

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 TEAM

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

As part of an ongoing effort, information collection and analysis in relation to implementation of the technologies identified in the *Process Selection Report*, was expected to continue. The planned activity related to enhanced energy production, gas cleaning and advanced energy recovery and additional coordination activity with the project hosts at IEUA and Riverside County also will continue. February efforts were to focus on integrating two ultrasound systems into the Riverside Plant, as well as integrating H<sub>2</sub>S, gas drying and siloxane removal systems into the RP-1 site. Activities related to finalizing the *Site Selection and Test Plan* were planned to continue with significant emphasis placed on working with the vendors in order to ensure that the intended six-month testing period could begin in a timely manner later this year. Also, the detailed planning related to fabrication of the planned test equipment was expected to continue in February, with the CE Team and vendors working closely on this effort.

Additionally, further refinement was expected on the *Memorandum of Understanding* (MOU) between Riverside County and the CE Team as related to the proposed ultrasound-testing program at the City of Riverside Treatment Plant.

**What we actually accomplished this period:**

Task 2.2.1 Process Selection:

- The CE Team continued its follow up on the *Process Selection Report* submitted previously. Primary efforts continued to focus on the review and analysis of the technologies presented. Contact and coordination with the technology vendors continued in order to fabricate and provide the latest ultrasound technologies to the projects planned at Riverside County. The ultrasound vendors provide detailed

information about their technologies and will be heavily involved in the planning process in order to ensure a smooth process from selection to installation.

*Task 2.2.2 Site Selection and Test Plan:*

- Discussions continued with Riverside County regarding the proposed *Memorandum of Understanding* (MOU). This will be an ongoing process, as roles and responsibilities are defined.
- The CE Team and the technology vendors continued to apply the information developed in the process selection phase, to the site selection and test plan development activities. Detailed plans regarding the location of the test equipment at each of the locations planned (RP-1) and the City of Riverside Treatment Plant continued to be analyzed.
- As part of the preparation of the *Site Selection and Test Plan Report*, process and instrumentation diagrams and other elements of the site selection report were prepared. A draft of this report, which was completed in January, was refined in February. Further, detailed planning continued with the vendors and a schedule developed providing the vendors with a workable plan to complete the development of the test units in the timeframe required. Related to this effort, preliminary planning was initiated on the critical project review meeting for this project. Information is being included in the *Site Selection and Test Plan* so that the proposed project can clearly present a detailed six-month testing plan that will foster gas production and improved operations at the host site.

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

As reported previously, the redirection of our approach (two ultrasound technologies, instead of one ultrasound and one thermal hydrolysis technology) will make the project findings more relevant to the State of California, but continues to require additional consultation and planning with the technology vendors. This modified focus continues to delay the finalization of the *Site Selection and Test Plan Report*. However, the CE Team believes that upon completion, the findings produced will clearly document how the use of ultrasound technology can help increase gas production as well as improve the treatment process.

As part of the ongoing coordination with the technology vendors, the CE Team is seeking to streamline the site selection and design tasks by involving the vendors in the project planning. This will allow future efforts to focus on project implementation, rather than further evaluations and design activities. However, these additional processes/steps delayed the finalization of the *Site Selection and Test Plan Report*. These challenges have been largely overcome and it is anticipated the *Site Selection and Test Plan* will be completed in March and sent to the Technical Advisory Committee (TAC) for review and comment.

**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:**

Activity related to enhanced energy production, gas cleaning and advanced energy recovery will continue along with additional coordination activity with the project hosts at IEUA and Riverside County. Efforts will continue to focus on integrating two ultrasound systems into the Riverside Plant and integrating H<sub>2</sub>S and siloxane removal systems into the RP-1 site. The results will be presented in the *Site Selection and Test Plan* anticipated to be submitted to the Commission in late March. Activities related to finalizing the *Site Selection and Test Plan* will also require ongoing coordination the technology vendors to ensure that the intended six-month testing period can begin in a timely manner later this year. Additionally, the detailed planning for the fabrication of the planned test equipment is expected to continue in March, with the CE Team and vendors working closely on this effort.

Further refinement is expected on the *Memorandum of Understanding* (MOU) between Riverside County and the CE Team as related to the proposed ultrasound-testing program at the City of Riverside Treatment Plant. It is anticipated that this document will be finalized by the end of March.

**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		95%
2.2.2	Site Selection and Test Plan	02/15/02	10/15/03	10/26/03		60%
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	01/24/02		01/16/06		

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 previously, additional coordination activities with vendors has been required. Efforts were 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:**

Task Name	Duration	Start Date	End Date	2003				2004				2005			
				Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
<b>Project 2.2 - Enhanced Energy Recovery through Optimization of A</b>	<b>780 days</b>	<b>Tue 1/21/03</b>	<b>Mon 1/16/06</b>												
Task 2.2.1 - Process Selection	174 days	Tue 1/21/03	Wed 9/24/03												
Task 2.2.2 - Site Selection and Test Plan	184 days	Wed 2/12/03	Mon 10/27/03												
Task 2.2.3.a - Design Microturbine and Gas Cleaning System	204 days	Wed 2/12/03	Mon 11/24/03												
Task 2.2.3.b - Design Thermal Hydrolysis and Ultrasound System	204 days	Wed 2/12/03	Mon 11/24/03												
<b>Critical Project Review Meeting</b>	15 days	Tue 12/9/03	Mon 12/29/03												
Task 2.2.4.a(1) - Install Microturbine and Gas Cleaning System	121 days	Tue 11/25/03	Tue 5/11/04												
Task 2.2.4.a(2) - Install Microturbine and Gas Cleaning System	121 days	Tue 11/25/03	Tue 5/11/04												
Task 2.2.4.a(3) - Install Microturbine and Gas Cleaning System	121 days	Tue 11/25/03	Tue 5/11/04												
Task 2.2.4.b - Install Thermal Hydrolysis and Ultrasound System	121 days	Fri 12/5/03	Fri 5/21/04												
Task 2.2.5.a - Collect and Analyze Data for Microturbine and Gas (	45 days	Mon 6/21/04	Fri 8/20/04												
Task 2.2.5(b) - Collect and Analyze Data for Microturbine and Gas	66 days	Fri 8/20/04	Fri 11/19/04												
Task 2.2.5(c) - Collect and Analyze Data for Microturbine and Gas	66 days	Fri 11/19/04	Fri 2/18/05												
Task 2.2.5(d) - Collect and Analyze Data for Microturbine and Gas	66 days	Mon 2/21/05	Mon 5/23/05												
Task 2.2.6.a - Prepare Outline for Project 2.2	43 days	Fri 10/10/03	Tue 12/9/03												
Task 2.2.6.b - Prepare Draft Report for Project 2.2	326 days	Fri 5/21/04	Fri 8/19/05												
Task 2.2.6.c - Prepare Final Report for Project 2.2	44 days	Tue 10/18/05	Fri 12/16/05												
Task 2.2.7 - Coordinate with RPAC	780 days	Tue 1/21/03	Mon 1/16/06												
Task 2.2.8.a - Evaluate Project 2.2: Draft Report	65 days	Wed 8/24/05	Tue 11/22/05												
Task 2.2.8.b - Evaluate Project 2.2: Final Report	16 days	Mon 12/12/05	Mon 1/2/06												

**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**

<b>Task Number</b>	<b>Budget</b>	<b>Invoiced<sup>1</sup> To-Date</b>	<b>Fiscal Status *</b>
2.2.1	\$236,563	\$236,563	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)

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<sup>1</sup> Invoice to-Date refers to amount invoiced prior to 10% retention withheld.