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	Exemption 4				
Fringe Benefits					
Travel					
Equipment					
Supplies					
Contractual					
Construction					
Other					
Total Direct Charges					
Indirect Charges					
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
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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\Recieved\Algenol S
Company 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)				Current Approved DOE Total	Comments/Issues
					FY12	FY13	FY14	FY15		
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)				Current Approved Spend Plan Total	Comments/Issues
				FY12	FY13	FY14	FY15		
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

5.11.1.2	A.10.GN.1	Exemption 4
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
1.2	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

5.11.1.2	B.2.2.DL.4	Exemption 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	

5.11.1.2	C.5	Exemption 4
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