

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:

Itron/RER and CH₂ anticipates that activity in May will focus on the continuing effort to define and prioritize the biogas and BI-PV projects to be recommended for funding through the analysis implemented under Project 1.1. The final prioritization of these projects will need to await the completion of the power flow analyses of the Mini-Grid, but in the absence of those findings the team will identify and evaluate projects based on other prioritization criteria that meet the objectives of the Commonwealth Program.

ZECO will begin the Task 1.1.9(b) power flow model implementation analysis, both with and without the identified expected renewable resources. Additionally, Itron/RER and ZECO anticipates submitting the final Task 1.1.6 and Task 1.1.9a report deliverables to the Commission.

Itron / RER anticipates it will complete the bulk of the preparation of the BI-PV and biogas market potential assessment and draft final report for Task 1.1.7. Itron / RER also expects it will complete the draft final report on the generation profiles for Task 1.1.8 and route this draft deliverable internally to the Commonwealth Team for review.

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 efforts to respond to the Energy Commission comments on the draft Agricultural database and inventory report, except for collection of some additional data on the electrical loads at dairies in the Chino Basin. Additional discussions and site visits were held with the Milk Producers Council and individual dairies to collect information needed to verify earlier

collected data and relate it to previous work on this subject. As noted earlier, dairy operators are reluctant to provide much information about their operations that could be considered proprietary or otherwise provide insight into their operations. Additional information is being sought to analyze loads at the surveyed dairies.

- Team members continued to provide limited support to efforts to refine the technical and market potential evaluations being used in subsequent work of the Mini-Grid evaluations that are incorporated in other tasks.

Task 1.1.3 Landfill Bioreactor Database and Inventory Report:

- With the Landfill Bioreactor database and Inventory Report having been previously completed only minor follow on work related to subsequent tasks was 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 tasks 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 performed very limited activities on this task. Only work in support of follow up tasks is being undertaken on this task.
- Team members continued to provide limited support to efforts to refine the technical and market potential and the completion of the Mini-Grid evaluations being used in other tasks.

Task 1.1.6 Collect Information on Transmission/Distribution System:

- ZECO responded to previously received Commission comments and submitted the revised Task 1.1.6 Final Report to RER/Itron and Commonwealth for review.

Task 1.1.7 Assess Market Potential within Min-grid:

- As previously reported in April, Itron/RER continued work on the draft report on the economic and market potential results for biogas and BI-PV within the Mini-Grid.

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

- ZECO responded to Commission comments previously received and submitted the Task 1.1.9a Final Report to RER/Itron and Commonwealth for review.
- ZECO moved forward with Task 1.1.9 b Power Flow Analysis work, developing the year 2007 and 2012 peak load and light load power flow cases without renewable DG in the local resource mix.

- Itron/RER and ZECO met to discuss locations for the installation of the renewable distributed generation within the Mini-Grid. Additionally, the team leads met with the Commission to discuss the overall Task 1.1.9 analysis effort.
- ZECO began developing year 2007 and 2012 peak load and light load power flow cases, addressing low, medium and high expected renewable penetration levels.

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

- CH₂ and Itron/RER continued to develop and prepare the preliminary working draft of the prioritization report. Given the level of technical work completed to date on this task, finalization of the prioritization report will await completion of the Mini-Grid Power Flow analysis. Work on this report continued at a low level with a more intense level of effort planned once the results of the Mini-Grid power flow analysis is completed and the results are factored into the prioritization effort.

Task 1.1.11 Prepare Final Report

- Work continued on the draft Final Report. This included compiling the key findings for each of the early tasks in this project and continued consultation with NIRAS on European technologies and practices. In general, much of the effort associated with preparing the final report has been completed and limited work was conducted this period. Finalization of the report awaits completion of the power flow studies and project prioritization activities. As noted in the previous monthly report, coordination of the preliminary key findings of this project with the initial activities of Projects 2.1, 2.2 and 3.1 was also undertaken so that efforts on subsequent tasks would be aligned with the preliminary key findings of Project 1.1 to be presented in the final report. Some of these findings include:
 - Continue to work with the leading landfill bioreactor host candidate site (San Bernardino County) so that the landfill bioreactor project (Project 2.1) can be implemented in a way that takes advantage of the existing facility and builds on “lessons learned” on the Yolo County project.
 - Efforts related to increased energy production from enhanced anaerobic digestion at wastewater treatment plants (Project 2.2) should focus on the development of pilot projects using ultrasound and thermal hydrolysis technology at the Riverside wastewater treatment plant. This plant has several characteristics including a favorable process configuration making it well-suited for more detailed analysis.
 - Focus dairy waste to energy projects (Project 3.1) on dairy cluster projects. Special focus should be on building on lessons learned at existing projects and placing special emphasis on defining environmental and other factors that drive project implementation and economics. Also, efforts in future projects should build on the analysis of what has been learned at other dairy waste to energy projects. Some of these findings are to be presented in the Digester Comparison Report being prepared as part of Project 3.1.

How we are doing compared to our plan:

The inventory report in Project 1.1.2 is dependent on information from individual dairies and/or the Milk Producers Council to describe electrical loads at local dairies in the Chino Basin. It has been a challenging task to collect such information, because dairies are reluctant to make such information available to others given the proprietary nature of this data and other related business considerations. Team members are analyzing information collected in light of experiences in other areas to complete the Final Report for this task.

Work continues to progress generally as anticipated. Although there have been challenges within a few of the tasks, the majority of these challenges have been resolved, and have not seriously effected schedules or budgets for the project as a whole.

Significant problems or changes:

The Commission requested that we consider addressing additional items concerning the design and interconnection requirements of the PV and biomass renewable generation to the existing T&D power flow analysis statement of work. This will be addressed, and pursued if Program resources allow, by ZECO in July after the existing Task 1.1.9b draft report has been submitted.

There are no significant fiscal problems to report on during this period and work is proceeding within budget. There have been several task-level budget transfers to date under Project 1.1, however, progress and expenditures will result in project being completed on time under the revised schedule and within the original project budget.

What we expect to accomplish during the next period:

CH₂ anticipated that activity in June 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 Commonwealth Program.

Itron/RER and ZECO expect to submit the finalized Task 1.1.6 and Task 1.1.9a Final Report deliverables to the Commission. Additionally, ZECO and Itron/RER expects to complete the Task 1.1.9b power flow analysis and submit the draft Task 1.1.9b report to the interal Team members and the Commission for review.

Itron/RER anticipates it will submit the BI-PV and Biogas Market Potential Assessment Draft Final Report for Task 1.1.7. Itron/RER additionally expects to submit the Draft Final

Report on generation profiles under Task 1.1.8, and finally, Itron/RER anticipates submitting the Final Report Outline for Project 1.1 for approval, under Task 1.1.11a.

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	01/17/03		99%
1.1.2b	Develop Ag GIS report.	6/19/02	8/12/02	01/17/03		99%
1.1.3a	Develop Landfill DB.	6/19/02	6/19/02	10/25/02	10/31/02	100%
1.1.3b	Develop Landfill GIS report.	6/19/02	6/19/02	10/25/03	10/31/02	100%
1.1.4a	Develop WWT facility DB.	6/19/02	6/19/02	10/31/02	10/31/02	100%
1.1.4b	Develop WWT GIS report.	6/19/02	6/19/02	10/31/03	10/31/02	100%
1.1.5	Develop BIPV systems DB	8/5/02	8/5/02	12/03/02	2/5/03	100%
1.1.6	Develop T&D System DB	6/5/02	6/26/02	02/16/03	02/14/03	98%
1.1.7	Market Potential Assessment	9/13/02	9/13/02	05/16/03		98%
1.1.8	Develop Generation Profiles	10/14/02	8/15/02	05/21/03		90%
1.1.9 a	Conduct Power Flow Analysis (T&D Model)	09/04/02	09/23/02	02/16/03	02/13/03	95%
1.1.9 b	Conduct Power Flow Analysis (Summary Reports)	09/26/02	01/02/03	06/28/03		70%
1.1.10	Prepare Prioritized List of Projects for PV and Biogas Systems	10/19/02	11/04/02	07/15/03		60%
1.1.11a	Prepare Draft Rpt Outline	9/19/02	02/10/03	02/21/03	02/12/03	35%
1.1.13	Develop M&E Plans	6/5/02	7/15/03	05/29/03		12%

Explanation of any Difference(s) in Project 1.1 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. Available follow-up information has been collected and the draft document submitted. Comments were received from the Commission and the appropriate responses are being prepared by the Team within the constraints of the available information. The anticipated completion of this document in June will not impact the overall scheduled as other tasks, and not Task 1.1.2, are on the critical path for completion 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. This delayed the completion of the Inventory Report, but did not affect the overall Project 1.1 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 but did not affect the overall Project 1.1 schedule.

Task 1.1.7 Assess Market Potential within Mini-Grid – Progress has been slow in identifying credible information on the value of certain externalities (i.e., greenhouse gas emissions and deferrable future groundwater clean-up costs) that are important environmental benefits associated with the dairy waste resource. This lack of complete data has delayed the completion of the dairy waste to energy portion of the market potential assessment within the Mini-Grid.

Task 1.1.9b – Conduct Mini-Grid Power Flow Analysis (T&D Model) – Due to the hold-up in receiving comments on the Task 1.1.6 draft report and completion of the Market Potential analysis – progress and expenditures will likely result in this task being completed in June 2003, rather than earlier as originally planned. However, this 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 delay is required to allow incorporation of the findings of the expanded Mini-Grid power flow analysis in the prioritized list of 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 and the biogas/BI-PV market potential report. These changes should not, however, seriously 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 power flow 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		
Project 1.1 - Program Planning and Analysis	362 days?	Wed 6/5/02	Thu 10/23/03	\$0.00									
Task 1.1.1 Review Tech & Market Assessments	103 days	Wed 6/5/02	Thu 10/31/02	\$18,902.00									
Task 1.1.2a - Dev. DB of Agri. Facilities	130 days	Sat 7/20/02	Fri 1/17/03	\$85,561.50									
Task 1.1.2b - Agri Facilities GIS Inventory Rpt	153 days	Mon 8/12/02	Wed 3/12/03	\$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	Thu 3/27/03	Thu 4/24/03	\$20,678.00									
Task 1.1.7 - Market Potential Assessment	131 days	Fri 9/13/02	Fri 5/16/03	\$44,896.00									
Task 1.1.8 - Generation Profiles	158 days	Thu 8/15/02	Wed 5/21/03	\$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	185 days	Thu 9/26/02	Wed 6/11/03	\$165,623.00									
Task 1.1.10 - Prioritized List of Pilot Projects	120.7 days	Mon 11/4/02	Sun 6/15/03	\$172,132.00									
Task 1.1.11a Prepare Draft Rpt Outline	112 days	Thu 9/19/02	Fri 2/21/03	\$18,540.00									
Task 1.1.11b - Draft Report for Proj. 1.1	84 days	Mon 3/10/03	Thu 7/3/03	\$139,046.00									
Task 1.1.11c - Final Report for Proj. 1.1	23 days	Wed 7/23/03	Fri 8/22/03	\$157,586.00									
Critical Program Review Meeting	15 days	Mon 9/8/03	Mon 9/29/03	\$20,679.00									
Task 1.1.12 - Coordination with RPAC	44 days	Mon 8/25/03	Thu 10/23/03	\$0.00									
Task 1.1.13 - M&E Plans	229 days?	Mon 7/15/02	Thu 5/29/03	\$0.00									
Task 1.1.13a - M&E Plans for Proj. 3.2	115 days	Mon 7/15/02	Fri 12/20/02	\$0.00									
Task 1.1.13b - M&E Plans for Overall Program	105 days?	Fri 1/3/03	Thu 5/29/03	\$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	\$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	\$85,780.00	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
1.1.11a	\$ 18,540.00	\$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)

Task 1.1.7 Assess Market Potential within Mini-Grid – The level of effort required to obtain BI-PV and biogas technology data on capital and O&M costs, Mini-Grid specific load growth forecasts, energy price information, and the estimated value of environmental benefits was not anticipated. In addition, the effort to incorporate all of these elements into the non-automated cash flow models and to perform the necessary expanded economic assessment scenarios was not anticipated. Consequently, this task is currently over budget relative to the amount of progress towards its completion and has been re-budgeted for completion using funds from other Tasks under Project 1.1.