

# MONTHLY PROGRAM REPORT

NOVEMBER 2002

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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Regional Economic Research/Itron (Itron), CH2MHill (CH<sub>2</sub>), Endecon Engineering  
(Endecon), Renewable Energy Development Institute (REDI), Zaininger Engineering  
(ZECCO).

## **PLANNED ACCOMPLISHMENTS FOR THIS PERIOD:**

### Project 0: Program Administration

The Commonwealth Team will finalize the PIER website and will forward individual passwords to all Team members. Three notification letters will be drafted and submitted to the Commission for review; the Website Acknowledgement Letter, the Operating Systems and the File Format letters. Work will continue under Task 0.2.3 as the CE Team contacts potential RPAC and TAC members.

Project specific administrative tasks will continue. Although draft invoices have been submitted to RER for review, the final deliverables have yet to be approved by the Commission therefore final invoices have yet to be submitted.

### Project 1.1: Program Planning and Analysis

Work will continue on the agricultural facilities database and inventory report, with the goal of submitting these deliverables to the Commission in November. Project prioritization will

begin as individual projects are defined, compared and prioritized. Work will also begin on the outline of the Project Final Report.

Work will continue to progress on developing the BI-PV technical potential for the mini-grid area.

*Project 2.1: Enhanced Landfill Gas Production Using Bioreactors*

Work may be initiated, however, there are still several key factors that need to be reviewed with the Commission staff prior to work actually beginning.

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

Work may be initiated, however, there are still several key factors that need to be reviewed with the Commission staff prior to work actually beginning.

*Project 3.1: Dairy Waste to Energy*

Work may be initiated, however, there are still several key factors that need to be reviewed with the Commission staff prior to work actually beginning.

*Project 3.2: Building Integrated PV Testing and Evaluation Project*

A list of systems will be disseminated with the TAC Members and a determination of the top three options will be made. Data acquisition specifications will continue once the top three have been chosen. The sites for both large and small systems will continue to be finalized.

*Project 3.3: Building Integrated PV on Public Facilities*

REDI expects to finalize the Draft Public Facilities Test Plan and the Project Development Guidelines. Contacts will continue to be made and new leads will be developed. All public facilities within the mini-grid area will be contacted as potential candidates for BI-PV applications.

**WHAT WAS ACCOMPLISHED THIS PERIOD:**

*Project 0: Program Administration*

As planned, RER finalized the PIER Website and provided individual passwords to the Commonwealth Team as well as TAC Members and Commission Staff. Data began to be collected from the Commonwealth Team members regarding computer software and operating systems in order to prepare draft notification letters for the Commission. A Website acknowledgment letter was also drafted for review and submittal to the Commission. RER continued to coordinate with the Commission and other team members in the process of collecting contact information for potential RPAC and TAC members.

Overall Program and Project contract administration tasks under Task 0.8 continued. Revisions and/or potential reallocations continued to be addressed for Exhibits B and C. Monthly Status Reports were drafted and submitted for Project 1.1, Project 3.2 and Project 3.3, and a Monthly Progress Report was submitted to the Commission for October.

**Project 1.1: Program Planning and Analysis**

RER submitted to the Commission the revisions on the Draft Renewable Resource Assessment Review Report as well as the mini-grid definition map and the final report to the Commission Project Manager. The Commission approved the deliverables and this task will be invoiced in December.

A meeting was scheduled with Commission Staff and CH<sub>2</sub>M to review the preliminary findings on the sewage treatment plant database and inventory report as they relate to the start of Project 2.2. Once comments have been received from the Commission, this task will be finalized.

CH<sub>2</sub> conducted follow-up calls with operators and regulators of the landfills, which have been identified as most suitable for bioreactor development. A meeting was held with Commission staff to review the findings of the report in relation to the start-up of Project 2.1. REDI continued its database work and transmitted the information to CH<sub>2</sub>M. Once comments have been received from the Commission, this task will be finalized.

The methodology for determining BI-PV technical potential continued to be reviewed, and development continued on the technical potential for PV power systems within the target area. The public sector database was refined by REDI and the draft report was finalized and submitted to the Commission for review and comment.

Zaininger Engineering (ZECO) forwarded a draft PSLF T&D database to Southern California Edison, and also obtained approval to release this database to the study group.

RER began developing a cash flow model for the purpose of evaluating economic potential for BI-PV and biogas distributed generation.

ZECO continued developing the representative local T&D model. Additionally, ZECO developed electrical assumptions and inserted local transmission data and transformer bank data into the model.

CH<sub>2</sub> initiated the prioritization process, starting with the Inventory Reports, which identified higher priority pilot projects. In one situation, the landfill bioreactor task, four of the highest

priority sites were identified. Potential sites and technologies will now be evaluated in order to identify the projects to be considered.

RER initiated the development of an M&E plan for Project 3.2.

*Project 2.1: Enhanced Landfill Gas Production Using Bioreactors*

Work has yet to begin on this project, per the Program schedule.

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

Work has yet to begin on this project, due to the need to re-assess the anaerobic digestion optimization technology implementation options available inside and out of the mini-grid and related stakeholder match funding issues.

*Project 3.1: Dairy Waste to Energy*

Work has yet to begin on this project, per the Commonwealth Program schedule.

*Project 3.2: Building Integrated PV Testing and Evaluation Project*

Under Task 3.2.2.a, progress was made on the specifications on equipment and drawings for the data acquisition system for the large system comparison. Research continued on the BI-PV products and two new systems were announced at the Solar Electric Power Association. Four prospective large systems were provided to the TAC members, and following a conference call, the top three options were chosen. The site for the large system was selected - the administrative building for Inland Empire Utility Agency (IEUA). Progress also continued on the specifications and drawings for the small system comparison.

*Project 3.3: Building-Integrated PV on Public Facilities*

REDI continued its work on the Draft BI-PV Public Facilities Test Plan. Materials were obtained for potential site audits, and modules are being developed on BI-PV costs and benefits, which will be added to existing financial analysis tools.

REDI continued its followed up with contacts made for the BI-PV Public Sector, and continued to develop new contacts. There are several clients identified to-date, including but not limited to, Inland Empire Utility Agency, California Institute for Women and Riverside Community College.

**How we are doing compared to plan:**

Of the projects that are currently active, several of Project 1.1's and Project 3.2's along with one of Project 3.3's tasks have fallen behind schedule. However, the remaining active Projects / Tasks are proceeding along schedule. Following are summaries of the delays that have been encountered, it is important to note, that the minor delays experienced, should not impact the overall Project 1.1. or Project 3.3 targeted completion dates:

- *Project 1.1:* Task 1.1.2a, Task 1.1.3, Task 1.1.4, and Task 1.16 continue to be slightly behind schedule due to the previously reported difficulty in receiving the information requested in a timely manner.
- *Project 2.2:* As reported previously, Project 2.2 has yet to begin pending clarification of certain project scoping/implementation issues.
- *Project 3.2:* Several of the tasks under 3.2.2 have fallen behind schedule due to difficulties over siting the large systems. These issues have now been resolved and it appears that overall, the schedule will be set back approximately eight weeks.
- *Project 3.3:* Task 3.3.2 and 3.34a are both on track with plan. Site visits were made to view public sector facilities and gather site load data.

**SIGNIFICANT PROBLEMS OR CHANGES:**

*Project 1.1*

As noted previously, the challenge faced has been the unavailability of data on the loads at individual dairies. This issue has largely been resolved and work will now progress on track. Additionally, it has taken longer than originally anticipated to develop the local electrical T&D database and load flow model. Overall, the Project 1.1 schedule is behind by approximately one month, however, these delays should not impact the overall plan for the Project, as the information collected will be readily available in subsequent phases.

Current Program progress and expenditures will result in the Program being completed on time and within budget.

**EXPECTED ACCOMPLISHMENTS DURING THE NEXT PERIOD:**

*Project 0: Program Administration*

The Commonwealth Team will continue to make contact with various potential RPAC and TAC members, and anticipates that a draft listing of nominated members will be forwarded to the Commission Contract Manager for review and approval. Additionally, the team plans to finalize the three notification letters that were drafted in November for final submittal to

the Commission Contract Manager. Program and Project specific administrative tasks will continue. The First invoice is anticipated to be submitted in the month of December, which will cover Project 0, Task 0.1 and Project 1.1, Task 1.1.1. Monthly Status Report and Monthly Program Reports will continue to be submitted to the Commission for review and comments or approval. All draft and/or final deliverables will be placed on the PIER Website, as will the monthly status and program reports.

*Project 1.1: Program Planning and Analysis*

Work will continue as CH<sub>2</sub> plans to complete the draft of the agricultural facilities database and the associated draft inventory report. The project prioritization process will begin, and the Project Final Report Outline will be initiated. Work will continue to progress as the BI-PV technical potential report and mini-grid area are finalized and presented for review to the Commission Contract Manager.

*Project 2.1: Enhanced Landfill Gas Production Using Bioreactors*

Work may be initiated, however, there are still several key factors that need to be reviewed with the Commission staff prior to work beginning.

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

Work may be initiated, however, there are still several key factors that need to be reviewed with the Commission staff prior to work beginning.

*Project 3.1: Dairy Waste to Energy*

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*Project 3.2: Building Integrated PV Testing and Evaluation Project*

The TAC members will review a series of arrays that could be used for the third system and will provide comments and preferences. Selection of 10 of the arrays will be made. Additionally, the project team will continue to work together to finalize arrangements for the site of three 20 kW systems. Requests for quotes will be sent, bids received and procurements will begin on the hardware for this project.

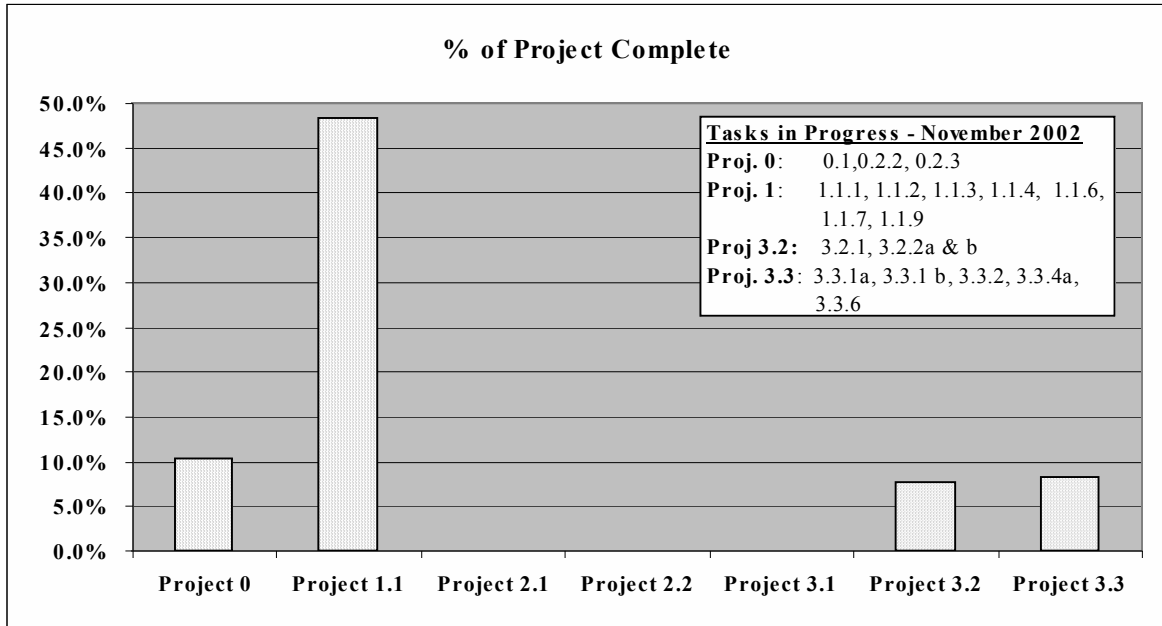
*Project 3.3: Building Integrated PV on Public Facilities*

REDI will continue its work on the BI-PV Evaluation Tools Package, which is expected to be complete in January of 2003. Contacts will continue to be made in the development of new leads, and materials will be sent regarding BI-PV applications for facilities

**OVERVIEW OF PROGRAM STATUS:**

Figure 1 below summarizes the overall Commonwealth Program status by project number and task as of the end of the current reporting period.

**Figure 1: Summary of Program Status – Project Percentage Complete**



**Overview of Program Fiscal Status:**

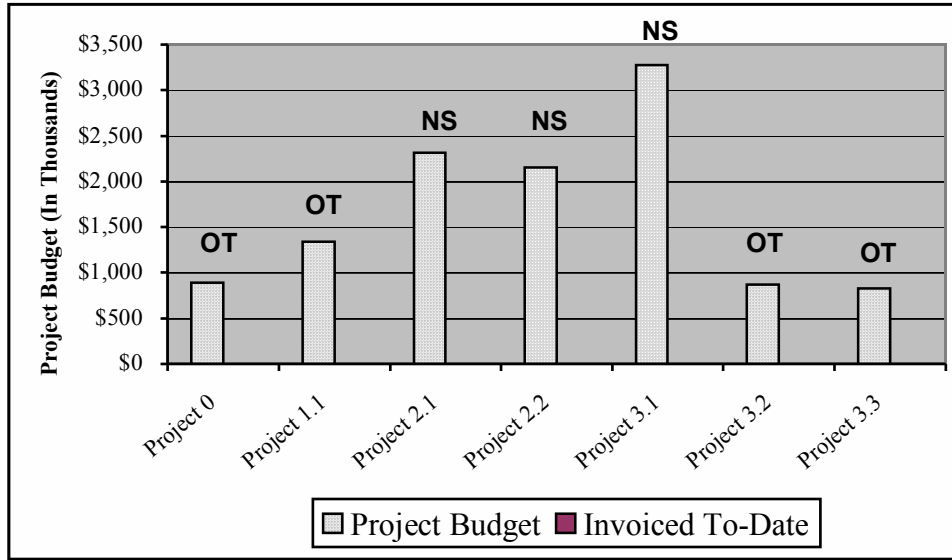
Table 1 and Figure 2 below summarize the fiscal status of the Commonwealth Program by Project as of the end of the current reporting period.

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

Project Number	Project Budget	Invoiced To-Date (\$)	Fiscal Status *
Project 0	\$ 889,771	0	OT
Project 1.1	\$1,336,613	0	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	0	OT
Project 3.3	\$ 827,686	0	OT

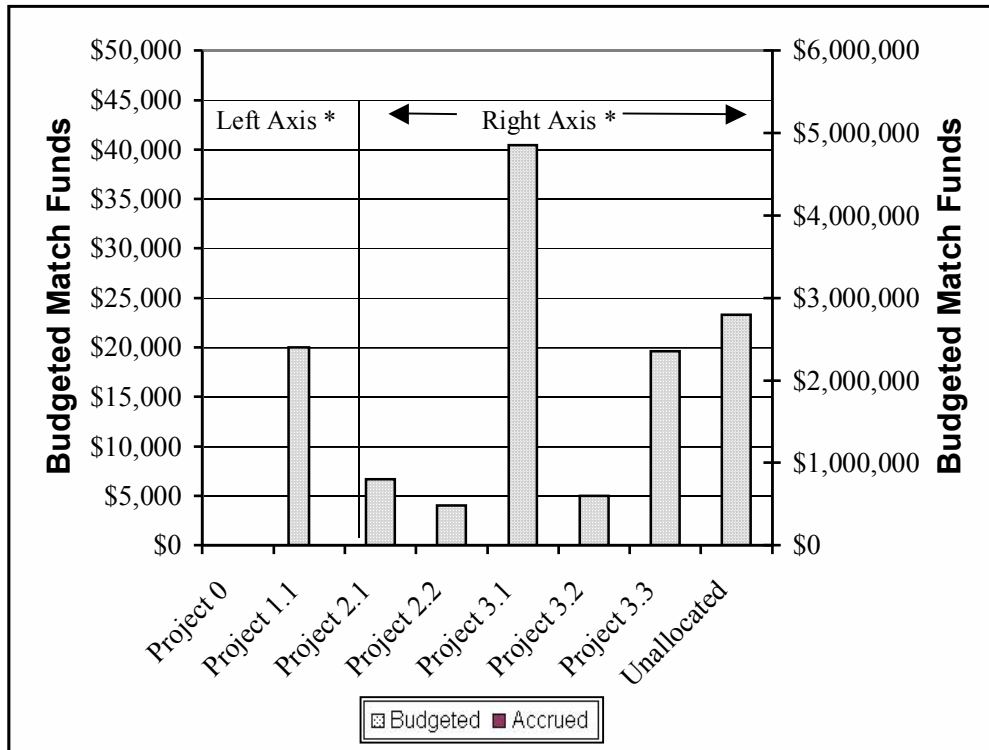
\*Fiscal Status = (OT) “On Track”, (OB) “OverBudget”, (UB) “UnderBudget”

**Figure 2: Program Fiscal Status**



\*Fiscal Status = (OT) "On Track", (OB) "OverBudget", (UB) "UnderBudget" (NS) "Not Started"

**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.