MSC™ HIGH PROTEIN PROJECT

Principal Investigator: GP Turnkey Tharaldson LLC
Request for $500,000; Total Project Costs $80,322,468

TECHNICAL REVIEWERS' RATING SUMMARY

R-49A

**Technical Reviewers Rating Summary**

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**Average Weighted Score**

- **1D (Rating 5)**: 228
- **2D (Rating 4)**: 209
- **Average**: 218.5

**Maximum Weighted Score**: 250

1. The objectives or goals of the proposed project with respect to clarity and consistency with North Dakota Industrial Commission/Renewable Energy Council goals are: 1 – very unclear; 2 – unclear; 3 – clear; 4 – very clear; or 5 – exceptionally clear.

**Reviewer 1D (Rating 5)**

This project supports all 6 goals & purposes set forth by the North Dakota Industrial Commission Renewable Energy Council. The project also meets the additional goals and objectives cited with investment, job creation, preservation of production, new technology, maximization, no additional environmental impact and taking the lead that may be followed by other ethanol plants.

**Reviewer 2D (Rating 4)**

The proposal’s objectives clearly align with REP goals of 1) promotion of development, 2) job creation, 3) economic stability and growth, 4) and use new technology.
2. With the approach suggested and time and budget available, the objectives are: 1 – not achievable; 2 – possibly achievable; 3 – likely achievable; 4 – most likely achievable; or 5 – certainly achievable.

**Reviewer 1D (Rating 4)**
The applicant provided a well-defined timeline.

**Reviewer 2D (Rating 5)**
The timeline is aggressive, but achievable, reflecting both the state of readiness of the technology and the expected immediate success of the resulting products.

3. The quality of the methodology displayed in the proposal is: 1 – well below average; 2 – below average; 3 – average; 4 – above average; or 5 – well above average.

**Reviewer 1D (Rating 4)**
This first-time installation in North Dakota has been implemented elsewhere and there are plans to review these prior to commissioning.

**Reviewer 2D (Rating 4)**
The business, facility, process, resources, and expected results are relatively well-described. Detailed technical descriptions of MSC technology is not provided, but not critical information.

4. The scientific and/or technical contribution of the proposed work to specifically address North Dakota Industrial Commission/Renewable Energy Council goals will likely be: 1 – extremely small; 2 – small; 3 – significant; 4 – very significant; or 5 – extremely significant.

**Reviewer 1D (Rating 5)**
The project echoes the Council’s goals.

**Reviewer 2D (Rating 4)**
The project is fundamentally technology driven, as such the goals identified above in question 1. are addressed.

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: 1 – very limited; 2 – limited; 3 – adequate; 4 – better than average; or 5 – exceptional.

**Reviewer 1D (Rating 5)**
The proposal cites the partnership with the company that has the patents on this newer process. There is also a long-term desire to improve on the process.

**Reviewer 2D (Rating 3)**
The project is commercial in nature, as such literature references are not necessary or included.
6. The background of the investigator(s) as related to the proposed work is: 1 – very limited; 2 – limited; 3 – adequate; 4 – better than average; or 5 – exceptional.

**Reviewer 1D (Rating 5)**
The companies involved in this project have had decades of experience in the ethanol industry.

**Reviewer 2D (Rating 5)**
Without question the project team has the experience and expertise to manage the project during development and operation of the venture.

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: 1 – very inadequate; 2 – inadequate; 3 – adequate; 4 – very good; or 5 – exceptionally good.

**Reviewer 1D (Rating 4)**
The proposal outlines current individual responsibilities with the installation along with ensuing operational responsibilities. Though there are some completion date errors in the submitted timeline chart, the schedule appears to be achievable. The breakdown of the financial plan is provided.

**Reviewer 2D (Rating 4)**
The project management plan is generally extremely well-defined, the exception being the lack of a detailed communications plan with subcontractors, which is not necessary.

8. The proposed purchase of equipment is: 1 – extremely poorly justified; 2 – poorly justified; 3 – justified; 4 – well justified; or 5 – extremely well justified. (Circle 5 if no equipment is to be purchased.)

**Reviewer 1D (Rating 4)**
Major equipment components were cited in the proposal as well as the overall budgeted cost.

**Reviewer 2D (Rating 4)**
Proposed equipment is identified, and estimated costs provided.

9. The facilities and equipment available and to be purchased for the proposed research are: 1 – very inadequate; 2 – inadequate; 3 – adequate; 4 – notably good; or 5 – exceptionally good.

**Reviewer 1D (Rating 4)**
The proposal cites that the existing ethanol plant will readily house the additional equipment for this project. The proposal does not cite where the equipment will be purchased from.

**Reviewer 2D (Rating 3)**
The current facility and planned expansion are sufficient to meet the needs of the proposed project.
10. The proposed budget “value” relative to the outlined work and the financial commitment from other sources is of: 1 – very low value; 2 – low value; 3 – average value; 4 – high value; or 5 – very high value. (See below)

**Reviewer 1D (Rating 5)**

The proposal is requesting 11.2% of the total consulting & engineering cost of this project. The overall cost of consulting & engineering is 5.5% of the entire proposal.

**Reviewer 2D (Rating 5)**

The project entails a significant capital investment by project partners. Requested funded amounts to less than 1 percent of total project costs, providing significant value to the REP.

___________________________________________________________________________

**Section C. Overall Comments and Recommendations:**

Please comment in a general way about the merits and flaws of the proposed project and make a recommendation whether or not to fund.

**Reviewer 1D**

Innovation in the ethanol industry has been rather slow over the years. This MSCTM High Protein Project provides many benefits to the State of North Dakota. According to the proposal, this project will provide a short term positive economic impact to the site region along with long term employment stability with 15 additional jobs to the site (approximately $840k/yr in wages). The project will also supply a better animal feed product to the region and utilize additional renewable resources (corn). There is no additional environmental impact. After reviewing this proposal along comparing it to the North Dakota Industrial Commission Renewable Energy Council’s mission statement, goals & purposes and grant priorities, the two align with almost every bullet point. This project appears to be very positive for the State of North Dakota.

I believe funding this should be a strong consideration.

**Reviewer 2D**

The proposed project will provide additional income to a critical biorefinery, high-quality feed for the state’s livestock industry, additional feedstock for the biomass-based diesel, and even more secure market for North Dakota corn. Given the technology and track record of the associated businesses and management, project success is a near certainty.

Fund