

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

PROJECT 3.1 – DAIRY WASTE TO ENERGY PROJECT

REPORT PREPARED BY: COMMONWEALTH ENERGY TEAM

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

Planned activities in October were to focus on responding to comments made at the RPAC/Critical Program Review (CPR) held at the Commission on September 24 and the Project 3.1 implementation plan clarification meetings. The primary activity on this task to be undertaken in October is the preparation of a plan that describes the implementation of this project in light of guidance received at the RPAC/CPR and related meetings with the Commission's PIER Renewables management team. Other activities on this Project were to be limited until the Plan is reviewed with Commission staff. Other activities on this task will focus on finalizing previously submitted work, including completion of the *Digester Comparison Report*.

Specifically in regard to the *Digester Comparison Report*, information requests from other project developers anticipated to be received in September were not received by the Team. Using information that has been received and compiled since that time, as well as any new data that became available in October, the team planned to revise and finalize the report. In addition, it was anticipated that the Test Plans and Protocols would have been revised to focus on activities that should be undertaken at locations other than the existing plug flow digester project at IEUA's RP-5 facility.

**What we actually accomplished this period:**

*Task 3.1.1: Assess, Evaluate and Select Animal Waste to Energy Technology*

- Efforts on this task in October focused on developing the revised plan for Project 3.1. A draft of this plan was prepared that included developing projects at locations other than the existing RP-5 digester. Key elements of the plan included: 1) monitoring, not developing new projects at the existing RP-5 digester, 2)

- identifying the environmental benefits of centralized digestion projects, 3) identifying opportunities for other centralized anaerobic digestion projects in California, 4) developing demonstration projects that will improve key processes necessary to achieve economical centralized dairy projects in the future, and 5) assembling these findings so they can be applied at future centralized projects in the Chino Basin and, more importantly, elsewhere in California.
- Further work was also undertaken responding to comments on the draft *Digester Comparison Report* submitted previously. Responses and changes to the report were made in response to previous Energy Commission comments. Efforts were also undertaken to respond to comments received from Kurt Roos at EPA's AgStar Program. The primary effort on this topic was to qualify the existing project data - based on the length of time individual facilities were operating and were able to provide data on their digester performance. Overall, a number of facilities were contacted on their performance, and those which had been successfully operated for a longer sustained period were weighted more heavily in the comparative analysis. This information collection and analysis process was largely completed in October with anticipated finalization of the report in November.
  - In conjunction with completing the plan for Project 3.1, additional activity was conducted to accelerate the environmental analysis under Task 3.1.6. Consultations were undertaken with IEUA staff and their consultants involved in earlier environmental benefits work. Revisions were made to clarify the proposal and remove work elements related to monetizing the environmental benefits. Efforts were also undertaken to ensure that the PIER work being proposed would be integrated with future efforts that IEUA plans to initiate in conjunction with efforts it is proposing to the USDA. Overall, the PIER program work is intended to build on work conducted previously and establish a sound methodology for addressing environmental benefits of centralized anaerobic digestion projects.

*Task 3.1.3: Develop Bench Scale and Other Test Plans and Protocols*

- Revision of the prioritization list developed under Task 1.1.10 in response to comments to focus future PIER projects at locations other than the existing RP-5 plug flow digester project led to preliminary modification of that the Test Plan and Protocol Report submitted previously. In October, the test plan and protocol report was modified to be applicable to RP-1. Additional modifications needed to have that report be consistent with Energy Commission Test Plan guidelines was not completed in October. Finalization of the test plans, taking into account those guidelines, is anticipated in December after feedback on the revised Project 3.1 implementation plan is received.

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

As indicated previously, delays in the completion and submittal of the agricultural and food processing waste inventory/biogas resource and mini-grid T&D impacts related reports under Project 1.1 have impacted the Project 3.1 schedule.

**Significant problems or changes:**

On Project 3.1, Dairy Waste to Energy, it is clear that a key element of this project is to define and quantify the environmental and economic benefits of the dairy waste to energy technology applications. This is particularly true for centralized dairy projects, which may offer the best potential for achieving environmental benefits for a range of dairy digestion projects. The Commonwealth Team is working with IEUA and is seeking to present cost information for centralized dairy waste to energy projects in a form that can be appropriately used to present the relative benefits of both *on-farm* and *centralized* facilities in Europe and North America. They are also seeking to identify a valid approach to monetize the environmental benefits to better determine the overall economic performance of these projects. Related to this topic, the Chino Basin is very well suited for centralized dairy digestion projects. Efforts are needed, however, to ensure that such systems are optimized, as such systems will face increasing economic and environmental pressures as they are developed or expanded.

At the RPAC/CPR and related follow-up meetings several important project changes were discussed:

- It was concluded that efforts should be focused on centralized manure digestion facilities, but that future PIER activities should be conducted at RP-1 and/or a new complete-mix digester at RP-5. It was determined that modifications at RP-5 were not appropriate for PIER-funded project activity, because building a plug flow digester and then converting it to complete-mix digester was not a likely scenario for future projects in California.

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

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

Project 3.1 activities in November will focus on responding to comments made at the RPAC/CPR and follow-up meetings. The primary activity on this task to be undertaken in November is the completion of a plan that describes the implementation of this project in light of guidance received at the RPAC and related meetings. Other activities on this task will be limited until the Plan is reviewed with Commission staff. Other activities on this task will focus on finalizing previously submitted work including completion of the Digester Comparison Report. On that report information requests from other project developers that were anticipated to be received in late September were not all received then. Using information that was received later on, as well data that become available in November, the

report will be revised and finalized. In addition, it is anticipated that the Test Plans and Protocols will be revised to focus on activities that can be undertaken at locations other than the existing plug flow digester at RP-5.

**Status of Milestones and Deliverables:**

Table 1 below summarizes the status of Project 3.1 task deliverables as of the end of the current reporting period.

**Table 1: Summary of Project Status and Deliverables – Project 3.1**

Task No.	Description	Start Date		Due Date		Status (%)
		Planned	Actual	Planned	Actual	
3.1.1a(1)	Technical Memorandum Comparing Plug Flow and Complete-Mix Digestion Performance & Economics	01/24/02	04/04/03	06/27/03	06/27/03	95%
3.1.1a (2)	Preliminary Draft Process Recommendation Report	01/24/02	04/04/03	10/25/03		20%
3.1.1a (3)	Draft Processes Recommendations Report	01/24/02	On Hold	11/18/03		
3.1.1.b	Assess Evaluate, and Select Animal Waste to Energy Technology	01/24/02		01/17/04		35%
3.1.2	Site Selection	01/24/02	On Hold	12/20/03		
3.1.3a	Test Plan and Protocols	03/25/02	04/04/03	09/10/03		90%
3.1.8	Coordinate with Renewables Project Advisory Committee	01/24/02		05/12/06		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.

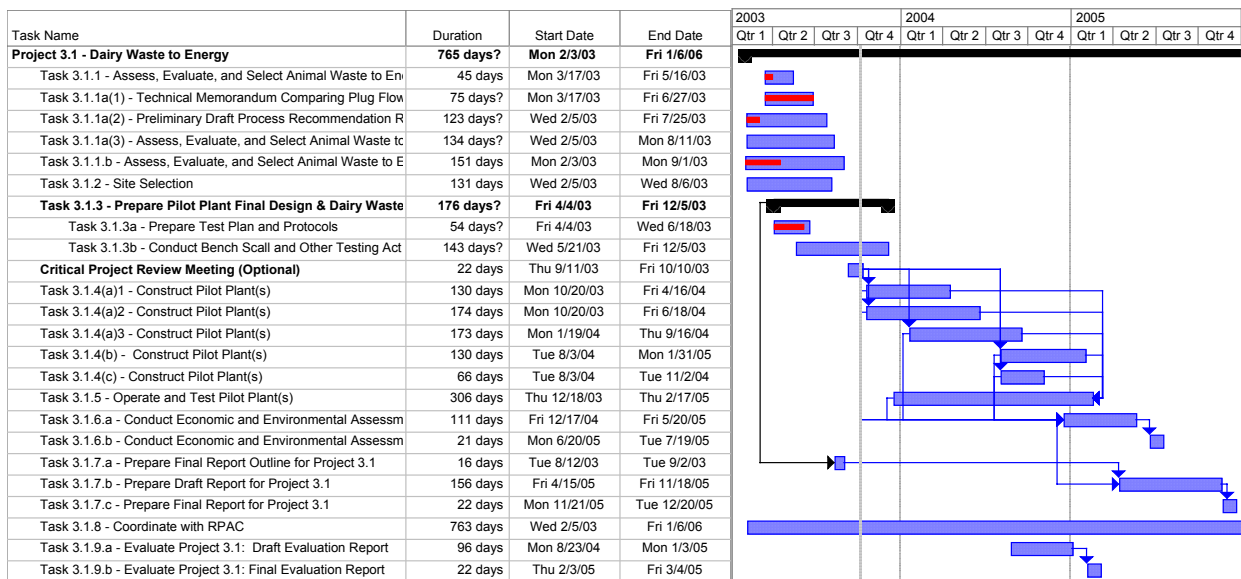
Task 3.1.1. (a). 1 – Technical Memorandum Comparing Plug Flow and Complete Mix Digestion and Economics – This report, initially planned to be submitted in mid-May was delayed. The primary cause of the delay was the length of time required to assemble the cost information for the RP-5 project, so that it is in a form that it can be readily compared to the other digester projects. Comments received from the Energy Commission have been responded to so the document could be resubmitted to the Energy Commission. Comments received from Kurt Roos required contacting a

number of developers and requesting additional information. Some of the information requested was received and it is anticipated that the report will be resubmitted in November.

Task 3.1.3.a – Test Plan and Protocols – This report builds on the finding of the digester comparison report submitted as a part of Task 3.1.1.(a). 1 described above. Thus, the initial submittal on this report was made without the benefit of a fully complete digester comparison report. The initial *Test Plan and Protocols* report also was based on plans to conduct tests at RP-5. Based on comments received from the Commission, no PIER projects are planned at the existing digester at RP-5. The test plan and protocols have been revised to reflect that situation. In addition, the test plan and protocols will be revised to be consistent with the Energy Commission Test Plan guidelines and the revised implementation plan for Project 3.1 that is being prepared as a follow up to discussions held in conjunction with the RPAC/CPR meeting.

Once the plan for Project 3.1 is prepared and approved by the Energy Commission, the remaining tasks on Project 3.1 can be completed. The plan, which identifies a number of projects that are to be implemented, will provide a sound platform for future centralized dairy projects. The overall schedule for Project 3.1 will be revised once the plan is approved.

**Overall Schedule for Project 3.1:**



**Overview of Fiscal Status:**

Table 2 below summarizes the fiscal status of Project 3.1 by task as of the end of the current reporting period.

**Table 2: Fiscal Status by Task – Project 3.1**

<b>Task Number</b>	<b>Budget</b>	<b>Invoiced To-Date</b>	<b>Fiscal Status *</b>
3.1.1 a (1)	\$48,000	\$0	OT
3.1.1 a (2)	\$72,000	\$0	OT
3.1.1 a (3)	\$120,706	\$0	OT
3.1.1.b	\$240,706	\$0	OT
3.1.2	\$171,240	\$0	OT
3.1.3	\$301,177	\$0	OT
3.1.8	\$33,919	\$0	OT

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