Todd Dixon, PE
Vice President Mandan Refinery

TESORO

Tesoro Refining & Marketing Company LLC
Northern Great Plains Region
900 Old Red Trail N.E.
Mandan, ND 58554
701 667 2413

May 5, 2017

Karlene Fine
Executive Director and Secretary
ND Industrial Commission
State Capitol, 14th Floor
600 E. Blvd. Ave., Dept 405
Bismarck, ND 58505

RE: Grant Application Submittal for a Renewable Energy Program Grant

Dear Ms. Fine:

Please find enclosed Tesoro Refining & Marketing Company's application for grant funding from the North Dakota Renewable Energy Program. The application is for a project for the installation and the modification of equipment at Tesoro's Dickinson Refinery to enable the facility to co-process renewable feedstocks (e.g., vegetable oils such as soy or distillers corn oil) into renewable diesel, while continuing the processing of Bakken crude oil. The construction schedule will facilitate a project startup by December 2017.

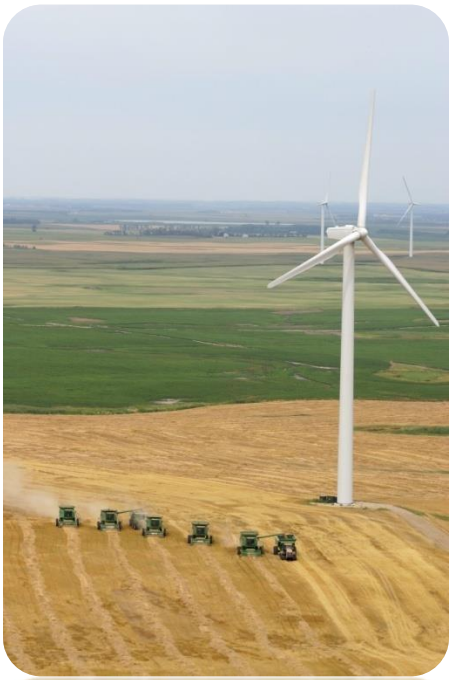
Thank you to the Renewable Energy Council for their consideration of Tesoro's grant application and if you need any additional information, please feel free to contact Ron Day of my staff via email at ronald.w.day@tsocorp.com or call Ron at (701) 250-1954.

Sincerely,

Todd W. Dixon
Refinery Manager

RWD/sms

Enc.



Renewable Energy Program

North Dakota Industrial Commission

Application

Project Title: Dickinson Renewable Diesel

Applicant: Tesoro Refining & Marketing Comapny

Principal Investigator: Tesoro Refining & Marketing Company

Date of Application: May 5, 2017

Amount of Request: $500,000

Total Amount of Proposed Project: $3.5 million

Duration of Project: 3+ years

Point of Contact (POC): Ron Day

POC Telephone: (701) 250-1954

POC Email: ronald.w.day@tsocorp.com

POC Address: Tesoro Companies, Inc.
4207 Boulder Ridge Rd. – Suite 200
Bismarck, ND 58503

TABLE OF CONTENTS

Please use this table to fill in the correct corresponding page number.

ABSTRACT

Objective:

Tesoro acquired the Dakota Prairie Refinery in Dickinson, North Dakota in June 2016, which can refine up to 20,000 barrels per day of the regionally produced Bakken Crude oil. The proposed project involves retrofitting existing 8,000 BPD Diesel Hydrotreater (DHT) and associated appurtenances of the Dickinson Refinery, to co-process renewable feedstocks (e.g., vegetable oils such as soy or distillers corn oil) into renewable diesel, while continuing the processing Bakken Crude oil. The project will enable co-processing of up to 5% (16,800 gallons / day) of renewable feedstocks in the current DHT, where the resultant conventional/renewable diesel blend will be marketed locally in North Dakota by the end of 2017

Expected Results:

Production of a conventional / renewable diesel blend of up to 5% renewable diesel that will be marketed locally in North Dakota by the end of 2017.

Duration:

The project for co-processing of renewable feedstock in the DHT to enable production of a conventional/renewable diesel blend of up to 5% renewable diesel is not a short term test project; rather the project will be designed for longer term continuous operation. The anticipated operations are expected to start by the end of year 2017 and extend well beyond 2- 3 years.

Total Project Cost:

The project for co-processing of renewable feedstock in the Dickinson Refinery DHT to enable production of a conventional/renewable diesel blend of up to 5% renewable diesel is anticipated to cost $3.5 million.

Participants:

Tesoro Refining and Marketing as the Dickinson site owner will be the primary participant. Tesoro will contract with engineering and technology firms to provide additional expertise.

PROJECT DESCRIPTION

Objectives:

Retrofit the 8,000 BPD Diesel Hydrotreater (DHT) and associated appurtenances at Tesoro's Dickinson, ND refinery to co-process renewable feedstocks (e.g., vegetable oils such as soy or distillers corn oil) into renewable diesel. Co-processing of up to 5% (16,800 gallons / day) of renewable feedstocks in the current DHT will enable Tesoro to produce and sell conventional/renewable diesel blend in North Dakota by the end of 2017.

Methodology:

Tesoro has engaged process technology licensor, Haldor Topsoe as the technology provider to enable the Dickinson Refinery produce a renewable diesel product stream. Haldor Topsoe was chosen to provide the process methodology/technology based on their extensive hydrotreating catalyst experience and proven success in commercialization of facilities to convert vegetable oils and/or waste animal fats into on-spec renewable diesel. Haldor Topsoe will provide technical expertise in finalizing the process study to determine the hydrotreating catalyst formulation which will achieve the desired renewable diesel process yields, an acceptable catalyst life and while maintaining the desulfurization of the existing conventional diesel product stream. The process study will also map out the equipment modifications and feedstock handling equipment additions that will be required to co-process renewable feedstocks at the Dickinson Refinery. Tesoro has engaged a qualified EP (Engineering and Procurement) Contractor, Jacobs Engineering Group, Inc., to support the process study and to support the engineering and design of the modifications required for the DHT as well as other required modifications at the Dickinson refinery.

Anticipated Results:

Utilization of up to 16,800 gallons per day of regionally produced vegetable oils such as soy or distillers corn oil as a feedstock for the production of a conventional/renewable diesel blend of up to 5% renewable diesel that will be marketed locally in North Dakota by the end of 2017. Tesoro is still working on the finalization of the type and sourcing of the feedstack material. However; a base feedstock of Soy oil can be purchased at today's market value of approximately 32 cents per pound. Soy oil feedstock pricing was utilized for the basis of the project economics.

Facilities:

Tesoro's 8,000 BPD Diesel Hydrotreater (DHT) and associated appurtenances at its Dickinson, ND refinery.

Resources:

Tesoro internal resources, including Refining Technology specialists, as well as process a technology licensor, Haldor Topsoe, and a qualified EP (Engineering and Procurement) Contractor, Jacobs Engineering Group, Inc.

Techniques to Be Used, Their Availability and Capability:

Technical evaluation to assess a cost-effective approach for retrofitting the DHT at the Dickinson refinery to efficiently co-process renewable feed-stocks such as vegetable oils (e.g., refined soybean oil , distillers corn oil, camelina oil, etc.), or other organically derived triglycerides into transportation diesel fuel. Resources to conduct the evaluation are available from internal Tesoro staff as well as an external technology licensor (Haldor Topsoe) and a EP Contractor (Jacobs Engineering Group, Inc.).

Environmental and Economic Impacts while Project is Underway:

Environmental impacts are not anticipated while the project is underway; all requisite permitting requirements will be fulfilled. Economic impacts may include capital expenditures to enable receipt (delivery to refinery) of renewable feedstocks, equipment modifications to the DHT and associated appurtenances at Tesoro's Dickinson, ND refinery to co-process renewable feedstocks.

Ultimate Technological and Economic Impacts:

Demonstration of co-processing of up to 5% (16,800 gallons / day) of renewable feedstocks, while continuing the processing of ND Bakken crude in the Dickinson refinery DHT resulting in a conventional/renewable diesel blend to be marketed in North Dakota.

Why the Project is Needed:

A highly efficient way to produce renewable fuels is to co-process vegetable oil in distillate hydrotreating units (DHT) at petroleum refineries. The renewable portion of the diesel that results from co-processing is renewable diesel (RD). Compared to biodiesel that is blended into petroleum diesel at truck racks, RD is a superior quality product because, unlike biodiesel, RD is a pure hydrocarbon stream containing no oxygen. RD uses the same vegetable oil as biodiesel, and turns that feedstock into a superior quality fuel that enables outstanding vehicle performance with increased environmental value under the federal Renewable Fuel Standard (RFS). The co-processed RD will generate about 1.7 D5 RINs per gallon. The current market value of a RIN is approximately $1 per RIN.

STANDARDS OF SUCCESS

Standards of Success should include: The measurable deliverables of the project that will determine whether it is a success; The value to North Dakota; An explanation of what parts of the public and private sector will likely make use of the project's results, and when and in what way; The potential that commercial use will be made of the project's results; How the project will enhance the education, research, development and marketing of North Dakota's renewable energy resources; How it will preserve existing jobs and create new ones; How it will otherwise satisfy the purposes established in the mission of the Program.

The project will demonstrate the ability to co-process renewable oil with Bakken Crude oil and deliver a diesel product with up to a 5% renewable diesel content. The project will be deemed successful by producing on-spec Diesel derived from 5% (16,800 gallons / day) of renewable feedstocks in the Dickinson refinery DHT resulting in a conventional/renewable diesel blend to be marketed in North Dakota before year end 2017. Agriculture, local industry, the trucking industry and other diesel consumers will be able to purchase and consume the renewable diesel. The results of this project will be utilized to help determine potential opportunities for a larger future renewable project at the Tesoro Dickinson Refinery.

This project will provide an additional marketing outlet for of the renewable oils derived from the existing Ag commodity production and regional oil seed processing facilities. Tesoro is in the early stages of procuring feedstock supply agreements and have not set up sourcing contracts at this time.

BACKGROUND/QUALIFICIATIONS

Please provide a summary of prior work related to the project conducted by the applicant and other participants as well as by other organizations. ***This should also include summary of the experience and qualifications pertinent to the project of the applicant, principal investigator, and other participants in the project.***

Tesoro has many years of experience in operating commercial scale petroleum refineries and maintains a highly experienced Refining Technical Services and Technical Excellence group. Tesoro will utilize additional resources from a process technology licensor, Haldor Topsoe, to conduct a process study to determine the feasibility and various equipment modifications that may be required to co-process renewable feedstocks at the Dickinson. Haldor Topsoe has a strong background in hydrotreating vegetable oils into on-spec renewable diesel. The study will evaluate the cost-effective capacity of the diesel hydrotreater to efficiently co-process renewable feed-stocks such as vegetable oils (e.g., refined soybean oil , distillers corn oil, camelina oil, etc.), or other organically derived triglycerides into transportation fuel that meet renewable diesel specifications. Tesoro has also engaged a qualified EP (Engineering and Procurement) Contractor, Jacobs Engineering Group, Inc., to support the efforts of the process technology licensor to assess the modifications required for co-processing in the DHT as well as other modifications required to other parts of the refinery. Jacobs has also successfully engineered the conversion of other conventional DHT units to a co-processing configuration.

MANAGEMENT

A description of ***how*** *the applicant will manage and oversee the project to ensure it is being carried out on schedule and in a manner that best ensures its objectives will be met,* ***and a description of the evaluation points to be used*** *during the course of the project.*

Tesoro will manage the project following its Refining PMP (Project Management Plan) work process, with a Project Manager assigned to manage the project and appropriate resources will be allocated to support the project from various internal departments. Tesoro's Project Management Team routinely successfully executes major capital projects in Tesoro's fleet of petroleum refineries. In addition, the Tesoro Project Manager will utilize resources from a technology licensor, Haldor Topsoe, and a qualified EP (Engineering and Procurement) Contractor, Jacobs Engineering Group, Inc.

Throughout Tesoro's project management process, there are project execution gates to ensure the project milestones and cost controls are met and to validate that the project economics remain favorable to move to the next phase of the project.

TIMETABLE

Please provide a project schedule setting forth the starting and completion dates, dates for completing major project activities, and proposed dates upon which the interim reports will be submitted.

Project Milestones	**Complete**
Project Design	June 2017
Detail Engineering	July 2017
Construction	October 2017
Start-up	December 2017

BUDGET

*Please use the table below to provide an **itemized list** of the project's capital costs; direct operating costs, including salaries; and indirect costs; and an explanation of which of these costs will be supported by the grant and in what amount. The budget should identify all other committed and prospective funding sources and the amount of funding from each source. **Please feel free to add columns and rows as needed.** Higher priority will be given to those projects have matching private industry investment equal to at least 50% or more of total cost.*

Project Associated Expense	NDIC's Share	Applicant's Share (Cash)	Applicant's Share (In-Kind)	Other Project Sponsor's Share
Total Project Cost	$500,000.00	$3,000,000.00		

Please use the space below to justify project associated expenses, and discuss if less funding is available than that requested, whether the project's objectives will be unattainable or delayed.

	NDIC's Share	Tesoro's Share
Material, Equipment, Chemicals, & Catalyst	$ 400,000	$ 1,269,000
Project Engineering (Jacobs Engineering & Haldor Topsoe)	$ 100,000	$ 749,000
On-site Construction & Tank Cleaning (Labor)	$ 0	$ 470,000
Tesoro Project Management Costs & Contingency	$ 0	$ 512,000
Total Project	$ 500,000	$ 3,000,000

As a cost benefit to this project, Tesoro will not need to increase the refinery's operation staffing levels to support this project. The addition of the Vegetable Oil off-loading and the renewable diesel operating systems will be incorporated into the routine refinery operations.

CONFIDENTIAL INFORMATION

Any information in the application that is entitled to confidentiality and which the applicant wants to be kept confidential should be placed in an appendix to allow for administrative ease in protecting the information from public disclosure while allowing public access to the rest of the application. Such information must be clearly labeled as confidential and the applicant must provide the following information: (a.) a general description of the nature of the information sought to be protected, (b.) an explanation of why the information derives independent economic value, actual or potential, from not being generally known to other persons, (c.) an explanation of why the information is not readily ascertainable by proper means by other persons, (d.) a general description of any person or entity that may obtain economic value from disclosure or use of the information, and how the person or entity may obtain this value, and (e.) a description of the efforts used to maintain the secrecy of the information. If there is no confidential information please note that below.

The information provided in this application is not deemed confidential business information.

PATENTS/RIGHTS TO TECHNICAL DATA

Any patents or rights that the applicant wishes to reserve must be identified in the application. If this does not apply to your proposal, please note that below.

Based on the project as outlined in this application, it is not anticipated that any new patents will be derived from this project.