

GRANTS/CONTINGENT AWARD REQUEST



To: Grants and Loans Office

Date: 4 / 16 / 12

Project Manager: Shahid Chaudry Phone Number: (916) 654-4858 ext.  
Office: Special Projects Office Division: Fuels and Transportation Div MS- 23  
Project Title: Sacramento Bio-Refinery # 1, Phase II: Scaling-up to 100 Tons per Day

Type of Request: (check one)

**New Agreement:** (include items A-F from below) Agreement Number: \_\_\_\_\_  
Program: PON-11-601  
Solicitation Name and/or Number: PON-11-601: Biofuels Production Facilities  
Legal Name of Recipient: Clean World Partners, LLC  
Recipient's Full Mailing Address: 2330 Gold Meadow Way  
Gold River, CA 95670  
Recipient's Project Officer: Michele Wong Phone Number: (916) 635-7300 ext.  
Agreement Start Date: 06 / 15 / 2012 Agreement End Date: 12 / 31 / 2014

**Amendment:** (Check all that apply) Agreement Number: \_\_\_\_\_  
 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: \_\_\_\_\_

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: \_\_\_\_\_ NOE filed: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
 Environmental Document prepared: \_\_\_\_\_ NOD filed: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
 Other: \_\_\_\_\_  
 CEC has made CEQA finding described in CEC-280, attached

Funding Information:

\*Source #1: ARFVTP Amount: \$ 5,280,000.00 Statute: 2010 FY: 10/11 Budget List #: 601.118C  
\*Source #2: ARFVTP Amount: \$ 720,000.00 Statute: 2011 FY: 11/12 Budget List #: 601.118D  
\*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: 06 / 13 / 2012  Consent  Discussion  
Business Meeting Participant: Shahid Chaudry Time Needed: (5 minute)

Agenda Notice Statement: (state purpose in layperson terms)

Possible approval of a  Grant /  Contingent Award to...  
CLEAN WORLD PARTNERS: Possible approval of \$6,000,000.00 to the Clean World Partners to increase Sacramento Bio-Refinery's capacity from 25 tons/day (TPD) to 100 TPD. This project will result in diverting 100 TPD of source-separated food waste from landfills to produce 566,000 diesel gallon equivalent of renewable natural gas and generate 3.17 million kWh of electricity every year.

**EXHIBIT A**  
**SCOPE OF WORK**

**TECHNICAL TASK LIST**

| Task # | CPR | Task Name   |
|--------|-----|---|
| 1      |     | Administration  |
| 2      |     | Preconstruction and Planning                                |
| 3      | X   | Design Development and Cost Estimating                      |
| 4      |     | Procurement and Fabrication of System Components            |
| 5      | X   | Construction and Onsite Fabrication & Assembly              |
| 6      |     | System Test, Startup, and Achieving Full Operational Status |
| 7      |     | Data Collection and Analysis                                |

**KEY NAME LIST**

| Task # | Key Personnel                   | Key Subcontractor(s)           | Key Partner(s)  |
|--------|---------------------------------|--------------------------------|-----------------|
| 1      | Wong, Carlone, Tourigny, Oliver |                                | Synergex        |
| 2      | Wong, Rapport                   | Otto Construction, Carson, TSS |                 |
| 3      | Tourigny, Rapport               | Otto Construction              | Booth           |
| 4      | Tourigny, Wong, Carlone         | Otto Construction              | Booth, Synergex |
| 5      | Tourigny, Oliver                | Otto Construction              | Booth           |
| 6      | Tourigny, Rapport               | Otto Construction              | Booth           |
| 7      | Rapport, Oliver, Tourigny       | Otto Construction              | Synergex        |

**GLOSSARY**

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

| Term/Acronym | Definition  |
|--------------|---|
| AD           | Anaerobic Digestion                                   |
| AHJ          | Authorities having Jurisdiction                       |
| APS Digester | Anaerobic Phased Solids Digester                      |
| ARFVT        | Alternative and Renewable Fuel and Vehicle Technology |
| ATLAS        | Atlas Disposal Industries                             |
| BE Process   | Backend (Co-Product) Process                          |
| CAM          | Commission Agreement Manager                          |
| CI           | Carbon Intensity                                      |
| CNG          | Compressed Natural Gas                                |

| Term/Acronym      | Definition  |
|-------------------|---|
| CPR               | Critical Project Review   |
| DBR               | Dynamic Biofilm Reactor   |
| DGE               | Diesel Gallon Equivalents   |
| EH&S              | Environmental Health & Safety   |
| Energy Commission | California Energy Commission  |
| FE System         | Front End (Feedstock Collection, Transport, and Preprocessing) System |
| FTD               | California Energy Commission's Fuels and Transportation Division      |
| GHG               | Greenhouse Gas  |
| GP System         | Gas (bio) Processing / Refining System                                |
| GU Component      | Gas (bio) Utilization Component                                       |
| HRD               | High-Rate Digester  |
| LCFS              | Low Carbon Fuel Standard  |
| LEA               | Local Enforcement Agency  |
| O&M               | Operation and Maintenance   |
| P&ID              | Piping & Instrumentation Diagram                                      |
| Recipient         | Clean World Partners, LLC   |
| RNG               | Renewable Natural Gas   |
| SBR               | Sacramento Biorefinery  |
| TPD               | Tons per Day  |

## 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, Clean World Partners, LLC (Recipient) submitted application # 40, 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:**

According to the California Department of Resources Recycling and Recovery (CalRecycle), 27 percent of waste going to landfills today is organic. Because there is no non-landfill organics disposal system in Sacramento County and the surrounding area, regulatory agencies have a strong desire to reduce disposal of waste at composting facilities and landfills. Recent laws, such as AB 341 (Chesbro, Chapter 476, Statutes of 2011), point toward increased diversion rates in the future that may eventually require alternative disposal methods such as anaerobic digestion (AD). In addition, the general public has begun to make buying decisions based on the environmental impact of companies. All of these factors are driving the development and deployment and commercialization of AD. The Recipient's solution helps further the commercialization process by driving down system costs (capital, operations and maintenance costs) and facilitating the construction of AD systems at the site of the waste generation, which also reduces waste transportation costs. Standardization and successful integration of off-the-shelf components used in material processing and gas utilization systems within the Recipient's processes will lead to further reductions in capital and operating expenses associated with AD. With synergistic collaborations among partners in this project, the use of mid-sized systems to generate renewable transportation fuels will allow for smaller AD plants than previously available in any market to create renewable natural gas (RNG) stations and co-produce value added products (electricity, heat and fertilizers) for community use. This widens the availability of compressed natural gas (CNG) for consumers who wish to purchase CNG vehicles to reduce fossil fuel dependence and the environmental impacts of their vehicles. Proving the technical and financial feasibility of this technology in a high-profile setting such as the Sacramento County-owned transfer station will inevitably lead to a high rate of adoption at many future locations.

The proposed project is the next step in the commercialization of the Anaerobic Phased Solids Digester system (APS-Digester) (U.S. patent 6,342,378), a high-solids AD system developed at the pilot scale on the University of California at Davis campus, and

is the design, construction, demonstration and deployment of the full-scale Sacramento Biorefinery #1 (SBR1) at the Sacramento Area Transfer Station (SATS), a commercial transportation fuel application with co-production of electricity, heat, and other value added products (soil amendment) utilizing locally available waste feedstocks in Sacramento area and vicinity. The work of building the technology's foundation has been accomplished, yet there remain certain hurdles that must still be overcome to achieve commercial deployment. The work proposed herein addresses and mitigates the most significant potential risks associated with costs and technology risk factors, real or perceived, that accompany an emerging, innovative technology.

### **Goals of the Agreement:**

The goals of this agreement are to complete the scale-up of the existing SBR1 facility to a 100-tons per day (TPD) system, thereby contributing to the Energy Commission's goals of producing alternative and renewable transportation fuels in California that can stimulate economic development in the state and significantly reduce greenhouse gas (GHG) emissions and petroleum fuel demand. Specifically, the project will:

- Demonstrate modular, simple scale-up capabilities with single skid add-ons.
- Produce enough RNG for a 20 truck fleet and make RNG available to other fleets.
- Expand the organic food waste collection for digestion with Recipient's APS technology, diverting an additional 75 tons of organics from Sacramento landfills.
- Demonstrate organic separation from contaminants through automated pre-processing of food waste.
- Demonstrate nutrient recovery process to create value-added products from digester effluent.
- Demonstrate parasitic electrical generation from exhaust gas from Bio-CNG system, creating a fully sustainable process.
- Reduce GHG emissions by lowering petroleum demand and capturing emissions by performing degradation in a completely enclosed process.
- Demonstrate scale-up to commercial scale biofuel facility for revenue generation.
- Improve process-related energy economics.
- Improve pre-processing system to allow for lower carbon feedstocks.
- Reduce GHG emissions through efficiencies in scale-up.
- Lower petroleum dependence through offering renewable natural gas to a fueling station for public use.
- Stimulate economic development in California through developing replicable plan for constructing phased AD projects.
- Demonstrate AD system integration for waste collection companies with CNG fleets.

### **Objectives of the Agreement:**

The objectives of this agreement are to:

#### **Technical Objectives**

- Design, engineer, and construct the scaled-up SBR1 facility.

- Increase diversion of pre-landfill, source-separated food waste from 25 TPD to 100 TPD.
- Increase daily RNG production from 470 diesel gallon equivalent (DGE) to 1,550 DGE.
- Increase usable heat from 90 therms/day to 250 therms/day.
- Increase residual solids for use as soil amendment from 2 TPD to 20 TPD.
- Increase slow-release nitrogen fertilizer product from 6 TPD to 22 TPD.
- Increase liquid effluent production from 5,000 to 15,000 gallons per day.  
Increase net GHG offset from 17 to 66 metric tons of CO2 equivalents per day.

### **Economic Objectives**

- Demonstrate economic feasibility of a 100-TPD commercial scale food waste digester system.
- Create up to 60 short-term manufacturing jobs in Marysville, CA where fabrication will occur.
- Create 20 short-term construction jobs in Sacramento, California.
- Create 6 long-term operations jobs in Sacramento, California.

## **TASK 1 - ADMINISTRATION**

### **Task 1.1 Attend Kick-off Meeting**

The goal of Task 1.1 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)
- Review of match fund documentation (Task 1.6).
- Review of 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:

- Presentation of the CAM's expectations for accomplishing tasks described in the Scope of Work
- Review of 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 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 goal of Task 1.2 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 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 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 determination 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 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
- Schedule for written determination
- Written determination

**Recipient Product:**

- CPR Report(s)

**Task 1.3 Final Meeting**

The goal of Task 1.3 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.

During the technical portion of the meeting the Recipient 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 include 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**

The goal of Task 1.4 is to periodically verify that satisfactory and continued progress is made toward 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 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 Task 1.5 is to produce a Final Report which describes 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 ARFVT 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. 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 Task 1.6 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

- 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, and
- 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 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 Task 1.7 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 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, and
    - 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 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

**TASK 2 - PRECONSTRUCTION AND PLANNING**

The goal of Task 2 is to confirm and validate prior site studies and existing infrastructure characteristics. This task also revisits work completed prior to this agreement during the first phase and identified additions and changes needed to successfully complete the scale-up.

**Task 2.1 Confirm Feedstock Agreements**

The goal of this subtask is to identify and execute feedstock agreements for providing the feedstock for the project.

**The Recipient shall:**

- Formalize written feedstock agreements with key suppliers and submit copies to the CAM.
- Prepare and submit a Feedstock Procurement Plan to the CAM that names and quantifies specific feedstock sources(s).

**Task 2.2 Confirm Site Characteristics, Infrastructure Details and Logistics**

The goal of this subtask is to identify civil and utility work that will be necessary to scale-up the biofuel facility.

**The Recipient shall:**

- Determine project size and location within the SATS
- Identify proximity of project to existing utilities (electric, water – potable and non-potable, sewer, natural gas, and fire control)
- Confirm access into and out of the site location for transportation of materials, equipment, employees and support services

**Task 2.3 Confirm Engineering Requirements Considering Prior Phase Work**

The goal of this subtask is to review and update the work completed prior to this agreement for Phase I that will be used to scale-up the biofuel facility.

**The Recipient shall:**

- Review and update prior requirements and Phase I development to make any changes necessary to successfully scale-up the biofuel facility
- Compile a single, updated site work, permitting and engineering system requirements report and submit to the CAM.

**Products:**

- Feedstock Procurement Plan
- Feedstock Agreements
- Site Work, Permitting and Engineering System Requirements Report

**TASK 3 - DESIGN DEVELOPMENT AND COST ESTIMATING**

The goal of Task 3 is to finalize system mass and energy balance, confirm top level system process flows and sequences, confirm final equipment layout and design specifications including instrumentation and controls, and review and consider the cost impacts of all components and systems.

**Task 3.1 System Mass Balance and Energy Balance Determination**

The goal of this subtask is to optimize the system mass and energy balance.

**The Recipient shall:**

- Establish Material Balance:
  - Inputs
    - Feedstock
    - Water
    - Chemical inputs (optional)
  - Outputs
    - Biogas
    - Co-products
    - Emissions & waste
- Establish Energy Balance:
  - Total Energy Output
  - Parasitic Energy Demand (Electric & Heat)
  - Net Energy Output (Electric & Heat)
  - Hot Water, Steam, Heated Air Considerations
  - Transportation Fuel Production
  - Gas Injection/Storage
- Consider Alternative Material & Energy Scenarios
- Include a summary of the information about optimal mass and energy balance under multiple scenarios in the Task 3.4 Report.

### **Task 3.2 System Top Level Flow, Process Sequence and Equipment Layout**

The goal of this subtask is to confirm top level system process flows and sequences, create process flow and piping and instrumentation diagrams, and develop the layout of equipment.

#### **The Recipient shall:**

- Create Process Flow Diagram and Unit Operations Descriptions
- Define Top Level Process Sequences
- Develop Schematic Equipment Layout and Piping & Instrumentation Diagram (P&ID)
- Include the diagrams, and summaries of descriptions and sequences in the Task 3.4 Report.

### **Task 3.3 Process & Equipment Alternatives, Cost Estimates and Economics**

The goal of this subtask is to evaluate and estimate costs for critical facility components.

#### **The Recipient shall:**

- Complete equipment evaluations and cost estimates for each of the following critical components:
  - Front End material preprocessing and input system,
  - Anaerobic Digestion system alternative features,
  - Biogas Processing and refining system,
  - Biogas Utilization delivery and storage components,
  - Co-product Back End solid and effluent processes, and
  - Site and/or System Layout Schemes.

### **Task 3.4 Final Selection, Approval and Specification of Processes and Equipment**

The goal of this task is to finalize component and system specifications.

#### **The Recipient shall:**

- Develop schematic specifications for all purchased components
- Develop schematic designs, concepts and design methodology for any custom or semi-custom components and systems including control system and interface
- Summarize design, engineering and drafting activities for Task 3.5.
- Prepare and submit a Task 3.4 report containing final material balance, energy balance, and process flow piping and instrumentation diagrams.

### **Task 3.5 Complete Design & Construction Documents and Specifications**

The goal of this subtask is to complete the procurement package for purchased components and the design package for the components and system.

**The Recipient shall:**

- Complete procurement package for purchased components that includes the following items:
  - Specifications, utilities, and operating parameters,
  - Consumable and spare parts needed,
  - Commercial Terms, freight, warranty, and service provisions, and
  - Schedule and timeline for procurement (including approvals, ordering, and delivery).
- Complete design package for semi-custom and custom components and systems, including the following elements:
  - Overview, elevations and plan views of the design,
  - Detailed drawings of all critical components,
  - Detailed P&ID showing all instrumentation and process elements,
  - Mechanical, electrical & shop drawings,
  - Control System design and interface hardware selection,
  - Software and process control requirements specification, and
  - Design & build schedule including procurement, fabrication, final assembly and shop site test.
- Prepare and submit a Design Engineering and Construction Development Report summarizing the information above.

**Products:**

- Design Engineering and Construction Development Report
- Task 3.4 Report

**TASK 4 - PROCUREMENT AND FABRICATION OF SYSTEM COMPONENTS**

The goal of Task 4 is to procure components and manage the fabrication and assembly of equipment & systems. This includes both custom, proprietary hardware and licensed technologies that are integrated with off-the-shelf commercial equipment and instrumentation. All systems are to be tested and validated before the next integration step and again before transport to project site.

**[A CPR will be conducted prior to the commencement of Procurement & Fabrication. See Task 1.2 for details.]**

**Task 4.1 Procurement Material Plan**

The goal of this subtask is to develop a schedule for procuring equipment for the biofuel facility, to plan for any contingencies, and to procure and test equipment.

**The Recipient shall:**

- Identify all buyers and sources for project equipment, including, but not limited to:
  - feedstock processing system
  - 300/600 gallon tanks and supporting equipment
  - hydrolysis skid

- Equipment to upgrade AD System
- Gas Processing Unit
- Flex-Powerstations
- Effluent Management System
- Create an equipment procurement schedule and status report and submit to the CAM
- Develop procurement expediting and escalation provisions
- Plan late delivery contingencies for any major purchases
- Run shop site tests and determine acceptability of equipment
- Package and ship tested and accepted equipment to SBR1 site

#### **Task 4.2 Fabrication & Assembly Plan**

The goal of this subtask is to develop a plan for fabricating and assembling the equipment for the expanded facility.

##### **The Recipient shall:**

- Identify fabrication suppliers & supplying schedules
- Schedule shop floor resources
- Determine the final assembly sequence
- Prepare a fabrication and assembly plan that incorporates the information above and submit to the CAM.

##### **Products:**

- Equipment Procurement Schedule and Status Report
- Fabrication and Assembly Plan

### **TASK 5 - CONSTRUCTION AND ONSITE FABRICATION & ASSEMBLY**

The goal of Task 5 is to prepare the site, assemble and install equipment, test and validate the system, and perform inspections.

**[CPR will occur during this Task. See Task 1.2 for details.]**

#### **Task 5.1 Complete Site Preparation**

The goal of this task is to complete the civil site and utility work necessary to install the biofuel facility.

##### **The Recipient shall:**

- Perform site grading (cut & fill)
- Excavate footings, foundations and underground utilities
- Pour concrete footings, pads and structural supports
- Establish interconnections to all utilities

## **Task 5.2 Major component rigging, setting & anchoring**

The goal of this task is to site and anchor all equipment and system components.

### **The Recipient shall:**

- Precision set, assemble and insulate tanks
- Place skids & all major system components
- Anchor all equipment per the engineering specifications

## **Task 5.3 Fabrication & Assembly**

The goal of this task is to install and construct all subsystems of the biofuel facility.

### **The Recipient shall:**

- Execute installation and construction of the project. This construction shall include the following major components:
  - Feedstock Collection, Transport & Preprocessing System (FE),
  - Anaerobic Digestion System (AD),
  - Gas Processing Refining System (GP),
  - Gas Utilization Systems (GU),
  - Back End Co-product Processing System (BE), and
  - Co-generation of electricity and grid interconnection for net metering

## **Task 5.4 Testing and Validation**

The goal of this task is to test the newly constructed subsystems of the scaled-up facility, to verify equipment and system functionality, and to validate the entire biofuel production system.

### **The Recipient shall:**

- Verify all point-to-point connections
- Label all components and process lines
- Test installed equipment for wet and dry leaks
- Test and validate installed functionality of:
  - Hydrolysis tank delivery equipment
  - Hydraulic mixing and material circulation system assemblies
  - Heat exchanger system and valve assemblies
  - Heat exchanger boiler support system
  - Circulation piping systems and valve assemblies
  - Residue delivery system
  - Biogas collection systems
  - Computer controls system and control components
- Prepare and submit a system installation, assembly, and testing report that verifies system installation and assembly and summarizes test results.

## **Task 5.5 Readiness for Commercial Operations**

The goal of this task is to verify that the project is ready for commercial operations.

### **The Recipient shall:**

- Prepare a Written Notification of Readiness for Commercial Operation and submit it to the CAM. The Written Notification shall contain the following elements:
  - The date the project obtained all necessary sign-offs from local agencies,
  - A narrative of the current status of the project and initial operations
  - Any changes made from the project as originally proposed and reasons for the changes
- Photograph installed equipment and submit to the CAM.

### **Products:**

- System Installation, Assembly, and Testing Report
- Written Notification of Readiness for Commercial Operation
- Photographs of the installed equipment.

## **TASK 6 - SYSTEM STARTUP AND ACHIEVING FULL OPERATIONAL STATUS**

The goal of Task 6 is to complete training and orientation of operations personnel, initiate system feeding and start-up, initiate automatic controls, and attain operational status. This also includes the introduction of “biological seed” in the form of anaerobic sludge to initiate the AD process and ramp up of loading to achieve steady-state conditions at the designed loading rate (4 to 6 weeks).

### **Task 6.1 Employee Training & Orientation**

The goal of this subtask is to train new and existing employees in the safe operation and appropriate maintenance of the AD system.

#### **The Recipient shall:**

- Train employees in the safe operation of the AD system. The training program shall include:
  - Environmental Health & Safety training,
  - Hygiene and housekeeping requirements,
  - Basic process & instrumentation,
  - Sampling and data collection plan, and
  - Maintenance procedures

### **Task 6.2 System Feeding and Start-Up and Initiation Of Automatic Controls**

The goal of this task is to begin feeding the system, ramp-up the feed to the maximum specifications, and to monitor digester performance during the ramp-up and at maximum feed.

**The Recipient shall:**

- Acquire and transfer seed sludge to AD system
- Establish a feeding schedule and commence feeding
- Monitor feed ramp to maximum specifications (over approximately 4 to 6 weeks)
- Monitor digester performance including:
  - Gas production (flare, electric generation, fuel production and storage),
  - pH of each reactor, and
  - Solids concentration of feedstock and reactor liquids.

**Task 6.3 System Documentation Updating Standard Operating Procedures (SOP) and Non-Standard Operating Procedures (NSOP)**

The goal of this subtask is to document the standard operating procedures (SOPs) and Non-Standard Operating Procedures (NSOP) for the scaled-up biofuel facility.

**The Recipient shall:**

- Document SOP's (e.g. checklists, data collection, routine maintenance)
- Document NSOP's (e.g. troubleshooting, restarts, non-routing maintenance, equipment changes)
- Establish and implement a Maintenance Plan to include:
  - Project Manager Schedule,
  - Spare Parts & Consumables, and
  - Contract Services.

**Task 6.4 Verification of System's Full Functionality**

The goal of this task is to verify when the system has achieved normal commercial operations.

**The Recipient shall:**

- Certify the steady-state system performance of AD gas cleaning system for CNG and co-production of electricity, heat and other value-added products according to the original specifications.
- Record the steady-state "process fingerprint" (normal condition for instruments and parameters).
- Prepare and submit a summary report on full scale system operations.

**Products:**

- System Start-Up and Operations Report

**TASK 7 - DATA COLLECTION AND ANALYSIS**

The goal of Task 7 is to collect and analyze operational data of the biofuel system on the economic viability and environmental impacts of the project. Final analysis of all project data must be included in the Final Report.

**The Recipient shall:**

- Collect 6 months of operational data from the fuel production system to include:
  - Time operating (up and down time),
  - Efficiency of conversion of feedstock,
  - Biofuel production rate, and
  - 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 the Energy Commission with actual project performance and accomplishments.
- If the project outcome doesn't meet the initial goals and objectives of the project, identify the possible causes of non-achievement and propose possible solutions.
- 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 shall 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  
CLEAN WORLD PARTNERS, LLC  
UNDER PON-11-601

**RESOLVED**, that the State Energy Resources Conservation and Development Commission (Energy Commission) approves **Grant Award # ARV-11-021** with Clean World Partners, LLC (Recipient), for **\$6,000,000.00**, to expand an anaerobic digestion facility at a former transfer station that will produce renewable natural gas from pre-landfill municipal solid waste.

**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, the “new construction or conversion of small structures” exemption under CEQA Guidelines, § 15303, and the common sense exemption under CEQA Guidelines, § 15061(b)(3).

**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*