

R009-A: "Dakota Spirit AgEnergy Cellulosic Biorefinery"
Submitted by Great River Energy
Principal Investigator: Sandra Broekema
Request for \$500,000; Total Project Costs \$1,250,000

Technical Advisor Comments

- Two reviewers recommended fund, one recommended do not fund.
- Applicants will provide a 40% cash match and 20% in kind match. All match comes from the applicant.
- 2 reviewers felt the budget was too high.
- All 3 reviewers felt there was a lack of literature referenced in the proposal. One reviewer stated, "I have toured the Inbicon facility and am aware of the technology...however, without that background I would be very suspicious of this proposal due to lack of any data from their operating demonstration plant."
 - The applicant has indicated that current research and published literature doesn't directly relate to the specific engineering being proposed.
- 2 reviewers expressed concerns regarding the methodology. One stated, "...they describe development of a supply chain for baled wheat straw, as well as a "balance of plant" study, but neither of these are explained in any detail. The former does not show up as a component of either the timeline or budget." The other stated, "...It appears that since the general technology is "proven" that estimates could be generated to create a preliminary financial feasibility model to determine if an engineering design study should be completed. The preliminary model must address markets for feedstocks (quantity & price) and all final products produced."
 - The applicant has indicated that "A financial feasibility model is currently under development and refinement. Consultants have been retained to provide independent verification of feedstock costs and market value of product streams.
- 1 reviewer requested a defined milestone chart and felt the management plan was weak in demonstrating how communication and collaboration would occur between ND and Denmark.
 - The milestone chart has been provided. The management plan was not addressed.
- 2 reviewers felt that the project could be a significant contribution to our state.
- 1 reviewer requested estimates of the market size and price for molasses.
 - The applicant is currently investigating this under a separate scope of work.
- 1 reviewer questioned the scientific/technical contribution as the technology has been utilized for 14 years in Denmark.
 - The applicant has responded that while the core technology exists in Denmark, additional work and demonstration will be required to adapt the system to ND.

Technical Advisor Recommendations

Both reviewers that recommended funding felt the budget was too high. The applicant's share allocates \$200,000 (cash) for assistance in writing federal grant applications. While the need for this expense is understood, it may be outside of the scope of work for this particular project. Because the budget was questioned, the Council should be provided with additional details regarding each component at the meeting. Additionally, the Council should be aware that the applicant has received \$100,000 in state funds to use towards a financial feasibility study and logistics of biomass collection.

Ultimately, the project could have major contributions to development of industry within the state. Commerce recommends funding be strongly considered.

Suggested contingencies if funded:

- A more detailed management plan.
- Many of the concerns raised by the reviewers related to lack of information that applicant is in the process of obtaining. For example, the applicant has stated that they have already started a financial feasibility model, and continue to refine it and the key data components. The Council may want to consider tying a

portion of the funds to successful completion of the following information: financial feasibility model, value of molasses, and feedstock logistics.