

R025-A: Sugar Beet Tailings to Advanced Ethanol
Submitted by BioMass Solution
Principal Investigator: Jacek Chmielewski
Request for \$500,000; Total Project Costs \$1,000,000

Technical Advisor Comments

- One reviewer recommended fund, two recommended funding may be considered.
- The 50% match comes from the applicant (\$250,000 – cash, \$250,000 – in-kind).
- The reviewers felt that the proposal did not provide adequate information to demonstrate awareness of current research.
- 2 reviewers felt that the objectives were achievable. 1 reviewer was less confident, stating “...The rest of the submission still falls short on the overall funding pathway. If this is to be funded, it should be done on a milestone basis. The FEL 1 results should reveal the viability of the process, and the estimated production cost on a \$/gallon basis...”
Another reviewer had concerns about economic viability, stating, “...2 main concerns remain: 1) the proposed feedstock will only be available for part of the year, and 2) the limitation of feedstock supply restricts the size of the facility to 10 mgy, which is 5-10X smaller than the corn ethanol biorefineries they will be competing with. While the low or potentially negative feedstock cost is very attractive, the CAPEX on this project in relation to annual production are very unattractive. How these balance out will determine whether this project is economically viable.”
- Regarding the methodology, 1 reviewer had the following questions:
 - What are the storage conditions for the SBT and unmarketable beets?
 - What is the fate of the wash water used to clean the SBTs and beets?
 - What is the polymer enhanced stratification process and what are its benefits?
 - If solids are removed prior to distillation, how will ethanol be recovered from these solids?
 - Why are the animal feeds to be pelleted? Corn DDGS isn't pelleted.
 - What is the advantage of the UV light photoelectrocatalytic water treatment process over biomethanators that are commonly used in ethanol plants.
 - The applicant has provided clarification to these questions.
- 1 reviewer commented that “...The project participant section just lists the roles of each of the participants, but does not describe any level of prior expertise in the ethanol industry.” Another reviewer stated that this project appears to be the largest venture undertaken by the applicants and is ambitious.
 - The applicants responded that 5 engineers have ethanol experience. However, there was no more detail given.
- Regarding the budget, 1 reviewer stated, “\$700,000 is a significant lump sum to exclusively fund engineering work...”

Technical Advisor Recommendations

Funding may be considered. This project would be a step towards the construction of a beet ethanol plant in North Dakota. An agreement with American Crystal Sugar is in place, and the plant would allow them an opportunity to create revenue from a waste product.

However, the reviewers have some serious concerns regarding the achievability of the proposal. It is concerning that the reviewers were not very confident regarding the technical and economic feasibility of this proposal.

Suggested Contingencies If Funded

- Funding is provided for FEL 1 tasks first, with subsequent funding released if FEL 1 tasks find the project feasible.