

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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Contractor Project Director:	Patrick Lilly (360) 906-0616
Contractor Project Manager:	David Hanna (858) 481-0081
Commission Project Manager:	Zhiqin Zhang (916) 654-4063

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

During January CH<sub>2</sub>M HILL planned to submit the Agricultural Waste Database as well as the Inventory Report. CH<sub>2</sub>M HILL also anticipated working on the project prioritization process seeking to identify projects, which meet the project objectives contributing to the goal of making renewable energy more affordable. Additionally, they planned to continue working on the Project Final Report Outline.

ZECO plans to complete and deliver the PSLF local T & D database/model development in Task 1.1.6 and 1.1.9a.

RER and REDI anticipate the Final Report under Task 1.1.5 will be submitted for review and approval to the Commission Contract Manager.

**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. Data on the quantities of manure produced in the Chino Basin were collected and entered into a GIS based database and the Inventory Report was prepared.
- CH2M HILL completed its internal review of the database and inventory report. It also used the information generated in its efforts on the prioritization report(See Task 1.1.10).
- CH2M HILL also received preliminary information on the revised mini-grid boundary. This information was incorporated into the agricultural waste database and inventory reports at the end of the reporting period.

Task 1.1.3 Serve as Host for Bioreactor Demonstration Project:

- With the Landfill Bioreactor database and Inventory Report having been previously submitted, there was little activity on this task. There continued to be follow up calls with landfill owners and operators as well as with regulators to facilitate the completion of the prioritization report.

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

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

- RER and REDI continued to respond to comments received on the draft BI-PV technical potential report and database.
- REDI revised the Public Facility data to adjust for the number of buildings per category using data from a Southern California Commercial End-Use Survey. The revised report was sent to RER for final review. REDI's work on this task is complete.

Task 1.1.6 Collect Information on Transmission/Distribution System:

- ZECO completed developing representative data for local electrical T&D database and insertion into PSLF base case model for substation transformer banks plus 5 additional 12 kV feeders emanating from 2 additional 66/12 kV distribution substations.

Task 1.1.7 Assess Market Potential within Min-grid – Progress was made in the development of an economic evaluation model and in a market adoption model for assessing the various PV and biogas energy generation technology prototypes.

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

- As reported under Task 1.1.6, ZECO has completed developing the representative local electrical T&D database/PSLF model for seven local distribution systems in the mini-grid containing 67 12 kV feeders.
- ZECO will start developing Task 1.1.9b 2007 and 2012 peak and light load PSLF cases from PSLF base case model.

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

- CH2M HILL undertook activities related to prioritization of the biogas projects. The initial phase of this effort was reflected in the Inventory Reports, which identified some of the higher priority projects. In January, CH2M HILL refined

technical and other information related to the technologies and specific projects being considered. A preliminary working draft of a portion of the report was prepared and circulated to other team members to obtain their feedback on the reports organization and analytical approach.

- Also during January, a key meeting was held in Sacramento with Energy Commission staff and others in state government concerned with the development of landfill bioreactors. Valuable information was obtained from representatives of the State Water Resources Board, Integrated Waste Management Board, Regional Water Quality Control Board and others on the development of landfill bioreactors. Individuals attending this meeting, many of who are involved in the Yolo County project provided insight and guidance into activities of the Commonwealth Team. It was agreed that this group, many of whom will serve on the Project 2.1 TAC, will meet again in a couple of months to review a “wish list” of elements needed to make the Commonwealth Energy PIER bioreactor project successful.

#### Task 1.1.11 Prepare Final Report

- Work was undertaken on the outline for the Final Report. This outline was structured to incorporate the previous findings in the earlier tasks as well as provide a concise, but complete record of activities undertaken on this Project. Efforts were also initiated to prepare preliminary drafts of certain sections of the report.
- Another important activity, obtaining input on European biogas experience, was also planned during this period. Information on European experiences on biogas projects will be assembled by NIRAS, an engineering and consulting firm based in Denmark, and presented in the final report. This visit by NIRAS will also be an important part of Project 3.1.

#### **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 is following up on discussions held with key staff that participated in the January meeting in Sacramento described above. CH<sub>2</sub>M HILL will develop a regulatory strategy drawing on input from the January meeting attendees. The basic intent of developing this strategy is to gain regulatory acceptance of the bioreactor and expedite its completion. This activity will continue under Project 2.1 and will be reviewed with members of that project’s TAC both formally and informally as the project proceeds.

#### **Significant problems or changes:**

As indicated above, CH<sub>2</sub>M has encountered a challenge with gaining regulatory acceptance of the landfill project. We feel however, that after input received in the January meeting, we

can begin to outline a strategy, which will alleviate this issue and allow the team to move forward effectively and efficiently.

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:**

During the next period CH2M HILL plans to submit the agricultural waste database and Inventory Report incorporating the new mini-grid boundary. CH2M HILL also anticipates continuing its work on the project prioritization report. Additionally, they plan to continue working on the Project Final Report text and outline. The draft report on the Task 1.1.2 agricultural and food processing waste resources and technical potential 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 1.1.9a draft reports and deliver base case PSLF model to the Commission.

**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		95%
1.1.2b	Develop Ag GIS report.	6/19/02	8/12/02	11/18/02		95%
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		99%
1.1.6	Develop T&D System DB	6/5/02	6/26/02	9/19/02		90%
1.1.7	Market Assessment	9/13/02	9/13/02	12/13/02		40%
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		78%
1.1.9 b	Conduct Power Flow Analysis (Summ. Reports)	09/26/02				
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		15%
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. It delayed completion of the Inventory Report. Information has now been collected and the draft document prepared. After the document is submitted to the Commission, comments will be received and incorporated into the final document. Commission comments are anticipated in late February or early March and it is anticipated that the final deliverable will be submitted shortly thereafter. The delays should not affect the overall scheduled of Project 1.1.

Task 1.1.3 Inventory Landfill Facilities – The schedule for this task was delayed because data requests were not responded to in as timely a manner as anticipated last month. This delayed the completion of the Inventory Report until October but did not affect the overall Project's schedule.

Task 1.1.4 Collect Information on Sewage Treatment Plants – The schedule for this task changed because data requests were not responded to in as timely a manner as anticipated. This delayed the completion of the Inventory Report until October but did not affect the overall Project's scheduled.

Task 1.1.5 Collect information on PV Siting Requirements – The difficulties in conducting a census of public buildings within the minigrid 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 1.1.9 a 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, it remains on budget.

Task 1.1.10 Prepare Prioritized List of Projects for PV and Biogas Systems – Although this task started on schedule, its completion will be delayed by approximately one month. This will allow for incorporation of the findings of Task 1.1.2. as well as input from the Commission staff and representatives of Inland Empire who will likely be the potential owner of several of the demonstration projects.

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.

**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>267.5 days</b>	<b>Thu 5/30/02</b>	<b>Mon 6/9/03</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	55 days	Mon 8/5/02	Fri 10/18/02	\$78,177.00										
Task 1.1.6 T&D System DB	77 days	Wed 6/26/02	Thu 10/10/02	\$63,391.00										
Critical Program Review Meeting	21 days	Fri 11/15/02	Fri 12/13/02	\$20,678.00										
Task 1.1.7 - Market Potential Assessment	66 days	Fri 9/13/02	Tue 1/14/03	\$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	44 days	Wed 9/4/02	Mon 11/4/02	\$29,000.00										
Task 1.1.9b - Power Flow Analysis Report	99 days	Fri 10/11/02	Wed 2/26/03	\$165,623.00										
Task 1.1.10 - Prioritized List of Pilot Projects	54 days	Mon 11/4/02	Thu 3/13/03	\$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	Tue 4/8/03	Tue 4/29/03	\$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	Thu 11/14/02	\$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.