

# MONTHLY PROGRAM REPORT

JUNE 2003

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

Project-specific development/implementation support under Task 0.8 will continue relative to each active Project under the CE Program. Revisions and/or potential Project task-level budget reallocations will continue as needed, and the CE Team anticipates submitting a draft revised Contract Exhibit B to the Commission Program Manager in early July.

Monthly Status Reports will be drafted and submitted to the Commission for all six active Projects. Additionally, a Monthly Program Report will be drafted as well.

It is anticipated that Contract Invoice # 5 will be submitted in early June and will include Project 3.2 – Task 3.2.2.a (2). Additionally, Contract Invoice # 6 will be submitted in mid-June and will include Project 1.1 – Task 1.1.6 and Task 1.1.9a.

### Project 1.1: Program Planning and Analysis

Activity is expected to focus on the identification and prioritization of the leading projects to be recommended for further consideration and evaluation under each of the subsequent

implementation Projects in the Commonwealth Program. The final prioritization elements will continue to await the Mini-Grid power flow analysis results. However, the CE Team will continue to identify projects that may meet other identified Program objectives.

ZECO and Itron anticipate submitting the finalized Task 1.1.6 and Task 1.1.9a Final Reports to the Commission. Additionally, ZECO expects to complete and submit for internal CE Team review, the Task 1.1.9b power flow analysis draft report.

Itron anticipates finalizing and submitting the BI-PV and Biogas Market Potential Draft Report under Task 1.1.7. Additionally, the CE Team anticipates submitting the Final Report Outline under Task 1.1.11a for Commission approval.

Project 2.1: Enhanced Landfill Gas Production

The primary focus of activity will surround the completion of the waste characterization report for the Mid-Valley landfill. CH<sub>2</sub> anticipates that the report will be completed in early July.

A meeting has been scheduled with various regulatory agency and San Bernardino County staff in regard to the Yolo County Bioreactor Project, which will be held in Sacramento during June. It is anticipated that the results of this meeting will help develop the bioreactor project objectives at the Mid-Valley landfill site.

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

Information collection and assembly will continue in June on the different processes being analyzed as a portion of the Process Selection task. Discussions continued with Ingersoll-Rand (IR) regarding their fuel conditioning system and any possible applications for this project. Although work continues on the Process Selection Report, finalization awaits the power flow analysis results and report.

Project 3.1: Dairy Waste to Energy

In June, the primary focus will be on finalizing the Draft Technical Memorandum comparing the IEUA RP-1 and RP-5 facilities to other *plug flow* and *complete mix* digester projects.

Other activities will include continued development of the testing protocols for the implementation of the suggested projects identified under the Project 1.1 prioritization task. Some of these projects are expected to include, co-digestion and improved pretreatment, as well as others. Efforts will continue to define an approach, which will facilitate incorporation of the results of the Task 3.1.1 comparative analysis and the Task 1.1.9b Chino basin Mini-Grid power flow analysis into the process and site selection activities of this project.

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

It is anticipated that the remaining purchase order and contracts for the Schott Applied Power 20 kW system, as well as a series of ten 2 kW systems will need to be issued.

Additionally, Endecon anticipates receiving commitments from vendors who have been chosen to provide the small systems at the PVUSA site. The commitments will be for either equipment loans or a reduction of price, which will minimize cost to the project.

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

REDI anticipates compiling and incorporating the peer review and Itron review comments into the Draft Evaluation Tools Package. Once these comments have been addressed and incorporated, the draft deliverable will be submitted to the Commission for review and comments.

Additionally, REDI anticipates assembling background materials for all identified potential BI-PV Public Sector sites in preparation of the draft report under Task 3.3.4.

**WHAT WAS ACCOMPLISHED THIS PERIOD:**

Project 0: Program Administration

As anticipated, project-specific administration support under Task 0.8 continued. Revisions and/or potential budget reallocations continue to be refined.

The Contractor Program Director traveled to Sacramento on June 4<sup>th</sup> and 5<sup>th</sup> to meet with Commission staff to discuss Program Administration issues, and also met to discuss the Project 1.1.9 reports.

Project Monthly Status Reports were drafted for Projects 1.1, 2.1, 2.2, 3.1, 3.2 and 3.3 and submitted for internal team review.

Contract Invoice # 5 was drafted to include Project 3.2 – Task 3.2.2a (2). Additionally, Contact Invoice # 6 was drafted to include Project 1.1 – Tasks 1.1.6 and 1.1.9a.

Project 1.1: Program Planning and Analysis

As anticipated, CH<sub>2</sub> completed their response to the Commission's comments on the Task 1.1.2 Agricultural database and Inventory Report. Additional data on the electrical loads was compiled from various resources and will be presented in the final report.

Itron and ZECO submitted the final Task 1.1.6 Data Collection and Development of Mini-Grid T&D Information Report, along with the Task 1.1.9a Development of Local Area Mini-

Grid T&D Model. ZECO continues to develop the power flow cases, addressing low, medium and high expected renewable penetration levels. Additionally, a power flow analysis was performed, and the Task 1.1.9b draft Power Flow analysis Report was begun.

Itron submitted a preliminary draft of the Task 1.1.7 BI-PV and Biogas Market Potential Assessment Report for internal CE Team review.

Work continued on the Task 1.1.10 List of Prioritized Projects for PV and Biogas Systems, with CH<sub>2</sub> assembling previously collected information in relation to on-going work in Projects 2.1, 2.2 and 3.1, and their linkage to the overall Program. In response to comments provided by the Commission, Itron and the CE Team continued to finalize the draft outline for the Task 1.1.11 Project 1.1. Final Report.

Project 2.1: Enhanced Landfill Gas Production Using Bioreactors

CH<sub>2</sub> continued their data collection activities for the preparation of the Waste Characterization Report. Supplemental data was supplied by San Bernardino County and will be added into prior information received from statewide resources. A limited amount of research was conducted for the identification of the amendment material, which may be suitable for disposal at a bioreactor. As there has not been a determination as to the number of bioreactors to be developed, and as it is anticipated that this information may only be utilized for a second bioreactor, the team limited it's research time during this period.

A site visit to the Yolo County pilot Bioreactor site was conducted, and was followed with a second Project 2.1 meeting. The site visit and the meeting enabled San Bernardino County staff to learn of the previous Yolo County Bioreactor work, but also offered an opportunity for them to meet with Commission staff and discuss overall project plans. Additionally, a connection was made with the San Bernardino County design-engineering consultant and the designer of the Mid-Valley Landfill. As both of these individuals offer extensive landfill design and permitting expertise, it is anticipated that they will join the CE Project 2.1 team.

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

As anticipated, data collection and analysis continued as well as the assembly of different processes to be analyzed for the Process Selection Task of this Project. A meeting between Ingersoll Rand (IR) and IEUA was scheduled to review IR's fuel conditioning system, and arrangements were made for a site visit at RP-1. The overall intent of these meetings was to explore the IR gas cleaning technology for possible deployment at RP-1.

CH<sub>2</sub> continues its work on the Process Selection Report; however, as we currently anticipate that the Power Flow analysis results will not be available in June as anticipated, further work efforts on the report were minimized.

*Project 3.1: Dairy Waste to Energy*

The main focus of activity in June surrounded the assessment of the differing technologies for the purpose of capturing the energy value of the manure, and the determining the most effective manner to convert it to energy.

Work continued on testing the protocol processes for the optimization of biogas performances at existing dairy clusters at RP-1 and RP-5. These protocols will allow bench and pilot scale tests to occur during design activities.

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

Progress continues, on this Project, however, the purchase orders that Endecon had anticipated would be signed in June are still in process. Progress has been made on the subcontract agreement with Commonwealth and Endecon for the installation of the 60 kW Large Systems. Work continues to be on hold for the small systems data acquisition equipment procurement.

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

As anticipated, REDI submitted the Evaluation Tools package for internal review. The primary focus of activity surrounded incorporating the CE team's comments into the final draft version.

Additionally, background materials were identified and compiled for both the Evaluation Tools Package and the BI-PV Public Sector client Project sites, the latter of which will be integrated into the Task 3.3.4 Select Demonstration Project Sites draft report.

**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 Program schedule. However, the majority of the Project Tasks being implemented are proceeding along schedule. The following discussion summarizes the delays that have been encountered to date. Note that these delays should not significantly impact the overall Program's targeted completion date.

- **Project 0:** Itron has experienced delays in submitting the Monthly Project Status and Program Progress Reports.
- **Project 1.1:** The CE Team continues to experience difficulties in the gathering of dairy site-specific data, which has delayed the completion of the Agricultural Facilities Database and Inventory Report. Additionally ZECO experienced delays in receiving and being able to address comments within the Task 1.1.6 and 1.1.9a reports, and as such, the task 1.1.9b Power Flow analysis results have been moved

back slightly. Itron and CH<sub>2</sub> continue to await the results of the power flow analyses in order to complete the remaining elements of the Prioritized List of BI-PV and Biogas Projects.

- **Project 2.1:** As reported in March's Program Report, the overall project start-date was delayed pending the completion of the Landfill Bioreactor Database and Inventory Report (Task 1.1.3). As of June, the Project continues to move forward and work is proceeding as anticipated. An important challenge has been gaining regulatory acceptance of the bioreactor landfill project. The CE team will continue to closely follow and facilitate/monitor this process.
- **Project 2.2:** Although this project is on track, there remains uncertainty regarding the project, which will be recommended for funding, and this uncertainty may cause a slight delay in the deliverable date for the Process Selection Report.
- **Project 3.1:** This project has experienced a slight delay in the submittal of the Technical Memorandum Comparing Plug Flow and Complete Mix Digestion due to the unanticipated length of time required to assemble cost information on the RP-5 project, in a manner, which would allow it to be compared to other digester projects. Additionally, as the Test Plan and Protocols report builds on the results from the aforementioned digester comparison report, there will be a lag time between report submittals.
- **Project 3.2:** The previous legal delays surrounding the signed Commonwealth-IEUA BI-PV power sales agreement continue to have residual affects on other Project 3.2 tasks, and will additionally affect the schedule for Project 3.3. However, as the contractual issues are anticipated to be resolved soon, Project 3.2 and Project 3.3 are expected to move forward quickly. The majority of the legal questions from the parties have been answered, however a few remaining issues continue to hold up this process.
- **Project 3.3:** Task 3.3.2 has taken longer than originally anticipated to complete, due to multiple outside technical reviews and the draft deliverable, although essentially completed, continues under outside evaluation.

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

As indicated above, many of the Projects have work elements, which are currently behind schedule. Some of these task delays are likely to impact overall Project completion dates, and as reported, a revised schedule (Contract Exhibit B) is in process, and will be submitted to the Commission for review and approval, addressing any necessary changes in schedule for these projects. However, current Program progress and expenditures should result in the Program being completed on time and within budget.

#### **EXPECTED ACCOMPLISHMENTS DURING THE NEXT PERIOD:**

Project 0: Program Administration

Project-specific development/implementation under Task 0.8 will continue relative to each active Project under the CE Program. Revisions and/or potential budget reallocations will continue.

Monthly Status reports were drafted and it is anticipated that they will be submitted to the Commission for all six active projects. Additionally a Monthly Program Status Report will be drafted and reviewed.

Project 1.1: Program Planning and Analysis

Activity will continue to focus on defining and prioritizing the top projects to be recommended for funding. Additionally, The CE Team anticipates reviewing internally and finalizing the Task 1.1.7 Market Potential draft report.

ZECO will continue its work on the Task 1.1.9b Power Flow Analysis draft report.

Project 2.1: Enhanced Landfill Gas Production

Activity under Project 2.1 will focus on the completion of the Waste Characterization Report. Information that was previously requested, but was not available until June, should now allow the completion of this draft report. Additionally, it is anticipated that several meetings will be held in July in order to review the design of the Mid-Valley Landfill to assure adaptability to the bioreactor concept. An additional value to these meetings will be the information exchanged between participants, which will enable the efficient development of a bioreactor at the Mid-Valley Landfill site.

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

Information collection and analysis will continue with additional activity focusing on enhanced energy production, gas cleaning and energy recovery. A planning meeting is scheduled with IR and the CE Team to more fully identify and subsequently evaluate gas cleaning options for this project.

Project 3.1: Dairy Waste to Energy

July activities will focus on the finalization of the draft digester comparison report, with Commission comments addressed. Further identification and development of the Testing Protocols will continue. It is important to note that the findings related to the projects recommended within the Planning & Analysis Project 1.1. prioritization list may influence how work proceeds on this Project.

Overall, work will continue on defining the appropriate approach, which will incorporate the results of the comparative analysis of technologies, as well as the Mini-Grid analysis into the process and site selection activities.

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

Endecon anticipates that the remaining purchase orders and contracts for the large systems (2 kW) will need to be issued. Additionally, preparation for the installation of the large systems will continue, with a current target start date of August.

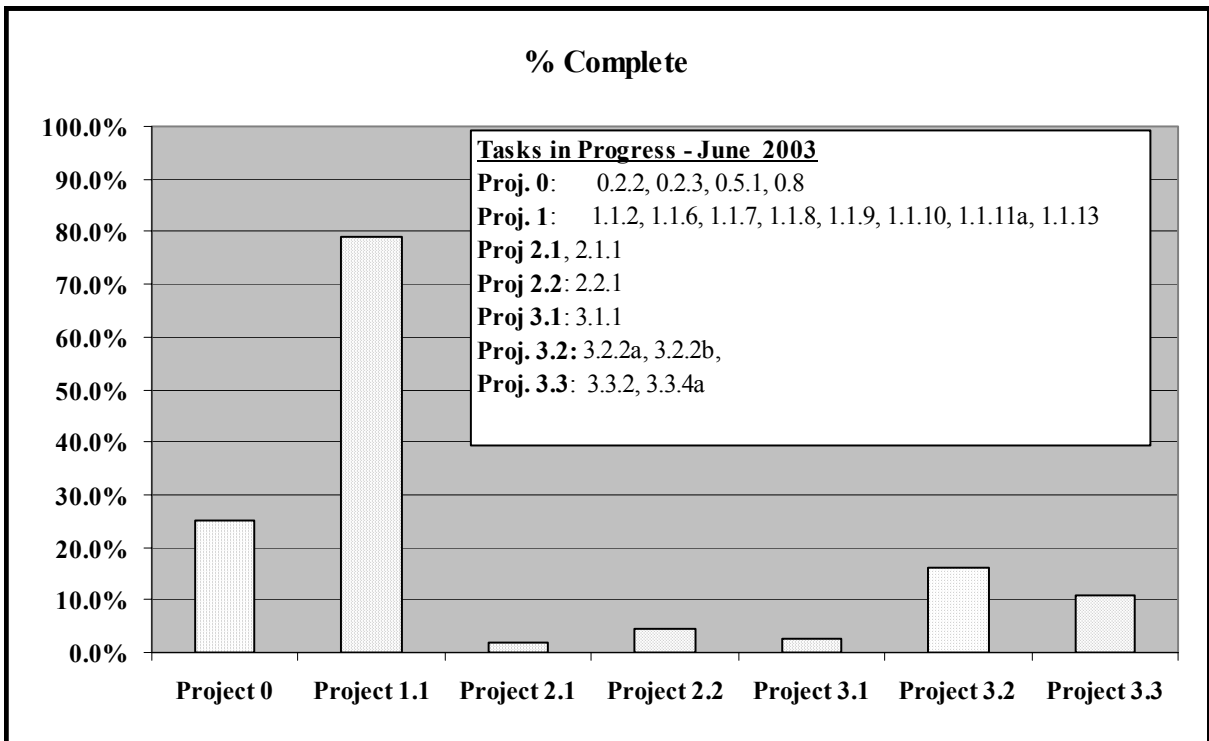
*Project 3.3: Building-Integrated PV (BI-PV) on Public Facilities*

Project assessment reports will be prepared for the ten identified BI-PV Public Sector project locations, and technical assistance will be offered to the BI-PV Public Sector Clients.

**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 below summarize the fiscal status of the Commonwealth Program by Project as of the end of the current reporting period.

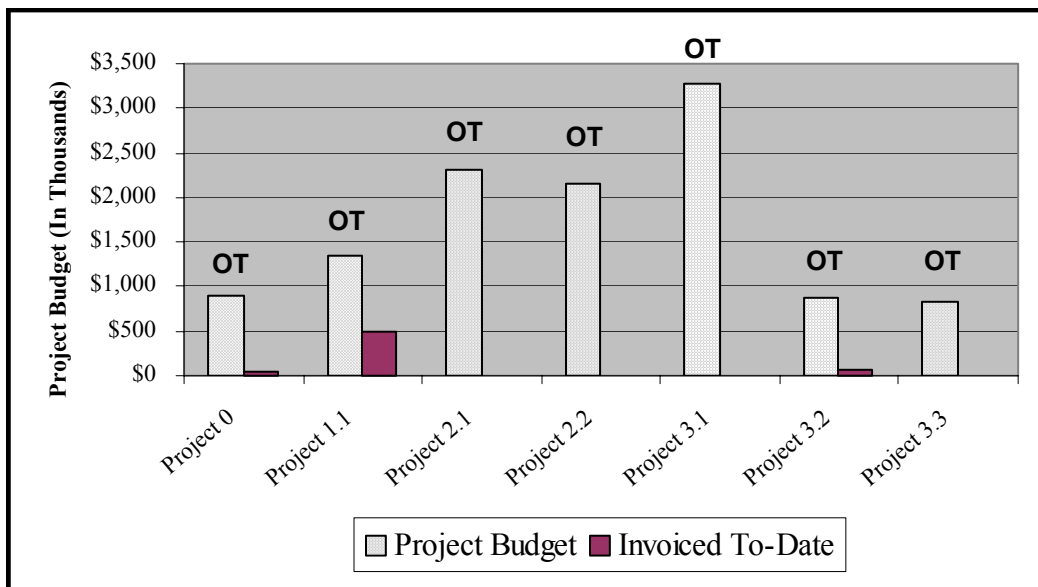
**Table 1: Cumulative Program Fiscal Status By Project**

<b>Project Number</b>	<b>Project Budget</b>	<b>Invoiced To-Date (\$)</b>	<b>Fiscal Status *</b>
Project 0	\$ 889,771	\$43,375 **	OT
Project 1.1	\$1,336,613	\$504,508**	OT
Project 2.1	\$2,315,999	0	OT
Project 2.2	\$2,153,740	0	OT
Project 3.1	\$3,274,664	0	OT
Project 3.2	\$ 870,099	\$76,014**	OT
Project 3.3	\$ 827,686	\$9,000**	OT

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

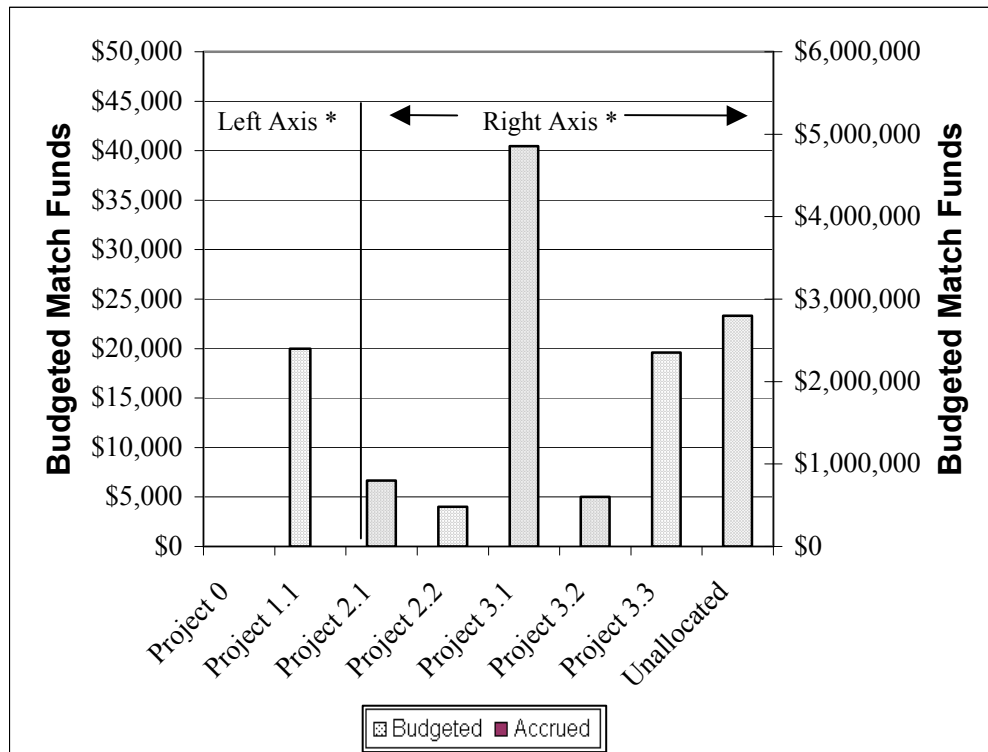
\*\* Invoice Amount Shown after 10% retention withheld.

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



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

**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.