

TECHNICAL REVIEWERS' RATING SUMMARY

R001-D

Blue Flint Ethanol E85 Blending Facility

Submitted by Blue Flint Ethanol
 Principal Investigators: Jeff Zueger
 Request for \$50,000; Total Project Costs \$100,000

<u>Rating Category</u>	<u>Weighting Factor</u>	<u>Technical Reviewer</u>		<u>Average Weighted Score</u>
		<u>8</u>	<u>9</u>	
Objectives	9	4	2	27.00
Achievability	9	4	2	27.00
Methodology	7	3	1	14.00
Contribution	7	3	1	14.00
Awareness	5	4	1	12.50
Background	5	3	2	12.50
Project Management	2	3	3	6.00
Equipment Purchase	2	5	3	8.00
Facilities	2	4	3	7.00
Budget	2	5	2	7.00
Average Weighted Score		183	87	135.00
Maximum Weighted Score				250.00

OVERALL RECOMMENDATION

Fund	X
Funding May Be Considered	
Do Not Fund	X

R001-D
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- 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 8 (Rating: 4)

The project clearly achieves the Renewable Energy Council's mission of promoting the growth of renewable energy. The project also meets the goals of promoting the development of renewable energy can add another economic component to ethanol production facilities.

Reviewer 9 (Rating: 2)

This is rather difficult to determine. Nowhere in the proposal is there a specific attempt to mention an estimated number of jobs that could be created or a quantitative economic impact or market potential. Any goals related to research and development are missing, as this project is simply the purchase and set up of a piece of equipment all to be done in one month's time.

- 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 8 (Rating: 4)

Blue Flint Ethanol (BFE) is not implementing or developing any new technology with this project. The project goals should be easily achievable once the equipment is ordered and delivered. The proposal indicates that once the blending pump arrives it should take one month to install. However, with the demand on equipment it could take longer than anticipated for equipment, regardless the project is achievable and the budgeted amounts appear reasonable. The project does not address additional infrastructure needs for truck loading facilities or storage tanks; we must assume that will all be implemented as part of the schedule.

Reviewer 9 (Rating: 2)

The project can only be "possibly achievable" because not enough information is given on: 1) other types of blending apparatus available; 2) quantification of success factors which would include fuel quality determinations and costs; and 3) the lack of expertise shown by the proposers in determining fuel qualifications.

- 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 8 (Rating: 3)

The methodology appears sufficient. The proposal does not specifically follow the project guidelines step-by-step and therefore it is somewhat hard to find the specific comments to the identified questions. However, most of the data is provided just not in the specific designated order requested by the Renewable Energy Council.

Reviewer 9 (Rating: 1)

There are three sentences explaining methodology, but actually the methodology is apparently inherent in the certified blending equipment that will be purchased with the \$100,000 budgeted for the total project. All methods are contained within the “blending equipment.” This is insufficient detail of methodology and sounds more like corporate welfare.

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 8 (Rating: 3)

The blending facilities are essential infrastructure needs to providing a quality controlled and reliable supply of E85 to fuel distributors. The equipment appears to be standard and there will not be a major scientific or major technical contribution by installing blending equipment which is standard practice throughout the industry. However, introducing this infrastructure into one of the state’s ethanol facilities and having a local supplier of E85 assuming the product will be distributed in the state is valuable and consistent with the Renewable Energy Council goals.

The PI repeats throughout the proposal and specifically in the technology question on how an E-85 supply facility will lower the costs at the pump and provide a consistent price and that a low cost high grade fuel will increase E85 consumption. These statements are somewhat confusing since the product price maybe lower for consumers near the facility since transportation costs could be less but the volatility of the price of E85 is ultimately going to fluctuate with the raw material input costs and supply and demand. The PI indicates there are 25,000 flex-fuel vehicles in North Dakota, that is less than two-percent of the vehicles licensed in the state. The PI is accurate that having another supply of E85 will be helpful but the real reason there are only 26 retail distribution fuel outlets selling E85 is that the market for the product is extremely limited to just 2% of the customer base and it’s not known how many of those vehicles are using E85. In addition, consumers typically realize a 20% to 30% mileage penalty while using E85 and even with today’s gasoline price around \$3.00 per gallon, with the loss of mileage it costs a consumer about ten percent more per gallon to use E85. This is a significant obstacle for E85 suppliers to overcome and the market for E85 will likely reflect consumer’s product knowledge and price sensitivity.

Reviewer 9 (Rating: 1)

There really is no great science here at all. Splash blending of ethanol is used around the U.S. currently in hundreds of locations. The project does not elaborate on how exactly they will determine that they have a superior product compared to current splash blending products. The

North Dakota Renewable Development fund in general needs to be more specific on whether it is seeking good research leading to commercial products and industry and jobs, or just renewable energy projects that create increased wealth and possible jobs in North Dakota.

- 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 8 (Rating: 4)

The PI likely is engaged in the ethanol production community and has better than average access to current research since the growth of the industry has been so rapid the past few years and BFE has implemented the best technology available at their facility.

Reviewer 9 (Rating: 1)

I am disappointed that no references are used to compare this blending methodology with current splash blending methods; no references used in parameters that might be useful to assess the success of the E85 blended product; and no great description of the equipment and processes being installed by which one could make a judgment at least of the viability of the project and the p.i.'s awareness of current research activity. I have the same complaint as above that the North Dakota Renewable Development fund in general needs to be more specific on whether it is seeking good research leading to commercial products and industry and jobs, or just renewable energy projects that create increased wealth and possible jobs in North Dakota.

- 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 8 (Rating: 3)

The PI and the company have certainly become knowledgeable about the production of ethanol and the distribution and marketing of ethanol. The proposal does not indicate the marketing plan for the blended E85 product. The PI is likely not as knowledgeable about the marketing and distribution at the retail distribution level which maybe a challenge as demand for E85 is limited.

Reviewer 9 (Rating: 2)

A professional engineer is the project manager and he and his company have definite experience in producing ethanol. However; there is a definite lack of expertise shown by the proposers in determining fuel qualifications. Very little is said about qualifications to understand chemistry and critical components of combustion science that can justify producing a "better blend" than current splash blend technology. The proposers only mention an awareness of EPA criteria.

- 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 8 (Rating: 3)

The project is well defined and the milestones and management plans should be met if the equipment is delivered on a timely basis.

Reviewer 9 (Rating: 3)

The proposed project is basically purchasing a blending apparatus or skid and installing it on a concrete pad with all the electrical and other utility connections. There really is not a complex plan and schedule such as what might be expected with an applied research or education effort that could lead to further technology development. Again, because the project is basically more of a corporate equipment purchase project, there is no in-depth milestone chart and plan needed. The one-month duration attests to this assertion.

- 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 8 (Rating: 5)

The purchase of equipment is essential for the project to be successful.

Reviewer 9 (Rating: 3)

Again, because the project is basically more of a corporate equipment purchase project, the purchase of the blending skid is justified.

- 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 8 (Rating: 4)

The proposed equipment is the best available and should provide for a quality blended product.

Reviewer 9 (Rating: 3)

Not enough information is given on other available skid-blending systems for which to judge the adequacy of the equipment.

- 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 8 (Rating: 5)

The value of the project is high and the project is likely to be successful since there is no new technology being developed. The value of research for this project is not extremely high since the blending of ethanol is done at many locations across the nation. However, providing financial assistance to the project is a positive step for ethanol production facilities in the state. BFE is committed to the project and is providing matching funds equal to or greater than the requested amount. The project would likely be implemented with or without funding from the Renewable Energy Council since the project has little risk and will add value to the facility.

Reviewer 9 (Rating: 2)

It is difficult to judge the value of the budgeted \$100,000 for purchasing and installing a skid blending apparatus. No economics are given on what types of savings and what improvements in E85 quality will be attained through testing of the blending system at North Dakota gas stations. It is also never explained or referenced that there are other such systems for which to compare this one. More information is definitely needed. A “low value” is given (2) because there is no fair way to answer this question within the context of research, since this really isn't a research project. The 50% cost share is good and sound.

Financial commitment from other sources – A minimum of 50% of the total project must come from other sources to meet the program guidelines. Higher priority is to be given if the application has private industry investment equal to or at least 50% or more of total cost.

The minimum 50% cash match is demonstrated.

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 8 (Fund)

BFE has constructed an ethanol plant using new technology with the use of steam heat, they continue to look at many other markets and products to ensure the plant is an economic success. This project is not using cutting-edge technologies but is adding infrastructure which will bring value to the plant. Ethanol is currently being used in about 65% of North Dakota's gasoline. E85 on the other hand, is seeing relatively little market-share and faces a number of challenges in marketplace. An E85 blending facility at BFE will provide a local supply option for distributors, retailers, and possibly the State of North Dakota. The PI makes several references to lowering the price of E85 by installing blending facilities at BFE, this may or may not be true. Other than lower transportation costs for some retailers, it's not clear how this will lower the price of the product unless supply exceeds demand significantly and the price is lowered to move product. As indicated, there are a number of challenges facing E85, this project can be helpful by ensuring a quality product and a local supply is available to retailers and consumers. The project does not discuss loading, distribution, or marketing of the product which is not the focus of the project. BFE and the PI are qualified and will do a fine job of meeting the project guidelines.

This is a good project, not a great research project but a common sense project that will provide results.

Reviewer 9 (Do Not Fund)

The proposed project by Blue Flint Ethanol should not be funded. The project does not meet the mission of the Renewable Energy Council (REC) to promote the growth of North Dakota's renewable energy industries through research, development, marketing, and education. Rather the project is purchasing a piece of equipment to blend E85 ethanol which is supposed to create a superior blend compared to current splash blend technologies. No information is given or is said to be generated by the project to prove that last sentence. This is a serious flaw, unless it is the intent of the REC to supply corporate welfare to companies needing assistance. A real disappointment is the lack of technical expertise shown to make comparisons of blended fuels and a lack of economic data showing that indeed this system would be beneficial and provide lower cost E85 blends to stations in North Dakota. The closest explanation of how cost or economics will be shown to be lowered or improved, respectively in on page 5, the second paragraph where the proposers state, "By BFE consistently supplying the fuel stations E85, at reasonable prices, we can help stations keep prices lower." This is an inadequate argument for a \$100,000 purchase. Perhaps, with major changes and additions as spelled out in this evaluation, the project could be revised and resubmitted.