

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:**

Activities in April were to focus on the technology review under Project 3.1, with the primary focus being on co-digestion. A plan of co-digestion projects was to be developed for RP-1 that would enable the testing of various feedstocks on digestion performance and increased gas production. Initial efforts to re-evaluate the project in light of Commonwealth's Business Plan initiated earlier this year, were to be largely completed in April, with finalization of the Task 1.1.10 *Prioritization Report* under Task 1.1. This would enable the detailed work on co-digestion to proceed. In addition, vendors were to be contacted to determine their interest in participating in gas cleaning tasks. As noted earlier, this Tier 2 project could only be continued if it did not divert focus from co-digestion efforts and if additional vendor participation occurred. Other activities on this task were to focus on finalizing previously submitted work including the *Test Plan and Protocol* and *Digester Comparison Reports*, as well as working with Commonwealth to continue to link these projects with its business plan under the PIER program.

Activities were planned to move forward on Task 3.1.6. The results of the February workshop, subsequent analysis and a review of pending South Coast Air Quality Management District (SCAQMD) rules were to be completed. This was to be undertaken in conjunction with the latest emission estimates for the base line with and without the centralized digester. Specialists in air quality, water quality, and renewable energy were to begin to develop their sections of the Task 3.1.6 deliverable.

**What we actually accomplished this period:**

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

- Efforts on this task focused primarily on providing input to the prioritization process under Task 1.1.10. Efforts continued on evaluating technologies that would be most relevant for meeting the objectives of the Commonwealth Business Plan and the overall objectives of the Commonwealth PIER program. The findings in this area were used to shape the future direction of Project 3.1, in light of the comments received from the Commission. Specific technologies evaluated under this task previously, were analyzed in the context of the objectives of the Commonwealth Business Plan. Findings of the prioritization effort suggested that efforts should focus on co-digestion and gas cleaning. Additionally, efforts were restarted on the interim Task 3.1.1 report. This report will summarize technologies considered and identify the rationale for focusing on the selected technologies. This interim report will also provide the basis for defining future co-digestion projects. Once the prioritization effort is finalized this report will be completed and detailed test plans and designs for the planned co-digestion projects will be finalized.
- As a result of discussions with Commission staff in March during which the preliminary results of the prioritization methodology were presented, it was determined that CE Team efforts should focus on a limited number of technologies and projects in order to concentrate on those projects and technologies most aligned with Commonwealth's objectives and, which would be most beneficial elsewhere in California. These included, one Tier 1 Project on co-digestion, and one Tier 2 Project and gas cleaning. Emphasis was placed on co-digestion technologies as was placed on the Tier 1 project, secondary emphasis is placed on gas cleaning. As part of the focus on co-digestion, a technical review of co-digestion was initiated. This review is to summarize technical issues associated with co-digestion and the relative merit of different feedstocks in terms of which offer the most benefit for increased gas production

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

- Efforts on this task were limited as the plans related to bench scale testing were dependent on the results of the prioritization effort on Task 1.1.10. Further, the technology review of co-digestion technologies discussed above will help guide future efforts on this task. The results of this task were being used in the overall technology assessment of dairy waste to energy projects and will be incorporated into the interim Task 3.1.1 report. Finalization of the bench scale test plan is anticipated upon completion of the interim Task 3.1.1 report. The revised *Test Plans and Protocols Report* will focus on co-digestion and gas cleaning and will be consistent with feedback from the Commission on the Commonwealth Business Plan, *Prioritization Report* and the revised *Project 3.1 Implementation Plan*.

Task 3.1.6: Conduct Economic and Environmental Assessment

- Work continued on Task 3.1.6. Additional data collection activities were required as preliminary review of the baseline analysis determined that it would be necessary to use actual emissions information from the existing operations instead of general emission rate data that was not specific to the projects being evaluated. Additional work on this task included further analysis and revision of the expanded annotated outline of the *Monitoring, Reporting and Verification* protocol for quantifying the environmental benefits of the centralized digestion projects, which was distributed earlier.
- A preliminary draft report was prepared that included the *Monitoring, Reporting and Verification* protocol for the project. This addressed conditions with and without the dairy waste projects, and once finalized will be useful in achieving and documenting emission reductions. This document will not only define the environmental benefits in accordance with the scope of this project, but will also enable those changes to be documented so that others interested in credits associated with these benefits have information that defines these benefits. Initial efforts have focused on water quality, renewable energy and greenhouse gas components of the analysis. This information was included in working drafts of the Task 3.1.6 draft deliverable that was circulated among team members. Air emissions estimates being developed under this task are being considered in light of ongoing regulatory activity of the South Coast Air Quality Management District. Information on the District's pending rules related to emissions from dairy operations is being collected to ensure that this effort is consistent with the regulatory developments in this area.

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

As indicated previously, the overall efforts on Project 3.1 were delayed pending incorporation of the results of the Commonwealth Business Plan and subsequent guidance from Commission staff. The meeting held with the Commission on March 9th enabled development of a revised schedule and also permitted CE Team members to focus their efforts on developing a co-digestion program that meets the Commonwealth Business Plan and overall PIER program objectives.

**Significant problems or changes:**

It continues to be clear that a key element on the project is the definition and quantification of the environmental and economic benefits of the dairy waste to energy project. 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 CE Team continues to work with IEUA and is seeking cost information for centralized dairy waste to energy projects in a form that can be appropriately used to present the relative benefits of on-

farm and centralized facilities in Europe and North America. This topic is being addressed under Task 3.1.6.

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 schedule and within budget based upon the near-term acceptance of the revised project plan.

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

Activities in May will focus on completing the technology review under Project 3.1. It is anticipated that a draft of the *Interim Report* will be completed and circulated internally to CE Team members. It is also anticipated that a draft technology review on co-digestion will be completed as well. This review will be important in several respects. First, it will provide a basis for detailed planning and design of co-digestion projects to be implemented. Second, it will serve as a building block in working with the project host and in developing the final plans for Project 3.1. Third, it will be a key element of the Task 3.1.1 draft report, supplementing information presented in interim report. Another activity to be undertaken in May is the identification of potential co-digestion feedstock providers. This will enable the testing of various feedstocks on digestion performance and increased gas production. Initial efforts to re-evaluate the project in light of Commonwealth's Business Plan, which was initiated earlier this year, and was largely completed in April will be finalized in May. Further, with finalization of the Task 1.1.10 *Prioritization Report* under Project 1.1, the detailed work on co-digestion will proceed.

For gas cleaning projects, vendors will be contacted to determine their interest in participating in gas cleaning tasks. As noted earlier, gas cleaning is a Tier 2 project and will be conducted if it does not divert focus from co-digestion efforts and is otherwise consistent with the prioritization activity under Task 1.1.10.

Activities will continue to move forward on Task 3.1.6. Discussions are planned with representatives of South Coast Air Quality Management District (SCAQMD) regarding their proposed rules and impact on their dairy operations.

**Status of Milestones and Deliverables:**

Table 1 on the following page 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		35%
3.1.1a (3)	Draft Processes Recommendations Report	01/24/02		11/18/03		
3.1.1.b	Assess Evaluate, and Select Animal Waste to Energy Technology	01/24/02		01/17/04		50%
3.1.2	Site Selection	01/24/02		12/20/03		
3.1.3a	Test Plan and Protocols	03/25/02	04/04/03	09/10/03		90%
3.1.6a	Conduct Economic and Environmental Assessment – Environmental Benefits Task	07/12/05	12/04	12/13/05		60%
3.1.8	Coordinate with RPAC	01/24/02		05/12/06		

Explanation of any Difference(s) in Schedule

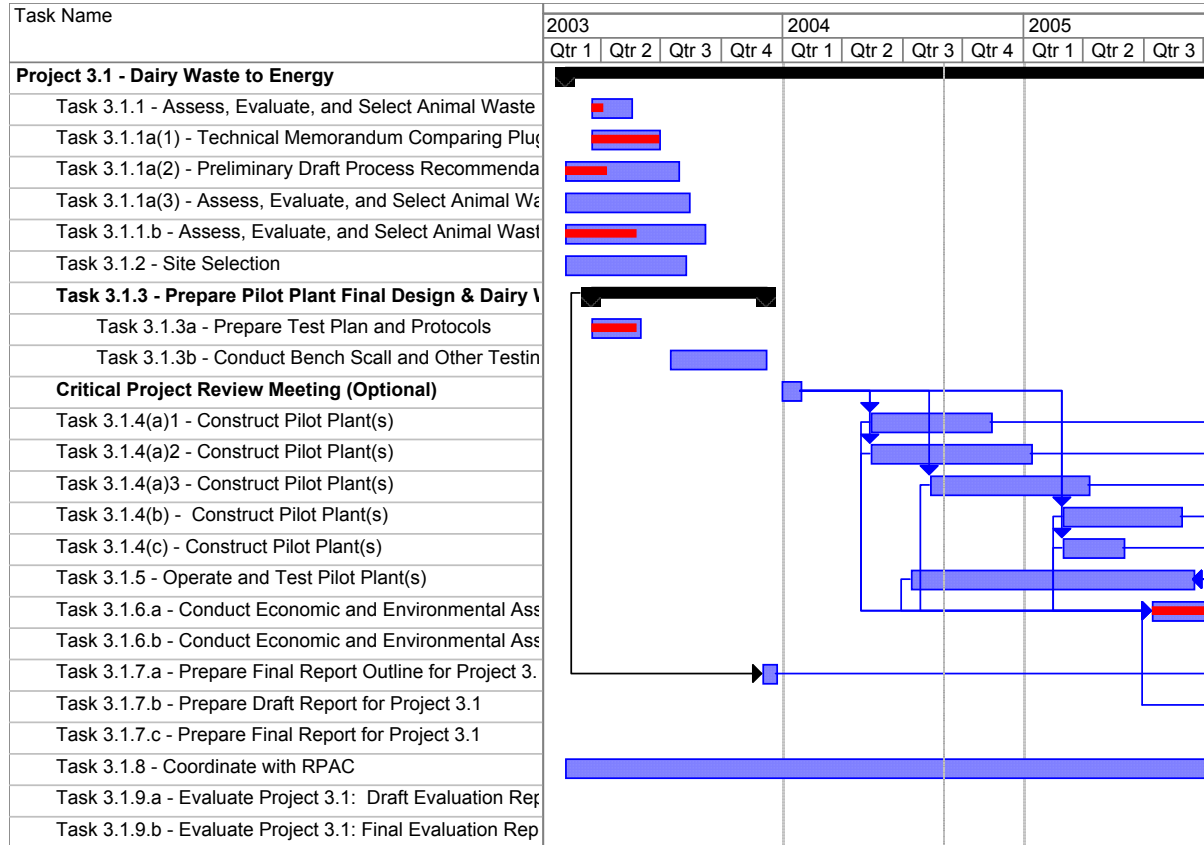
The following listing provides the explanation for the reported changes in the schedule at the project task/deliverable level.

Task 3.1.3.a – Test Plan and Protocols – The initial Test Plan and Protocols Report was originally based on plans to conduct tests at RP-5. Due to comments received from the Commission, no PIER projects are planned at RP-5. The Test Plan and Protocol Report has been revised to reflect that situation. In addition, the report will be revised to be consistent with the Commission Test Plan guidelines and the revised Implementation Plan for Project 3.1 that will be prepared as a follow up to discussions held with Commission staff in March and once the prioritization effort is complete.

Once the Commission has accepted the revised plan for Project 3.1, the remaining tasks on Project 3.1 can be completed. The plan, which identifies a number of tasks 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**

Task Number	Budget	Invoiced To-Date	Fiscal Status *
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

*Commonwealth Energy PIER Renewables Affordability Mini-Grid Program Status Report*

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3.1.6a	\$320,754	\$0	OT
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\*Fiscal Status – Please indicate if you are “On Track” (OT), OverBudget (OB), or UnderBudget (UB)