

MONTHLY PROGRESS REPORT FOR CONTRACT NO. 500-00-036

PROJECT 1.1 – PROGRAM PLANNING AND ANALYSIS

REPORT PREPARED BY: COMMONWEALTH ENERGY TEAM

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**What we planned to accomplish this period:**

During the next period CH2M Hill plans to submit the agricultural waste database and Inventory Report incorporating the new mini-grid boundary. CH2M also anticipates continuing its work on the project prioritization report. Additionally, they plan to continue working on the Project Final Report test and outline. The draft report is expected to be completed.

Another key activity planned for February will be a visit by NIRAS, a Danish firm with special expertise in biogas energy projects. They plan to give presentations in Chino and Sacramento on February 12<sup>th</sup> and 13<sup>th</sup>, respectively. Two representatives from NIRAS are scheduled to participate in these presentations and tour dairy manure power projects in the Chino area on the 11<sup>th</sup>.

The Project 1.1 Critical Program Review meeting is expected to be held in February at the California Energy Commission.

It is anticipated that the Task 1.1.5 inventory and technical potential report will also be finalized. The draft report on generation profiles for PV and biogas generation, Task 1.1.8, is expected to be completed in the next period as well.

ZECO expects to complete Task 1.1.6 and Task 1.1.9 a draft reports and deliver base case PSLF model to the Commission.

**What we actually accomplished this period:**

*Task 1.1.2 Develop Database of Agricultural Facilities in So. California, targeting the Chino Basin:*

- CH2M HILL completed its work on the agricultural database and submitted the draft report. Some follow on work continued in support of subsequent tasks where information from the database and inventory reports are being used.
- Comments were received from the Energy Commission late in the month and a preliminary analysis indicated that additional data needed to be assembled for incorporation into the report. Efforts to respond to the report were scheduled for March.

*Task 1.1.3 Serve as Host for Bioreactor Demonstration Project:*

- With the Landfill Bioreactor database and Inventory Report having been previously completed only minor follow on work related to subsequent tasks was being completed. This type of work included follow up calls with landfill owners and operators as well as with regulators to facilitate the completion of the prioritization report and the initiation of projects in Project 2.1.

*Task 1.1.4 Collect Information on Sewage Treatment Plants:*

- Having submitted the Sewage Treatment Plant database and Inventory Report previously, the Commonwealth Energy Team had limited activities on this task. Follow up phone communications were conducted with potential hosts for follow up projects at sewage treatment plants under project 2.2.
- Staff also supported efforts to refine the technical and market potential evaluations using inventory data developed as a part of this task. This work is in support of work on subsequent tasks.

*Task 1.1.5 Collect information on PV system siting requirements and Identify Potential Candidate Sites for Commercial Photovoltaic Systems:*

- Revisions to the draft report were made addressing comments that were received.
- The final report was completed and submitted to the CEC program manager.

*Task 1.1.6 Collect Information on Transmission/Distribution System:*

- ZECO completed the Task 1.1.6 draft report and submitted it along with the basecase PSLF model to the Commission on February 13<sup>th</sup>.

*Task 1.1.7 Assess Market Potential within Min-grid –*

- RER continued to develop technology cost data and refine the specification of biogas and BIPV prototypes.

Task 1.1.9 a and b Conduct Power Flow Analysis within Mini-Grid Target Area:

- ZECO completed the Task 1.1.9 a draft report and submitted it to the Commission on February 14<sup>th</sup>.
- ZECO began expansion of the mini-grid to 2007 and 2012 under Task 1.1.9 b.

Task 1.1.10 Prepare Prioritized List of Projects for PV and Biogas Systems

- CH2M HILL continued to work on the preliminary working draft of the prioritization report. Input and comments received from other team members were considered and the number of sections of the preliminary working draft were expanded. Work on this report will continue a low level until the Mini-Grid analysis is completed and the results factored into the prioritization effort.

Task 1.1.11 Prepare Final Report

- Work continued on the Final Report. CH2M HILL provided input to the outline for the final report. Information was also collected which is to be presented in the report. This included input from NIRAS on European technologies and practices. This information was obtained in a series of phone conversations with NIRAS staff and in conjunction with meetings held in the Chino Basin and in Sacramento. A key finding of NIRAS affecting the final report and the prioritization activity is the desirability of co-digestion. The trend in Europe toward the expanded use of co-digestion to increase energy production is being considered.
- Another important activity under this task is the ongoing effort to better define the projects that will be identified in the final report. These include the landfill bioreactor projects, sewage treatment projects (enhanced anaerobic digestion, gas cleaning for microturbines, and enhanced energy recovery), and dairy waste to energy. Activities related to all these potential projects were undertaken so that the findings in the Project 1.1 report would provide a well thought out foundation for subsequent projects.

Task 1.1.12 Coordination with Renewable Project Advisory Committee

- The Commonwealth Team prepared for and attended the first Project 1.1 Critical Project Review meeting, held on February 27<sup>th</sup> at CH<sub>2</sub>M Hill's Governmental Office in Sacramento.

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

Work is generally proceeding as anticipated. An important challenge is gaining regulatory acceptance of the bioreactor landfill project. CH<sub>2</sub>M HILL continues to follow up on discussions held with key staff who participated in the January meeting in Sacramento. As part of this activity EPA was contacted and it was learned that R&D exemption potentially affecting bioreactor pilot research projects. It was learned that the new regulation which

would affect projects such as those being conducted under this program is now planned to be issued later in the spring of this year. This regulation could be very important to successfully permit the bioreactor project. CH<sub>2</sub>M will develop a regulatory strategy drawing on input from the January meeting attendees and the latest EPA regulatory information. This information will be reviewed with Commission staff and members of the Technical Advisory Committee as the regulations are finalized. The basic intent of developing this strategy is to gain regulatory acceptance of the bioreactor and expedite its completion.

ZECO anticipates completing the mini-grid expansion out to 2007 and 2012 in March.

RER has encountered greater difficulty in gathering data and developing appropriate biogas prototypes than expected. This has delayed the completion of the mini-grid market potential assessment.

**Significant problems or changes:**

There are no significant fiscal problems to report on during this period and work is proceeding within budget. Progress and expenditures will result in project being completed on time and within budget.

**What we expect to accomplish during the next period:**

CH<sub>2</sub>M's activity next period will focus on the continuing effort to define and prioritize the top projects to be recommended for funding in Project 1.1. The final identification of such projects will await the completion of the power flow analysis of the Mini-Grid, but in the absence of those findings the team will identify projects that meet the other objectives of the Project.

Additionally, CH<sub>2</sub>M anticipates that the agricultural database and draft report will be submitted in final format to the Commission in March.

RER will finalize the prototypes for the market assessment and run high, low and expected market potential analyses.

ZECO will complete the expansion of the mini-grid to 2007 and 2012 from basecase PSLF model.

**Status of Milestones and Deliverables:**

Table 1 below summarizes the status of Project 1.1 task deliverables as of the end of the current reporting period.

**Table 1: Summary of Project Status and Deliverables – Project 1.1**

Task No.	Description	Start Date		Due Date		Status (%)
		Planned	Actual	Planned	Actual	
1.1.1	Review previous CA technical and market potential assessments.	6/5/02	6/5/02	8/4/02	10/31/02	100%
1.1.1	“Preliminary definition” of Program mini-grid region	6/5/02	6/5/02	8/4/02	10/31/02	100%
1.1.2a	Develop DB of Agricultural Facilities.	6/19/02	7/20/02	10/18/02		97%
1.1.2b	Develop Ag GIS report.	6/19/02	8/12/02	11/18/02		97%
1.1.3a	Develop Landfill DB.	6/19/02	6/19/02	8/19/02	10/31/02	100%
1.1.3b	Develop Landfill GIS report.	6/19/02	6/19/02	9/3/02	10/31/02	100%
1.1.4a	Develop WWT facility DB.	6/19/02	6/19/02	8/19/02	10/31/02	100%
1.1.4b	Develop WWT GIS report.	6/19/02	6/19/02	9/3/02	10/31/02	100%
1.1.5	Develop BIPV systems DB	8/5/02	8/5/02	10/18/02	2/5/03	100%
1.1.6	Develop T&D System DB	6/5/02	6/26/02	9/19/02	02/14/03	100%
1.1.7	Market Assessment	9/13/02	9/13/02	12/13/02		50%
1.1.8	Develop Generation Profiles	10/14/02	8/15/02	12/27/02		85%
1.1.9 a	Conduct Power Flow Analysis (T&D Model)	09/04/02		11/03/02	02/13/03	100%
1.1.9 b	Conduct Power Flow Analysis (Summ. Reports)	09/26/02				65%
1.1.10	Prepare Prioritized List of Projects for PV and Biogas Systems	10/19/02	11/04/02	10/19/02		40%
1.1.11a	Prepare Draft Rpt Outline	9/19/02		11/1/02		25%
1.1.13	Develop M&E Plans	6/5/02	7/15/03	6/07/03		12%

Explanation of any Difference(s) in Schedule

The following listing provides the explanation for the reported changes in the schedule at the project task/deliverable level:

Task 1.1.2 Develop Database of Agricultural Facilities – The difficulties in obtaining information on the representative dairy loads delayed completion of this database and the Inventory Report. Information has been collected and the draft document submitted. Comments were received from the Energy Commission and the appropriate responses are being prepared. The completion of this document in late March or April as other tasks, not Task 1.1.2, are on the critical path for completion of Project 1.1.

Task 1.1.5 Collect Information on PV Siting Requirements – The difficulties in conducting a census of public buildings within the mini-grid has delayed the progress of this task. It has delayed the completion of the BI-PV database and inventory report.

Task 1.1.7 Assess Market Potential within Mini-Grid – This task has been delayed as a consequence of delays in Tasks 1.1.2, 1.1.5, and 1.1.6. This will delay the overall Project schedule.

Task 1.1.9a – Conduct Power Flow Analysis (T&D Model) – Progress and expenditures will likely result in this task being completed in April 2003, rather than February 2003, however, the task remains on budget.

Task 1.1.10 Prepare Prioritized List of Projects for PV and Biogas Systems – This task started on schedule. Its completion will be delayed by approximately one to two months. This will allow for incorporation of the findings of the Mini-Grid analysis.

Task 1.1.11 – Prepare Final report - The start of this task has been delayed by approximately six weeks. This change was made to accommodate the completion of the tasks related to the agricultural waste database and inventory report. These changes should not, however, affect the scheduled completion date of the overall project as that is dictated by the timeframe needed to incorporate the findings of the Mini-Grid Analysis.

**Overall Schedule for Project 1.1:**

Task Name	Duration	Start Date	End Date	Cost	2003				2004					
					Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
<b>Project 1.1 - Program Planning and Analysis</b>	<b>286 days</b>	<b>Thu 5/30/02</b>	<b>Thu 7/3/03</b>	<b>\$0.00</b>										
Task 1.1.1 Review Tech & Market Assessments	107 days	Thu 5/30/02	Thu 10/31/02	\$18,902.00										
Task 1.1.2a - Dev. DB of Agri. Facilities	66 days	Wed 6/19/02	Wed 9/18/02	\$85,561.50										
Task 1.1.2b - Agri Facilities GIS Inventory Rpt	88 days	Wed 6/19/02	Fri 10/18/02	\$85,561.50										
Task 1.1.3a - Landfill DB	97 days	Wed 6/19/02	Thu 10/31/02	\$66,865.00										
Task 1.1.3b - Landfill GIS Inventory Rpt.	97 days	Wed 6/19/02	Thu 10/31/02	\$66,865.00										
Task 1.1.4a - WWT DB	97 days	Wed 6/19/02	Thu 10/31/02	\$93,136.00										
Task 1.1.4b - WWT GIS Inventory Rpt.	97 days	Wed 6/19/02	Thu 10/31/02	\$93,136.00										
Task 1.1.5 - BIPV DB	133 days	Mon 8/5/02	Wed 2/5/03	\$78,177.00										
Task 1.1.6 T&D System DB	168 days	Wed 6/26/02	Fri 2/14/03	\$63,391.00										
Critical Program Review Meeting	21 days	Mon 3/3/03	Mon 3/31/03	\$20,678.00										
Task 1.1.7 - Market Potential Assessment	66 days	Fri 9/13/02	Fri 2/14/03	\$44,896.00										
Task 1.1.8 - Generation Profiles	55 days	Thu 8/15/02	Fri 12/27/02	\$11,363.00										
Task 1.1.9a - Power Flow Analysis Model	117 days	Wed 9/4/02	Thu 2/13/03	\$29,000.00										
Task 1.1.9b - Power Flow Analysis Report	99 days	Mon 2/17/03	Thu 7/3/03	\$165,623.00										
Task 1.1.10 - Prioritized List of Pilot Projects	54 days	Mon 11/4/02	Wed 4/2/03	\$172,132.00										
Task 1.1.11a Prepare Draft Rpt Outline	32 days	Thu 9/19/02	Fri 11/1/02	\$18,540.00										
Task 1.1.11b - Draft Report for Proj. 1.1	54 days	Tue 12/3/02	Mon 2/17/03	\$139,046.00										
Task 1.1.11c - Final Report for Proj. 1.1	21 days	Mon 3/10/03	Tue 4/8/03	\$157,586.00										
Critical Program Review Meeting	15 days	Wed 4/16/03	Wed 5/7/03	\$20,679.00										
Task 1.1.12 - Coordination with RPAC	44 days	Tue 4/8/03	Mon 6/9/03	\$0.00										
Task 1.1.13a - M&E Plans for Proj. 3.2	86 days	Mon 7/15/02	Fri 12/20/02	\$0.00										
Task 1.1.13b - M&E Plans for Overall Program	111 days	Fri 1/3/03	Fri 6/6/03	\$35,251.00										

**Overview of Fiscal Status:**

Table 2 below summarizes the fiscal status of Project 1.1 by task as of the end of the current reporting period.

**Table 2: Fiscal Status By Task – Project 1.1**

<b>Task Number</b>	<b>Budget</b>	<b>Invoiced To-Date</b>	<b>Fiscal Status *</b>
1.1.1	\$ 18,902.00	\$18,902.00	OB
1.1.2a	\$ 85,562.00	\$0	OT
1.1.2b	\$ 85,562.00	\$0	OT
1.1.3a	\$ 66,865.00	\$66,865.00	OT
1.1.3b	\$ 66,865.00	\$66,865.00	OT
1.1.4a	\$ 93,136.00	\$93,136.00	OT
1.1.4b	\$ 96,136.00	\$93,136.00	OT
1.1.5	\$ 78,177.00	\$0	OT
1.1.6	\$ 63,391.00	\$0	OT
1.1.7	\$ 44,896.00	\$0	OB
1.1.8	\$ 11,363.00	\$0	OT
1.1.9	\$194,623.00	\$0	OT
1.1.10	\$172,132.00	\$0	OT
1.1.13	\$ 35,251.00	\$0	OT

\*Fiscal Status – Please indicate if you are “On Track” (OT), OverBudget (OB), or UnderBudget (UB)

In Task 1.1.7 - The effort required to obtain PV and biogas technology data on capital and O&M costs, mini-grid specific growth forecasts, and energy price information was not anticipated to be as great as it has been. Consequently, this task is over budget relative to the amount of progress towards its completion.