

Exhibit A Scope of Work

TASK LIST

Task #	CPR	Task Name
1	N/A	Administration
2	X	Process Development / Optimization
3		Initial Biorefinery Demonstration Runs
4	X	Biorefinery Upgrades
5		Economic and Sustainability Analyses
6		Data Collection and Analysis

KEY NAME LIST

Task #	Key Personnel	Key Subcontractor(s)	Key Partner(s)
1	D. Lane		
2	D. Lane, S. Jacobson	Logos, IKA	Novozymes or Genencor
3	J. Simon		
4	D. Lane, C Cast, J. Simon	Sulzer, IKA	
5	-P. Kilner	UCDavis, Logos, IKA	Aemetis, Calgren, or Pacific Ethanol
6	D. Lane		

GLOSSARY

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

Term/Acronym	Definition
ARFVT	Alternative and Renewable Fuel and Vehicle Technology
C5	Five-carbon sugars
C6	Six-carbon sugars
CA GREET	California Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model
CAM	Commission Agreement Manager
Cellunator	Recipient's mechanical pretreatment technology
CPR	Critical Project Review
CI	Carbon Intensity

Term/Acronym	Definition
Energy Commission	California Energy Commission
GHG	Greenhouse Gas
HPLC	High Performance Liquid Chromatography
LCA	Life cycle analysis
LCFS	Low Carbon Fuel Standard
Recipient	EdeniQ, Inc.

Background:

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007), created the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVT Program). 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 California Energy Commission issued solicitation PON-11-601 for Advanced Biofuel Production to provide funding opportunities under the ARFVT Program for the development of new, California-based biofuel production facilities that can sustainably produce low carbon transportation, for new, low carbon facilities, or for projects that lower the carbon intensity of fuels produced at existing facilities. To be eligible for funding under PON-11-601, the projects must also be consistent with the Energy Commission’s ARFVT Program Investment Plan updated annually.

In response to PON-11-601, Recipient, EdeniQ, Inc., submitted application # 23, which was proposed for funding in the Energy Commission’s Notice of Proposed Awards, Round 1 on March 23, 2012, and is incorporated by reference to this Agreement in its entirety.

Problem Statement:

There has been much public and private sector investment toward the development of processes for the conversion of biomass to ethanol to provide California with a sustainable, renewable, economic, and domestic supply. The greatest barriers have been 1) the scale-up of the technology, the ability to replicate performance on larger and larger scale, and 2) the economics of the technology, especially the projected capital costs associated with commercialization. These barriers have not been adequately addressed because of a lack of multidisciplinary integration: companies have largely focused on the developing micro-organisms without the necessary attention to feedstocks, pretreatment, solids handling, and separations.

Goals of the Agreement

The goal of this agreement is to demonstrate the operability of Recipient's technology for the conversion of biomass feedstocks that are abundant in California to ethanol in an existing integrated 2 ton per day refinery. It is the further goal of this agreement to obtain the data to support proceeding with commercialization of Recipient's technology in California with attractive economics and sustainability.

Objectives of the Agreement:

The objectives of this agreement are to achieve:

- An overall yield greater than 70 gallons ethanol per ton of bone dry cellulosic feedstock. This will be measured by a material balance to calculate the ratio of the production rate of ethanol to the feed rate of biomass, each adjusted to bone dry basis by analysis of water content.
- Overall hydrolysis conversion (combined, composition-weighted C5/C6) greater than 70%. This will be measured by material balance around the hydrolysis reactor ratioing the amount of C5 and C6 monomeric sugars produced as determined by high performance liquid chromatography (HPLC) analysis to the amount of hemicellulose and cellulose in the biomass feed to the hydrolysis reactor.
- Cellunator™ (feedstock pretreater, and equipment with highest risk of wear) material of construction wear of less than 1 mm/yr. This will be determined by laser-based measurements of parts subject to wear.
- Projected commercial operating costs of less than \$2.00 per gallon of ethanol. This will be confirmed by a process design and economic study and verified by commercialization partners.
- Greenhouse gas (GHG) life-cycle analysis (LCA) calculations that show a reduction of GHGs greater than 60% for our process relative to corn based ethanol production. This will be determined based on carbon intensity calculations using the CA GREET model.

Other objectives include acquiring:

- The commitment of one or more of Recipient's commercialization partners (Aemetis, Calgren, and/or Pacific Ethanol) to commercialize Recipient's technology at an existing corn-based ethanol plant in California and thereby commence production of cellulosic ethanol in California.

TASK 1 ADMINISTRATION

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 Project Manager, 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 Commission Project Manager to this meeting. The administrative and technical aspects of this Agreement will be discussed at the meeting. Prior to the kick-off meeting, the Commission Project Manager 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 required (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 Commission Project Manager'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 Technical Products (Product Guidelines located in Section 5 of the Terms and Conditions)
- Discussion of the Final Report (Task 1.5)

The Commission Project Manager shall designate the date and location of this meeting.

Recipient Products:

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

Commission Project Manager Product:

- Kick-Off Meeting Agenda

Task 1.2 Critical Project Review (CPR) Meetings

The goal of this task is 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.

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 Commission Project Manager and as shown in the Technical Task List above. However, the Commission Project Manager may schedule additional CPRs as necessary, and any additional costs will be borne by the Recipient.

Participants include the Commission Project Manager 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 Commission Project Manager to provide support to the Energy Commission.

The Commission Project Manager 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 Commission Project Manager 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 on 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 Commission Project Manager 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.

Commission Project Manager Products:

- Agenda and a list of expected participants
- 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 Commission Project Manager. 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 Commission Project Manager.

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 Commission Project Manager will determine the appropriate meeting participants.

The administrative portion of the meeting shall be a discussion with the Commission Project Manager 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

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 Commission Project Manager 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 the notice of proposed award 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 goal of the Final Report is 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 Commission Project Manager. The Commission Project Manager 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 Commission Project Manager 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 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 Commission Project Manager if during the course of the Agreement additional match funds are received.
- Notify the Commission Project Manager 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 any expenditure 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 Commission Project Manager 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, 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 Commission Project Manager.
- As permits are obtained, send a copy of each approved permit to the Commission Project Manager.
- If during the course of the Agreement permits are not obtained on time or are denied, notify the Commission Project Manager 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

TECHNICAL TASKS**TASK 2 PROCESS DEVELOPMENT / OPTIMIZATION****Task 2.1 Feedstock Evaluation**

The goal of this task is to determine the specifications of Project Feedstocks (e.g., switchgrass, wood chips from orchard wastes) that will be representative of potential commercial projects (composition, coarse grinding, pelletization) and obtain quantities of feedstocks for operation of the biorefinery.

The Recipient shall:

- Obtain samples of cellulosic feedstock from various sources that are representative of what might be available in California for potential commercial projects.
- Analyze such feedstocks for composition (cellulose, hemicellulose, and lignin), and suitability for conversion to intermediate cellulosic sugars with acceptable impurity levels.
- Evaluate the technical feasibility of feedstock pelletization, and develop data on potential commercial costs and benefits.
- Obtain feedstock in sufficient quantity and quality to be able to test and run demonstrations with the feedstock.
- Prepare and submit a written notification that Recipient has received sufficient feedstock at the Biorefinery from project partners to conduct tests and run demonstrations, and include the types and quantities of feedstock received.
- Obtain data on life cycle feedstock supply economics, feedstock sustainability, and feedstock-related bases for lifecycle GHG analyses.
- Prepare and submit a feedstock specifications report that describes the types of feedstock samples obtained, the source(s) of the feedstock, the composition (cellulose, hemicelluloses, and lignin) of the feedstock, the ethanol conversion suitability of the feedstock, the technical feasibility of pelletization, and potential commercial costs and benefits.

Products:

- Written notification of delivery of sufficient feedstock to Biorefinery
- Feedstock specifications report

Task 2.2 Pretreatment and Enzyme Tests

The goal of this task is to perform tests on a variety of pre-treatment methods and conditions to determine the optimal approach with the use of Recipient's Cellunator™ technology to pretreat Project Feedstocks. The further goal of this task is to evaluate commercial and Recipient's proprietary enzyme formulations for saccharification to identify the best enzyme combinations for saccharification.

The Recipient shall:

- Identify optimum process conditions for the pretreatment methods with the use of Recipient's Cellunator™ technology.
- Identify the optimal particle size and solids loading for optimal saccharification.
- Perform saccharifications of pretreated Project Feedstocks using commercially available enzymes (e.g., Novozymes, Genencor) and/or Recipient's proprietary enzymes, optimizing enzyme mixture to achieve maximal sugar release for fermentation potential as measured by HPLC.
- Obtain quantities of enzyme cocktail sufficient for operating the Biorefinery using Project Feedstocks, and prepare and submit written notification that sufficient enzymes to operate the Biorefinery have been delivered.
- Prepare and submit a Pretreatment and Enzyme Tests report, describing the results of the pretreatment and enzyme tests performed in this task.

Products:

- Written Notification regarding enzyme delivery
- Report on pretreatment and enzyme test

Task 2.3 Equipment Development / Optimization - Pretreatment

The goal of this task is to develop advanced mechanical equipment options for biomass pretreatment and conveyance that will further improve the performance (conversions, efficiency) and economics of biomass conversion via Recipient's process.

The Recipient shall:

- Develop modifications to slurry "dispenser" unit operation capable of attaining desired higher solids loadings.
- Develop improved equipment for conveyance of higher solids slurries.
- Prepare and submit a report on equipment development / optimization – pretreatment that describes the equipment modifications to the "slurry" dispenser unit and the conveyance equipment and the performance results of the modified equipment.

Products:

- Report on equipment development / optimization - pretreatment

Task 2.4 Equipment Development / Optimization - Hydrolysis

The goal of this task is to improve the reactor design for the hydrolysis of biomass to intermediate cellulosic sugars, enabling continuous operation and reduced reaction times.

The Recipient shall:

- Develop advanced custom equipment for hydrolysis that is capable of continuous operation and delivering performance enhancements in terms of processing speed (i.e., reduced residence time) and conversion.
- Develop equipment to enable improved liquid-solids separations.
- Prepare and submit a report on equipment development / optimization – hydrolysis that describes the equipment modifications to the hydrolysis equipment and the liquid-solid separation equipment and the performance results of the modified equipment.

Products:

- Report on equipment development / optimization - hydrolysis

Task 2.5 Initial Biorefinery Test Plan

The goal of this task is to prepare a detailed test plan covering the intended operations of the Biorefinery using Project Feedstocks prior to the installation of equipment enhancements.

The Recipient shall:

- Develop and submit a test plan that includes:
 - Logistic plan, including number of hours for continuous operations with each Project Feedstock
 - The methods for monitoring operation to evaluate overall yields, intermediate yields, and equipment wear
 - Plan for data collection, validation, analysis, and reporting

[CPR WILL BE HELD IN THIS TASK. See Task 1.2 for details]

Products:

- Initial Biorefinery Test Plan

TASK 3 INITIAL BIOREFINERY DEMONSTRATION RUNS

The goal of this task is to demonstrate the integrated conversion of Project Feedstocks to ethanol using Recipient's proprietary process in its 2 ton per day Biorefinery prior to any equipment enhancements.

The Recipient shall:

- Perform a process hazards review assessment to determine the tests needed to ensure proper operation and safety of equipment added to the Biorefinery.
- Commission the Biorefinery equipment enhancements, with appropriate process hazards reviews and start-up testing.
- Demonstrate operation of the 2 ton per day Biorefinery using Project Feedstocks and achieving all preliminary performance goals in terms of overall yield, which is at least 50 gallons of ethanol per dry ton of biomass.
- Prepare and submit an operations report which includes...

Products:

- Operations report

TASK 4 BIOFINERY UPGRADES

Task 4.1 Equipment Addition List

The goal of this task is to finalize the design and specification of any equipment modifications and/or additions to the Biorefinery needed to efficiently operate, prior to incurring equipment and construction costs.

The Recipient shall:

- Prepare and submit a Construction and Equipment List documenting the comprehensive construction costs. The Construction and Equipment List will include all items to be purchased, constructed, or installed on the project. For each item, the letter shall provide:
 - The name of the item
 - The make, model, size, capacity or other information as appropriate to the item
 - The name of the entity that will be carrying out the purchase and/or installation of the item
 - The estimated cost to purchase and install the item
 - The schedule for obtaining a binding bid from the supplying or installing entity

Products:

- Construction and Equipment List

Task 4.2 Approval to Proceed with Construction

The goal of this task is to document preparedness to build the project, and to secure Energy Commission approval to begin incurring major construction costs.

The Recipient shall:

- Prepare and submit a Written Notification of Readiness to Construct stating the project has obtained all permits, third party agreements, binding construction and equipment bids, and all other items necessary to begin construction.
- Develop and submit a proposed Construction Timeline running from the intended date to begin construction until the commercial operation date of the project.

[CPR will be conducted at the end of this task. See Task 1.2 for details.]

Products:

- Written Notification of Readiness to Construct
- Construction Timeline

Task 4.3 Construction

The goal of this task is to procure the equipment enhancements, incorporate them into the Biorefinery, and prepare them for operations.

The Recipient shall:

- Procure and install equipment enhancements at the Biorefinery. This shall include the following major components:
 - Enhancements to feedstock pretreatment section
 - Enhancements to hydrolysis reactor section
 - Test and commission equipment enhancements before operating
- Prepare and submit a Written Notification of Operation and submit it to the Commission Project Manager within ten working days of operation of the Biorefinery with equipment enhancements. The Written Notification shall contain the following elements:
 - The date the Biorefinery resumed operation with equipment enhancements
 - A narrative on the current status of the project and initial operations
 - Any changes made from the project as originally proposed and reasons for those changes

Products:

- Written Notification of Operation

Task 4.4 Revised Biorefinery Test Plan

The goal of this task is to prepare a detailed test plan that is revised to cover the intended operations of the Biorefinery after installation of the equipment enhancements.

The Recipient shall:

- Develop and submit a revised test plan that includes:

- Logistic plan for continuous operations incorporating the specified equipment enhancements
- The methods for monitoring operation to evaluate overall yields, intermediate yields, and by-product yields
- Data collection, validation, analysis, and reporting

Products:

- Revised Biorefinery Test Plan

Task 4.5 Revised Biorefinery Demonstration Runs

The goal of this task is to demonstrate the integrated conversion to ethanol using EdeniQ's proprietary process in its 2 ton per day Biorefinery after installation of the equipment enhancements.

The Recipient shall:

- Demonstrate operation of the 2 ton per day Biorefinery achieving at least 70 gallons ethanol per ton of biomass.
- Prepare and submit an operations report which describes the results of the biorefinery demonstration run, including the overall ethanol yield ...

Products:

- Operations report

TASK 5 ECONOMIC AND SUSTAINABILITY ANALYSES

Task 5.1 Life Cycle GHG Model Development and Analysis

The goal of this task is to develop detailed models to evaluate the life-cycle GHG emissions and carbon intensity of Recipient's biomass to ethanol process as demonstrated under this project.

The Recipient shall:

- Develop a detailed life cycle assessment model.
- Evaluate the impact of Recipient's proprietary process for cellulosic ethanol production on GHG emissions as well as water use, land use, and criteria air pollutants using the model.
- Generate carbon-intensity estimates compatible with the Low Carbon Fuel Standard (LCFS).
- Prepare and submit a modeling report which describes the life cycle assessment model developed and carbon-intensity estimates for cellulosic ethanol production.

Products:

- Modeling report

Task 5.2 Feedstock Sustainability

The goal of this task is to obtain data associated with Project Feedstocks to estimate for a commercial-scale project the life cycle feedstock supply economics, feedstock sustainability, and feedstock-related bases for lifecycle GHG analyses.

The Recipient shall:

- Obtain data on life cycle feedstock supply economics, feedstock sustainability, and feedstock-related bases for lifecycle GHG analyses.
- Prepare and submit a feedstock sustainability report which describes the economic viability of the feedstocks tested, the sustainability of feedstocks tested, and a life cycle GHG emission analysis of the feedstocks tested.

Products:

- Feedstock sustainability report

Task 5.3 Economic and Commercialization Analysis

The goal of this task is to update an estimate of the potential commercial production economics using Recipient's technology for producing cellulosic ethanol at both new biorefineries and additions to existing corn-based ethanol facilities.

The Recipient shall:

- Develop process designs for integrating Recipient's technology into existing California corn-based ethanol facilities to produce cellulosic ethanol at such sites and estimate the associated capital and operating costs.
- Develop process designs for using stand alone biorefineries to produce cellulosic ethanol using Recipient's technology and estimate the associated capital and operating costs.
- Prepare and submit an economics and commercialization report that details the process designs for integrating Recipient's technology into both new biorefineries and existing corn-based ethanol facilities.

Products:

- Economics and commercialization report

TASK 6 DATA COLLECTION AND ANALYSIS

The goal of this task is to collect and analyze operational data to determine the economic viability and environmental impact of the project. Final analysis of all project data shall be included in the Final Report.

The Recipient Shall:

- Collect 6 months of operational data from the Biorefinery to include:

- Time operating (up and down time)
- Efficiency of conversion of feedstock
- Biofuel production rate
- Quality and quantity of fuel produced
- Estimate gasoline and/or petroleum-based diesel fuel that will be displaced annually.
- 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.
- Explain how the project incorporated and achieved the sustainability goals.
- Provide a quantified estimate of the project's carbon intensity values for life-cycle scale greenhouse gas emissions.
- Quantify any 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.
- 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 Energy Commission with actual project performance and accomplishments.
- Describe how the project supports new technology advancement for vehicles, vessels, engines, and other equipment, and promote the deployment of such technologies in the marketplace.
- To the extent possible, describe how the project provided a measurable transition from the nearly exclusive use of petroleum fuels to a diverse portfolio of viable alternative fuels that meets California's petroleum reduction and alternative fuel use goals.
- Describe how the project demonstrated the cost-effectiveness of the proposed technology in achieving greenhouse gas emissions reduction.
- Provide additional data that may be requested by the Energy Commission during the term of this Agreement, as is reasonably available.

Products:

None. Information will be included in the Final Report.

To: Office of Planning and Research
P.O. Box 3044, Room 212
Sacramento, CA 95812-3044

From: (Public Agency) _____

County Clerk
County of _____

(Address)

Project Title: _____

Project Location - Specific: _____

Project Location – City: _____ Project Location – County: _____

Description of Nature, Purpose and Beneficiaries of Project: _____

Name of Public Agency Approving Project: _____

Name of Person or Agency Carrying Out Project: _____

Exempt Status: (check one)

Ministerial (Sec. 21080(b)(1); 15268);

Declared Emergency (Sec. 21080(b)(3); 15269(a));

Emergency Project (Sec. 21080(b)(4); 15269(b)(c));

Categorical Exemption. State type and section number: _____

Statutory Exemptions. State code number: _____

Reasons why project is exempt: _____

Lead Agency

Contact Person: _____ Area Code/Telephone/Extension: _____

If filed by applicant:

1. Attach certified document of exemption finding.

2. Has a Notice of Exemption been filed by the public agency approving the project? Yes No

Signature: _____ Date: _____ Title: _____

Signed by Lead Agency

Signed by Applicant

Date received for filing at OPR: _____

RESOLUTION NO: [XX-XXXX-XX]

STATE OF CALIFORNIA

STATE ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

RESOLUTION REGARDING: GRANT AWARD
TO
EDENIQ, INC.
UNDER PON-11-601

RESOLVED, that the State Energy Resources Conservation and Development Commission (Energy Commission) approves **Grant Award # ARV-11-018** with EdeniQ, Inc. (Recipient), for **\$3,900,000.00**, to modify an existing 2 ton per day biorefinery to test and optimize the use of cellulosic feedstock to produce lower carbon intensity ethanol.

WHEREAS, the Energy Commission finds that the activities funded by this grant are a “project” under the California Environmental Quality Act (CEQA) and categorically exempt from further environmental review pursuant to the “existing facility” exemption under CEQA Guidelines, § 15301.

FURTHER BE IT RESOLVED, that this document authorizes the Executive Director or his/her designee to execute the same on behalf of the Energy Commission.

CERTIFICATION

The undersigned Secretariat to the Commission does hereby certify that the foregoing is a full, true, and correct copy of a RESOLUTION duly and regularly adopted at a meeting of the California Energy Commission held on June 13, 2012:

AYE: [*List Commissioners*]

NAY: [*List Commissioners*]

ABSENT: [*List Commissioners*]

ABSTAIN: [*List Commissioners*]

*Harriet Kallemeyn,
Secretariat*