

Thank you for the opportunity to provide clarification for the EERC Proposal 2009-0085 “North Dakota Biomass Feasibility Studies” submitted to the NDIC Renewable Energy Program. Comments are addressed only as necessary, organized by reviewer questions. Please, feel free to contact me by phone at (701) 777-5013 or e-mail at kleroux@undeerc.org with any questions.

**1. The objectives or goals of the proposed project with respect to clarity and consistency with North Dakota Industrial Commission/Renewable Energy Council goals:**

The proposed project will utilize an existing database of current fuel systems within ND which provides system size, fuel type, system owner, and system location. The database will be sorted to provide a list of all public facilities and energy systems for evaluation and study.

Biomass resource facilities include all municipal solid waste facilities and agricultural processing facilities. These sources have the most potential for generating large quantities of biomass for energy utilization.

Potential environmental issues from biomass utilization will be addressed when evaluating appropriate technologies in Task 3. Commercially available renewable energy systems, such as combustion, guarantee maintaining emissions standards. Technologies considered which are still in the demonstration phase will also be evaluated for meeting environmental regulations.

**2. With the approach suggested and time and budget available, the objectives are:**

Existing information from previous studies will be updated. Known and identified resource facilities will be contacted to determine quantity and quality of major fuel resources; resources in urban and rural areas will be equally considered. Potential sources include municipal, industrial, or agricultural by-products or waste and forest-related activities.

The final report will be made publically available to all North Dakota public institution and organizations, which includes the North Dakota Biomass Energy Task Force, ND Department of Commerce, NDSU Extension Service, etc.

Because of previous work conducted by the EERC which was similar but of smaller magnitude, a one-year timeline was estimated for a state-wide study with three-person team. The smaller study was also a one-year project and covered about one-quarter of North Dakota with one person conducting the project. The project was comprehensive and received positive reviews.

**3. The quality of the methodology displayed in the proposal is:**

The proposed project is a screening of biomass opportunities throughout the state. Estimated economics will provide a means for comparing public institutions of various locations and sizes. It is thus understood that an in-depth economic analysis will be required of any facility considered implementation of an alternative energy system.

**5. The principal investigator’s awareness of current research activity and published literature as evidenced by literature referenced and its interpretation and by the reference to unpublished research related to the proposal is:**

The proposal references several studies conducted by the North Dakota Forest Service (NDFS) without EERC involvement, e.g., feasibility studies for Minot State University – Bottineau, a fire mitigation project with the city of Bismarck; and a biomass energy demonstration project by the Bismarck Landfill.

Evidence of biomass utilization research in other states showed similar attempts at identifying biomass energy opportunities which determined the economic viability for a few chosen facilities or institutions, instead of identifying the public facilities with the greatest economic opportunity for implementation of biomass as fuel.

**6. The background of the investigator(s) as related to the proposed work is:**

Each EERC employee named in the proposal will contribute to various aspects of all tasks specific to the individuals most valuable skills. For example, the technical engineer will be more involved with system profiles and technology options, and the marketing manager will work more heavily in the resource assessment and public outreach. The project manager will coordinate all efforts, organizing data procurement and economic calculations to ensure efficiency and accuracy.

**7. The project management plan, including a well-defined milestone chart, schedule, financial plan, and plan for communications among the investigators and subcontractors, if any, is:**

The project manager will evaluate and monitor project progress to ensure quality of work is maintained and task completion occurs as scheduled. Milestones, such as scheduled completion and progress reporting will be used to evaluate the progress of the project as anticipated. Expected deliverables will also be reviewed following completion of each task to ensure project success.

**10. The proposed budget “value” relative to the outlined work and the financial commitment from other sources is of:**

Similarly to previous comments, because of previous work, a total project budget of \$201,036 (requesting \$100,518 and providing 50% match) was estimated for the state-wide study. The smaller preceding study (covering about one-quarter of the state) was a \$50,000-project.