



Transmittal Letter

November 30, 2007

North Dakota Industrial Commission  
ATTN: Renewable Energy Development Program  
State Capitol – Fourteenth Floor  
600 East Boulevard  
Bismarck, ND 58503

To Whom It May Concern:

You will find the attached E85 Blending Grant Request. Blue Flint Ethanol (BFE) is fully committed to being a blender and provider of E85. This is a high priority and BFE is very excited to be able to move forward with the project. Having the ability to provide E85 opens new markets for ethanol and our facility. This will also help increase the usage of E85 and its availability.

It's encouraging to know that the State of North Dakota is committed to ethanol and supportive of our efforts. If Blue Flint Ethanol is awarded this grant request we will be eagerly committed to moving forward with this project.

Thank you for your time in considering this request.

Sincerely,

Jeff Zueger  
General Manager  
Blue Flint Ethanol

# Blue Flint Ethanol E85 Blending Facility

Blue Flint Ethanol

By  
Jeff Zueger and  
David Graf

1 Dec 2007

Grant Request: \$50,000

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## ABSTRACT

**Objective:** There currently exists a need for a supply of E85 (85% ethanol and 15% gasoline) motor fuel to the 26 retail fuel stations in the state. In addition there are approximately 25,000 FFV's (Flexible Fuel Vehicles, vehicles that can utilize gasoline or E85) in the state, with no consistent supplier of E85 to these retail fuel outlets. This has caused issues with supply, price and quality. Blue Flint Ethanol (BFE) located in Underwood, North Dakota, is proposing through this grant application to install facilities that will allow for blending of E85 at their facility. BFE will, in turn, market the E85 to these and potential additional retail fuel outlets as a motor fuel.

**Expected Results:** Having the capabilities to blend E85 at BFE and providing E85 at consistent pricing keeps costs lower at the pump and will encourage new users of E85 thus increasing our market and ethanol usage. This will also allow us to look for new markets for our product in the private sector. E85 blending capability at our facility allows us to assure that a quality product will be delivered to the market while allowing us to directly market our product to retail stations.

**Duration:** The construction of this project will take one month to complete once all the materials have been delivered to BFE. There is a 90–120 day lead time on the blending pump from the supplier. The expected life of the blending facility is 15 years.

**Total Project Cost:** The capital costs for this project will be \$100,000.

**Participants:** The General Manager for BFE is Jeff Zueger he is a registered Professional Engineer in the state of North Dakota and has been in the power plant industry for 15 years. The manager for this project will be David Graf he holds a degree in Mechanical Engineering and has been in the engineering field for 8 years. Determan Brownie will be providing and installing the blending skid. They have been in the petroleum supply business for 40 years.

## **PROJECT DESCRIPTION**

**Objectives:** BFE is currently marketing E85 as a motor fuel into the retail fuel market. E85 is a product of blending ethanol and gasoline. Market demand for E85 is growing. The current method of blending the gasoline and ethanol is “splash” blending where ethanol and gasoline are bulk blended in a transport truck. This method of blending results in poor quality control, inconsistent supply and high transportation costs.

Currently there are 25,000 FFV's and approximately twenty-six E85 fill stations in the state of North Dakota. Because of the positive economic impact and environmental benefits of E85 to the state there have been efforts to grow the use of E85. The growth of E85 is being held back by two primary issues, marketing and availability at the pump. In trying to eliminate these problems BFE would like to market and sell E85 from our site to the retail sector of the fuel industry. Retail fuel stations have requested that E85 be supplied at a more consistent quality, delivery and price. BFE has the desire and ability to market and distribute E85.

To properly blend E85 BFE needs to install equipment that performs this function prior to loading the product into a truck for transport. This will lead to a better quality and lower priced product which will help grow the E85 market.

By BFE consistently supplying the fuel stations E85, at reasonable prices, we can help stations keep prices lower. Keeping prices lower will encourage people to continue using E85 as well as encouraging more E85 use.

**Methodology:** The E85 blending will be done through the proposed certified blending equipment and loaded on trucks via existing load out equipment. The ratio of ethanol and gasoline in E85 changes 3 times per year to meet seasonal blending requirements. The blending equipment will meter in the correct amount of gasoline and ethanol as the truck is loaded assuring a consistent quality E85 blend.

**Anticipated Results:** The blending skid along with testing performed at the facility will ensure that E85 blended at BFE will meet ASTM Standards. This will also allow BFE to easily supply E85 to the private sector keeping pricing more consistent and increasing usage which assures that consumers get a quality product at a competitive price.

**Facility/Resources:** The E85 blending skid will be procured and installed at the BFE facility, utilizing our current resources, piping systems, electrical capabilities and load out skid to tie the blending skid to our current load out system. By using our current blend system we can line out to the desired tank to be able to blend and load out E85, or denatured ethanol, while keeping project costs down.

**Environmental and Economic Impacts:** According to the American Heart and Lung Association “Using E85 can reduce ozone forming pollutants by 20% and fuel lifecycle greenhouse gas emissions by nearly 30%.” The increase use of ethanol benefits local communities, agricultural producers, consumers and the environment with ethanol being cleaner burning than gasoline. This project makes a renewable fuel, E85, available to local markets thereby growing the use of E85. This allows for a product that is produced in state to be utilized in state. ND consumer’s spending money in ND on products created in state helps the local and state economy.

**Ultimate Technological and Economic Impacts:** As E85 becomes more available to consumers auto manufactures will start to design engines more technologically suited to the high octane E85 and utilizing its benefits as a fuel. Being able to provide a low cost high grade fuel to as many consumers as possible will increase its usage. Increased ethanol usage will create more income for farmers, create high paying jobs for Americans as more plants are built and help consumers save money on fuel costs.

**Why the Project is Needed:** The E85 blending equipment at BFE is needed to provide a quality E85 product, on time, at a competitive price. There are currently 26 retail E85 fuel outlets with no current consistent supplier to these fuel stations. In addition, to help further the future of ethanol, progress needs to be made in the marketing and availability of E85. This project is directly related to accomplishing each of these tasks.

### STANDARDS OF SUCCESS

Ethanol production has significant positive economic impact to the state of North Dakota. Currently there is no adequate blending infrastructure to move E85, one of the two products ethanol is used in, to the market. By installing this blending facility BFE will have the ability to supply a quality E85 to retail fuel stations at a competitive price. Lower E85 pricing benefits the public immediately when they use it for fueling their vehicles. Providing low cost, more readily available E85 to retail fuel stations benefits all users of E85 including the fleet cars for the State of North Dakota, many of which are currently using E85.

Ethanol has significant economic value to the state of ND. To assure the future of ethanol we need to increase availability and use of ethanol. This in turn will continue to expand ethanol production while preserving existing jobs. Increased E85 market demand spurs new jobs in both the production of corn and ethanol which is a big win for North Dakota. Two of the current restraints of selling more E85 are marketing and product availability. This project will help with both of these issues through increasing the ease



of delivery of E85 to the fuel outlets and allowing BFE to continue to find new markets for our product.

## **BACKGROUND/QUALIFICATIONS**

Blue Flint Ethanol is a 50 million gallon per year ethanol plant; 49% owned by Great River Energy and 51% owned by Headwaters Incorporated. The plant has been operational since February 2007 and is currently running at 115% capacity. Determan Brownie Inc. will be providing the blending skid, they manufacture and install the skids and have been in business for over 40 years.

## **MANAGEMENT**

Jeff Zueger, General Manager of Blue Flint Ethanol, is a registered Professional Engineer in the state of North Dakota and has been in the power industry for 15 years. Jeff was the project manager for the design and construction of the BFE facility. David Graf, who will be overseeing the blending project, has a degree in Mechanical Engineering and 8 years experience in the engineering field, he has been managing projects at BFE since the first production of ethanol at BFE, almost a year ago. David will be approving all bids and contractors, reviewing drawings and general construction that is being done regarding this project. Construction will begin by pouring all the concrete pads for the pipe rack and electrical conduit and blending skid. The concrete pads will be visually inspected and checked for size requirements. The next step will be to install all the

pipng, solenoid valves and electrical conduit from the tie in point in the tank farm to the load out skid. The blending skid will then be installed. The electrical can then be installed from the tank farm to the ethanol load out panel. Piping will then be installed with project completion including electrical, controls and final testing and certification.

### **TIMETABLE**

From the start of construction this project is estimated to take one month to complete. The concrete pads and pipe rack will be finished the first week. Piping and electrical conduit will be scheduled the next week, or sooner, depending on completion of the concrete pads. The installation of the blending skid and pulling all the electrical wire for the project should be completed by week three. At this point tie in points will be cut in and connected. Week four will include starting and calibrating the system. Interim reports will be submitted on a weekly basis.

## BUDGET

### Capital costs:

Structural:	\$10,000
Mechanical:	\$60,000
Electrical:	\$30,000
Total:	\$100,000

### Operating Costs:

Salaries: Not applicable

Indirect Costs: Not Applicable

This grant request is for 50% of the capital costs totaling \$50,000. Blue Flint Ethanol will commit the other 50% of the capital costs and future costs related to maintenance, salaries, and indirect costs. This grant is necessary as it will make up half of the projects capital cost allowing us to move forward with the project.

## **TAX LIABILITY**

Please see the attached letter requesting the Certificate of Good Standing. Upon receipt of the affidavit from the State Tax Commissioner Blue Flint Ethanol will forward to the ND Industrial Commission.



**Blue Flint**  
ETHANOL

November 27, 2007

Office of State Tax Commissioner  
600 E. Boulevard Ave., Dept 127  
Bismarck, ND 58505-0599

Re: Certificate of Good Standing

Blue Flint Ethanol, LLC is requesting a Certificate of Good Standing for tax purposes from the Office of State Tax Commissioner. Blue Flint's federal identification number is 352263993 and state sales tax permit is 208986 00. Please send the certificate to my attention as soon as possible. If you have questions, please call me at 701-442-7500.

Sincerely,

Michael Grosz  
CFO of Blue Flint Ethanol, LLC  
mgrosz@blueflintethanol.com