

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

PROJECT 2.2 – ENHANCED ENERGY RECOVERY THROUGH OPTIMIZATION OF
ANAEROBIC DIGESTION AND MICROTURBINES PROJECT

REPORT PREPARED BY: COMMONWEALTH ENERGY PROJECT TEAM

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What we planned to accomplish this period:

Information was planned to be collected related to implementation of the technologies identified in the *Process Selection Report*. Activity related to enhanced energy production, gas cleaning and advanced energy recovery was to continue and additional coordination activity with the project hosts at IEUA and Riverside County were planned to continue. Efforts on the enhanced anaerobic digestion task were to focus on more than one ultrasound technology (as opposed to one ultrasound and one thermal hydrolysis technology) in accordance with guidance received from the RPAC.

What we actually accomplished this period:

Task 2.2.1 Process Selection:

- Following up on the draft report submitted previously and the guidance received at the RPAC meeting to focus on the development of two ultrasound technologies instead of one ultrasound and one thermal hydrolysis technology, efforts continued to review and analyze technologies presented in the *Process Selection Report*. This work was done in support of the subsequent site selection and system design tasks. Vendors were contacted about their ability to provide the latest ultrasound technologies to the projects planned at Riverside County. Communications focused on the ability to meet contract schedule and on the ability to provide the project matching funds.
- Additional discussions were also held with Riverside County to discuss how these technologies would be integrated with their facilities. The Project Team assembled detailed information about the technologies presented in the *Process Selection Report*. This was done in order to undertake the detailed planning with

Riverside County prior to finalization of the site selection report and development of the site selection test plan for the enhanced anaerobic digestion projects.

- Additional project planning was conducted related to the gas cleaning for microturbines task. Technologies presented in the process location report were evaluated in terms of how they could be best deployed at the IEUA RP-1 plant. This included collecting information on the gas quality and quantity produced at the plant, as well as the additional biogas that is expected to be produced at RP-1 under Project 3.1. Overall, there are a number of locations where gas cleaning system elements could be deployed at RP-1. Technologies presented in the *Process Selection Report* were evaluated in terms of where they could be most efficiently deployed and tested.
- A number of teleconferences and meetings were held with project host staff at RP-1 to better understand the existing gas handling system and to review how the new systems could be integrated into the project.
- As part of the ongoing effort to optimally implement Project 2.2, more detailed process evaluation activity occurred in October. This effort will facilitate a more efficient completion of the site selection and test plan and design efforts for both the enhanced anaerobic digestion and gas cleaning for microturbines portions of the projects. Efforts are focusing on working closely with vendors in the planning phase, thereby streamlining the subsequent site selection and design tasks. It also reduces risk of incompatibilities between the technology vendors' products and the requirements of the sites where they are to be deployed.

Task 2.2.2 Site Selection and Test Plan

- Efforts on this task were undertaken, although as noted above, the focus in October was working with the vendors and the hosts to ensure that the processes to be deployed at the proposed host sites are compatible with the existing systems. Discussions were held with project hosts to ensure that siting preferences were considered. Similarly, anticipated project protocols were reviewed with the technology vendors to ensure that the systems to be installed were appropriate for meeting the project's objectives of increased gas production, while ensuring the treatment processes are maintained or improved.

How we are doing compared to our plan:

The selected approach of evaluating two ultrasound technologies, instead of one ultrasound and one thermal hydrolysis technology, at the Riverside treatment plant will make the findings: 1) more relevant to the rest of California and 2) expand the knowledge base in the rapidly evolving field of ultrasound technology. This approach will require that additional ultrasound vendors be contacted and brought into the program. When this task is completed, it is anticipated that findings will be produced that document how the use of ultrasound technology can help increase gas production and improve the treatment process.

This modified focus for the Program is requiring that additional consultation with vendors be undertaken. As part of this consultation, the Project Team is seeking to streamline the site selection and design tasks by getting the technology vendors involved in the project planning phase. This approach will enable future resources to be focused on project implementation, rather than on further evaluations and design activities, but it also delays finalization of the site selection and test plan report. Overall, the goal is to complete the Site Selection and Test Plan in December. This report will include enough detail in order to present and discuss results with the Technical Advisory Committee. It will facilitate receipt of their feedback on the Program's direction. It will also be of sufficient detail to allow the vendors to begin fabrication on the long lead time equipment to be used on this project. The Site Selection and Test Plan Report will also lay out how all the project elements will tie together and provide a revised schedule for Project 2.2.

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

- The recommendation was made that efforts focus on comparing two ultrasound technologies, rather than an ultrasound and a thermal hydrolysis technology. This recommendation was made because of the rapid advances being made in ultrasound technologies and their potential benefits as well as because of ultrasound's potential for a much wider spread of applications in California. It is planned that future Project 2.2 activities will focus on ultrasound.

Significant problems or changes:

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 our revised project schedule and within budget.

What we expect to accomplish during the next period:

In November, information collection and analysis activities will continue as related to implementation of the technologies identified in the *Process Selection Report*. Activity related to enhanced energy production, gas cleaning and advanced energy recovery will continue as will additional coordination activity with the project hosts at IEUA and Riverside County. Efforts on the Site Selection and Test Plan will focus on integrating two ultrasound systems into the Riverside plant and on gas drying, H₂S removal and siloxane removal systems into the RP-1 site. The approach of including a second ultrasound technology, instead of a thermal hydrolysis technology will provide greater applicability to other facilities in California and is in accordance with guidance received from the RPAC and TAC. This approach will also require additional coordination with the ultrasound vendors.

Status of Milestones and Deliverables:

Table 1 below summarizes the status of Project 2.2 task deliverables as of the end of the current reporting period.

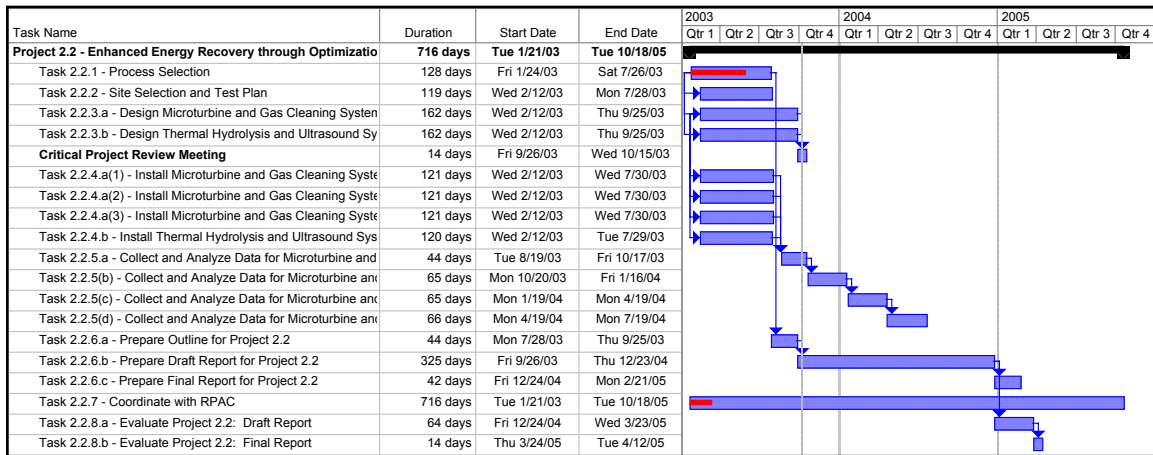
Table 1: Summary of Project Status and Deliverables – Project 2.2

Task No.	Description	Start Date		Due Date		Status (%)
		Planned	Actual	Planned	Actual	
2.2.1	Process Selection	01/24/02	01/24/03	09/04/03		70%
2.2.2	Site Selection and Test Plan	02/15/02		10/26/03		
2.2.3.a	Design Microturbine and Gas Cleaning System	02/15/02		11/24/03		
2.2.3.b	Design Thermal Hydrolysis and Ultrasound System	02/15/02		11/24/03		
2.2.7	Coordinate with RPAC/TAC	01/24/02		01/16/06		5%

Explanation of any Difference(s) in Schedule

Task 2.2.2 – Site Selection and Test Plan – The findings of the *Process Selection Report* identified the technologies that are to be used at both the Riverside plant for enhanced anaerobic digestion and at RP-1 for gas cleaning. As noted in the discussion of October activities completed under Task 2.2, additional coordination activities with vendors are required. Efforts are being undertaken to streamline the site selection and test plan and design processes by conducting more detailed coordination with the vendors on their technologies. This approach will shorten the time needed to secure the long lead time equipment items. It will also improve the likelihood that demonstration pilot programs can be implemented most efficiently, but will delay the completion of the site selection and design tasks.

Overall Schedule for Project 2.2:



Overview of Fiscal Status:

Table 2 below summarizes the fiscal status of Project 2.2 by task as of the end of the current reporting period.

Table 2: Fiscal Status by Task – Project 2.2

Task Number	Budget	Invoiced To-Date	Fiscal Status *
2.2.1	\$236,563	\$0	OT
2.2.2	\$182,543	\$0	OT
2.2.3.a	\$242,995	\$0	OT
2.2.3.b	\$215,842	\$0	OT
2.2.7	\$22,557	\$0	OT

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