

R011-B: “Pilot-Scale Testing to Evaluate the Effects of Biomass Cofiring Combustion on CMMs at Low Mercury Concentrations”

Submitted by EERC

Principal Investigator: John Pavlish

Request for \$247,000; Total Project Costs \$494,000

**Technical Advisor Comments**

- One reviewer recommended funding may be considered, one recommended do not fund, and one recommended fund.
- Applicant will provide a 50% cash match. \$217K will come from DOE, and \$30K will come from CATM affiliates.
- 2 reviewers had concerns regarding the objectives of the proposal. 1 felt the significance of the project was not well justified, except to mention that the data would be used for policy/regulation purposes. Another felt success of the objectives would not impact greater use of biomass since biomass has inherently low mercury content.
- One reviewer commented that the project does not propose to work with the instrument manufacturers. Another felt that the goals were obtainable, but not challenging.
- One reviewer felt there was a lack of details in the methodology and also stated, “No industry partners are involved, which are said to be benefited from this project. To this reviewer, the to-be-benefited industry by this project would be the mercury machines manufacturers, not the biomass co-firing companies because the applicability of such machines is limited by the machines themselves, not how the co-firing is conducted.”
  - Applicant has stated that vendor involvement is critical. However, there are no letters of support, and no documented match.
- 1 reviewer stated, “Demonstrating that mercury emission measurement methodologies developed for coal combustion will also work for co-firing will do virtually nothing toward increasing the use of biomass in electric power generation. The bottlenecks for co-firing involve feedstock logistics, co-feeding of coal and biomass, and particulate emissions.”
  - Applicants have stated that because CMMs are used to modify operations in near-real-time, it is critical that they are accurate, and that inclusion of biomass changes the chemistry of emissions and particulate emissions.
  - Applicants also state that the project is needed because there is no data available regarding CMMs in biomass combustion.
- 2 reviewers had concerns about the budget, stating:
  - “Demonstrating that mercury emission measurement methodologies developed for coal combustion will also work for co-firing will do virtually nothing toward increasing the use of biomass in electric power generation. The bottlenecks for co-firing involve feedstock logistics, co-feeding of coal and biomass, and particulate emissions.”
  - “Pilot plant work is significantly more expensive than bench top studies. Nevertheless, one half million dollars to determine whether methodologies developed for measuring mercury emissions during coal combustion will also work for co-firing does not strike me as much return on investment in renewable technologies.
  - Applicant has responded that, “The proposed pilot-scale testing involves a tightly controlled test matrix with several concurrent measurement instruments/techniques being conducted, resulting in side-by-side comparisons of CMMs. This is no trivial test evaluation and involves several researchers who are highly skilled in the operation of both the combustion unit (to ensure very stable operating conditions) and the instruments themselves.”

**Technical Advisor Recommendations**

Funding may be considered. The three major issues with this proposal are:

1. The perceived impact on use of biomass.
2. The justification of the budget.
3. Level of industry support.

It is unclear who the CATM affiliates are, the letter of support for this funding source is signed by the PI. The applicant states in clarification that they do plan to work with vendors. If this is the case, vendor contribution should be listed as a match, and vendors should provide letters of support.

While space can be an issue, applicants should be able to justify a budget and account for all major expenditures. The fact that 2 reviewers questioned the budget is significant. The project is 12 months long, and includes a 4% escalation for all costs.

While the project may indirectly promote the use of biomass, it may not have top priority for limited funds.

**Suggested Contingencies if Funded**

- Plan for industry involvement is provided prior to contract and approved by the Council.