jun-09
Form submitted by: The Dow Chemical Company
(May be award recipient or sub-

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	Budget Period 4 Costs	Budget Period 5 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)

The data contained in pages a,h, and i of this application have been submitted in confidence and contain trade secrets or proprietary information, and such data shall be used or disclosed only for evaluation purposes, provided that if this applicant receives an award as a result of or in connection with the submission of this application, DOE shall have the right to use or disclose the data herein to the extent provided in the award. This restriction does not limit the government's right to use or disclose data obtained without restriction from any source, including the applicant.

PMC123.1 - Budget Justification for SF 424A Budget

Instructions and Summary

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

Date of Submission:
Form submitted by:

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

Phase 1 summary

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	Budget Period 4 Costs	Budget Period 5 Costs	Total Costs	Project Costs %
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)

Jun-09

The Dow Chemical Company

(May be award recipient or sub-recipient)

time!

Comments (Add comments as needed)
Fringe is included in indirect costs

Jun-09

The Dow Chemical Company

(May be award recipient or sub-recipient)

time!

Comments (Add comments as needed)
Fringe is included in indirect costs

PMC123.1 - Budget Justification for SF 424A Budget

Instructions and Summary

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

Date of Submission:
Form submitted by:

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

Phase 3 summary

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	Budget Period 4 Costs	Budget Period 5 Costs	Total Costs	Project Costs %
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)

Jun-09

The Dow Chemical Company

(May be award recipient or sub-recipient)

time!

Comments (Add comments as needed)
Fringe is included in indirect costs

Proprietary Information: All information in this document is proprietary. Algenol Biofuels requests all inform

ıation in this document not be released to persons outside the Government, except for the purposes of review and evaluation.

a. Personnel

PLEASE READ!!!

List costs solely for employees of the entity completing this form (award recipient or sub-recipient). All other personnel costs (of subrecipients or other contractual efforts of the entity preparing this) must be included under f., Contractual. This includes all consultants and FFRDCs.

Identify positions to be supported. Key personnel should be identified by title. All other personnel should be identified either by title or a group category. State the amounts of time (e.g., hours or % of time) to be expended, the composite base pay rate, total direct personnel compensation and identify the rate basis (e.g., actual salary, labor distribution report, technical estimate, state civil service rates, etc.).

Add rows as needed. Formulas/calculations will need to be entered by the preparer of this form. Please enter formulas as shown in the example.

Task # and Title	Position Title	Budget Period 1			Budget Period 2			Budget Period 3			Budget Period 4			Budget period 5			Project Total Hours	Project Total Dollars	Rate Basis
		Time (Hours)	Pay Rate ($/Hr)	Total Budget Period 1	Time (Hours)	Pay Rate ($/Hr)	Total Budget Period 2	Time (Hours)	Pay Rate ($/Hr)	Total Budget Period 1	Time (Hours)	Pay Rate ($/Hr)	Total Budget Period 1	Time (Hours)	Pay Rate ($/Hr)	Total Budget Period 3			
1. Generation 2A Receiver Design		10000		$423,000	600		$24,000							800		$31,000	11400	$478,000	Actual Salary
EXAMPLE	Sr. Engineer	2000	$85.00	$170,000	200	$50.00	$10,000							200	$50.00	$10,000	2400	$190,000	Actual Salary
ONLY!!!	Electrical engineers	6200	$35.00	$217,000	400	$35.00	$14,000							600	$35.00	$21,000	7200	$252,000	Actual Salary
	Technician	1800	$20.00	$36,000	0	$0.00	$0							0	$0.00	$0	1800	$36,000	Actual Salary

Exemption 4

Task # and Title	Position Title	Budget Period 1			Budget Period 2			Budget Period 3			Budget Period 4			Budget period 5			Project Total Hours	Project Total Dollars	Rate Basis
		Time (Hours)	Pay Rate ($/Hr)	Total Budget Period 1	Time (Hours)	Pay Rate ($/Hr)	Total Budget Period 2	Time (Hours)	Pay Rate ($/Hr)	Total Budget Period 1	Time (Hours)	Pay Rate ($/Hr)	Total Budget Period 1	Time (Hours)	Pay Rate ($/Hr)	Total Budget Period 3			
Exemption 4		Exemption 4																	
	Total Personnel Costs																		

Additional Explanations/Comments (as necessary)

b. Fringe Benefits

	Budget Period 1	Budget Period 2	Budget Period 3	Budget Period 4	Budget Period 5	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. 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.**
**In the area designated below, identify the full calculations used to derive the total fringe costs. See further information below.*

_____ **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. * In the area designated below, identify the full calculations used to derive the total fringe costs. See further information below.*

Additional explanation/comments (as necessary)

*IMPORTANT: In the space provided below (or as an attachment) provide a complete explanation and the full calculations used to derive the total fringe costs. If the total fringe costs are a cumulative amount of more than one calculation or rate application, the explanation and calculations should identify all rates used, along with the base they were applied to (and how the base was derived), and a total for each (along with grand total). The rates and how they are applied should not be averaged to get one fringe cost percentage. NOTE: The fringe benefit rate should be applied to both the Federal Share and Recipient Cost Share.

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
						$0	
						$0	
						$0	
						$0	
						$0	
						$0	
						$0	
						$0	
Domestic Travel subtotal						$0	
International Travel							
						$0	
						$0	
						$0	
						$0	
International Travel subtotal						$0	
Budget Period 1 Total						**$0**	

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 2							
Domestic Travel							
						$0	
						$0	
						$0	
						$0	
						$0	
						$0	
Domestic Travel subtotal						$0	
International Travel							
						$0	
						$0	
						$0	
						$0	
International Travel subtotal						$0	
Budget Period 2 Total						**$0**	
Budget Period 3							
Domestic Travel							
						$0	
						$0	
						$0	
						$0	
						$0	
						$0	
Domestic Travel subtotal						$0	
International Travel							
						$0	
						$0	
						$0	
						$0	
International Travel subtotal						$0	
Budget Period 3 Total						**$0**	
Budget Period 4							
Domestic Travel							
						$0	
						$0	

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
						$0	
						$0	
						$0	
						$0	
Domestic Travel subtotal						$0	
International Travel							
						$0	
						$0	
						$0	
						$0	
International Travel subtotal						$0	
Budget Period 4 Total						**$0**	
Budget Period 5							
Domestic Travel							
						$0	
						$0	
						$0	
						$0	
						$0	
						$0	
Domestic Travel subtotal						$0	
International Travel							
						$0	
						$0	
						$0	
						$0	
International Travel subtotal						$0	
Budget Period 5 Total						**$0**	
PROJECT TOTAL						**$0**	

Additional Explanations/Comments (as necessary)

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
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
Budget Period 1 Total			$0		
Budget Period 2					
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
Budget Period 2 Total			$0		

Equipment Item	Qty	Unit Cost	Total Cost	Basis of Cost	Justification of need
Budget Period 3					
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
Budget Period 3 Total			$0		
Budget Period 4					
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
Budget Period 4 Total			$0		
Budget Period 5					
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
Budget Period 5 Total			$0		
PROJECT TOTAL			**$0**		

Equipment Item	Qty	Unit Cost	Total Cost	Basis of Cost	Justification of need

Additional Explanations/Comments (as necessary)

e. Supplies

PLEASE READ!!!

Supplies are generally defined as an item with an acquisition cost of $5,000 or less and a useful life expectancy of less than one year. Supplies are generally consumed during the project performance. 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 supplies below, providing a bases of cost such as vendor quotes, catalog prices, prior invoices, etc., and briefly justifying the need for the Supplies as they apply to the Statement of Project Objectives. Note that Supply items must be direct costs to the project at this budget category, and not duplicative of supply costs included in the indirect pool that is the basis of the indirect rate applied for this project.

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

General Category of Supplies	Qty	Unit Cost	Total Cost	Justification of need
Budget Period 1				
EXAMPLE ONLY!!! Wireless DAS components	10	$360.00	$3,600	For Alpha prototype - Task 2.4
			$0	
			$0	
			$0	
			$0	
Budget Period 1 Total			**$0**	
Budget Period 2				
			$0	
			$0	
			$0	
			$0	
			$0	
Budget Period 2 Total			Exemption 4	
Budget Period 3				
			$0	
			$0	
			$0	
			$0	
			$0	
Budget Period 3 Total			$0	
Budget Period 4				
			$0	
			$0	
			$0	
Budget Period 3 Total			$0	
Budget Period 5				
			$0	
			$0	
			$0	
			$0	
Budget Period 3 Total			$0	
PROJECT TOTAL			$Exemption 4	

Exemption 4

Additional Explanations/Comments (as necessary)

f. Contractual

Sub-Recipient Name/Organization	Purpose/Tasks in SOPO	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Budget Period 4 Costs	Budget Period 5 Costs	Project Total
EXAMPLE ONLY!!! XYZ Corp.	Partner to develop optimal fresnel lens for Gen 2 product - Task 2.4	$48,000	$32,000			$16,000	$96,000
							$0
							$0
							$0
							$0
							$0
							$0
							$0
							$0
	Sub-total	$0	$0	$0	$0	$0	$0

Vendor Name/Organization	Product or Service, Purpose/Need and Basis of Cost (Provide additional support at bottom of page as needed)	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Budget Period 4 Costs	Budget Period 5 Costs	Project Total
EXAMPLE ONLY!!! ABC Corp.	Vendor for developing custom robotics to perform lens inspection, alignment, and placement (Task 4). Required for expanding CPV module mfg. capacity. Cost is from competitive quotes.	$32,900	$86,500				$119,400
							$0
							$0
							$0
							$0
							$0
							$0
							$0
		$0	$0	$0	$0	$0	$0

FFRDC Name/Organization	Purpose	Budget Period 1 Costs	Budget Period 3 Costs	Budget Period 3 Costs	Budget Period 4 Costs	Budget Period 5 Costs	Project Total
							$0
							$0
							$0
		$0	$0	$0	$0	$0	$0

Total Contractual		$0	$0	$0	$0	$0	$0

AdditionalExplanations/Comments (as necessary)

g. Construction

PLEASE READ!!!

Construction, for the purpose of budgeting, is defined as all types of work done on a particular building, including erecting, altering, or remodeling. Construction conducted by the award recipient is entered on this page. Any construction work that is performed by a vendor or subrecipient to the award recipient should be entered under f. Contractual.

List all proposed construction below, providing a basis of cost such as engineering estimates, prior construction, etc., and briefly justify its need as it applies to the Statement of Project Objectives.

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

Overall description of construction actiivities:

Example Only!!! - Build wind turbine platform

General Description	Cost	Basis of Cost	Justification of need
Budget Period 1			
Three days of excavation for platform site EXAMPLE ONLY!!!	$28,000	Engineering estimate	Site must be prepared for construction of platform.
Budget Period 1 Total	$0		
Budget Period 2			
Budget Period 2 Total	$0		

General Description	Cost	Basis of Cost	Justification of need
Budget Period 3			
Budget Period 3 Total	$0		
Budget Period 4			
Budget Period 4 Total	$0		
Budget Period 5			
Budget Period 5 Total	$0		
PROJECT TOTAL	**$0**		

Additional Explanations/Comments (as necessary)

h. Other Direct Costs

General description	Cost	Basis of Cost	Justification of need
Budget Period 1			
EXAMPLE ONLY!!! Grad student tuition	$16,000	Established UCD costs	Support of graduate students working on project
Exemption 4	Exemption 4		
Budget Period 1 Total			
Budget Period 2			
Exemption 4	Exemption 4		
Budget Period 2 Total			
Budget Period 3			
Analytical Services			
Exemption 4	Exemption 4		
Budget Period 3 Total			
Budget Period 4			
Analytical services			
Exemption 4	Exemption 4		
Budget Period 4 Total			
Budget Period 5			
Analytical Services			
Exemption 4	Exemption 4		
Budget Period 5 Total			
PROJECT TOTAL			

Additional Explanations/Comments (as necessary)

This worksheet contains proprietary information that The Dow Chemical Company requests not be released to persons outside the Government, except for purposes of review and evaluation.

i. Indirect Costs

	Budget Period 1	Budget Period 2	Budget Period 3	Budget Period 4	Budget Period 5	Total
Rate applied:	Exemption 4					
Total indirect costs requested:						

A federally approved indirect rate agreement, or rate proposed supported and agreed upon by DOE for estimating purposes is required if reimbursement of fringe benfits is requested. Please check (X) one of the options below and provide the requested information if it has not already been provided as requested, or has changed. Calculate the indirect rate dollars and enter the total in the Section B., line 6.j. (Indirect Charges) of form SF 424A.

x **There is a federally approved indirect rate agreement. A copy is provided with this application and will be provided electronically to the Contracting Officer for this project.**

**In the area designated below, identify the full calculations used to derive the total indirect costs. See further information below.*

____ **There is no current, federally-approved indirect rate agreement.**

*When this option is checked, the entity preparing this form shall submit an indirect cost rate proposal in the format provided at the following website, or in a format that provides the same level of information and which supports the rate(s) being proposed for use in estimating the project. Go to https://www.eere-pmc.energy.gov/forms.aspx and select PMC 400.2 Sample Rate Proposal. *In the area designated below, identify the full calculations used to derive the total indirect costs. See further information below.*

Additional Explanations/Comments (as necessary)

*IMPORTANT: In the space provided below (or as an attachment) provide a complete explanation and the full calculations used to derive the total indirect costs. If the total indirect costs are a cumulative amount of more than one calculation or rate application, the explanation and calculations should identify all rates used, along with the base they were applied to (and how the base was derived), and a total for each (along with grand total). The rates and how they are applied should not be averaged to get one indirect cost percentage. NOTE: The indirect rate should be applied to both the Federal Share and Recipient Cost Share.

This worksheet contains proprietary information that The Dow Chemical Company requests not be released to persons outside the Government, except for purposes of review and evaluation.

There are three indirect cost billing rates which will be applicable on this project:

Exemption 4

There rates are based on CY 2008 provisional rates.

Cognizant/oversight Agency: Defense Contract Audit Agency
Person responsoble for negotiating indirect rates: Ms. Kristy Mundell, (989)638-9831

Cost Share

PLEASE READ!!!

A detailed presentation of the cash or cash value of all cost share proposed for the project must be provided in the table below. Identify the source & amount of each item of cost share proposed by the award recipient and each sub-recipient or vendor. Letters of committment must be submitted for all third party cost share (other than award recipient).

Note that "cost-share" is not limited to cash investment. Other items that may be assigned value in a budget as incurred as part of the project budget and necessary to performance of the project, may be considered as cost share, such as: contribution of services or property; donated, purchased or existing equipment; buildings or land; donated, purchased or existing supplies; and/or unrecovered personnel, fringe benefits and indirect costs, etc. For each cost share contribution identified as other than cash, identify the item and describe how the value of the cost share contribution was calculated.

Funds from other Federal sources MAY NOT be counted as cost share. **This prohibition includes FFRDC sub-recipients. Non-Federal sources include private, state or local Government, or any source not originally derived from Federal funds. Documentation of cost sharing commitments must be provided, if not already provided with the original application and they have not changed since its submission.**

Fee or profit will not be paid to the award recipients or subrecipients of financial assistance awards. Additionally, foregone fee or profit by the applicant shall not be considered cost sharing under any resulting award. Reimbursement of actual costs will only include those costs that are allowable and allocable to the project as determined in accordance with the applicable cost principles prescribed in 10 CFR 600.127, 10 CFR 600.222 or 10 CFR 600.317. Also see 10 CFR 600.318 relative to profit or fee.

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

Organization/Source	Type (cash or other)	Cost Share Item	Budget Period 1 Cost Share	Budget Period 2 Cost Share	Budget Period 3 Cost Share	Budget Period 4 Cost Share	Budget Period 5 Cost Share	Total Project Cost Share
ABC Company **EXAMPLE ONLY!!!**	Cash	Project partner ABC Company will provide 40 PV modules for product development at 50% off the of the retail price of $680	$13,600					$13,600
The Dow Chemical Company	Exemption 4							
The Dow Chemical Company								
								$0
								$0
								$0
								$0
								$0
								$0
								$0
								$0
		Totals	Exemption 4					

Total Project Cost: $Exemption 4

Cost Share Percent of Award: Exemption **%**

Additional Explanations/Comments (as necessary)

Applicant Name: Georgia Institute of Technology - Year1 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			$484,400	Exemption 4	
2.						
3.						
4.						
5. Totals		$0	$0	$484,400		

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

PMC123.1 - Budget Justification for SF 424A Budget

Instructions and Summary

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

Date of Submission: 23-Jun-09
Form submitted by: Georgia Institute if Technology
(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

PLEASE READ!!!

List costs solely for employees of the entity completing this form (award recipient or sub-recipient). All other personnel costs (of subrecipients or other contractual efforts of the entity preparing this) must be included under f., Contractual. This includes all consultants and FFRDCs.

Identify positions to be supported. Key personnel should be identified by title. All other personnel should be identified either by title or a group category. State the amounts of time (e.g., hours or % of time) to be expended, the composite base pay rate, total direct personnel compensation and identify the rate basis (e.g., actual salary, labor distribution report, technical estimate, state civil service rates, etc.).

Add rows as needed. Formulas/calculations will need to be entered by the preparer of this form. Please enter formulas as shown in the example.

Task # and Title	Position Title	Budget Period 1			Budget Period 2			Budget Period 3			Project Total Hours	Project Total Dollars	Rate Basis
		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**	**$478,000**	**Actual Salary**
EXAMPLE	Sr. Engineer	2000	$85.00	$170,000	200	$50.00	$10,000	200	$50.00	$10,000	**2400**	**$190,000**	Actual Salary
ONLY!!!	Electrical engineers	6200	$35.00	$217,000	400	$35.00	$14,000	600	$35.00	$21,000	**7200**	**$252,000**	Actual Salary
	Technician	1800	$20.00	$36,000	0	$0.00	$0	0	$0.00	$0	**1800**	**$36,000**	Actual Salary

Exemption 4

Task # and Title	Position Title	Budget Period 1			Budget Period 2			Budget Period 3			Project Total Hours	Project Total Dollars	Rate Basis
		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			
	Total Personnel Costs	Exemption											

Additional Explanations/Comments (as necessary)

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.

X **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.)

____ **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.)

Additional explanation/comments (as necessary)

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
DOE Sponsored Meetings	Exemption 4						
Domestic Travel subtotal							
International Travel							
International Travel subtotal							
Budget Period 1 Total							
Budget Period 2							
Domestic Travel							
DOE Sponsored Meetings	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						
Domestic Travel subtotal							
International Travel							
International Travel subtotal							
Budget Period 2 Total							
Budget Period 3							
Domestic Travel	Exemption 4						
Domestic Travel subtotal							
International Travel							
International Travel subtotal							
Budget Period 3 Total							
PROJECT TOTAL							

Additional Explanations/Comments (as necessary)

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	Exemption 4				
Budget Period 1 Total					
Budget Period 2					
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
Budget Period 2 Total			$0		

Equipment Item	Qty	Unit Cost	Total Cost	Basis of Cost	Justification of need
Budget Period 3					
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
Budget Period 3 Total	Exemption 4				
PROJECT TOTAL					

Additional Explanations/Comments (as necessary)

e. Supplies

PLEASE READ!!!

Supplies are generally defined as an item with an acquisition cost of $5,000 or less and a useful life expectancy of less than one year. Supplies are generally consumed during the project performance. 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 supplies below, providing a bases of cost such as vendor quotes, catalog prices, prior invoices, etc., and briefly justifying the need for the Supplies as they apply to the Statement of Project Objectives. Note that Supply items must be direct costs to the project at this budget category, and not duplicative of supply costs included in the indirect pool that is the basis of the indirect rate applied for this project.

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

General Category of Supplies	Qty	Unit Cost	Total Cost	Basis of Cost	Justification of need
Budget Period 1					
EXAMPLE ONLY!!! Wireless DAS components	10	$360.00	$3,600	Catalog price	For Alpha prototype - Task 2.4
Chemicals and Basic Laboratory Supplies	Exemption 4				
Budget Period 1 Total					
Budget Period 2					
Chemicals and Basic Laboratory Supplies	Exemption 4				
Budget Period 2 Total					

General Category of Supplies	Qty	Unit Cost	Total Cost	Basis of Cost	Justification of need
Budget Period 3					
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
			$0		
Budget Period 3 Total	Exemption 4				
PROJECT TOTAL					

Additional Explanations/Comments (as necessary)

f. Contractual

PLEASE READ!!!

The entity completing this form must provide all costs related to sub-recipients, vendors, contractors, consultants and FFRDC partners in the applicable boxes below.

Sub-recipients (partners, sub-awardees):

For each sub-recipient with total project costs of $100,000 or more, a separate SF-424A budget and PMC123.1 budget justification form must be submitted. These sub-recipient forms may be completed by either the sub-recipients themselves or by the preparer of this form. The budget totals on the sub-recipient's forms must match the sub-recipeint entries below.

The preparer of this form need only provide further support of the completed sub-recipient budget forms as they deem necessary. The support to justify the budgets of sub-recipients with estimated costs less than $100,000 may be in any format, and at a minimum should provide what Statement of Project Objectives task(s) are being performed, the purpose/need for the effort, and a basis of the estimated costs that is considered sufficient for DOE evaluation.

Vendors (includes contractors and consultants):

List all vendors, contractors and consultants supplying commercial supplies or services used to support the project. The support to justify vendor costs (in any amount) should provide the purpose for the products or services and a basis of the estimated costs that is considered sufficient for DOE evaluation.

Federal Research and Development Centers (FFRDCs):

For FFRDC partners, award recipient will provide a Field Work Proposal (if not already provided with the original application), along with the FFRDC labor mix and hours, by category and FFRDC major purchases greater than $25,000, including Quantity, Unit Cost, Basis of Cost, and Justification. The award recipient may allow the FFRDC to provide this information directly to DOE.

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

Sub-Recipient Name/Organization	Purpose/Tasks in SOPO	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
EXAMPLE ONLY!!! XYZ Corp.	Partner to develop optimal fresnel lens for Gen 2 product - Task 2.4	$48,000	$32,000	$16,000	**$96,000**
University of Colorado	Exemption 4				

Sub-Recipient Name/Organization	Purpose/Tasks in SOPO	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
					$0
					$0
					$0
		Exemption 4			
	Sub-total				

Vendor Name/Organization	Product or Service, Purpose/Need and Basis of Cost (Provide additional support at bottom of page as needed)	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
EXAMPLE ONLY!!! ABC Corp.	Vendor for developing custom robotics to perform lens inspection, alignment, and placement (Task 4). Required for expanding CPV module mfg. capacity. Cost is from competitive quotes.	$32,900	$86,500		$119,400
					$0
					$0
					$0
					$0
					$0
					$0
					$0
		$0	$0	$0	$0

FFRDC Name/Organization	Purpose	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total
					$0
					$0
					$0
		$0	$0	$0	$0

Total Contractual		Exemption 4			

AdditionalExplanations/Comments (as necessary)

f. Contractual

Sub-Recipient Name/Organization	Purpose/Tasks in SOPO	Budget Period 1 Costs	Budget Period 2 Costs	Budget Period 3 Costs	Project Total

f. Contractual

g. Construction

PLEASE READ!!!

Construction, for the purpose of budgeting, is defined as all types of work done on a particular building, including erecting, altering, or remodeling. Construction conducted by the award recipient is entered on this page. Any construction work that is performed by a vendor or subrecipient to the award recipient should be entered under f. Contractual.

List all proposed construction below, providing a basis of cost such as engineering estimates, prior construction, etc., and briefly justify its need as it applies to the Statement of Project Objectives.

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

Overall description of construction actiivities:

Example Only!!! - Build wind turbine platform

General Description	Cost	Basis of Cost	Justification of need
Budget Period 1			
Three days of excavation for platform site EXAMPLE ONLY!!!	$28,000	Engineering estimate	Site must be prepared for construction of platform.
Budget Period 1 Total	$0		
Budget Period 2			
Budget Period 2 Total	$0		

General Description	Cost	Basis of Cost	Justification of need
Budget Period 3			
Budget Period 3 Total	$0		
PROJECT TOTAL	$0		

Additional Explanations/Comments (as necessary)

h. Other Direct Costs

PLEASE READ!!!

Other direct costs are direct cost items required for the project which do not fit clearly into other categories, and are not included in the indirect pool for which the indirect rate is being applied to this project. Examples are meeting costs, postage, couriers or express mail, telephone/fax costs, printing costs, etc.

Basis of cost are items such as vendor quotes, prior purchases of similar or like items, published price list, etc.

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

General description	Cost	Basis of Cost	Justification of need
Budget Period 1			
EXAMPLE ONLY!!! Grad student tuition	$16,000	Established UCD costs	Support of graduate students working on project
Budget Period 1 Total	$0		
Budget Period 2			
Budget Period 2 Total	$0		
Budget Period 3			
Budget Period 3 Total	$0		
PROJECT TOTAL	**$0**		

Additional Explanations/Comments (as necessary)

i. Indirect Costs

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

A federally approved indirect rate agreement, or rate proposed supported and agreed upon by DOE for estimating purposes is required if reimbursement of fringe benfits is requested. Please check (X) one of the options below and provide the requested information if it has not already been provided as requested, or has changed. Calculate the indirect rate dollars and enter the total in the Section B., line 6.j. (Indirect Charges) of form SF 424A.

X **There is a federally approved indirect rate agreement. A copy is provided 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 application of the approved rate, to arrive at the proposed indirect charges proposed should also be provided.)

____ **There is no current, federally-approved indirect rate agreement.**
(When this option is checked, the entity preparing this form shall submit an indirect cost rate proposal in the format provided at the following website, or in a format that provides the same level of information and which supports the rate(s) being proposed for use in estimating the project. Go to https://www.eere-pmc.energy.gov/forms.aspx and select PMC 400.2 Sample Rate Proposal.)

Additional Explanations/Comments (as necessary)

Cost Share

PLEASE READ!!!

A detailed presentation of the cash or cash value of all cost share proposed for the project must be provided in the table below. Identify the source & amount of each item of cost share proposed by the award recipient and each sub-recipient or vendor. Letters of committment must be submitted for all third party cost share (other than award recipient).

Note that "cost-share" is not limited to cash investment. Other items that may be assigned value in a budget as incurred as part of the project budget and necessary to performance of the project, may be considered as cost share, such as: contribution of services or property; donated, purchased or existing equipment; buildings or land; donated, purchased or existing supplies; and/or unrecovered personnel, fringe benefits and indirect costs, etc. For each cost share contribution identified as other than cash, identify the item and describe how the value of the cost share contribution was calculated.

Funds from other Federal sources MAY NOT be counted as cost share. **This prohibition includes FFRDC sub-recipients. Non-Federal sources include private, state or local Government, or any source not originally derived from Federal funds. Documentation of cost sharing commitments must be provided, if not already provided with the original application and they have not changed since its submission.**

Fee or profit will not be paid to the award recipients or subrecipients of financial assistance awards. Additionally, foregone fee or profit by the applicant shall not be considered cost sharing under any resulting award. Reimbursement of actual costs will only include those costs that are allowable and allocable to the project as determined in accordance with the applicable cost principles prescribed in 10 CFR 600.127, 10 CFR 600.222 or 10 CFR 600.317. Also see 10 CFR 600.318 relative to profit or fee.

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

Organization/Source	Type (cash or other)	Cost Share Item	Budget Period 1 Cost Share	Budget Period 2 Cost Share	Budget Period 3 Cost Share	Total Project Cost Share
ABC Company **EXAMPLE ONLY!!!**	Cash	Project partner ABC Company will provide 40 PV modules for product development at 50% off the of the retail price of $680	$13,600			**$13,600**
						$0
						$0
						$0
						$0
						$0
						$0

Organization/Source	Type (cash or other)	Cost Share Item	Budget Period 1 Cost Share	Budget Period 2 Cost Share	Budget Period 3 Cost Share	Total Project Cost Share
						$0
						$0
						$0
						$0
		Totals	$0	$0	$0	$0

Total Project Cost: $Exemption 4

Cost Share Percent of Award: Exemption **%**

Additional Explanations/Comments (as necessary)

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

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			$148,854	Exemption 4	
2.						
3.						
4.						
5. Totals		$0	$0	$148,854		

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	$37,214	Exemption 4		
9.				
10.				
11.				
12. **Total** (sum of lines 8 - 11)	$37,214			

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, Exempt % of direct labor (6a. Personnel), includes all allowable indirect costs.

23. Remarks

LINE B.6.a. PERSONNEL.

YEAR ONE/PHASE I:	Estimated	Rate/hour	Estimated
Exemption 4			

YEAR TWO/PHASE II:	Estimated	Rate/hour	Estimated
Exemption 4			

YEAR THREE/PHASE III:	Estimated	Rate/hour	Estimated
Exemption 4			

BUDGET EXPLANATION, PAGE 2 OF 3

YEAR FOUR/PHASE III:	Estimated	Rate/hour	Estimated
Exemption 4			

[NOTES: HOURLY RATES USED ARE BASED ON ACTUAL CURRENT SALARIES FOR INDIVIDUALS (OR AVERAGES OF GROUPS OF INDIVIDUALS) ADJUSTED TO MEET EXPECTED PROJECT START DATE (OCTOBER 2009). SUBSEQUENT YEAR ESTIMATES ARE THE RESULT OF APPLYING AN ESCALATION FACTOR OF 4% TO FIRST-YEAR RATES. FRINGE BENEFITS ARE INCLUDED IN LABOR OVERHEAD, J.)]

LINE B.6.c. TRAVEL.

	Year 1/	Year 2/	Year 3/	Year 4/	Subtotal,
Exemption 4					

[NOTE: AIR FARES ARE BASED ON CURRENT QUOTES FOR UNRESTRICTED ECONOMY FARE FROM SAN FRANCISCO AIRPORT. GROUND TRANSPORTATION INCLUDES COMPACT RENTAL CAR AND TRANSPORTATION TO AND FROM AIRPORT. PER DIEM AMOUNTS ARE BASED ON CONUS RATES IN EFFECT 1 JANUARY 2009.]

LINE B.6.d. EQUIPMENT.

	Year 1/	Year 2/	Year 3/	Year 4/	Subtotal,
Exemption 4					

[NOTE: EQUIPMENT COSTS ARE ENGINEER'S ESTIMATES, BASED ON PREVIOUS EXPERIENCE AND/OR VENDOR QUOTES.]

LINE B.6.e. SUPPLIES.

	Year 1/	Year 2/	Year 3/	Year 4/	Subtotal,
Exemption 4					

[NOTE: MATERIAL AND SUPPLIES COSTS ARE ENGINEER'S ESTIMATES, BASED ON PREVIOUS EXPERIENCE AND/OR VENDOR QUOTES.]

LINE B.6.h. OTHER:

	Year 1/	Year 2/	Year 3/	Year 4/	Subtotal,
Exemption 4					

LINE B.6.j. INDIRECT COSTS.

An indirect cost rate of Exemption % (as overhead applied to direct labor, net of fringe benefits) is requested for the duration of the project. This single rate includes all allowable indirect costs, including fringe benefits, G&A and B&P/IR&D. MTR's most recently DCAA-audited indirect cost rate (2005) was Exemption 4 % (audited by Ms. Elizabeth Sanchez, Western Region, Peninsula Branch, 650-917-5005); claimed rates for subsequent years 2006 and 2007 are Exemption 4 %, respectively. A provisional billing rate agreement for Exemption % is currently in effect with DCAA (Reference: 4281/820.5/09-V-0031).

COST SHARE.

The proposed cost share of $Exemption 4 of the total cost of the subcontract, will come from internal funds, primarily to support labor and overhead costs.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RESEARCH AND DEVELOPMENT
NATIONAL RISK MANAGEMENT RESEARCH LABORATORY
CINCINNATI, OHIO 45268

April 23, 2009

Craig R. Smith, M.D.
Executive Vice President, Chief Operating Officer
Algenol Biofuels, Inc.

Dr. Wood,

The purpose of this letter is to indicate our interest in supporting the project "**Demonstration of Pilot-Scale Integrated Biorefinery Operations for Producing Ethanol From Algae**" submitted as a proposal to the U.S. Department of Energy under Funding Opportunity DE-PS36-09GO99038 - Demonstration of Integrated Biorefinery Operations. As you know, the U.S. Environmental Protection Agency's National Risk Management Research Laboratory (USEPA-NRMRL) has an active in-house research program in the conversion of biomass to alcohol-based biofuels with an emphasis on the efficient recovery of the alcohols from dilute bioreactor media and the dehydration of the alcohols to meet product specifications. We believe our background in efficient alcohol-water separation systems will help the Algenol-led team successfully develop their algae-based ethanol production platform.

Our separations research group has a long history of supporting biofuels projects, including collaborating with industrial partners on projects funded by the U.S. Department of Agriculture, U.S. Army, and the U.S. Department of Energy. We are currently collaborating through a cooperative research and development agreement (CRADA) with a membrane separation company and member of your project team, Membrane Technology and Research, Inc. (MTR), to develop highly efficient membrane-based and hybrid distillation-membrane processes for recovery of biofuel alcohols from dilute fermentation broths. During the proposed project, we will provide technical support and facilities to the Algenol-led team that will enable: the identification and implementation of efficient separation processes; the evaluation of such separation processes in our facilities or other project locations; access to our extensive know-how related to design and performance of membrane-based and other innovative separation processes; and the identification of scale-up and life cycle issues related to the algae-based process.

In order to assist your efforts, we are prepared to obligate two members of our separations group, Dr. Leland Vane and Mr. Franklin Alvarez, to the project on a part-time basis. Our efforts will be provided as no-cost contributions to the project. This participation will take the form of developing and analyzing process concepts, performing process simulations and system modeling, evaluating process integration options, establishing experimental designs, and carrying out performance verification tests of separation options. We have bench- and pilot-scale membrane separation units which will be made available for performance verification tests.

We look forward to the opportunity to partner with Algenol and the other collaborators on this project.

Sincerely,

Douglas Young

Douglas Young, Ph.D.
Chief, Clean Processes Branch
Sustainable Technology Division

The Dow Chemical Company
Midland, Michigan 48674

June 16, 2009

Dr. Craig R. Smith
Chief Operating Officer
Algenol Biofuels Inc.
28100 Bonita Grande Drive, Suite 200
Bonita Springs, Florida 34135

Dear Dr. Smith:

The Dow Chemical Company (Dow), with annual sales of $58 billion and 46,000 employees worldwide, is a diversified chemical company that combines the power of science and technology with the "Human Element" to constantly improve what is essential to human progress. Dow delivers a broad range of products and services to customers in around 160 countries, connecting chemistry and innovation with the principles of sustainability to help provide everything from fresh water, food and pharmaceuticals to paints, packaging and personal care products.

Dow confirms its proposal to cooperate with Algenol Biofuels, Inc. (Algenol), by
Exemption 4

per year. Dow would be pleased for the opportunity to be able to work closely with Algenol, Principle Investigator, as described in the proposal entitled "Demonstration of Pilot-Scale Integrated Biorefinery Operations for Producing Ethanol from Algae" submitted to the US Department of Energy in response to the Funding Opportunity Announcement DE-FOA-0000096.

This project complements Dow's efforts in Sustainable Chemistry as stated in our publicly announced 2015 goals and is supported by our Polyethylene and Hydrocarbon and Energy Businesses. Steven Gluck, one of Dow's top experts in analytical chemistry, water treatment and algae technology, will lead the Dow effort.

Dow has dedicated significant resources in research for both alternative energy and minimizing the carbon footprint of manufacturing. Recent announcements include: a projected commercial launch of Building Integrated Photovoltaics for the home (The development of this technology is supported in part by a cooperative agreement with the US Department of Energy Solar America Initiative), an agreement with Alstom to build a pilot facility in West Virginia to capture CO_2 from a coal fired power plant, a joint project with NREL to focus on improving mixed alcohol catalysts for producing ethanol and AIRSTONE™ Systems for Wind Energy. Dow currently is expanding the products

made from renewable resources including RENUVA™ renewable resource technology polyols and the first integrated sugarcane derived ethanol to polyethylene world scale commodity production facility. In addition, Dow has proposed a comprehensive national energy security plan that stresses greater conservation, more use of domestic energy sources, development of natural gas and nuclear power and accelerated development of alternative energy with a reduction in greenhouse gases.

Dow proposes to support this program by providing research, engineering and related
Exemption 4

Dow's participation in this collaboration would be, of course, pursuant to finalization and execution of relevant written contracts or subcontracts governing such collaboration that are acceptable to Dow. The finalization and execution of any such contracts and subcontracts shall be at Dow's sole discretion, and is subject to approval by requisite management or executive leadership.

We look forward to the opportunity to further advance our collaboration with Algenol.

Sincerely,

William F. Banholzer
Executive Vice President and Chief Technology Officer

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.

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

PMC-EF2a
(2/04/02)

S. DEPARTMENT OF ENERGY
EE PROJECT MANAGEMENT CEN
NEPA DETERMINATION

RECIPIENT: Algenol Biofuels Inc. **STATE:** FL

PROJECT TITLE : Pilot-Scale Integrated Biorefinery Operations for Producing Ethanol from Hybrid Algae

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000096	DE-EE0002867	GFO-10-287	0

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:

Description:

B3.6 Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis); small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible).

Rational for determination:

DOE is proposing to provide federal funding to Algenol for an Integrated Biorefinery pilot-scale project. The NEPA determination applies to Budget Period 1 (BP1) only. Additional NEPA review is required prior to beginning any Budget Period 2 activities.

During BP I of this Integrated Biorefinery pilot-scale project, Algenol's principle activities will include:
- appointing the joint project team;
- R&D related to organism development;
- R&D related to developing the flexible film photobioreactor;
- preliminary process engineering;
- architect search, site selection, construction planning, employee recruiting, and SOP development;
- NEPA review for budget period 2 activities;
- regulatory submissions and approval;
- a Phase I stage gate review.

CX A9 applies to all administrative tasks. CX B3.6 applies to the R&D activities.

All necessary regulatory approvals have been obtained by Algenol to complete the transgenic R&D activities.

NEPA PROVISION

DOE has made a conditional NEPA determination for this award, and funding for certain tasks under this award is contingent upon the final NEPA determination.

Insert the following language in the award:

You are restricted from taking any action using federal funds, which would have an adverse affect on the environment or limit the choice of reasonable alternatives prior to DOE/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:
This NEPA determination applies to Budget Period 1 only. Budget Period 1 includes administrative tasks and some research and development activities. This NEPA determination does NOTapply to any Budget Period 2 activites. Additional NEPA review is required prior to beginning any Budget Period 2 activities.
This restriction does not preclude you from:
Budget Period 1.
If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Kristin Kerwin Date: 3/29/2010
NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

☐ Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

☐ Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
☐ Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____ Date: _____
Field Office Manager

EF2

U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER

NEPA REVIEW AND RECOMMENDATIONS
(To Be Completed By DOE Project Officer)

PART I. PROJECT INFORMATION

Project Title: Pilot-Scale Integrated Biorefinery Operations for Producing Ethanol from Hybrid Algae **State:** FL

Recipient: Algenol Biofuels Inc.

Funding Opportunity Announcement Number	Procurement Instrument Number	CID Number
DE-FOA-0000096	DE-EE0002867	0

1. Is this an ongoing project? Yes: ☐ No: ☑ If no, skip to part II.

Original NEPA Determination Category Original NEPA Control Number

2. Has there been a change in the original scope, environmental conditions, and/or determination? Yes: ☐ No: ☑
If yes, please describe the nature of the change.

PART II. RECOMMENDED CATEGORY OF EVIRONMENTAL REVIEW

Please provide answers to the following questions and indicate your recommended category of environmental review. If you need assistance, please contact Steve Blazek (Contact information listed below)

1. Please describe the intended use of DOE and cost share funding associated with this award.
During phase I of this Integrated Biorefinery pilot-scale project, Algenol's principle activities will include appointing the joint project team (A.1), R&D related to organism development (A.2), R&D related to developing the flexible film photobioreactor (A.3), preliminary process engineering (A.4), architect search, site selection, construction planning, employee recruiting, and SOP development (A.5), NEPA review (A.6), regulatory submissions and approval (A.7), and a phase I gate review (A.8).
(A.1) Appointing the project management team at Algenol and Dow will have no environmental impact at all; this is a strictly an administrative task.
(A.2) The R&D activities relating to organism development will take place at the Algenol Baltimore, MD facility and at the Algenol Palm Beach, Florida facility; a single R&D questionnaire has been submitted for these facilities. Specifically, these activities will include: further characterization of the cyanobacterial strains that are producing the highest rates of enthanogenesis, demonstration that the selected strain can grow in salt water at various scales (500L and 4500L), determination of optimum nutritional requirements at scale, and maintaining ethanol productivity and culture longevity. All of the work related to these activities will be conducted at the Algenol facilities that have standard operating procedures in place for this type of work.
(A.3) The RD activities related to developing the flexible film photobioreactor will take place at Dow and Algenol facilities. Dow and Algenol will work together to improve performance characteristics of the flexible film bioreactor material and the bioreactor end caps. Most of this research will focus on developing the manufacturing specifications for the film, coatings, and the blow mold for the end caps, as well as specific manufacturing techniques for certain elements of the photobioreactor and the plastic to be used to make the end caps. This work will also include design specifications for the mixing and power systems, as well as the specifications for the plastic to be used to make any other parts needed for the photobioreactor.
(A.4) The process engineering activities that will be performed during phase I of this project will take place at Georgia Tech, NREL, and Algenol. The activities will include development of preliminary specifications for the various upstream and downstream systems and Standard Operating Procedures (SOPs). Upstream processes are processes used to treat and supply water, CO2, nutrients and electricity to the photobioreactor to make ethanol. This work will include, for example, testing of several new materials to be used as piping for the photobioreactor systems. In addition, this work will include the development of the SOPs for the delivery and distribution of this water to all photobioreactor systems. During phase I Georgia Tech will be working on R&D related to the CO2 and oxygen-selective membrane-based separation processes and NREL will be performing an analysis of bench-scale growth of four cyanobacterial strains using simulated flue gas.
Downstream processes are all processes that take place after the ethanol-containing medium, condensate or vapor is removed from the photobioreactor for further enrichment of the ethanol concentration. Downstream processes include photobioreactor condensate pumping and storage and Vapor Compression Steam Stripping (VCSS) unit for ethanol purification. Work during phase I includes delivering preliminary design criteria and manufacturing technicques for construction of both the vapor compression unit and the steam stripper. In addition, R&D will be continued to design a central dehydration plant that will be used produce 10 to 100 million gal/y of dry ethanol.
(A.5) Architect search, site selection, construction planning, employee recruiting, and SOP development will all take place during phase I. As these are all administrative and desk-related tasks, they will have no adverse environmental impact.
(A.6)The NEPA review process is also an administrative task and should have no environmental impact.
(A.7) The regulatory submissions task is also an administrative task and should have no environmental impact. See question #2 for relevant information regarding the applicable phase I regulatory submissions.
(A.8 and A.9) The life-cycle analysis phase I update and the stage gate review are also administrative tasks and should have no environmental impact.

2. Please list any applicable **existing** documentation (i.e. programmatic EAs, technical studies, state level environmental reviews). For each, please list the type of document, and its title, document number (if applicable), and date of publication.

An APHIS determination was mad November 4, 2009 that the specified that th nobacterial strains being used in phase I of this project (Synechocystis and Synechococcus) are non-pathogenic for plants, animal and humans and are not plant pests under the Plant Protection Act, and therefore are not regulated articles under 7 CFR Part 340. A copy of AHIS' response letter has been included herewith as a supporting document.
In November 2009, the Environmental Protection Agency confirmed that, based on the containment measures adopted in Algenol's R&D activities in compliance with 40 CFR 725.234, there is no need to submit a TSCA application for the research to be conducted under those containment measures, which includes the research at the Florida facility and the planned integrated biorefinery in Freeport, TX.
On February 23, 2010 the Transgenic Aquatic Species Task force, a division of the Florida Department of Agriculture and Consumer Services, issued written authority for Algenol to use their hybrid algae for research and development purposes in order to investigate biofuel production at the Loxahatchee facility. A copy of the task force's written authorization has been uploaded as a supporting document.

3. Concerns or Issues

4. Is there enough information available to make a final NEPA determination for the entire award at this time? Yes: ☐ No: ☑
If no, please describe what additional information will be needed prior to making a final NEPA determination.

5. CX, EA, EIS Category
Appendix and Number

B3.6 Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis); small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible).

PART III. CONTACT INFORMATION

DOE Project Officer: Sterner, Christy **Date:** 2/26/2010 **EERE Office:** Golden Field Office

Email: christy.sterner@go.doe.gov **Phone:** 303-275-4720 **Fax:** 303-275-4753

PMC-
EF1

(2/06/02)

U.S. DEPARTMENT OF ENERGY

EERE PROJECT MANAGEMENT CENTER

ENVIRONMENTAL CHECKLIST
(To Be Completed by Potential Recipient)

PART I: General Information **DOE Project Officer:** Christy Sterner **Date:** 1/4/2010

Project Title: Pilot-Scale Integrated Biorefinery Operations for Producing Ethanol from Hybrid Algae **ST:** FL

Organization Name: Algenol Biofuels Inc.

Solicitation Number: DE-FOA-0000096 Award No: DE-EE0002867

1. Please describe the intended use of DOE funding in your proposed project. For example, would the funding be applied to the entire project or only support a phase of the project? Describe the activity as specifically as possible, i.e. planning, feasibility study, design, data analysis, education or outreach activities, construction, capital purchase and/or equipment installation or modification. If the project involves construction, also describe the operation of the completed facility/equipment.

This EF1 addresses the tasks associated with completing Phase 1 of Algenol Biofuels' Integrated Biorefinery Project ("Phase 1"), which will include the following tasks:

REDACTED
EXEMPTION 4

REDACTED
EXEMPTION 4

2. Does any part of your project require review and/or permitting by any other federal, state, regional, local, environmental, or regulatory agency? ☑ Yes ☐ No

3. Has any review (e.g., NEPA documentation, permits, agency consultations) been completed?
☑ Yes ☐ No If yes, is a finding or report available and how can a copy be obtained?

Under the 1986 Coordinated Framework for Regulation of Biotechnology, either the U.S. Department of Agriculture (USDA) or the U.S. Environmental Protection Agency (EPA) would be responsible for regulating the use and management of our hybrid algae. Also, the state of Florida requires that our facility in Loxahatchee, FL satisfy certain permitting requirements as an aquaculture facility.

On March 3, 2009 Algenol submitted a letter and other materials to the Biotechnology Regulatory Services of the Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture, with detailed information and descriptions regarding various microorganisms and transformation and the intended use of the same. After reviewing the information, APHIS determined on November 4, 2009 that the specified strains of Cyanobacteria are non-pathogenic for plants, animal and humans and are not plant pests under the Plant Protection Act, and therefore are not regulated articles under 7 CFR Part 340. A copy of AHIS' response letter has been included herewith as a supporting document.

Algenol voluntarily contacted the Environmental Protection Agency in June 2009 to confirm the status of R&D work under the Toxic Substances Control Act (TSCA) and implementing EPA regulation for microorganisms. After reviewing detailed information provided by Algenol, the EPA confirmed in November 2009 that, based on the containment measures adopted in our R&D activities in compliance with 40 CFR 725.234, there is no need to submit a TSCA application for the research to be conducted under those containment measures, which includes the research at our Florida facility and the planned integrated biorefinery in Freeport, TX.

The Loxahatchee facility has been licensed by the State of Florida as an aquaculture facility for nearly two years, is operated as a zero discharge facility, and at all times has operated in compliance with Florida's Aquaculture Best Management Practices. Since establishing our Loxahatchee facility, Algenol has had on-going communication with the Florida Department of Aquaculture to ensure compliance with all relevant rules and regulations. Most recently, we submitted materials, including the favorable responses from APHIS and the EPA, in support of our application to culture, for R&D purposes, hybrid algae. On February 23, 2010 the Transgenic Aquatic Species Task force, a division of the Florida Department of Agriculture and Consumer Services, issued written authority for Algenol to use our hybrid algae for research and development purposes