

# MONTHLY PROGRAM REPORT

DECEMBER 2004

COMMONWEALTH BIOGAS/PV MINI-GRID RENEWABLE RESOURCES  
RD & D PROGRAM

*Making Renewables Part of an Affordable and Diverse  
Electric System in California*

CONTRACT NO. 500-00-036

REPORT PREPARED BY: COMMONWEALTH ENERGY TEAM

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## PLANNED ACCOMPLISHMENTS FOR THIS PERIOD:

### Project 0: Program Administration

It was anticipated that the Commonwealth Program Administrative Team would continue to provide ongoing support to the CE Project Teams and Commission PIER Program management staff. Additionally, work would continue on the PIER Program 1<sup>st</sup> Annual Report. Project and Program Monthly Status Reports would be drafted for all projects (#s 1.1, 2.1, 3.1, 3.2 and 3.3) and reviewed internally prior to submittal to the Commission and posting on the Commonwealth PIER Mini-Grid RD&D Program Website.

The Contract Administration Team was to continue to provide support to the CE Project Team as Program task deliverables are presented for internal and TAC review prior to submittal to the Commission. It was anticipated that the Match Funds documentation, requested by the Commission Project Manager, in conjunction with Contract Invoice # 13, would have been received by the CE Team and would be reviewed internally prior to submittal to the Commission. Once this documentation was received and approved by the Commission, Contract Invoice # 13 would be resubmitted for approval.

**Project 1.1: Program Planning and Analysis**

In December the CE Team anticipated receiving approval on the *Prioritization Report* under Task 1.1.10 and the *Project 1.1 Draft Report* under Task 1.1.11b. Upon receiving that approval, the deliverables would be finalized and invoiced. Additionally, work would move forward on the Task 1.1.11c *Project 1.1. Final Report*.

**Project 2.1: Enhanced Landfill Gas Production**

December's focus of activity was to be limited. The only remaining activity to be completed on this project was to be the review of the findings and results as they would relate to future bioreactor projects.

**Project 2.2: Enhanced Energy Recovery through Optimization of Anaerobic Digestion and Microturbines**

It was anticipated that the testing of the two ultrasound systems would continue, and that baseline data for the gas cleaning tasks at RP-1 would be collected. Data from the first operating period would be reviewed and the *First Quarterly Report* would be finalized.

Documentation was to be submitted certifying that the installation was finalized, and this process would mark the completion of the Ultrasound Installation Task.

**Project 3.1: Dairy Waste to Energy**

Activities were to focus on the completion of the draft Project 3.1 *Tactical Marketing Plan*, as well as the submittal of the *Draft Process Recommendation Report*. Coordination with IEUA staff would continue in relation to *Bench Scale Testing*, the result of which will be used in the design of the co-digestion systems.

**Project 3.2: Building-Integrated PV (BI-PV) Testing and Evaluation Project**

In December, Endecon continued to work on the *6-month Exposure and Operation Report* for the Large Systems. Also, Endecon planned to continue to monitor the output and ambient conditions from the small and large systems.

**Project 3.3: Building-Integrated PV (BI-PV) on Public Facilities**

IREDI and Spectrum Energy planned to continue the financial analysis on potential BI-PV site and would begin preparing a draft final report of at least six and up to 12 candidate sites for BI-PV installations.

**WHAT WAS ACCOMPLISHED THIS PERIOD:**

**Project 0: Program Administration**

The Commonwealth Program Director continued to hold teleconference meetings and met with Commission staff and CE Team members, to review and discuss potential redirection/revisions to Project work plans/scope/focus for Projects 2.1, 2.2 and 3.1.

As anticipated, the Commonwealth Contract Administrator continued to provide support to the CE Project Teams on various pending project deliverables. Match fund documentation requested by the Commission Project Manager in conjunction with Contract Invoice # 13, was partially received, with one team member's input still awaited.

**Project 1.1: Program Planning and Analysis**

Work was limited on this Project, as the CE Team continued to await Commission approval of the Task 1.1.10 *Prioritization Report* and the Task 1.1.11b *Project 1.1. Draft Final Report*.

**Project 2.1: Enhanced Landfill Gas Production Using Bioreactors**

As anticipated, there was very limited task activity. The CE Team continued to move forward with comments received at the October *Technical Advisory Committee Project Wrap-up Meeting*. These comments will be reviewed along with the findings of the project as they relate to future bioreactor projects within the State of California. This review work will be conducted as part of the measurement and evaluation activity for this project.

**Project 2.2: Enhanced Energy Recovery through Optimization of Anaerobic Digestion and Microturbines**

As anticipated, work was focused on the finalization of the design drawings at the gas cleaning site with host, IEUA. Design documents were reviewed and equipment delivery finalized.

Utilizing the gas cleaning system design, installation activities were undertaken. Additionally, baseline data from the City of Riverside's Treatment Plant continued to be collected through December. The data collected will continue to be extremely important as it describes the performance of the existing systems prior to start-up.

In December, the *First Quarterly Report* was reviewed internally and CE Team comments were reviewed and integrated into the draft report.

**Project 3.1: Dairy Waste to Energy**

Efforts were focused on the completion of the Draft *Process Recommendation Report*. This report expands on the previously submitted *Interim Report*, and includes information on co-digestion technologies as well as the data collected on food waste sources that may be used at the RP-1 facility. The report was finalized in December and after internal review will be submitted to the Technical Advisory Committee and Commission staff for final review.

On the site selection task, efforts focused on finalizing the selection of the optimal sites for the various components of the co-digestion system planned for the IEUA RP-1 treatment plant. Additionally, the CE Team, based upon directives at the October 11th meeting, began developing the *Tactical Marketing Plan: "Bringing Co-Digestion and New Biogas Electric Power to Market in California"*. The draft was completed in December and is being reviewed internally prior to submittal to the Commission.

In December, CH<sub>2</sub> finalized the *Bench Scale and Other Test Plans and Protocols Report*, as well as the *Final Design and Test Plan*. A testing sequence was developed which provided a stepwise strategy in order to optimize the full scale test phase of the co-digestion effort. Co-digestion suppliers were screened further and a preliminary assessment of the key parameters were reviewed and refined.

**Project 3.2: Building-Integrated PV (BI-PV) Testing and Evaluation Project**

As anticipated, Endecon continued to work on the *6-month Exposure and Operation Report*, as well as to monitor the output of all large and small systems. Additionally, Endecon submitted the *Final Small Systems Characterization Report* to the Commission for review.

**Project 3.3: Building-Integrated PV (BI-PV) on Public Facilities**

In December REDI and Spectrum Energy staff sought additional utility bills and continued work on economic analysis to determine the financial feasibility of the potential BI-PV sites.

**HOW WE ARE DOING COMPARED TO PLAN:**

Of the active projects, Project 1.1, Project 2.1, Project 3.1, Project 3.2 and Project 3.3 have some task elements that are running behind our original Program schedule. However, the majority of the Project Tasks being implemented are proceeding along the (09/17/03) revised Exhibit B schedule. The following discussion summarizes the delays that have been encountered to date. Note that these individual task delays may impact the individual Project's targeted completion dates.

- **Project 1.1:** Although the CE Team has experienced challenges in gathering certain data, completing responses to comments, which has in some instances,

delayed the completion of reports that were in turn crucial to the completion of another task, the majority of these issues have been resolved.

- **Project 2.1:** The CE Team continues to closely follow and facilitate/monitor this process of regulatory acceptance. Additionally, a delay in receiving primary data, affected the completion of the Task 2.1.1.a report. As of July, Project 2.1 has been closed.
- **Project 2.2:** Although this project is on track, due to project redirection and specifically a change of focus to the RP-1 site, additional coordination activities have been required with the technology vendors. This redirection will improve the implementation of the pilot programs, but has delayed the completion of the Site Selection and design tasks.
- **Project 3.1:** As the *Test Plan and Protocols Report* builds on the results from the aforementioned *Digester Comparison Report*, there has been a lag time between report submittals. These reports will be revised based upon the approved Project 3.1 Implementation Plan, prior to final submittal.
- **Project 3.2:** Task 3.2.2(1) activity has previously been delayed due to negotiations and related contract approvals in relation to the Commonwealth-IEUA Power Purchase agreement, as well as approval of the purchase orders and the SGIP Incentives reservation request to SCE for the 60 kW Large Systems. This delay has had a trickle down effect on subsequent tasks within this Project. Additionally, a problem with the PowerLight Array had caused a slight delay, but was resolved in January.
- **Project 3.3:** Task 3.3.2 has continued to take much longer than anticipated to complete, due to multiple outside technical reviews and related revisions implemented to the BI-PV *ETP*. The final draft deliverable has now been approved and the work, which was previously delayed under Task 3.3.4a, can now resume. The key personnel redirection has been resolved, and REDI's new team is actively moving forward while reviewing work previously completed.

#### **SIGNIFICANT PROBLEMS OR CHANGES:**

As indicated above, many of the Projects have work elements, which are currently behind schedule. Some of these task delays may impact overall Project completion dates, and as reported, a revised program schedule (i.e., contract Exhibit B) was submitted to the Commission for review and approval, which addressed schedule and task-level budget changes for these projects and their tasks. However, note that current Program progress and expenditures should result in the Program being completed on time under this revised schedule and within the Program's overall budget.

**EXPECTED ACCOMPLISHMENTS DURING THE NEXT PERIOD:**

**Project 0: Program Administration**

It is anticipated that the Commonwealth Program Director will continue to provide ongoing support to the CE Team and Commission staff. Additionally, work will continue on the PIER Program 1<sup>st</sup> Annual Report, with an anticipated draft to be submitted internally in late December. Project Monthly Status Reports will be drafted for all projects (#'s 1.1, 2.1, 3.1, 3.2 and 3.3) and a Program Status report will be drafted for internal review prior to submittal to the Commission and posting on the Commonwealth PIER Mini-Grid Program Web-Site.

The Contract Administrator will continue to provide ongoing support to the CE Team and Commission staff, as project deliverables are presented for internal review prior to submittal to the Commission. Upon receiving match funds documentation, and submitting this documentation to the Commission, the Contract Administrator will re-invoice Contract Invoice # 13.

**Project 1.1: Program Planning and Analysis**

In January, the CE Team anticipates receiving comments and/or approval from the Commission on the *Prioritization Report* under Task 1.1.10 and the *Project 1.1. Draft Final Report* under 1.1.11b. Upon receiving approval, the task deliverables will be finalized and the CE Team will commence work on the *Project 1.1 Final Report* under Task 1.1.11c .

**Project 2.1: Enhanced Landfill Gas Production**

Activities are expected to be limited, with only the review of results and findings as they relate to future bioreactor projects in California, remaining. This *Key Learnings* effort identified in the project wrap-up meeting will be conducted as a component of the Measure and Evaluation activity for this Project.

**Project 2.2: Enhanced Energy Recovery through Optimization of Anaerobic Digestion and Microturbines**

In January, testing will continue at the two Ultrasound sites. Baseline data from RP-1 will be collected and data from the first operating period for the ultrasound systems will be reviewed and the *First Quarterly Report*, drafted in December, will be submitted to the Commission for review and comments.

**Project 3.1: Dairy Waste to Energy**

Activities planned for January, include the submittal of the *Draft Tactical Marketing Plan*, and coordination meetings will continue between the CE Team and IEUA facility staff. Additionally, The Draft *Process Recommendation Report* will be submitted to the Commission for review. Comments are anticipated on the Draft Task 3.1.1b report, and

once received, these comments will be reviewed and integrated into the report prior to submittal to the Commission.

Site selection activities will also continue as will the Bench Scale Testing at the Orange County Sanitation District laboratory

**Project 3.2: Building-Integrated PV (BI-PV) Testing and Evaluation Project**

In January, Endecon plans to complete the first draft of the *6-month Exposure and Operation Report* and forward to the Technical Advisory Committee for review. Additionally, the monitoring of the output and ambient conditions from each of the small and large systems will also continue.

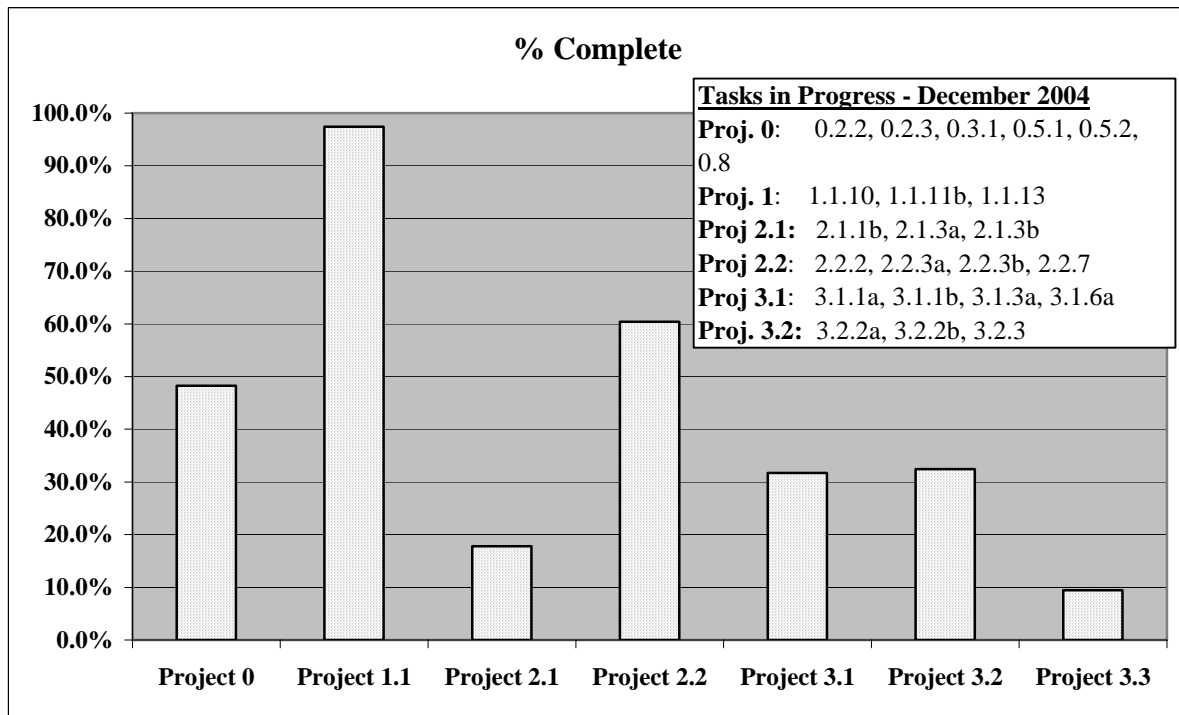
**Project 3.3: Building-Integrated PV (BI-PV) on Public Facilities**

REDI and Spectrum Energy plan to continue their work on identifying and establishing at least six candidate sites for BI-PV installations.

**OVERVIEW OF PROGRAM STATUS:**

Figure 1 below summarizes the overall Commonwealth Program status for each project and identifies the active tasks as of the end of the current reporting period.

**Figure 1: Summary of Program and Project/Task Status**



**OVERVIEW OF PROGRAM FISCAL STATUS:**

Table 1 and Figure 2 summarize the fiscal status of the Commonwealth Program by Project as of the end of the current reporting period. Figure 3 provides a status summary of the match funds for the Program to date.

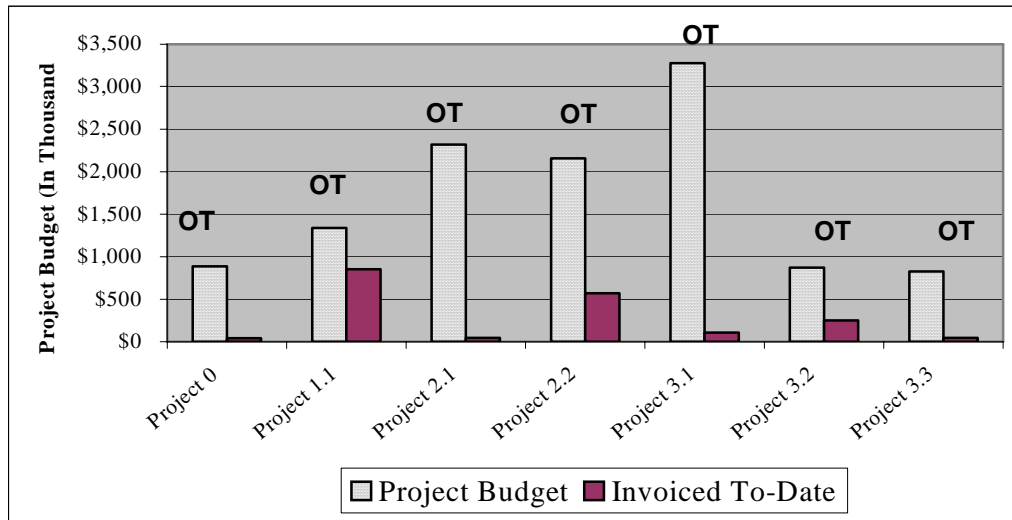
**Table 1: Cumulative Program Fiscal Status by Project**

Project Number	Project Budget	Invoiced To-Date (\$)	Fiscal Status *
Project 0	\$ 889,771	\$43,375 **	OT
Project 1.1	\$1,336,613	\$852,859 **	OT
Project 2.1	\$2,315,999	\$46,905 **	OT
Project 2.2	\$2,153,740	\$571,453 **	OT
Project 3.1	\$3,274,664	\$108,000**	OT
Project 3.2	\$ 870,099	\$252,449**	OT
Project 3.3	\$ 827,686	\$45,000**	OT

\*Fiscal Status = (OT) "On Track", (OB) "OverBudget", (UB) "UnderBudget"

\*\* Invoice Amount Shown after 10% retention withheld.

**Figure 2: Program Fiscal Status - PIER Expenditures**



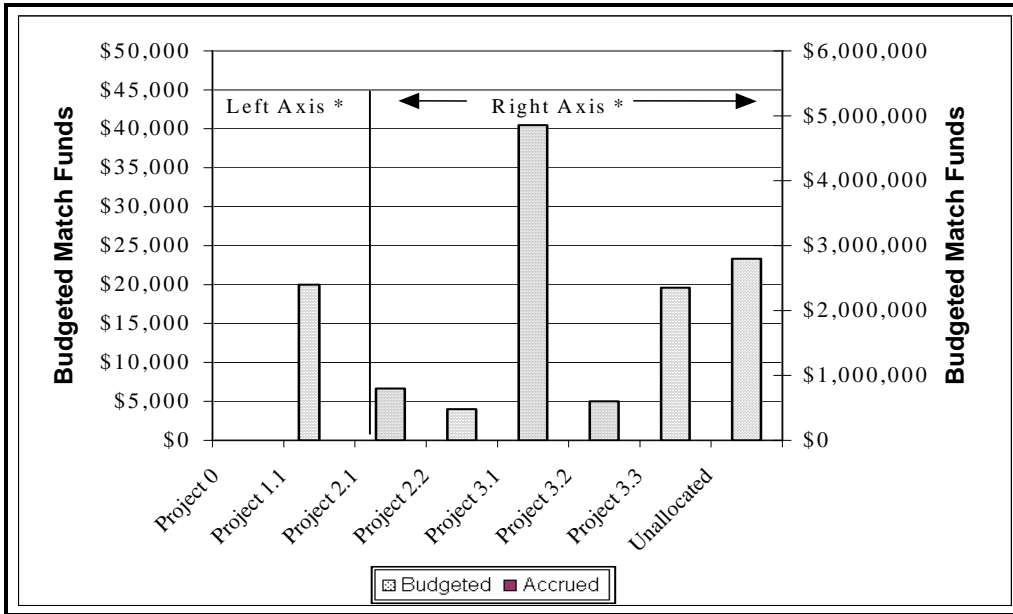
\* Fiscal Status = (OT) "On Track", (OB) "Over Budget", (UB) "Under Budget"

\*\* Invoice amount shown after 10% retention withheld

The CE Project Team has accrued documented match fund expenditures of \$1,218,636 through 2004. These expenses although accrued, are not represented in Figure 3 below, as

they have yet to be included on a Contract Invoice<sup>1</sup>. The CE Team anticipates that the accrued Match Funds will be documented and presented to the PIER Program Project Manager for review, and upon approval, will be included on the next Contract Invoice, and Figure 3 will be updated to reflect actual match fund accruals/expenditures through 2004.

**Figure 3: Program Fiscal Status - Match Funds**



\* The Budgeted Match Funds for Project 1.1 are significantly lower than Projects 2.1 through Project 3.3; therefore, we have utilized a left and right axis with differing value levels, which allows us to better highlight the Project Match Funds.

<sup>1</sup> As Match Funds, these expenditures are non-reimbursable. However, they are documented on contract invoices.