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					
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**
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					

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
Exemption 4	Exemption 4		
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)

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						
Membrabe Technology and Research, Inc.						

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
		Totals	Exemption 4			

Total Project Cost: $Exemption 4

Cost Share Percent of Award: Exemption 4%

Additional Explanations/Comments (as necessary)

STATEMENT OF PROJECT OBJECTIVES

Algenol Biofuels Inc.

Recovery Act: Integrated Pilot-Scale Biorefinery for Producing Ethanol from Hybrid Algae

A. PROJECT OBJECTIVES

1. Demonstrate the commercial potential of DIRECT TO ETHANOL™ technology by building a pilot-scale DIRECT TO ETHANOL™ integrated biorefinery.

2. Operate a pilot-scale DIRECT TO ETHANOL™ integrated biorefinery that uses approximately 2 tonnes per day of carbon dioxide from industrial emissions as the feedstock for making ethanol.

3. Implement an integrated biorefinery project that will immediately create or save more than 300 well-paying high-tech jobs in Florida.

4. Assess the economic and environmental impact of a new breakthrough energy technology that could eventually create billions of dollars of economic value and thousands of new well-paying jobs while consuming large quantities of carbon dioxide from industrial emissions, displacing petroleum, and moving the U.S. toward energy independence.

5. Assemble a consortium of private industry, federal laboratories, and academic institutions that will contribute to the development, construction, operation and optimization of Algenol's pilot-scale integrated biorefinery and can contribute to future improvements in DIRECT TO ETHANOL™ technology.

B. PROJECT SCOPE

The DOE Office of Energy Efficiency and Renewable Energy (EERE) has established performance goals. Among these goals are to: 1) dramatically reduce, or even end, dependence on imported oil; and 2) spur the creation of the domestic bio-industry. To that end, the Office of the Biomass Program is offering to fund integrated biorefinery projects under this FOA entitled "Demonstration of Integrated Biorefinery Operations." The FOA lists three main criteria for selection: 1) technical merit and rationale; 2) credible economics and competitive advantages that justify an award; and 3) knowledge and experience in project management.

Algenol and its collaborators have collectively prepared a project that is responsive to the selection criteria as detailed below.

Exemption 4

C. TASKS TO BE PERFORMED

Exemption 4

Exemption 4

Exemption 4

Exemption 4

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C. TASKS TO BE PERFORMED

Exemption 4

Comment [c1]: Exemption 5 (deliberative process)

Exemption 4

Comment [c2]: Exemption 5 (deliberative process)

Exemption 4

Exemption 4

Exemption 5 (deliberative process)

Comment [c3]:

STATEMENT OF PROJECT OBJECTIVES

Algenol Biofuels Inc.

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Exemption 4

Exemption 4

Exemption 4

Exemption 4

PMC 120.1
(2/08)

U.S. DEPARTMENT OF ENERGY
GOLDEN FIELD OFFICE

FINANCIAL ASSISTANCE COMBINED COST/TECHNICAL EVALUATION AND NEGOTIATION MEMORANDUM

SECTION I - GENERAL INFORMATION

This technical evaluation/negotiation memorandum will be prepared jointly by the assigned DOE/Golden OCPM AND OAFA personnel, to document the specific action being evaluated and supported. Each office is responsible for certain sections of this document. The assigned OCPM and OAFA personnel responsible for the action will both sign this document upon its completion, demonstrating their agreement on its contents.

1. Recipient: Algenol Biofuels Inc.

2. Grant/Cooperative Agreement No.: EE0002867 Modification No. 005
   Requisition No: 11EE003480
   Project Title: Recovery Act: Integrated Pilot-Scale Biorefinery for Producing Ethanol from Hybrid Algae

3. Type of Action: ☐ New Award ☐ Renewal ☐ Continuation ☒ Revision
   Description of this Action: (NOTE: Indicate what is addressed by this Action only):
   The purpose of this action is to revise the scope and budget for Budget Period 1 (BP1) for Algenol Biofuels' project entitled, "Recovery Act: Pilot-Scale Integrated Biorefinery for Producing Ethanol from Hybrid Algae" (DE-EE0002867). Additional tasks and funding from BP2 are being moved to BP1. The BP1 total budget is now Exemption 4; $15,587,035 of which is the federal portion and Exemption 4 in cost share.

4. Award type, as determined at Procurement Strategy Meeting (for new awards): ☐ Grant ☒ Cooperative Agreement
   If Cooperative Agreement, provide the specifics of the Substantial Involvement. (Note: This language will be used in the Substantial Involvement provision of the award.):
   The Substantial Involvement Provision is not changing from what is currently in the award.

5. New/Revised Project Period for this Award: From: 01/29/2010 To: 12/31/2014
   New/Revised Budget Period 1 for this Award: From: 01/29/2010 To: 09/30/2011
   New/Revised Budget Period 2 for this Award: From: 10/01/2011 To: 12/31/2014

6. Compliance Assessment (skip if new award):
   a. Deliverables
      The Recipient is current in submitting required reports: ☒ Yes ☐ No
      If no, identify the delinquent report(s), indicate what action(s) have been taken to remedy the situation, and identify what further action(s) are necessary, if any:
      N/A
   b. Financial
      The Recipient is current in meeting the cost share requirement: ☒ Yes ☐ No
      If no, indicate what action(s) have been taken to remedy the situation and validate why this new action should proceed:
      N/A

7. Check the applicable box for Funding Appropriation: ☒ Energy and Water ☐ Other _____

8. Check the applicable box for Statutory Authority:
   ☒ 109-58, Energy Policy Act 2005
   ☐ 110-140, Energy Independence and Security Act 2007
   ☒ 111-5, Recovery Act (2009)
   ☐ Other: _____

9. Per 10 CFR 600, the preferred payment method for State/Local Governments, Institutions of Higher Education, Hospitals, or Other Non-Profit Organizations is **Advance**. The preferred Payment Method for For-Profit organizations is **Reimbursement**. If the preferred payment method is not planned for a new award, provide an explanation below. Also explain below if the payment method for the award is being changed by this action.

The recipient is receiving ARRA funds and will continue to be on the ACH payment method to monitor their funds to ensure costs outside of Budget Period 1 are not charged to the award.

10. Is the proposed Recipient on the debarred or suspended list? Yes ☐ No ☐
Are any of the proposed subrecipients/subcontractors on the debarred or suspended list? Yes ☐ No ☐
Is the Project Director on the debarred or suspended list? Yes ☐ No ☐
If yes for either response above, award cannot be made without obtaining a waiver. See attached waiver.
The review was conducted on the Internet on _____ (Include Printout in permanent STRIPES file)
(Date)

11. A risk determination has been completed on the PMC Form 460.2 Yes ☐ N/A ☐

12. Negotiation:

	Government Negotiator(s)		Recipient Negotiator(s)	
	Name	**Organization**	**Name**	**Position**
1.	Molly Hames	Contract Specialist	Dr. Craig Smith	COO
2.	Christy Sterner	Project Officer	Pat Ahlm	Assistant Project Manager
3.	Christine English	Navarro Project Engineer	Dax Denman	Assistant Project Manager

SECTION II – NEGOTIATION SUMMARY

1. Please record any significant application or budget submissions that resulted in a revised budget in the Negotiation History Table below (including SF424A, budget justifications, e-mails, etc.):

Application/Budget Submission	Reference Document(s)	Date of Submission	Summary of Change
	123.1, SOPO, 424A	3/7/2011	BP2 costs are being moved into BP1 to cover additional BP1 activities.
Revision #1	123.1	3/28/2011	Personnel, equipment and other direct cost sections were updated.
Final	123.1	3/31/2011	The travel section was updated.

2. Complete Budget Table below (only include the original budget and final negotiated costs – the Percent of Total Negotiated Budget will calculate automatically)
Note: List proposed amounts by category even if there are no differences in the dollar amount.

Element of Cost	Original BP1 Approved Costs (002 Mod)	Final BP1 Approved Costs (005)	Percent of Total Negotiated Budget	Fringe Benefits and Indirects	
				Proposed Rate	Negotiated Rate
Personnel Fringe Benefits Travel Equipment Supplies Contractual Construction Other Total Direct Charges Indirect Charges	Exemption 4				
TOTAL					
Program Income	$0	$0	0%		
DOE Share (non-FFRDC)	$9,896,607	$15,162,555	Exemption 4		
DOE Share (FFDRC)	$424,480	$424,480			
Total DOE Share	$10,321,087	$15,587,035			
Non-Federal Cost Share	Exemption 4				

SEE ATTACHED SF 424A FOR BUDGET PERIOD BREAKDOWN

3. Total Allowable Adjustment without Concurrence from the Selection Official per the Selection Statement: 10%
Actual Total Adjustment based on Budget Table Above: 0%
Total Project Costs have not changed from Selection Statement – these are BP1 costs only.
Is the original budget the same as the negotiated budget: ☐ Yes ☒ No

If No, please check all boxes that apply:
☒ Change in the Project Scope
☐ Changes due to Time Delays
☐ Math Errors in Budget
☐ Changes in Indirect/Fringe Costs Caused Changes in Direct Costs or Total Project Costs
☐ Indirect/Fringe Rates incorrectly applied
☐ Other (explain) _____

4. Briefly describe and explain any substantial change(s) to the original Statement of Project Objectives submitted by the recipient:

Project Officer Commentary: The purpose of this action is to add tasks to BP1 that were previously slated for BP2. The addition of the six tasks is associated with corresponding changes in the budget that are detailed in the technical evaluation below. The revised scope is consistent with acceptable and previously approved BP1 activities.

Additional Task Element	Existing Related Task	Rationale for scope change
A.18.1, Continued Growth in Salt Water	A.12.1: On-going demo of organism performance at 4500L scale in saltwater, outdoors	The primary purpose of this element is to continue on-going demonstration of organism performance at 4500L scale in saltwater outdoors. Moving additional funding into BP1 to continue activities associated with this task will allow Algenol to demonstrate that the selected organism meets required performance metrics with respect to culture longevity and ethanol production
A.18.2, Ongoing Flexible Film Development	A.3: Flexible Film Photobioreactor Development; A.16: Continued flexible film photobioreactor evaluation	The primary purpose of this element is to continue development of commercial scale flexible film photobioreactor systems. Moving additional funding into BP1 to cover activities associated with this task will allow Algenol to continue field testing the fully integrated photobioreactor bags.
A.18.3, Biologic Process Improvement		The primary purpose of this task is to continue evaluation and implementation of improvements in the biological and engineering systems. Moving funds into BP1 to cover these activities will allow Algenol to develop proper SOPs to implement and integrate necessary Biorefinery operations.
A.18.4, On-going Program Management	A.9 Program Management of Extended DOE Phase 1 Activities; A.17: Program Management BP1	Funding for program management activities is necessary for continuing all project efforts.
A.18.5, Final Design Deliverables	A.13 Initiate architect/EPC firm associated fees	The primary purpose of this element is to further vet and utilize final design specification for the various aspects of the project in order to establish better construction plans and deliverables. Moving additional funding into BP1 to cover activities associated with this task will allow Algenol to solicit a greater number of bids from a more diverse list of vendors and service providers for several elements of the project thereby ensuring an appropriate balance of quality and value.

SECTION III – TECHNICAL EVALUATION SUMMARY

A. For each cost category, the Project Officer and the Specialist will complete his/her Technical Evaluation of the Negotiated Costs to confirm that they are all reasonable, allowable, and allocable. Additional comments should be added as necessary and as indicated below.

1. Personnel:
Total Negotiated Personnel Costs: $Exemption 4 Not Applicable, the recipient did not propose personnel costs: ☐

Project Officer:
Original budget: Exemption 4
Revised budget: $
The labor hours proposed in the negotiated budget are reasonable for the scope of work: ☒

The types of labor and labor mix proposed in the negotiated budget is reasonable: ☒

The proposed labor rates are reasonable: ☒

The personnel budget has been substantially increased for BP1 under this modification to the award. Specifically, the personnel costs have increased from $Exemption 4(approved in the 002 modification) to Exemption 4. The increased funding is a result of the additional tasks being incorporated into BP1 for Task A.18 as well as changes to the originally approved tasks (A.1- A.11) and changes to the tasks that were approved to be brought into BP1 that did not require additional funds (A.12-A.17).

A summary of the changes to the budget that were made to the originally approved tasks is provided here (A.1-A.11): Based on the fact that BP1 is nearing completion, the changes associated with these personnel tasks for these tasks are most likely due to actual costs being reflect in the current budget as opposed to the projected costs that were included in the previously approved budget. Some of these rates have changed slightly from the original budget; however, the rates for each personnel type have been included and are reasonable for the scope of work being performed.

- Task A.1 (Appoint Algenol/Dow project team) was originally budgeted to require Exemption 4in personnel costs and is now projected to require only Exemption 4. The only personnel required to complete this task include regulatory/legal personnel, the Principle Investigator, and an Engineering/Construction Manager.
- Task A.2 (Organism development) was originally budgeted to required $Exemption 4 in personnel costs and is now projected to require only Exemption 4. The reduced funding for this task is mainly due to a decrease in the costs associated with the scientists working on the task.
- Task A.3 (Flexible film photobioreactor material) was originally budgeted to required Exemption 4 in personnel costs and is now projected to require Exemption 4. The increased funding for this task is mainly due to the addition of a lab technician as well as increased in the number of hours that the senior engineer will spend on this task.
- Task A.4 (Process engineering) was originally budgeted to require Exemption 4 in personnel costs and is now projected to require only Exemption 4. The decreased funding for this task is mainly due to a significant decrease in the number of hours that the senior engineers will spend working on this task.
- Task A.5 (Architect search, site selection, design and construction planning) was originally budgeted to require Exemption 4 in personnel costs and is now projected to require only Exemption 4. The decreased funding for this task is mainly due to a significant decrease in the number of hours that the lab technician and the principle scientist will spend on the task.
- Task A.6 (NEPA) was originally budgeted to requireExemption 4in personnel costs and is now projected to require Exemption 4. The increased funding is due to additional hours required by regulatory and legal personnel to complete the task.
- Task A.7 (Regulatory submission and approval) was originally budgeted to require Exemption 4 in personnel costs and is now projected to require Exemption 4. The decreased funding is due to a reduction in the number of hours that both the regulatory/legal personnel and the project managers will be required to work to complete the task.
- Task A.8 (Life Cycle Analysis) was not included in the original budget but has been projected to requireExemption 4 in personnel costs in the revised budget. One principle scientist will be working on this task.
- Task A.9 (Program Management) was originally budgeted to require Exemption 4 in personnel costs and is now projected to require $Exemption 4.This increased funding is due to an increase in the number of hours that the project managers, principle investigator, senior program manager, engineering construction manager, and project account will spend on this task.

- Task A.10 (Phase I gate review) was originally budgeted to require Exemption 4 in personnel costs and this is now expected to cost Exemption 4. The increased funding allocated for this task is due to the incorporation of an R&D liaison into this task.
- Task A.11 (Pre-Award Lookback) was originally budgeted at Exemption 4 in personnel costs. The revised budget now reflects that there are $0 in personnel costs associated with the pre-award lookback. However, these costs still remain at the original Exemption 4 but the recipient, in this revised budget, has broken these costs down into the various tasks that they are relevant to. For example, one of the senior project manager's time was originally captured in the Exemption 4 total lookback costs. This time is now captured under the program management task instead.

A summary of the changes to the budget that resulted from additional tasks being incorporated into BP1 is provided here (A.12-A.17): The additional tasks that were brought into BP1(A.12-A.17) that are described below occurred in modification 004 and did not require additional funding from what had been originally approved in modification 002. However, to ensure that these costs are reasonable, a thorough evaluation has been provided:

- Task A.12 (Demonstrate growth in salt water) is projected to require Exemption 4 in personnel costs. These costs include a principle scientist, several scientists, several research associates, a lab technician, and a senior scientist that will be working on the task. Based on the basic research nature of this task, these costs and the associated rates for each personnel type are reasonable.
- Task A.13 (Architect/Engineering) is projected to require Exemption 4 in personnel costs. These costs include one senior engineer that will spend less than half of a week on this task. As this is an extension of an original task (A.5), these low costs are reasonable.
- Task A.14 (Final Design Specs) is projected to require Exemption 4 in personnel costs. These costs will include one engineer and one senior engineer that will be working on the task. The rates and number of hours these people will spend on this task is reasonable considering this task is also an extension of an original task (A.5).
- Task A.15 (Plant Personnel Search) does not have any projected personnel costs.
- Task A.16 (On-going Flex Film Development) is projected to require Exemption 4 in personnel costs. These costs will include one principle scientist, one engineer, one scientist, several research associates and lab technicians, one senior engineer, and one senior scientist. The rates and number of hours these people will spend on this task is reasonable considering this task is also an extension of an original task (A.3).
- Task A.17 (Program Management) is projected to require Exemption 4 in personnel costs. These costs include one regulatory/legal staffer, one engineer, several project managers, one principle investigator, one senior program manager, one engineering/construction manager, and one vice president of engineering. The rates and number of hours these people will spend on this task is reasonable considering this task is also an extension of an original task (A.9).

A summary of the changes to the budget that resulted from additional tasks being incorporated into BP1 is provided here (A.18):

- Task A.18 (Extension 2): As described in the table above where the changes to the SOPO have been outlined, there are several subtasks that have been added as part of Task A.18. These include tasks relating to A.18.1 Continued growth in salt water, A.18.2 Ongoing Flexible Film Development, A.18.3 Biologic Process Improvement, A.18.4 Ongoing Program Management, and A.18.5 Final Design Deliverables. A total of Exemption 4 has been budgeted for personnel that will be necessary to work on these subtasks. These tasks will require regulatory/legal personnel, several principle scientists, engineers, project managers, scientists, and research associates. These tasks will also require a lab technician, the principle investigator, a senior program manager, an engineering/construction manager, several senior engineers and scientists, and one vice president of engineering. The rates that are associated with these personnel are reasonable for the tasks that they will be working on.

Specialist: Negotiated labor rates are reasonable: ☐

2. Fringe Benefits:
Total Negotiated Fringe Benefit Costs: $Exemption 4 Not Applicable, the recipient did not propose fringe benefit costs: ☐

Specialist:
Original budget: Exemption 4
Revised budget: $

Does the Recipient have an approved rate agreement: ☐ Yes ☐ No

If Yes, List the Date of Rate Agreement: _____
Cite Federal Cognizant Agency: _____

If No, select one of the following:
☐ Rate proposal was reviewed by the Cost/Price Analyst and found to be reasonable, allowable, and allocable (attach Cost/Price Analyst Determination)

☐ Rate Proposal was reviewed by the Cost/Price Analyst for a previous award (attach Cost/Price Analyst Determination)
List Date of review: _____

☐ Specialist determined that rate was reasonable

☐ Other: _____

Please fill out the following table with the negotiated costs:

	Personnel	Total Cost	Fringe Rate	Cost
				$0
				$0
				$0
Total:				$0

3. Travel:
Total Negotiated Travel Costs: $Exemption 4 Not Applicable, the recipient did not propose travel costs: ☐

Project Officer:
Original budget: Exemption 4
Revised budget: $

The number and type of trips proposed in the negotiated budget are reasonable for the scope of work: ☒

The costs per trip proposed in the negotiated budget are reasonable: ☒

Is foreign travel included in the negotiated budget: ☐ Yes ☒ No (If yes, please fill out the following table with the negotiated costs below)

Location	Total Cost	Rationale for Foreign Travel

Travel has been included in the budget for trips that have incurred during BP1. No additional travel costs are expected due to the location site change from TX to FL. Thus, the travel that has been budgeted is for actual expenses incurred. This includes Exemption 4

☐ Specialist concurs.

4. Equipment:
Total Negotiated Equipment Costs: $Exemption 4 Not Applicable, the recipient did not propose equipment costs: ☐

Project Officer:
Original budget: $Exemption 4

Revised budget: $Exemption 4

The type(s) of equipment proposed in the negotiated budget is/are reasonable for the scope of work: ☒

The cost of equipment proposed in the negotiated budget are reasonable: ☒

Is there any proposed equipment with a total cost exceeding $50,000: ☒ Yes ☐ No (If yes, please fill out the following table with the negotiated costs and basis of cost, i.e. historical price or vendor quote)

Equipment	Total Cost	Purpose of Equipment	Basis of Cost
Exemption 4			

Equipment that has been budgeted for BP1 includes a Exemption 4

☐ Specialist concurs.

5. Supplies:
Total Negotiated Supplies Costs: $0 Not Applicable, the recipient did not propose supplies costs: ☐

Project Officer:
The proposed contractual costs have not changed from the originally approved budget.
☐ Specialist concurs.

6. Contractual:
Total Negotiated Contractual Costs: $Exemption 4 Not Applicable, the recipient did not propose contractual costs: ☐

Project Officer:
Original budget: Exemption 4
Revised budget: $

The subrecipients proposed in the negotiated budget are appropriate for the scope of work: ☒

The contractual costs proposed in the negotiated budget are reasonable: ☒ Yes

The total BP1 subrecipient costs have been reduced to $Exemption 4 from the original approved budget (Exemption 4). The BP1 costs associated with the subrecipients Georgia Tech (Exemption 4), Membrane Technology and Research (Exemption 4), and The Dow Chemical Company were previously evaluated and approved in the 002 modification to the award. The overall BP1 budget for both Georgia Tech and the Dow Chemical company has been reduced compared to what was previously approved in the 002 modification. Because the originally approved amount (in 002) is greater than the amount that is currently budgeted for these subrecipients, an evaluation of these costs has not been provided.

Comment [c1]: Exemption 5 (deliberative process)

The vendor costs for BP1 have been reduced from $Exemption 4 to $Exemption 4. These changes resulted from a number of revisions to the budgets for the various vendors that have been or will be utilized in BP1. A summary of these changes is presented in the table below.

Vendor Name	Purpose	Originally Approved BP1 Budget (002)	Final approved BP1 budget (005)
Exemption 4			

* GA Tech is included in both the subrecipient and vendor section. The recipient has provided the following explanation: Algenol has contracted with GA Tech to provide support on the following items related to the DOE contract:

a.)Advanced separation systems for ethanol production from algae

b.) Life cycle assessment of Ethanol production from algae.

Prior to having a "Sub-award" in place, GA Tech began working on the assigned tasks and incurred expenses. Due to the

internal reporting segregation, (i.e. Business grants vs. Government grants) these grants are handled by 2 different departments. Thus, the expenses incurred during this period were in the Business not Government grant department. Due to this internal issue at Georgia Tech, Algenol recorded the expenses as "vendor" expenses vs. "sub-recipient" expenses during that time to avoid a disconnect between the reporting required under ARRA from Algenol and GA Tech.

No changes were made to the budget or the work performed by NREL ($424,480).

☐ Specialist concurs.

7. Construction:
Total Negotiated Construction Costs: $0 Not Applicable, the recipient did not propose construction costs: ☒

Project Officer:
The proposed construction costs have not changed from the originally approved budget.

The type of construction proposed in the negotiated budget is appropriate for the scope of work: ☐

The construction costs proposed in the negotiated budget are reasonable: ☐

☐ Specialist concurs.

8. Other Direct Costs:
Total Negotiated Other Direct Costs: $Exemption 4 Not Applicable, the recipient did not propose other direct costs: ☐

Project Officer:
Original budget: Exemption 4
Revised budget: $

The types of other direct costs proposed in the negotiated budget are reasonable for the scope of work: ☒

The costs proposed in the negotiated budget for other direct costs are reasonable for the scope of work: ☒

Exemption 4

All costs are based on actual costs and are reasonable for the scope of work.

☐ Specialist concurs.

9. Indirect Charges:
Total Negotiated Indirect Costs: $Exemption 4 Not Applicable, the recipient did not propose indirect costs: ☐

Specialist:
Original budget: Exemption 4
Revised budget: $

Does the Recipient have an approved rate agreement: ☐ Yes ☐ No

If Yes, List the Date of Rate Agreement: _____
Cite Federal Cognizant Agency: _____

If No, select one of the following:
☐ Rate proposal was reviewed by the Cost/Price Analyst and found to be reasonable, allowable, and allocable (attach Cost/Price Analyst Determination)

☐ Rate Proposal was reviewed by the Cost/Price Analyst for a previous award (attach Cost/Price Analyst Determination)
List Date of review: _____

☐ Specialist determined that rate was reasonable

☐ Other: _____

Please fill out the following tables with the negotiated costs:

10. Cost Share:

Project Officer:
Project is a: ☒ Research ☒ Development ☐ Demonstration ☐ Other: (Explain)

The minimum recipient's cost share required for this award is: Exemption 4

The recipient proposed cost share for this award is: Exemption 4

Does the proposed cost share meet the minimum requirement: ☒ Yes ☐ No

Specialist:
Is the proposed cost share: ☒ Cash ☐ In-kind

All proposed cost share for Budget period 1 is proposed as cash contributions from Algenol ($Exemption 4), DOW (Exemption 4), and Membrane Technology and Research, Inc. (Exemption 4). Third Party cost share commitment letters were obtained previously.

B. The following Project Officer and Specialist evaluation and negotiation commentary and recommendations address their agreement on all additional considerations for this award.

1. Please list any other special provisions agreed upon for inclusion in this award and describe the rationale for their inclusion below.

The revised SOPO will replace the existing SOPO.

2. If a negotiation strategy, or strategies, is/are specified in the selection statement, provide a discussion below of how this was addressed and resolved.

Exemption 4% of Total Project Costs must be kept aside from the project budget as contingency for the project. This contingency is applicable to total project costs (BP2 forward) and will be verified by the Project Officer as requested and discussed in the Contingency Appendix that will be attached to the award. Contingency will be reported and tracked as well to address the Exemption requirement per the Selection Statement.

3. Any other comments or concerns of the Project Officer and/or Specialist for this award, and the recommended approach to mitigating them, will be explained and addressed below.

4. Is this a Recovery Act award? ☒ Yes ☐ No
   - If Yes, does the Buy American Act apply (see applicability below)? ☐ Yes ☒ No
   - If Yes, does Davis Bacon Act apply (see applicability below)? ☒ Yes ☐ No

If the answer to either the Buy American Act or Davis Bacon Act questions is Yes, provide a short discussion below on: 1) the type of entity; 2) what applies; Davis Bacon, Buy American, or both; 3) whether it applies to the prime, subrecipient, or both; and 4) work to be performed that requires applicability of Buy American and/or Davis Bacon.

Algenol Biofuels Inc. includes construction activities, and therefore is subject to the Davis Bacon Act (DBA). DBA will apply to both the Recipient and their subrecipients, throughout the entirety of the project (Budget Periods 1 & 2).

SECTION IV – RECOMMENDATIONS/APPROVAL

Signatures of the Project Officer and Specialist, indicating their recommendations, as indicated below, will occur after their mutual agreement on the contents of this document, and before the review and approval process for the action. The signatures below indicate that the costs in the negotiated budget are reasonable, allowable, and allocable.

1. Technical Recommendation

The project costs are acceptable and should be considered for a financial assistance award. The resources have been reviewed relative to the Statement of Project Objectives and are found to be reasonable, except as previously noted herein.

_____ _____
Signature Date

Christy Sterner
Project Officer

2. Specialist Recommendation

In view of the above analysis, the technical evaluation, and considering all known factors, this Award is recommended.

_____ _____
Signature Date

Molly Hames
Grants and Agreements Specialist

3. Contracting Officer Approval

☒ I concur with the above recommendation and have determined that the Recipient is responsible. I consider this Award to be in the best interest of the Government, and approve the award documents.

☐ In view of the analysis, the technical evaluation, and considering all known factors, I have determined that the Recipient is responsible. This Award is considered to be in the best interest of the Government and approved.

_____ _____
Signature Date

Michael A. Schledorn
Contracting Officer

DE-EE0002867. 005
Req# 11EE003480

PMC 120.1
(2/08)

U.S. DEPARTMENT OF ENERGY
GOLDEN FIELD OFFICE

FINANCIAL ASSISTANCE COMBINED COST/TECHNICAL EVALUATION AND NEGOTIATION MEMORANDUM

SECTION I - GENERAL INFORMATION

This technical evaluation/negotiation memorandum will be prepared jointly by the assigned DOE/Golden OCPM AND OAFA personnel, to document the specific action being evaluated and supported. Each office is responsible for certain sections of this document. The assigned OCPM and OAFA personnel responsible for the action will both sign this document upon its completion, demonstrating their agreement on its contents.

1. Recipient: Algenol Biofuels Inc.

2. Grant/Cooperative Agreement No.: EE0002867 Modification No. 005
   Requisition No: 11EE003480
   Project Title: Recovery Act: Integrated Pilot-Scale Biorefinery for Producing Ethanol from Hybrid Algae

3. Type of Action: ☐ New Award ☐ Renewal ☐ Continuation ☒ Revision
   Description of this Action: (NOTE: Indicate what is addressed by this Action only):
   The purpose of this action is to revise the scope and budget for Budget Period 1 (BP1) for Algenol Biofuels' project entitled, "Recovery Act: Pilot-Scale Integrated Biorefinery for Producing Ethanol from Hybrid Algae" (DE-EE0002867). Additional tasks and funding from BP2 are being moved to BP1. The BP1 total budget is now $[Exemption 4]; $15,587,035 of which is the federal portion and [Exemption 4] in cost share.

Comment [c1]: Exemption 5 (deliberative process)

4. Award type, as determined at Procurement Strategy Meeting (for new awards): ☐ Grant ☒ Cooperative Agreement
   If Cooperative Agreement, provide the specifics of the Substantial Involvement. (Note: This language will be used in the Substantial Involvement provision of the award.):
   The Substantial Involvement Provision is not changing from what is currently in the award.

5. New/Revised Project Period for this Award: From: 01/29/2010 To: 12/31/2014
   New/Revised Budget Period 1 for this Award: From: 01/29/2010 To: 09/30/2011
   New/Revised Budget Period 2 for this Award: From: 10/01/2011 To: 12/31/2014

6. Compliance Assessment (skip if new award):
   a. Deliverables
      The Recipient is current in submitting required reports: ☒ Yes ☐ No
      If no, identify the delinquent report(s), indicate what action(s) have been taken to remedy the situation, and identify what further action(s) are necessary, if any:
      N/A
   b. Financial
      The Recipient is current in meeting the cost share requirement: ☒ Yes ☐ No
      If no, indicate what action(s) have been taken to remedy the situation and validate why this new action should proceed:
      N/A

7. Check the applicable box for Funding Appropriation: ☒ Energy and Water ☐ Other _____

8. Check the applicable box for Statutory Authority:
   ☒ 109-58, Energy Policy Act 2005
   ☐ 110-140, Energy Independence and Security Act 2007
   ☒ 111-5, Recovery Act (2009)
   ☐ Other: _____

9. Per 10 CFR 600, the preferred payment method for State/Local Governments, Institutions of Higher Education, Hospitals, or Other Non-Profit Organizations is **Advance**. The preferred Payment Method for For-Profit organizations is **Reimbursement**. If the preferred payment method is not planned for a new award, provide an explanation below. Also explain below if the payment method for the award is being changed by this action.

The recipient is receiving ARRA funds and will continue to be on the ACH payment method to monitor their funds to ensure costs outside of Budget Period 1 are not charged to the award.

10. Is the proposed Recipient on the debarred or suspended list? Yes ☐ No ☐
Are any of the proposed subrecipients/subcontractors on the debarred or suspended list? Yes ☐ No ☐
Is the Project Director on the debarred or suspended list? Yes ☐ No ☐
If yes for either response above, award cannot be made without obtaining a waiver. See attached waiver.
The review was conducted on the Internet on _____ (Include Printout in permanent STRIPES file)
(Date)

11. A risk determination has been completed on the PMC Form 460.2 Yes ☐ N/A ☐

12. Negotiation:

	Government Negotiator(s)		Recipient Negotiator(s)	
	Name	**Organization**	**Name**	**Position**
1.	Molly Hames	Contract Specialist	Dr. Craig Smith	COO
2.	Christy Sterner	Project Officer	Pat Ahlm	Assistant Project Manager
3.	Christine English	Navarro Project Engineer	Dax Denman	Assistant Project Manager

Comment [c2]: Exemption 5 (deliberative process)

SECTION II – NEGOTIATION SUMMARY

1. Please record any significant application or budget submissions that resulted in a revised budget in the Negotiation History Table below (including SF424A, budget justifications, e-mails, etc.):

Application/Budget Submission	Reference Document(s)	Date of Submission	Summary of Change
	123.1, SOPO, 424A	3/7/2011	BP2 costs are being moved into BP1 to cover additional BP1 activities.
Revision #1	123.1	3/28/2011	Personnel, equipment and other direct cost sections were updated.
Final	123.1	3/31/2011	The travel section was updated.

2. Complete Budget Table below (only include the original budget and final negotiated costs – the Percent of Total Negotiated Budget will calculate automatically)
Note: List proposed amounts by category even if there are no differences in the dollar amount.

Element of Cost	Original BP1 Approved Costs (002 Mod)	Final BP1 Approved Costs (005)	Percent of Total Negotiated Budget	Fringe Benefits and Indirects	
				Proposed Rate	Negotiated Rate
Personnel Fringe Benefits Travel Equipment Supplies Contractual Construction Other Total Direct Charges Indirect Charges	Exemption 4				
TOTAL					
Program Income	$0	$0	0%		
DOE Share (non-FFRDC)	$9,896,607	$15,162,555	Exemption 4		
DOE Share (FFDRC)	$424,480	$424,480			
Total DOE Share	$10,321,087	$15,587,035			
Non-Federal Cost Share	Exemption 4				

SEE ATTACHED SF 424A FOR BUDGET PERIOD BREAKDOWN

3. Total Allowable Adjustment without Concurrence from the Selection Official per the Selection Statement: 10%
Actual Total Adjustment based on Budget Table Above: 0%
Total Project Costs have not changed from Selection Statement – these are BP1 costs only.
Is the original budget the same as the negotiated budget: ☐ Yes ☒ No

If No, please check all boxes that apply:
☒ Change in the Project Scope
☐ Changes due to Time Delays
☐ Math Errors in Budget
☐ Changes in Indirect/Fringe Costs Caused Changes in Direct Costs or Total Project Costs
☐ Indirect/Fringe Rates incorrectly applied
☐ Other (explain) _____

4. Briefly describe and explain any substantial change(s) to the original Statement of Project Objectives submitted by the recipient:

Project Officer Commentary: The purpose of this action is to add tasks to BP1 that were previously slated for BP2. The addition of the six tasks is associated with corresponding changes in the budget that are detailed in the technical evaluation below. The revised scope is consistent with acceptable and previously approved BP1 activities.

Additional Task Element	**Existing Related Task**	**Rationale for scope change**
A.18.1, Continued Growth in Salt Water	A.12.1: On-going demo of organism performance at 4500L scale in saltwater, outdoors	The primary purpose of this element is to continue on-going demonstration of organism performance at 4500L scale in saltwater outdoors. Moving additional funding into BP1 to continue activities associated with this task will allow Algenol to demonstrate that the selected organism meets required performance metrics with respect to culture longevity and ethanol production
A.18.2, Ongoing Flexible Film Development	A.3: Flexible Film Photobioreactor Development; A.16: Continued flexible film photobioreactor evaluation	The primary purpose of this element is to continue development of commercial scale flexible film photobioreactor systems. Moving additional funding into BP1 to cover activities associated with this task will allow Algenol to continue field testing the fully integrated photobioreactor bags.
A.18.3, Biologic Process Improvement		The primary purpose of this task is to continue evaluation and implementation of improvements in the biological and engineering systems. Moving funds into BP1 to cover these activities will allow Algenol to develop proper SOPs to implement and integrate necessary Biorefinery operations.
A.18.4, On-going Program Management	A.9 Program Management of Extended DOE Phase 1 Activities; A.17: Program Management BP1	Funding for program management activities is necessary for continuing all project efforts.
A.18.5, Final Design Deliverables	A.13 Initiate architect/EPC firm associated fees	The primary purpose of this element is to further vet and utilize final design specification for the various aspects of the project in order to establish better construction plans and deliverables. Moving additional funding into BP1 to cover activities associated with this task will allow Algenol to solicit a greater number of bids from a more diverse list of vendors and service providers for several elements of the project thereby ensuring an appropriate balance of quality and value.

SECTION III – TECHNICAL EVALUATION SUMMARY

A. For each cost category, the Project Officer and the Specialist will complete his/her Technical Evaluation of the Negotiated Costs to confirm that they are all reasonable, allowable, and allocable. Additional comments should be added as necessary and as indicated below.

1. Personnel:
Total Negotiated Personnel Costs: $Exemption 4 Not Applicable, the recipient did not propose personnel costs: ☐

Project Officer:
Original budget: Exemption 4
Revised budget: $
The labor hours proposed in the negotiated budget are reasonable for the scope of work: ☒

The types of labor and labor mix proposed in the negotiated budget is reasonable: ☒

The proposed labor rates are reasonable: ☒

The personnel budget has been substantially increased for BP1 under this modification to the award. Specifically, the personnel costs have increased from Exemption 4(approved in the 002 modification) to Exemption 4. The increased funding is a result of the additional tasks being incorporated into BP1 for Task A.18 as well as changes to the originally approved tasks (A.1- A.11) and changes to the tasks that were approved to be brought into BP1 that did not require additional funds (A.12-A.17).

A summary of the changes to the budget that were made to the originally approved tasks is provided here (A.1-A.11): Based on the fact that BP1 is nearing completion, the changes associated with these personnel tasks for these tasks are most likely due to actual costs being reflected in the current budget as opposed to the projected costs that were included in the previously approved budget. Some of these rates have changed slightly from the original budget; however, the rates for each personnel type have been included and are reasonable for the scope of work being performed.

- Task A.1 (Appoint Algenol/Dow project team) was originally budgeted to require Exemption 4 in personnel costs and is now projected to require only Exemption 4. The only personnel required to complete this task include regulatory/legal personnel, the Principle Investigator, and an Engineering/Construction Manager.
- Task A.2 (Organism development) was originally budgeted to required Exemption 4 in personnel costs and is now projected to require only Exemption 4. The reduced funding for this task is mainly due to a decrease in the costs associated with the scientists working on the task.
- Task A.3 (Flexible film photobioreactor material) was originally budgeted to required Exemption 4 in personnel costs and is now projected to require Exemption 4The increased funding for this task is mainly due to the addition of a lab technician as well as increased in the number of hours that the senior engineer will spend on this task.
- Task A.4 (Process engineering) was originally budgeted to require Exemption 4in personnel costs and is now projected to require onlyExemption 4The decreased funding for this task is mainly due to a significant decrease in the number of hours that the senior engineers will spend working on this task.
- Task A.5 (Architect search, site selection, design and construction planning) was originally budgeted to require Exemption 4in personnel costs and is now projected to require only Exemption 4The decreased funding for this task is mainly due to a significant decrease in the number of hours that the lab technician and the principle scientist will spend on the task.
- Task A.6 (NEPA) was originally budgeted to requireExemption 4in personnel costs and is now projected to require Exemption 4The increased funding is due to additional hours required by regulatory and legal personnel to complete the task.
- Task A.7 (Regulatory submission and approval) was originally budgeted to require Exemption 4in personnel costs and is now projected to require Exemption 4The decreased funding is due to a reduction in the number of hours that both the regulatory/legal personnel and the project managers will be required to work to complete the task.
- Task A.8 (Life Cycle Analysis) was not included in the original budget but has been projected to requireExemption 4 in personnel costs in the revised budget. One principle scientist will be working on this task.
- Task A.9 (Program Management) was originally budgeted to require Exemption 4in personnel costs and is now projected to require Exemption 4This increased funding is due to an increase in the number of hours that the project managers, principle investigator, senior program manager, engineering construction manager, and project account will spend on this task.

Comment [c3]: Exemption 5 (deliberative process)

Comment [c4]: Exemption 5 (deliberative process)

Comment [c5]: Exemption 5 (deliberative process)

Exemption 5 (deliberative process)

- Task A.10 (Phase I gate review) was originally budgeted to require Exemption 4 in personnel costs and this is now expected to cost Exemption 4 The increased funding allocated for this task is due to the incorporation of an R&D liaison into this task.
- Task A.11 (Pre-Award Lookback) was originally budgeted at Exemption 4 in personnel costs. The revised budget now reflects that there are $0 in personnel costs associated with the pre-award lookback. However, these costs still remain at the original Exemption 4 but the recipient, in this revised budget, has broken these costs down into the various tasks that they are relevant to. For example, one of the senior project manager's time was originally captured in the Exemption 4 total lookback costs. This time is now captured under the program management task instead.

A summary of the changes to the budget that resulted from additional tasks being incorporated into BP1 is provided here (A.12-A.17): The additional tasks that were brought into BP1(A.12-A.17) that are described below occurred in modification 004 and did not require additional funding from what had been originally approved in modification 002. However, to ensure that these costs are reasonable, a thorough evaluation has been provided:

- Task A.12 (Demonstrate growth in salt water) is projected to require Exemption 4 in personnel costs. These costs include a principle scientist, several scientists, several research associates, a lab technician, and a senior scientist that will be working on the task. Based on the basic research nature of this task, these costs and the associated rates for each personnel type are reasonable.
- Task A.13 (Architect/Engineering) is projected to require Exemption 4 in personnel costs. These costs include one senior engineer that will spend less than half of a week on this task. As this is an extension of an original task (A.5), these low costs are reasonable.
- Task A.14 (Final Design Specs) is projected to require Exemption 4 in personnel costs. These costs will include one engineer and one senior engineer that will be working on the task. The rates and number of hours these people will spend on this task is reasonable considering this task is also an extension of an original task (A.5).
- Task A.15 (Plant Personnel Search) does not have any projected personnel costs.
- Task A.16 (On-going Flex Film Development) is projected to require Exemption 4 in personnel costs. These costs will include one principle scientist, one engineer, one scientist, several research associates and lab technicians, one senior engineer, and one senior scientist. The rates and number of hours these people will spend on this task is reasonable considering this task is also an extension of an original task (A.3).
- Task A.17 (Program Management) is projected to require Exemption 4 in personnel costs. These costs include one regulatory/legal staffer, one engineer, several project managers, one principle investigator, one senior program manager, one engineering/construction manager, and one vice president of engineering. The rates and number of hours these people will spend on this task is reasonable considering this task is also an extension of an original task (A.9).

A summary of the changes to the budget that resulted from additional tasks being incorporated into BP1 is provided here (A.18):

- Task A.18 (Extension 2): As described in the table above where the changes to the SOPO have been outlined, there are several subtasks that have been added as part of Task A.18. These include tasks relating to A.18.1 Continued growth in salt water, A.18.2 Ongoing Flexible Film Development, A.18.3 Biologic Process Improvement, A.18.4 Ongoing Program Management, and A.18.5 Final Design Deliverables. A total of Exemption 4 has been budgeted for personnel that will be necessary to work on these subtasks. These tasks will require regulatory/legal personnel, several principle scientists, engineers, project managers, scientists, and research associates. These tasks will also require a lab technician, the principle investigator, a senior program manager, an engineering/construction manager, several senior engineers and scientists, and one vice president of engineering. The rates that are associated with these personnel are reasonable for the tasks that they will be working on.

Specialist: Negotiated labor rates are reasonable: ☐

2. Fringe Benefits:
Total Negotiated Fringe Benefit Costs: Exemption 4 Not Applicable, the recipient did not propose fringe benefit costs: ☐

Specialist:
Original budget: Exemption 4
Revised budget: $

Does the Recipient have an approved rate agreement: ☐ Yes ☐ No

If Yes, List the Date of Rate Agreement: _____
Cite Federal Cognizant Agency: _____

If No, select one of the following:
☐ Rate proposal was reviewed by the Cost/Price Analyst and found to be reasonable, allowable, and allocable (attach Cost/Price Analyst Determination)

☐ Rate Proposal was reviewed by the Cost/Price Analyst for a previous award (attach Cost/Price Analyst Determination)
List Date of review: _____

☐ Specialist determined that rate was reasonable

☐ Other: _____

Please fill out the following table with the negotiated costs:

	Personnel	Total Cost	Fringe Rate	Cost
				$0
				$0
				$0
Total:				$0

3. Travel:
Total Negotiated Travel Costs: $Exemption 4 Not Applicable, the recipient did not propose travel costs: ☐

Project Officer:
Original budget: Exemption 4
Revised budget: $

The number and type of trips proposed in the negotiated budget are reasonable for the scope of work: ☒

The costs per trip proposed in the negotiated budget are reasonable: ☒

Is foreign travel included in the negotiated budget: ☐ Yes ☒ No (If yes, please fill out the following table with the negotiated costs below)

Location	Total Cost	Rationale for Foreign Travel

Travel has been included in the budget for trips that have incurred during BP1. No additional travel costs are expected due to the location site change from TX to FL. Thus, the travel that has been budgeted is for actual expenses incurred.

Exemption 4

Comment [c7]: Exemption 5 (deliberative process)

☐ Specialist concurs.

4. Equipment:
Total Negotiated Equipment Costs: $Exemption 4 Not Applicable, the recipient did not propose equipment costs: ☐

Project Officer:
Original budget: $Exemption 4

Revised budget: $Exemption 4

The type(s) of equipment proposed in the negotiated budget is/are reasonable for the scope of work: ☒

The cost of equipment proposed in the negotiated budget are reasonable: ☒

Is there any proposed equipment with a total cost exceeding $50,000: ☒ Yes ☐ No (If yes, please fill out the following table with the negotiated costs and basis of cost, i.e. historical price or vendor quote)

Equipment	Total Cost	Purpose of Equipment	Basis of Cost
Exemption 4			

Exemption 4

Comment [c8]: Exemption 5 (deliberative process)

☐ Specialist concurs.

5. Supplies:
Total Negotiated Supplies Costs: $0 Not Applicable, the recipient did not propose supplies costs: ☐

Project Officer:
The proposed contractual costs have not changed from the originally approved budget.
☐ Specialist concurs.

6. Contractual:
Total Negotiated Contractual Costs: $Exemption 4 Not Applicable, the recipient did not propose contractual costs: ☐

Project Officer:
Original budget: Exemption 4
Revised budget: $

The subrecipients proposed in the negotiated budget are appropriate for the scope of work: ☒

The contractual costs proposed in the negotiated budget are reasonable: ☒ Yes

The total BP1 subrecipient costs have been reduced to$Exemption 4 from the original approved budget (Exemption 4). The BP1 costs associated with the subrecipients Georgia Tech (Exemption 4), Membrane Technology and Research (Exemption 4), and The Dow Chemical Company were previously evaluated and approved in the 002 modification to the award. The overall BP1 budget for both Georgia Tech and the Dow Chemical company has been reduced compared to what was previously approved in the 002 modification. Because the originally approved amount (in 002) is greater than the amount that is currently budgeted for these subrecipients, an evaluation of these costs has not been provided.

Comment [c9]: Exemption 5 (deliberative process)

The vendor costs for BP1 have been reduced from $Exemption 4 to $Exemption 4. These changes resulted from a number of revisions to the budgets for the various vendors that have been or will be utilized in BP1. A summary of these changes is presented in the table below.

Comment [c10]: Exemption 5 (deliberative process)

Vendor Name	Purpose	Originally Approved BP1 Budget (002)	Final approved BP1 budget (005)
Exemption 4			

* GA Tech is included in both the subrecipient and vendor section. The recipient has provided the following explanation: Algenol has contracted with GA Tech to provide support on the following items related to the DOE contract:

a.)Advanced separation systems for ethanol production from algae

b.) Life cycle assessment of Ethanol production from algae.

Prior to having a "Sub-award" in place, GA Tech began working on the assigned tasks and incurred expenses. Due to the

internal reporting segregation, (i.e. Business grants vs. Government grants) these grants are handled by 2 different departments. Thus, the expenses incurred during this period were in the Business not Government grant department. Due to this internal issue at Georgia Tech, Algenol recorded the expenses as "vendor" expenses vs. "sub-recipient" expenses during that time to avoid a disconnect between the reporting required under ARRA from Algenol and GA Tech.

No changes were made to the budget or the work performed by NREL ($424,480).

☐ Specialist concurs.

7. Construction:
Total Negotiated Construction Costs: $0 Not Applicable, the recipient did not propose construction costs: ☒

Project Officer:
The proposed construction costs have not changed from the originally approved budget.

The type of construction proposed in the negotiated budget is appropriate for the scope of work: ☐

The construction costs proposed in the negotiated budget are reasonable: ☐

☐ Specialist concurs.

8. Other Direct Costs:
Total Negotiated Other Direct Costs: $Exemption 4 Not Applicable, the recipient did not propose other direct costs: ☐

Project Officer:
Original budget: Exemption 4
Revised budget: $

The types of other direct costs proposed in the negotiated budget are reasonable for the scope of work: ☒

The costs proposed in the negotiated budget for other direct costs are reasonable for the scope of work: ☒

Exemption 4

All costs are based on actual costs and are reasonable for the scope of work.

☐ Specialist concurs.

9. Indirect Charges:
Total Negotiated Indirect Costs: Exemption 4 Not Applicable, the recipient did not propose indirect costs: ☐

Specialist:
Original budget: Exemption 4
Revised budget: $

Does the Recipient have an approved rate agreement: ☐ Yes ☐ No

If Yes, List the Date of Rate Agreement: _____
Cite Federal Cognizant Agency: _____

If No, select one of the following:
☐ Rate proposal was reviewed by the Cost/Price Analyst and found to be reasonable, allowable, and allocable (attach Cost/Price Analyst Determination)

☐ Rate Proposal was reviewed by the Cost/Price Analyst for a previous award (attach Cost/Price Analyst Determination)
List Date of review: _____

☐ Specialist determined that rate was reasonable

☐ Other: _____

Please fill out the following tables with the negotiated costs:

10. Cost Share:

Project Officer:
Project is a: ☒ Research ☒ Development ☐ Demonstration ☐ Other: (Explain)

The minimum recipient's cost share required for this award is: Exemption 4

The recipient proposed cost share for this award is: Exemption 4

Does the proposed cost share meet the minimum requirement: ☒ Yes ☐ No

Specialist:
Is the proposed cost share: ☒ Cash ☐ In-kind

All proposed cost share for Budget period 1 is proposed as cash contributions from Algenol (Exemption 4), DOW (Exemption 4), and Membrane Technology and Research, Inc. (Exemption 4). Third Party cost share commitment letters were obtained previously.

B. The following Project Officer and Specialist evaluation and negotiation commentary and recommendations address their agreement on all additional considerations for this award.

1. Please list any other special provisions agreed upon for inclusion in this award and describe the rationale for their inclusion below.

The revised SOPO will replace the existing SOPO.

2. If a negotiation strategy, or strategies, is/are specified in the selection statement, provide a discussion below of how this was addressed and resolved.

Exemption 4% of Total Project Costs must be kept aside from the project budget as contingency for the project. This contingency is applicable to total project costs (BP2 forward) and will be verified by the Project Officer as requested and discussed in the Contingency Appendix that will be attached to the award. Contingency will be reported and tracked as well to address Exemption 4 requirement per the Selection Statement.

3. Any other comments or concerns of the Project Officer and/or Specialist for this award, and the recommended approach to mitigating them, will be explained and addressed below.

4. Is this a Recovery Act award? ☒ Yes ☐ No
   - If Yes, does the Buy American Act apply (see applicability below)? ☐ Yes ☒ No
   - If Yes, does Davis Bacon Act apply (see applicability below)? ☒ Yes ☐ No

If the answer to either the Buy American Act or Davis Bacon Act questions is Yes, provide a short discussion below on: 1) the type of entity; 2) what applies; Davis Bacon, Buy American, or both; 3) whether it applies to the prime, subrecipient, or both; and 4) work to be performed that requires applicability of Buy American and/or Davis Bacon.

Algenol Biofuels Inc. includes construction activities, and therefore is subject to the Davis Bacon Act (DBA). DBA will apply to both the Recipient and their subrecipients, throughout the entirety of the project (Budget Periods 1 & 2).

SECTION IV – RECOMMENDATIONS/APPROVAL

Signatures of the Project Officer and Specialist, indicating their recommendations, as indicated below, will occur after their mutual agreement on the contents of this document, and before the review and approval process for the action. The signatures below indicate that the costs in the negotiated budget are reasonable, allowable, and allocable.

1. Technical Recommendation

The project costs are acceptable and should be considered for a financial assistance award. The resources have been reviewed relative to the Statement of Project Objectives and are found to be reasonable, except as previously noted herein.

_____ _____
Signature Date

Christy Sterner
Project Officer

2. Specialist Recommendation

In view of the above analysis, the technical evaluation, and considering all known factors, this Award is recommended.

_____ _____
Signature Date

Molly Hames
Grants and Agreements Specialist

3. Contracting Officer Approval

☒ I concur with the above recommendation and have determined that the Recipient is responsible. I consider this Award to be in the best interest of the Government, and approve the award documents.

☐ In view of the analysis, the technical evaluation, and considering all known factors, I have determined that the Recipient is responsible. This Award is considered to be in the best interest of the Government and approved.

_____ _____
Signature Date

Michael A. Schledorn
Contracting Officer

FY11

A. PMP Project Information

OBP WBS	5.11.1.2	Title	Pilot-Scale Integrated Biorefinery for Producing Ethanol from Hybrid Algae				
Contact Information	Name	Phone	Email	Program Element/Area	5_Integrated_Biorefineries	CID or Laboratory Designation	EE0002867
HQ Technology Manager	Neil Rossmeissl	NR 202 586 8668	neil.rossmeissl@ee.doe.gov	Project Initiated (dd/mm/yy)	1-Feb-10	CPS Agreement #	WBS5.11.1.2
PMC Project Officer	Christy Sterner	CSS (303)275 4720	christy.sterner@go.doe.gov	Planned Project Completion Date (dd/mm/yyyy)	27-Nov-14	Program Value (B&R) Code	1004173
PMC Project Monitor	Christine English	ce 720-356-1324	christine.english@go.doe.gov	Date of Last Gate, Project or Peer Review (dd/mm/yy)	3-Feb-11	Insert Text File (Word) of Full SOW ►►	U:\PMP stuff\FY11\Received\Algenol S
pany Contact or Relationship Manager	Pat Ahlm	239-444-6313	pat.ahlm@algenolbiofuels.com	Project Location Zip Code	77541	Insert Gantt Chart (or equivalent) ►►	
Principal Investigator	Dr. Craig Smith	239-498-2000	Craig.smith@algenolbiofuels.com	Performing Organization (Only Prime Recipient)	Algenol Biofuels, Inc.		
Co-Principal Investigator (if applicable)	Ed Legere	561-714-3816	ed.legere@algenolbiofuels.com	Funding Partner(s) [Any partner or subcontractor who provides cost share]	Algenol Biofuels, Inc.;The Dow Chemical Company; Georgia Tech Research Corporation; Membrane Technology and Research, Inc.; NREL	Subject to Stage Gate Review?	Yes
Project Description (non-proprietary)	Algenol's DIRECT TO ETHANOL™ technology is based on over-expressing in blue-green algae the genes for fermentation pathway enzymes found widely in nature. The resulting metabolically enhanced hybrid algae actively carry out photosynthesis and utilize carbon dioxide to make ethanol inside each algal cell. The ethanol diffuses through the cell wall into the culture medium and then evaporates, along with water, into the headspace of an enclosed, sealed bioreactor. The ethanol-water vapor is then condensed, collected as a liquid, and distilled into fuel grade ethanol. Algenol currently has hybrid algae that produce ethanol at a rate greater than 0.6 moles/m2 per week. The productivity of these algae is currently being evaluated in 20-liter laboratory bioreactors and in up to 500-liter outdoor bioreactors under "field" conditions. The proposed pilot-scale bio-refinery will consist of approximately 17 acres of plastic fully enclosed 4500-liter specialized bioreactors and supporting areas for testing, distillation, and storage. The project will be divided into three Phases. In Phase I we will complete optimization of the hybrid algae and bioreactors and obtain the necessary regulatory approvals and permitting for construction. In Phase II we will construct the pilot scale bio-refinery, establish minimum performance characteristics and test second-generation ethanol/water separation equipment. In Phase III we will demonstrate commercially viable operations, optimize operating conditions, improve efficiency and reduce costs.						
Summary of Project Objectives & Tasks (at the A, B, C, etc.level from Section C of PMP, non-proprietary)	Exemption 4						

Annual Work Plan FY2011 (typically 1-4 paragraph lengths of text or about 1/2 to 3/4 page of text)	Exemption 4
Summary of Work to date (typically 2-6 paragraphs or about 1-2 pages of text)	

Section B. Financial Description of Project

Prime Recipient Name	Location (zipcode)	Total DOE Funds Obligated to date	Carryover of DOE funding into FY11 (if applicable)	FY11 DOE Obligations Planned	Requested DOE FY Obligation (if applicable) FY12	FY13	FY14	FY15	Current Approved DOE Total	Comments/Issues
Algenol Biofuels, Inc.	34135	$25,000,000.00	$14,604,656.00						$25,000,000.00	
Subcontractors or Lab Partners										
The Dow Chemical Company	77541	Exemption 4								
Membrane Technology and Research, Inc.	94025									
Georgia Tech Research Corporation	30332									
L	80401									

Funding by task number at the major task level (A,B,C,D, etc.) as specified in section C below (columns E-H)	Percent Recipient Cost Share	Total Project Funds Spent to date	FY11 Total Spend plan (DOE & Cost Share)	Fiscal Year Estimated Spending Plan (if applicable, including Cost Share) FY12	FY13	FY14	FY15	Current Approved Spend Plan Total	Comments/Issues
A	Exemption 4								
B									
C									

C. Project Plan with tasks, subtasks, milestones, deliverables, Go No/Go decision points and including performance requirements and metrics

Project WBS Number	Number of Task, Subtask, Milestone, Deliverable and Go No/Go Decision Points	Title - Tasks, Subtasks, Milestones, Deliverables including Go No/Go Decision Pts	*For **milestones** provide type*	Performer(s)	Program Pathway C Milestones Link	Start Date (Tasks, Subtasks Only)	Planned Completion Date (Tasks, Subtasks and Milestones)	TRL Starting Level	TRL Finishing Level	Barriers Addressed	Milestone Completion Metrics	Milestone Metric Units	Task, subtask or Milestone Decription	Mark as proprietary or confidential
5.11.1.2	A	Exemption 4												
5.11.1.2	A.1													
5.11.1.2	A.2													
5.11.1.2	A.2.1													
5.11.1.2	A.2.2													
5.11.1.2	A.2.3													
5.11.1.2	A.2.4													
5.11.1.2	A.2.4.DL.1													
5.11.1.2	A.3													
5.11.1.2	A.3.1													
5.11.1.2	A.3.2													
5.11.1.2	A.3.3													
5.11.1.2	A.4													
5.11.1.2	A.4.1													
5.11.1.2	A.4.1.1													
..2	A.4.1.2													
5.11.1.2	A.4.1.3													
5.11.1.2	A.4.1.4													
5.11.1.2	A.4.1.5													
5.11.1.2	A.4.1.6													

Exemption 4

5.11.1.2	A.4.1.7
5.11.1.2	A.4.2
5.11.1.2	A.4.2.1
5.11.1.2	A.4.2.1.1
5.11.1.2	A.4.2.1.2
5.11.1.2	A.4.2.1.2.DL.1
.1.2	A.4.2.1.3
5.11.1.2	A.4.2.1.4
5.11.1.2	A.4.2.1.5
5.11.1.2	A.5
5.11.1.2	A.5.1
5.11.1.2	A.5.2
5.11.1.2	A.5.3
5.11.1.2	A.6
5.11.1.2	A.6.DL.1
5.11.1.2	A.6.GN.1
5.11.1.2	A.6.DL.2
1.2	A.6.GN.2
5.11.1.2	A.6.DL.3
5.11.1.2	A.6.GN.3
5.11.1.2	A.7
5.11.1.2	A.7.1
5.11.1.2	A.7.2
5.11.1.2	A.7.3
5.11.1.2	A.7.4
5.11.1.2	A.8
5.11.1.2	A.8.DL.1
5.11.1.2	A.9
5.11.1.2	A.10

		Exemption 4
5.11.1.2	A.10.GN.1	
5.11.1.2	A.11	
5.11.1.2	A.12	
5.11.1.2	A.13	
5.11.1.2	A.14	
5.11.1.2	A.15	
5.11.1.2	A.16	
5.11.1.2	A.17	
5.11.1.2	A.18	
5.11.1.2	A.18.1	

5.11.1.2	A.18.2	Exemption 4
5.11.1.2	A.18.3	
5.11.1.2	A.18.4	
5.11.1.2	A.18.5	
5.11.1.2	A.18.5.1	
5.11.1.2	A.18.5.1.DL.1	
5.11.1.2	A.18.5.1.DL.2	

Exemption 4

5.11.1.2	A.18.5.1.DL.3
5.11.1.2	A.18.5.1.DL.4
5.11.1.2	A.18.5.1.DL.5
5.11.1.2	A.18.5.1.DL.6
5.11.1.2	A.18.5.2
l.2	B
5.11.1.2	B.1
5.11.1.2	B.1.1
5.11.1.2	B.1.DL.1
1.2	B.2
5.11.1.2	B.2.1
5.11.1.2	B.2.1.DL.1
5.11.1.2	B.2.2
5.11.1.2	B.2.2.DL.1
5.11.1.2	B.2.2.DL.2
5.11.1.2	B.2.2.DL.3

		Exemption 4
5.11.1.2	B.2.2.DL.4	
5.11.1.2	B.2.2.DL.5	
5.11.1.2	B.2.2.DL.6	
5.11.1.2	B.2.2.DL.7	
5.11.1.2	B.3	
5.11.1.2	B.4	
5.11.1.2	B.4.ML.1	
5.11.1.2	B.4.DL.1	
5.11.1.2	B.5	
5.11.1.2	B.6	
5.11.1.2	B.7	

5.11.1.2	B.8	Exemption 4
5.11.1.2	C	
5.11.1.2	C.1	
5.11.1.2	C.1.1	
5.11.1.2	C.2	

5.11.1.2	C.2.1	Exemption 4
5.11.1.2	C.2.2	
5.11.1.2	C.2.3	
5.11.1.2	C.2.4	
5.11.1.2	C.3	
5.11.1.2	C.4	

Exemption 4

5.11.1.2	C.5
5.11.1.2	

Project Management Plan – Statement of Work

Pilot-Scale Integrated Biorefinery Operations for Producing Ethanol From Algae

Algenol Biofuels Inc.

Narrative of WBS Tasks

Exemption 4

Exemption 4

Exemption 4

Exemption 4

Exemption 4

Exemption 4

Exemption 4

Exemption 4

Exemption 4

Exemption 4

Exemption 4

Exemption 4

Exemption 4

Program Barriers Addressed

Feedstock Integration

Ft-A. Resource Availability and Cost: The lack of credible data on price, location, quality and quantity of biomass creates uncertainty for investors and developers of emerging biorefinery technologies. In addition to a lack of information regarding national cellulosic biomass production, current estimates of feedstock resources are limited in scope, and do not consider how major technological advantages in production technologies will impact biomass availability. Due to the diversity and wide distribution of biomass feedstock resources, a regional approach is required to complete a more detailed assessment of the resources initially identified in the Billion Ton study. Feedstock supply is a significant cost component of bio-based fuels, products, and power.

Ft-B. Sustainable Production: Existing data on the environmental effects of feedstock production and residue collection are not adequate to support lifecycle analysis of biorefinery systems. The lack of information and decision support tools to predict effects of residue removal as a function of soil type, and the lack of a selective harvest technology that can evenly remove only desired portions of the residue make it difficult to assure that residue biomass will be collected in a sustainable manner. Until the residue issue is addressed, particularly with regard to corn stover, deployment of the Agricultural Residue pathway will be severely constrained. The production and use of perennial energy crops also raise a number of sustainability questions (such as water and fertilizer inputs, establishment and harvesting impacts on soil, etc.) that have not been comprehensively addressed.

Ft-C. Crop Genetics: Current crops and potential new crops require improvement to achieve the production potential estimates of the billion ton vision. There is inadequate information on plant biochemistry as well as insufficient genomic and metabolic data on many potential biomass crops. Genetic modification of energy crops for improved characteristics may create risks to native populations of related species, and any modification of commodity crops to improve residue characteristics may affect grain values.

Ft-D. Sustainable Harvest: Current crop harvesting machinery is unable to selectively harvest desired components of biomass and address the soil carbon and erosion sustainability constraints. Biomass variability places high demand and functional requirements on biomass harvesting equipment. Current systems cannot meet the capacity, efficiency, or delivered price requirements of large cellulosic biorefineries, nor can they effectively deal with the large biomass yields per acre of potential new biomass feedstock crops. In addition, feedstock specifications and standards against which to engineer harvest equipment, technologies, and methods, do not currently exist

Ft-G. Feedstock Quality and Monitoring: Physical, chemical, microbiological, and post-harvest physiological variations in feedstocks arising from differences in variety, geographical location, and harvest methods are not well understood. Passive, noninvasive analytical tools and sensors for rapid and/or real-time compositional and conversion efficiency measurements for cellulosic feedstocks are needed. In addition, processor standards and specifications for feedstocks are not currently available.