

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 this reporting period CH₂MHill planned to complete the initial effort on the agricultural facilities database as well as the initial draft of the inventory report. They also planned to have this document reviewed by internal reviewers so that it could be submitted to the Commission in November. CH₂MHill also anticipated starting the project prioritization process where individual projects would be conceptually defined, compared and then prioritized. Additionally, they planned to start work on the Project Final Report Outline.

Three other projects, Projects 2.1, 2.2 and 3.1 were also at the point where they could be initiated. There were several key items that needed to be reviewed with Commission staff, however, before commencing efforts on these projects and associated tasks. These issues included tradeoffs between employing certain technologies outside the mini-grid versus others within the mini-grid. It was also appropriate to review other potential projects in light of findings reached during the data collection tasks. The CE Team was to schedule a meeting with the Commission, and also continue analyzing the data collected focusing on prioritizing the potential sites for demonstration projects. As part of this effort, CH₂MHill planned to meet with RER to review their planned approach for prioritizing potential projects and commencing work in the subsequent emphasis areas.

REDI planned to complete its work on Task 1.1.2. Additionally, REDI anticipated that the completion and submittal of the final deliverable would be made to RER for Task 1.1.5.

What we actually accomplished this period:

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

- CH₂M HILL, having submitted the Sewage Treatment Plant database and Inventory Report had limited activities on this task. Follow up phone communications were conducted with potential hosts for demonstration projects under Project 2.2. Also, a meeting to review preliminary findings, particularly as they impact the start of Project 2.2 was scheduled with Commission staff in order to facilitate the effective start up of that project.
- REDI staff continued to participate in data collection needs to identify BI-PV opportunities in Dairy and Food Waste facilities.
- In general CH₂M has virtually completed this task. The task will be finalized once we receive comments from the Commission on the submittals.

Task 1.1.3 Serve as Host for Bioreactor Demonstration Project:

- CH₂M HILL, having submitted the Landfill Bioreactor database and Inventory Report had limited activities on this task. Follow up phone conversations were conducted with operators and regulators of those landfills, which were identified as most suitable for landfill bioreactor development in the Inventory Report. Also, a meeting to review preliminary findings, particularly as they impact the start of Project 2.1 was scheduled with Commission staff in order to facilitate the effective start up of that project.
- REDI's work on Task 1.1.3 has been completed and appropriate information has been transmitted to CH₂M for inclusion and submittal to RER for review and comment.
- In general CH₂M has virtually completed this task. The task will be finalized once we receive comments from the Commission on the submittals.

Task 1.1.4 Collect Information on Sewage Treatment Plants:

- CH₂M HILL, having submitted the Sewage Treatment Plant database and Inventory Report had limited activities on this task. Follow up phone communications were conducted with potential hosts for demonstration projects under Project 2.2. Also, a meeting to review preliminary findings, particularly as they impact the start of Project 2.2 was scheduled with Commission staff in order to facilitate the effective start up of that project.
- REDI's work on Task 1.1.4 has been completed and appropriate information has been transmitted to CH₂M for inclusion and submittal to RER for review and comment.

- In general CH₂M has virtually completed this task. The task will be finalized once we receive comments from the Commission on the submittals.

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

- RER and REDI completed the development of the technical potential for nonresidential building integrated photovoltaic power systems within the minigrad area.
- REDI completed the BI-PV database for the public sector.
- A draft final BI-PV inventory report was completed and submitted along with the BI-PV database to the CEC Program manager for review and comment.

Task 1.1.6 Collect Information on Transmission/Distribution System:

- Zaininger Engineering (ZECO) sent draft PSLF T&D database to Southern California Edison (SCE) for review. ZECO has obtained approval to release the draft T&D database to the study group.

Task 1.1.7 Assess Electricity Market Potential (MW's) of biogas and commercial PV within the mini-grid region:

- RER began developing a cash flow model to be used in the evaluation of economic potential for BI-PV and biogas distributed generation.

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

- Continued developing representative local T&D model. Developed appropriate electrical assumptions for 66 kV sub-transmission facilities, and 66/12kV transformer bank serving seventh distribution system. Inserted local 66 kV sub-transmission system data, and 66/12 kV transformer bank data for all seven distribution systems into the PSLF T&D database/model. Inserted 12 kV feeder data for 10 feeders emanating out of one of the 66/12 substations (designated as Sub 11 in the mini-grid map and designated as Sub A in the PSLF database) into the PSLF model.

Task 1.1.10 Prepare Prioritized List of Pilot Project for PV and Biogas Systems

- CH₂M HILL initiated prioritization activities. The initial phase of this effort was reflected in the Inventory Reports, which identified some of the higher priority pilot projects. For example, in the case of the landfill bioreactor task, the four highest priority sites were identified. From this starting point CH₂M HILL staff began evaluating potential sites and technologies to identify the range of projects to be considered.

Task 1.1.13a Preparation of Measurement and Evaluation Plan:

- RER began developing an M&E plan for Project 3.2 as this is one of the earliest projects to be initiated under the Program.

How we are doing compared to our plan:

- Overall, Project 1.1 is moving forward as scheduled. There are issues that are important in influencing the overall direction of the Program relative to the findings under Project 1.1, which help determine the subsequent implementation of future projects. For example, the Sewage Treatment Plant Inventory Report identified potential projects that could be developed under Project 2.2. These are sound projects for demonstrating technologies, which can enhance the anaerobic digestion processes and thereby produce more digester gas. The most logical location for these projects, however, is outside the mini-grid. Similarly, there are other projects involving advanced energy conversion technologies, which would help improve the affordability of renewable energy by using biogas more efficiently than conventional technologies. These potential projects are within the mini-grid, but they do not employ the specific technologies that were anticipated to be used and are specifically described in the Commonwealth Energy proposal. As noted above, a meeting was set up with the Commission to discuss the relative merit of these and other projects.
- ZECO anticipates that it will complete the PSLF T&D database/load flow model for 1.1.9a by the end of December. Work will be on Task 1.1.9 b as soon as PV and distributed biogas peak and light load electrical performance models and penetration levels are obtained.
- REDI's work on Task 1.1.2 is in its final stages of completion. All other REDI work under Project 1.1 has been completed.

Significant problems or changes:

The most significant challenge, which was noted in last month's report, was the unavailability of data on the loads at individual dairies. This problem has largely been resolved as the Milk Producers Council helped in the collection of electrical load data from six representative dairies.

ZECO reports that it has taken longer to develop the local electrical T&D database and load flow model than originally anticipated. A detail of the issue surrounding the delay is highlighted below under "Explanation of any Differences in Schedule".

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 complete the draft of the agricultural facilities database as well as the draft of the inventory report. They also plan to have these documents reviewed by internal reviewers so that they can be submitted to the Commission the following month. CH₂M HILL also anticipates working on the project prioritization process where individual projects will be conceptually defined, compared and then prioritized. Additionally, they plan to start work on the Project Final Report Outline.

Three other projects, Projects 2.1, 2.2 and 3.1 are also at the point where they could be initiated. As noted above, there are several key items that should be reviewed with Commission staff, however, before commencing efforts on these projects and associated tasks. The CE Team scheduled such a meeting with the Commission for December to discuss these questions and chart the path forward.

ZECO plans to complete the PSLF local T&D database/model development in Task 1.1.9a, and will begin work on Task 1.1.9b. REDI anticipated that its input would be completed on Task 1.1.2.

Commonwealth Energy PIER Renewables Affordability Mini-Grid Program Status Report

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		80%
1.1.2b	Develop Ag GIS report.	6/19/02	8/12/02	11/18/02		80%
1.1.3a	Develop Landfill DB.	6/19/02	6/19/02	8/19/02		98%
1.1.3b	Develop Landfill GIS report.	6/19/02	6/19/02	9/3/02		98%
1.1.4a	Develop WWT facility DB.	6/19/02	6/19/02	8/19/02		98%
1.1.4b	Develop WWT GIS report.	6/19/02	6/19/02	9/3/02		98%
1.1.5	Develop BIPV systems DB	8/5/02	8/5/02	10/18/02		98%
1.1.6	Develop T&D System DB	6/5/02	6/26/02	9/19/02		95%
1.1.7	Market Assessment	9/13/02	9/13/02	12/13/02		22%
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		60%
1.1.10	Prepare Prioritized List of Projects for PV and Biogas Systems	10/19/02	11/04/02	10/19/02		5%
1.1.11a	Prepare Draft Rpt Outline	9/19/02		11/1/02		0%
1.1.13	Develop M&E Plans	6/5/02	7/15/03	6/07/03		10%

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 we anticipate submitting the database and inventory report for this task in late December or early January.

Task 1.1.3 Inventory Landfill Facilities – The schedule for this task has 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. This should not affect the overall Project's schedule.

Task 1.1.4 Collect Information on Sewage Treatment Plants – The schedule for this task has 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. This should not affect the overall Project's schedule.

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 1.1.6 Collect Information on Transmission/Distribution System – The size and complexity of the electric T&D system within the minigrid has required slightly more time to characterize than anticipated. This has delayed the completion of the T&D database and associated report. This should not affect the overall schedule.

Task 1.1.9 Conduct Power Flow Analysis within Mini-Grid Target Area – As mentioned above, it has taken significantly longer to develop the local electrical T&D database and load flow model than originally anticipated. The reasons for this are; 1) the local area to be studied contains seven separate distribution systems serving a total peak load of about 535 MW in the mid 2000's, and each of the seven distribution systems could be considered a separate "mini-grid", and 2) 12kV feeder electrical data was not available and has had to be developed for 67 feeders for insertion in the PSLF T&D database/model. Based upon these changes, progress and expenditures will likely result in Task 1.1.9 being completed in April 2003, rather than February 2003, but will remain within 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.

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.

Commonwealth Energy PIER Renewables Affordability Mini-Grid Program Status Report

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
Project 1.1 - Program Planning and Analysis	267.5 days	Thu 5/30/02	Mon 6/9/03	\$0.00								
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	43 days	Wed 6/19/02	Mon 8/19/02	\$66,865.00								
Task 1.1.3b - Landfill GIS Inventory Rpt.	54 days	Wed 6/19/02	Tue 9/3/02	\$66,865.00								
Task 1.1.4a - WWT DB	43 days	Wed 6/19/02	Mon 8/19/02	\$93,136.00								
Task 1.1.4b - WWT GIS Inventory Rpt.	54 days	Wed 6/19/02	Tue 9/3/02	\$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	Mon 11/4/02	Tue 12/3/02	\$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 1/16/03	\$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	Mon 11/11/02	\$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

Task Number	Budget	Invoiced To-Date	Fiscal Status *
1.1.1	\$ 18,902.00	\$0	OB
1.1.2a	\$ 85,562.00	\$0	OT
1.1.2b	\$ 85,562.00	\$0	OT
1.1.3a	\$ 66,865.00	\$0	OT
1.1.3b	\$ 66,865.00	\$0	OT
1.1.4a	\$ 93,136.00	\$0	OT
1.1.4b	\$ 96,136.00	\$0	OT
1.1.5	\$ 78,177.00	\$0	OT
1.1.6	\$ 63,391.00	\$0	OT
1.1.7	\$ 44,896.00	\$0	OT
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)