

GRANTS/CONTINGENT AWARD REQUEST



To: Grants and Loans Office

Date: 11 / 07 / 2012

Project Manager: Larry Rillera Phone Number: (916) 651-6178 ext.
Office: Special Projects Office Division: Fuels and Transportation MS- 23
Project Title: Biofuel Pre-Commercial Development Facility

Type of Request: (check one)

New Agreement: (include items A-F from below) Agreement Number: _____
Program: _____
Solicitation Name and/or Number: _____
Legal Name of Recipient: _____
Recipient's Full Mailing Address: _____
Recipient's Project Officer: _____ Phone Number: () - ext. _____
Agreement Start Date: ____ / ____ / ____ Agreement End Date: ____ / ____ / ____

Amendment: (Check all that apply) Agreement Number: ARV-11-017
 Term Extension – New End Date: ____ / ____ / ____
 Work Statement Revision (include Item A from below)
 Budget Revision (include Item B from below)
 Change of Scope (include Items A – F as applicable from below)
 Other: (Specify) _____

ITEMS TO ATTACH WITH REQUEST:

- A. Work Statement
- B. Budget
- C. Recipient Resolution, if applicable. (Resolution may be requested in Special Conditions if not currently available.)
- D. Special Conditions, if applicable.
- E. CEQA Compliance Form
- F. Other Documents as applicable
 - Copy of Score Sheets
 - Copy of Pre-Award Correspondence
 - Copy of All Other Relevant Documents

California Environmental Quality Act (CEQA)

CEC finds, based on recipient's documentation in compliance with CEQA:
 Project exempt: Section 15301 NOE filed: ____ / ____ / ____
 Environmental Document prepared: Notice of Exemption NOD filed: ____ / ____ / ____
 Other: Explain
 CEC has made CEQA finding described in CEC-280, attached

Funding Information:

*Source #1: _____ Amount: \$ 0.00 Statute: _____ FY: _____ Budget List #: _____
*Source #2: _____ Amount: \$ _____ Statute: _____ FY: _____ Budget List #: _____
*Source #3: _____ Amount: \$ _____ Statute: _____ FY: _____ Budget List #: _____

If federally funded, specify federal agreement number: _____
* Source Examples include ERPA, PIER-E, PIER-NG, FED, GRDA, ARFVT, OTHER.

Business Meeting Approval: (refer to Business Meeting Schedule)

Proposed Business Meeting Date: 12 / 12 / 2012 Consent Discussion
Business Meeting Participant: Larry Rillera Time Needed: (0)

Agenda Notice Statement: (state purpose in layperson terms)

Possible approval of a Grant / Contingent Award to...
revise work statement and budget to accelerate project delivery and outcomes needed to commercially deploy advance biofuels.



Award Number: ARV-11-XXX

Date: 4 / 4 / 2012

Note: The Energy Commission Project Managers Manual includes detailed instructions on how to complete this section, with examples of grants that are “Projects” and are not “Projects”. When the Project Manager is completing this section, if questions arise as to the appropriate answers to the questions below, please consult with the Energy Commission attorney assigned to review grants or loans for your division.

1. Is grant/loan considered a “Project” under CEQA? Yes (skip to question #2) No (continue with question #1)

Please complete the following: [Public Resources Code (PRC) 21065 and 14 California Code of Regulations (CCR) 15378]:

Explain why the grant/loan is **not** considered a “Project”? The grant/loan will not cause a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment because grant/loan involves:

2. If grant/loan is considered a “Project” under CEQA: (choose either **IS** or **IS NOT**)

Grant/loan **IS** exempt:

Statutory Exemption: (List PRC and/or CCR section numbers) _____

Categorical Exemption: (List CCR section number) 15301

Common Sense Exemption. (14 CCR 15061(b)(3))

Explain reason why the grant/loan is exempt under the above section:

Project will expand an existing ethanol production facility to add a one million gallon per year demonstration-scale ethanol facility that will test multiple feedstocks (e.g., straw, corn stover, mixed grass, cotton gin waste) for conversion into ethanol. Data from the project will be used to generate economic and design data for a commercial scale facility. The project will take place within a proposed 10,000 sq. ft. building on the property of the existing ethanol facility. Water and utility pipelines will be necessary to connect the new building to existing utilities. Project is consistent with existing zoning for the property and will require air permits and building permits. Local agencies have concluded that such permits are ministerial and therefore exempt from further review. Therefore, the project is exempt as an existing facility under section 15301, as it is adding a structure to an existing ethanol facility that is no more than 10,000 sq. ft., the project has sufficient public services and facilities for the project, the area is not environmentally sensitive, and the project will result in no or a negligible expansion of the facility's current use as an ethanol production facility.

Please attach draft Notice of Exemption (NOE). Consult with the Energy Commission attorney assigned to your division for instructions on how to complete the NOE.

Grant/loan **IS NOT** exempt. The Project Manager needs to consult with the Energy Commission attorney assigned to your division and the Siting Office regarding a possible initial study.

EXHIBIT A
Scope of Work

TECHNICAL TASK LIST

Task #	CPR	Task Name
1	N/A	Administration
2	X	Facility Design and Construction
3		Feedstock Feasibility Analyses
4		Data Collection and Analysis

KEY NAME LIST

Task #	Key Personnel	Key Subcontractors	Key Partners
1	Andy Foster Jarrett Hollis Michael McTeigue		A.L. Gilbert Company EdeniQ, Inc.
2	Andy Foster Jarrett Hollis Mike Rosa Bob Kearns	Edeniq, Inc.	A.L. Gilbert Company Carenergy Praj Industries
3	Andy Foster Jarrett Hollis Mike Rosa Bob Kearns Michael McTeigue	Edeniq, Inc.	A.L. Gilbert Company Keck Graduate Institute Praj Industries Carenergy J.D. Heiskell & Co.
4	Andy Foster Jarrett Hollis Bob Kearns Michael McTeigue Douglas Denhartog	Edeniq, Inc.	A.L. Gilbert Company Carenergy Keck Graduate Institute

Glossary

Specific terms and acronyms used throughout this scope of work are defined as follows:

Term/ Acronym	Definition
ARFVT	Alternative and Renewable Fuel and Vehicle Technology
CAM	Energy Commission Agreement Manager
Cellulosic	The lignified portion of plant material
CI	Carbon Intensity
CPR	Critical Project Review
Energy	California Energy Commission

EXHIBIT A
Scope of Work

Term/ Acronym	Definition
Commission	
FTD	Fuels and Transportation Division
GHG	Greenhouse gas
LCFS	Low Carbon Fuel Standard
MGY	Million Gallons per Year
Pathway	Pathway Enzyme Technology
Recipient	Aemetis, Inc
RFS2	Renewable Fuel Standard
SSC	Solid Substrate Culture technology
Testing Facility	The 1 MGY pre-commercial ethanol testing facility to be constructed at Keyes, CA as described in Task 2
Waste Feedstock	Corn stover, wheat straw, cotton gin waste, sugarcane bagasse
WDG	Wet Distillers Grain

Background

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007), created the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP). The statute, subsequently amended by AB 109 (Núñez, Chapter 313, Statutes of 2008), authorizes the Energy Commission to develop and deploy alternative and renewable fuels and advanced transportation technologies to help attain the state’s climate change policies. The Energy Commission has an annual program budget of approximately \$100 million and provides financial support for projects that:

- Develop and improve alternative and renewable low-carbon fuels;
- Optimize alternative and renewable fuels for existing and developing engine technologies;
- Produce alternative and renewable low-carbon fuels in California;
- Decrease, on a full fuel cycle basis, the overall impact and carbon footprint of alternative and renewable fuels and increase sustainability;
- Expand fuel infrastructure, fueling stations, and equipment;
- Improve light-, medium-, and heavy-duty vehicle technologies;
- Retrofit medium- and heavy-duty on-road and non-road vehicle fleets;
- Expand infrastructure connected with existing fleets, public transit, and transportation corridors; and
- Establish workforce training programs, conduct public education and promotion, and create technology centers.

The Energy Commission issued solicitation PON-09-604 to provide funding and financial assistance for the development of new, California-based biofuel production plants and enhance the operation of existing ethanol production plants to increase statewide biofuel production and reduce greenhouse gas (GHG) emissions.

EXHIBIT A Scope of Work

In response to solicitation PON-09-604 Recipient submitted application #40 which was proposed for funding in the Energy Commission's Notice of Proposed Awards (NOPA) revised April 13, 2011. The application is incorporated by reference to this agreement in its entirety.

Problem Statement

The federal government has established the Renewable Fuel Standard (RFS2) while California has established the Low Carbon Fuel Standard (LCFS) to spur investment and market development for low carbon biofuels. However, there are still technical and financial challenges to provide the volume of biofuels needed to meet these policy objectives and goals through cellulosic feedstock usage.

Goals of the Agreement

The goals of this Agreement are to:

- Design, construct, and operate a one million gallon per year (1 MGY) capacity integrated cellulose/starch ethanol pre-commercial plant using enzymatic hydrolysis of specified agricultural waste/cellulosic feedstocks, and test additional cellulosic ethanol conversion technologies.
- Demonstrate Solid Substrate Culture (SSC) technology for producing low cost, multi-activity pre-treatment and enzyme preparations for the conversion of cellulosic feedstocks to ethanol.
- Demonstrate Edeniq, Inc. Pathway Enzyme technology
Demonstrate Aemetis, Inc. Z-Microbe cellulosic technology
- Generate economic and design data demonstrating viability for commercial scale production for these cellulosic feedstocks.

Objectives of the Agreement

The objectives of this Agreement are to:

- Develop and demonstrate viability of the SSC technologies used for enzyme and microbial production at commercial scale.
- Demonstrate the ability to reduce the high capital costs and high operating costs which have been the major barriers to commercial production of cellulosic ethanol.
- Show the reduced capital and operating costs associated with a cellulosic ethanol process using unique cellulosic ethanol enzymes and other technologies (microbial, mechanical, etc).
- Using SSC technology, target a capital cost of \$4.35 or less per gallon of capacity and an operating cost of \$1.40 per gallon that will lead to the commercial production of ethanol.
- Demonstrate a fuel with a carbon intensity (CI) value of 68.14 gCO₂e/MJ, using cellulosic feedstock from agricultural waste (corn stover, wheat straw, cotton gin waste, and sugarcane bagasse).

TASK 1 ADMINISTRATION

EXHIBIT A
Scope of Work

Task 1.1 Attend Kick-off Meeting

The goal of this task is to establish the lines of communication and procedures for implementing this Agreement.

The Recipient shall:

- Attend a “Kick-Off” meeting with the Commission Agreement Manager (CAM), the Grants Officer, and a representative of the Accounting Office. The Recipient shall bring its Project Manager, Agreement Administrator, Accounting Officer, and others designated by the CAM to this meeting. The administrative and technical aspects of this Agreement will be discussed at the meeting. Prior to the kick-off meeting, the CAM will provide an agenda to all potential meeting participants.

The administrative portion of the meeting shall include, but not be limited to, the following:

- Discussion of the terms and conditions of the Agreement
- Discussion of Critical Project Review (Task 1.2)
- Match fund documentation (Task 1.6)
- Permit documentation (Task 1.7)
- Discussion of subcontracts needed to carry out project (Task 1.8)

The technical portion of the meeting shall include, but not be limited to, the following:

- The CAM's expectations for accomplishing tasks described in the Scope of Work
- An updated Schedule of Products
- Discussion of Progress Reports (Task 1.4)
- Discussion of the Final Report (Task 1.5)

The CAM shall designate the date and location of this meeting.

Recipient Products:

- Updated Schedule of Products
- Updated List of Match Funds
- Updated List of Permits

CAM Product:

- Kick-Off Meeting Agenda

Task 1.2 Critical Project Review (CPR) Meetings

The goals of this task are to determine if the project should continue to receive Energy Commission funding to complete this Agreement and to identify any needed modifications to the tasks, products, schedule or budget.

EXHIBIT A Scope of Work

CPRs provide the opportunity for frank discussions between the Energy Commission and the Recipient. CPRs generally take place at key, predetermined points in the Agreement, as determined by the CAM and as shown in the Technical Task List above. However, the CAM may schedule additional CPRs as necessary, and any additional costs will be borne by the Recipient.

Participants include the CAM and the Recipient and may include the Commission Grants Officer, the Fuels and Transportation Division (FTD) team lead, other Energy Commission staff and Management as well as other individuals selected by the Energy CAM to provide support to the Energy Commission.

The CAM shall:

- Determine the location, date, and time of each CPR meeting with the Recipient. These meetings generally take place at the Energy Commission, but they may take place at another location.
- Send the Recipient the agenda and a list of expected participants in advance of each CPR. If applicable, the agenda shall include a discussion on both match funding and permits.
- Conduct and make a record of each CPR meeting. One of the outcomes of this meeting will be a schedule for providing the written determination described below.
- Determine whether to continue the project, and if continuing, whether or not modifications are needed to the tasks, schedule, products, and/or budget for the remainder of the Agreement. Modifications to the Agreement may require a formal amendment (please see the Terms and Conditions, Section 8). If the CAM concludes that satisfactory progress is not being made, this conclusion will be referred to the Transportation Committee for its concurrence.
- Provide the Recipient with a written determination in accordance with the schedule. The written response may include a requirement for the Recipient to revise one or more product(s) that were included in the CPR.

The Recipient shall:

- Prepare a CPR Report for each CPR that discusses the progress of the Agreement toward achieving its goals and objectives. This report shall include recommendations and conclusions regarding continued work of the projects. This report shall be submitted along with any other products identified in this scope of work. The Recipient shall submit these documents to the CAM and any other designated reviewers at least 15 working days in advance of each CPR meeting.
- Present the required information at each CPR meeting and participate in a discussion about the Agreement.

CAM Products:

- Agenda and a list of expected participants

EXHIBIT A Scope of Work

- Schedule for written determination
- Written determination

Recipient Product:

- CPR Report(s)

Task 1.3 Final Meeting

The goal of this task is to closeout this Agreement.

The Recipient Shall:

- Meet with Energy Commission staff to present the findings, conclusions, and recommendations. The final meeting must be completed during the closeout of this Agreement.
- This meeting will be attended by, at a minimum, the Recipient, the Commission Grants Office Officer, and the CAM. The technical and administrative aspects of Agreement closeout will be discussed at the meeting, which may be two separate meetings at the discretion of the CAM.

The technical portion of the meeting shall present an assessment of the degree to which project and task goals and objectives were achieved, findings, conclusions, recommended next steps (if any) for the Agreement, and recommendations for improvements. The CAM will determine the appropriate meeting participants.

The administrative portion of the meeting shall be a discussion with the CAM and the Grants Officer about the following Agreement closeout items:

- What to do with any equipment purchased with Energy Commission funds (Options)
- Energy Commission's request for specific "generated" data (not already provided in Agreement products)
- "Surviving" Agreement provisions
- Final invoicing and release of retention
- Prepare a schedule for completing the closeout activities for this Agreement.

Products:

- Written documentation of meeting agreements
- Schedule for completing closeout activities

Task 1.4 Monthly Progress Reports

EXHIBIT A Scope of Work

The goal of this task is to periodically verify that satisfactory and continued progress is made towards achieving the research objectives of this Agreement on time and within budget. The objectives of this task are to summarize activities performed during the reporting period, to identify activities planned for the next reporting period, to identify issues that may affect performance and expenditures, and to form the basis for determining whether invoices are consistent with work performed.

The Recipient shall:

- Prepare a Monthly Progress Report which summarizes all Agreement activities conducted by the Recipient for the reporting period, including an assessment of the ability to complete the Agreement within the current budget and any anticipated cost overruns. Each progress report is due to the CAM within 10 days of the end of the reporting period. The recommended specifications for each progress report are contained in Section 6 of the Terms and Conditions of this Agreement.
- In the first Monthly Progress Report and first invoice, document and verify match expenditures and provide a synopsis of project progress, if match funds have been expended or if work funded with match share has occurred after January 1, 2012 but before execution of the grant agreement. If no match funds have been expended or if no work funded with match share has occurred before execution, then state this in the report. All pre-execution match expenditures must conform to the requirements in the Terms and Conditions of this Agreement.

Product:

- Monthly Progress Reports

Task 1.5 Final Report

The goals of the Final Report are to assess the project's success in achieving its goals and objectives, advancing science and technology, and providing energy-related and other benefits to California. The objectives of the Final Report are to clearly and completely describe the project's purpose, approach, activities performed, results, and advancements in science and technology; to present a public assessment of the success of the project as measured by the degree to which goals and objectives were achieved; to make insightful observations based on results obtained; to draw conclusions; and to make recommendations for further projects and improvements to the FTD project management processes.

The Final Report shall be a public document. If the Recipient has obtained confidential status from the Energy Commission and will be preparing a confidential version of the Final Report as well, the Recipient shall perform the following activities for both the public and confidential versions of the Final Report.

The Recipient shall:

- Prepare an Outline of the Final Report.
- Prepare a Final Report following the approved outline and the latest version of the Final Report guidelines which will be provided by the CAM.

EXHIBIT A Scope of Work

The CAM shall provide written comments on the Draft Final Report within fifteen (15) working days of receipt. The Final Report must be completed at least 60 days before the end of the Agreement Term.

- Submit one bound copy of the Final Report with the final invoice.

Products:

- Draft Outline of the Final Report
- Final Outline of the Final Report
- Draft Final Report
- Final Report

Task 1.6 Identify and Obtain Matching Funds

The goal of this task is to ensure that the match funds planned for this Agreement are obtained for and applied to this Agreement during the term of this Agreement.

The costs to obtain and document match fund commitments are not reimbursable through this Agreement. Although the Energy Commission budget for this task will be zero dollars, the Recipient may utilize match funds for this task. Match funds shall be spent concurrently or in advance of Energy Commission funds for each task during the term of this Agreement. Match funds must be identified in writing and the associated commitments obtained before the Recipient can incur any costs for which the Recipient will request reimbursement.

The Recipient shall:

- Prepare a letter documenting the match funding committed to this Agreement and submit it to the CAM at least 2 working days prior to the kick-off meeting. If no match funds were part of the proposal that led to the Energy Commission awarding this Agreement and none have been identified at the time this Agreement starts, then state such in the letter. If match funds were a part of the proposal that led to the Energy Commission awarding this Agreement, then provide in the letter a list of the match funds that identifies the:
 - Amount of each cash match fund, its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied.
 - Amount of each in-kind contribution, a description, documented market or book value, and its source, including a contact name, address and telephone number and the task(s) to which the match funds will be applied. If the in-kind contribution is equipment or other tangible or real property, the Recipient shall identify its owner and provide a contact name, address and telephone number, and the address where the property is located.
- Provide a copy of the letter of commitment from an authorized representative of each source of cash match funding or in-kind

EXHIBIT A Scope of Work

contributions that these funds or contributions have been secured. For match funds provided by a grant a copy of the executed grant shall be submitted in place of a letter of commitment.

- Discuss match funds and the implications to the Agreement if they are reduced or not obtained as committed, at the kick-off meeting. If applicable, match funds will be included as a line item in the progress reports and will be a topic at CPR meetings.
- Provide the appropriate information to the CAM if during the course of the Agreement additional match funds are received.
- Notify the CAM within 10 days if during the course of the Agreement existing match funds are reduced. Reduction in match funds must be approved through a formal amendment to the Agreement and may trigger an additional CPR.

Products:

- A letter regarding match funds or stating that no match funds are provided
- Copy(ies) of each match fund commitment letter(s) (if applicable)
- Letter(s) for new match funds (if applicable)
- Letter that match funds were reduced (if applicable)

Task 1.7 Identify and Obtain Required Permits

The goal of this task is to obtain all permits required for work completed under this Agreement in advance of the date they are needed to keep the Agreement schedule on track.

Permit costs and the expenses associated with obtaining permits are not reimbursable under this Agreement. Although the Energy Commission budget for this task will be zero dollars, the Recipient shall budget match funds for any expected expenditures associated with obtaining permits. Permits must be identified in writing and obtained before the Recipient can make expenditures for which a permit is required.

The Recipient shall:

- Prepare a letter documenting the permits required to conduct this Agreement and submit it to the CAM at least 2 working days prior to the kick-off meeting. If there are no permits required at the start of this Agreement, then state such in the letter. If it is known at the beginning of the Agreement that permits will be required during the course of the Agreement, provide in the letter:
 - A list of the permits that identifies the:
 - Type of permit
 - Name, address and telephone number of the permitting jurisdictions or lead agencies
 - The schedule the Recipient will follow in applying for and obtaining these permits.
- Discuss the list of permits and the schedule for obtaining them at the kick-off meeting and develop a timetable for submitting the updated list,

EXHIBIT A Scope of Work

schedule and the copies of the permits. The implications to the Agreement if the permits are not obtained in a timely fashion or are denied will also be discussed. If applicable, permits will be included as a line item in the Progress Reports and will be a topic at CPR meetings.

- If during the course of the Agreement additional permits become necessary, provide the appropriate information on each permit and an updated schedule to the CAM.
- As permits are obtained, send a copy of each approved permit to the CAM.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the CAM within 5 working days. Either of these events may trigger an additional CPR.

Products:

- Letter documenting the permits or stating that no permits are required
- A copy of each approved permit (if applicable)
- Updated list of permits as they change during the term of the Agreement (if applicable)
- Updated schedule for acquiring permits as changes occur during the term of the Agreement (if applicable)

Task 1.8 Manage Subcontracts

The goal of this task is to ensure quality products and to procure subcontracts required to carry out the tasks under this Agreement consistent with the terms and conditions of this Agreement and the Recipient's own procurement policies and procedures. It will also provide the Energy Commission an opportunity to review the subcontracts to ensure that the tasks are consistent with this Agreement, that the budgeted expenditures are reasonable and consistent with applicable cost principles.

The Recipient shall:

- Manage and coordinate subcontractor activities.
- Submit a draft of each subcontract required to conduct the work under this Agreement to the Commission Agreement Manager for review.
- Submit a final copy of the executed subcontract.
- If Recipient decides to add new subcontractors, it shall notify the Commission Agreement Manager.

Products:

- Draft subcontracts
- Final subcontracts

EXHIBIT A
Scope of Work

TECHNICAL TASKS

TASK 2 ETHANOL TESTING FACILITY DESIGN AND CONSTRUCTION

The goal of this task is to design and construct a pre-commercial ethanol testing facility (hereinafter, "Testing Facility") at Keyes, California with a designed processing capacity of 1 MGY.

The Recipient shall:

- Prepare and produce detailed engineering plans for the Testing Facility and process flow design diagrams for the cellulosic equipment to be installed at the Testing Facility.
- Prepare and produce piping and instrumentation diagrams for the Testing Facility.
- Work with Edeniq, Inc., to plan and design process flow and engineering specifications for Pathway integration using the 80,000 gallon fermentation vessel and other areas of the facility.
- After completion of the design of the Testing Facility, prepare Task 2 Report on Design. The Task 2 Report on Design shall describe the detailed engineering plans, process flow design, piping and instrumentation diagrams, any design approvals required, and any key design issues encountered, and include a list of all equipment necessary for the facility.
- Transport, assemble, install, and commission production and testing equipment from Butte, Montana, for use in the Testing Facility.
- Fabricate all required piping necessary to connect feedstock pre-treatment, enzyme growth chambers and fermentation tanks for a fully-functional Testing Facility.
- Install all necessary systems, including but not limited to, plumbing, electrical, and mechanical systems for full building operation and a fully-functional Testing Facility.
- Procure and install any additional required equipment necessary to achieve a fully-functional Testing Facility.
- Design and construct any required structures for potential future integration into an existing commercial ethanol facility that will test the potential scaling of biofuel production from the 80,000 gallon fermentation vessel to the commercial scale of 60 MGY.
- After completion of the construction of the site and facility, prepare Task 2 Report on Construction. The Task 2 Report on Construction shall, without limitation, describe the construction of the facility, the construction schedule, the transport of relocated equipment, any key construction issues encountered, and the resolution thereof.

[CPR WILL OCCUR DURING THIS TASK. SEE TASK 1.2 FOR DETAILS.]

Products:

EXHIBIT A Scope of Work

- Task 2 Report on Design
- Task 2 Report on Construction

TASK 3 FEEDSTOCK FEASIBILITY ANALYSES

The goal of this task is to conduct technical and economic feasibility analyses on the availability, cost, transport, and GHG profile for various cellulosic feedstocks. The results of these analyses will inform decision making on the future development and financing of a fully commercial cellulosic ethanol production facility. Aemetis, Inc. and Edeniq, Inc. will collaborate in the identification, testing and analysis, and data summation of various cellulosic feedstocks.

The 1 MGY design capacity represents the most the Testing Facility can handle for a full year with a full time staff. However, it is not anticipated that the Testing Facility will achieve the full design capacity of 1 MGY during the project. Cellulosic ethanol shall be produced in smaller batches at various times during the year that shall not be for commercial production or sale during the term of this grant.

The Recipient shall:

- Conduct feasibility analyses on the availability, cost of transport, and GHG profile of cellulosic feedstocks.
- Assess the technical and economic feasibility of partnering with local farmers to enter into contract agreements to grow and harvest feedstocks for sale to the Recipient.
- Sample and test feedstocks, including but not limited to wheat straw, corn stover, cotton gin waste, sugarcane bagasse, and other purpose grown energy crops.
- Test and analyze proprietary enzyme technologies for Aemetis, Inc. and Edeniq, Inc.)
- Receive, store, and analyze cellulose/starch feedstocks for processing into ethanol.
- Record source, type, weight and cost of feedstock used in analysis.
- Collect data on enzyme/microbial production, pretreatment testing, and simultaneous hydrolysis and fermentation testing.
- Measure yield of integrated cellulose/starch ethanol and wet distillers grain (WDG) material.
- Prepare the Final Report (Task 1.5) with Task 3 data and results. The Final Report shall include:

EXHIBIT A Scope of Work

- Detailed technical and economic feasibility analyses and results of the tested feedstocks to commercially supply a cellulosic ethanol production plant.
- GHG profile of the available feedstocks, including approximate classification under the RFS2 and the LCFS.
- Description of the integrated cellulose/starch ethanol pre-commercial facility.
- Provide options for potential feedstock issues

Products:

- Information from this task shall be included in the Draft Final and Final Report.

TASK 4 DATA COLLECTION AND ANALYSIS

The goal of this task is to analyze operational data from the project for economic and environmental results impacts, and to include the analysis in the Final Report.

The Recipient shall:

- Use the pre-commercial ethanol Testing Facility to:
 - Estimate the projected gasoline and/or petroleum-based fuel that will be displaced by the testing facility on an annual basis.
 - Explain how the project will reduce criteria air pollutants and air toxics and reduce or avoid multimedia environmental impact, and lead to a decrease, on a life cycle basis, in emissions of water pollutants or any other substances known to damage human health or the environment.
 - Provide a quantified estimate of the project's carbon intensity values for life-cycle scale GHG emissions.
 - Quantify the water efficiency and water use reduction measures used in the project including, but not limited to, the use of recycled or reclaimed water and the reduction or elimination of point and nonpoint source wastewater discharge.
 - Describe any potential use of renewable energy or cogeneration in the project and any arrangements with electric utilities or third parties for the disposition of the energy generated.

EXHIBIT A
Scope of Work

- Describe any potential energy efficiency measures used in the project that would exceed Title 24 standards in Part 6 of the California Code of Regulations.
- Provide data on expected job creation, economic development, and increased state revenue.
- Compare any project performance and expectations provided in the proposal to the Energy Commission with actual project performance and accomplishments.
- Provide additional data that may be requested by the Energy Commission during the term of this Agreement, as is reasonably available.

Products:

- Information from this task shall be included in the Final Report.