TECHNICAL REVIEWER'S RATING

G-014-A
Northwest Refining, Inc.
Preliminary Engineering Feasibility Study
Northwest Refining, Inc.
Principal Investigator: Mel Falcon
Request for $40,000; Total Project Costs $80,000

Rating Category	Weighting Factor	Technical Reviewer 14A-01 Rating	Technical Reviewer 14A-02 Rating	Average Weighted Score
Objective	9	3	4	31.5
Availability	9	2	4	27.0
Methodology	7	2	3	17.5
Contribution	7	2	3	17.5
Awareness	5	2	5	17.5
Background	5	2	5	17.5
Project Management	2	4	4	8.0
Equipment Purchase	2	5	5	10.0
Facilities	2	3	5	8.0
Budget	2	4	5	9.0
Average Weighted Score		125	202	**163.50**

Maximum Weighted Score **250**

OVERALL RECOMMENDATION

FUND		**X**
FUNDING TO BE CONSIDERED	**X***	
DO NOT FUND		

*If product logistics are considered as well.

Ratings and Comments:

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

Reviewer 14A-01 (Rating: 3)
No comments

Reviewer 14A-02 (Rating 4)
The refinery study proposal will clearly promote efficient, economic, and environmentally sound use of North Dakota's oil and gas resources; creating jobs involved in the utilization of North Dakota's oil and gas resources; as well as ensuring economic stability, growth, and opportunity in the oil and gas industry.

Response from Northwest Refining, Inc. September 16, 2007
No comment

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 14A-01 (Rating: 2)
The amount of money allocated seems small for anything but a very high level overview.

Reviewer 14A-02 (Rating: 4)
The project budget and time line appears to be adequate to generate the study results as proposed. The determination of the need for a 50,000 bbl/day refinery should specifically include 1) an assessment of the market for refined products in the region, and 2) a crude oil supply forecast over the anticipated operating life of the refinery. These items are mentioned in the Expected Results section of the abstract, but are not specifically listed as study results.

Response from Northwest Refining, Inc. September 16, 2007
Reviewer 01 is correct that the money being spent is small. It is not the intention of this preliminary study to determine all marketing facets of a refinery, but to determine if, in fact, that there are no hidden obstacles that cannot or will not permit the project to go forward. The second phase will cost approximately 3 to 5 million dollars. It would be remiss to go into the second phase without considering the findings of the preliminary report.

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 14A-01 (Rating: 2)
Nothing in the scope of the study addresses the need to transport refined products from the refinery to locations with sufficient product demand to consume these products. The State of North Dakota is currently constrained by pipeline transportation capacity to remove crude oil and petroleum products from the state, and the study should address the feasibility of construction of the product transportation infrastructure as well as the new refinery.

Reviewer 14A-02 (Rating: 3)
The methodology is not very clear. The application does not provide much detail regarding how or from whom ENGlobal will collect the data nor how they will perform the analysis. The results of the "study of the crude oil supply in the Williston Basin; product off-take; and available utility infrastructure" need to be provided to the Research Council in a clear and understandable format. The preliminary refinery configuration, and capital cost estimate are very important to potential future investors as well.

Response from Northwest Refining, Inc. September 16, 2007
It is the intent of this study to investigate the existing pipeline infrastructure, future planned expansions in place, railway and truck transportation potential to determine what would have to be the course of action that would be needed to merit the continued pursuit of this project. This study will provide only an overview of what exists and what new infrastructure is needed.

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

Reviewer 14A-01 (Rating: 2)
Production of crude oil in North Dakota is limited by the ability of the existing crude oil and petroleum products pipelines to transport these materials to the consumers. Construction of a new refinery alone will have minimal impact on supporting the development of the state's energy production unless new logistics infrastructure is developed to transport these products to locations with sufficient product demand to consume these products.

Reviewer 14A-02 (Rating: 3)
This project is not really designed to yield ground breaking scientific or technical information. The crude assay, and emissions estimates will have very significant impacts beyond the specific purpose of this study.

Response from Northwest Refining, Inc. September 16, 2007
No comment

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 14A-01 (Rating: 2)
The application contains several inaccuracies which call into question the investigator's understanding of the industry. For example, the applicant claims that the United States is "buying the bulk of its oil from the Middle East," while per the US DOE in 2005 about 852 million barrels were imported to the US from the Persian Gulf out of over 5 billion total barrels imported. The application claims that "the refining process cannot keep up with the extraction and production due to the limited number of refineries, transmission pipelines, etc.", while per the DOE, domestic crude oil production is currently about 5.1 million barrels per day, while domestic refining capacity is over 15 million barrels per day. There is no reference to the constraints on product logistics that a new refinery would need to address.

Reviewer 14A-02 (Rating: 5)
The principal investigator has selected a consulting firm with extensive awareness. The consultants have published articles, prepared numerous refining proposals, and obtained several patents in the area of study.

Response from Northwest Refining, Inc. September 16, 2007
I cannot argue with Reviewer 01 that it is a misstatement on my part that the bulk of our oil comes from the Middle East. However, according to all the reports that I have read, we import over 60% of our oil and gas products. As a Business Major, I have learned that if I am not an "expert" for the endeavors I undertake, then, I need to enlist the help of the "experts" to help me. That is precisely what I have done by selecting EnGlobal Engineering to conduct this study.

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 14A-01 (Rating: 2)
Almost all of the experience of the investigator is in the water and wastewater treatment industry, largely in support of the upstream exploration and production business. Mr. Falcon's resume demonstrates no experience in the refining industry, or in the distribution, transportation, or marketing of refined petroleum products.

Reviewer 14A-02 (Rating 5)
Mr. Falcon has a broad background in the North Dakota energy industry and ENGlobal has highly skilled consultants all with over 30 years experience in the area of study.

Response from Northwest Refining, Inc. September 16, 2007
No comment.

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 14A-01 (Rating: 4)
No comment.

Reviewer 14A-02 (Rating 4)
The management, schedule, financial, and communications plans are well done. The milestones and status report points are clearly identified.

Response from Northwest Refining, Inc. September 16, 2007
No comment.

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 14A-01 (Rating: 5)
No equipment is to be purchased.

Reviewer 14A-02 (Rating: 5)
No equipment is to be purchased.

Response from Northwest Refining, Inc. September 16, 2007
No comment

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 14A-01 (Rating: 3)
The resources identified from ENGlobal who will be leading the study are primarily experienced in off-sites and water treatment, and have very little background in refinery design, and have no demonstrated experience in crude or petroleum product distribution and logistics.

Reviewer 14A-02 (Rating 5)
ENGlobal's offices are in the area where almost 50% of US refineries are located. Mr. Falcon lives and works in northwestern North Dakota.

Response from Northwest Refining, Inc. September 16, 2007
It is almost impossible to find people who are totally familiar in the US for building new refineries when there hasn't been a new one built in over 30 years and over 37 years (according to state information) in ND. We have selected a firm that has extensive experience in retrofitting and additions to refineries and have top notch Engineers that know the petroleum and processing industry.

10. The proposed budget "value"[1] 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 14A-01 (Rating: 4)
No comment.

Reviewer 14A-02 (Rating: 5)
Recent high prices for refined products and crude oil discounts have resulted in many citizens and policy makers asking the very questions this study can answer. If the study results indicate refinery construction is warranted the economic impact will be several orders of magnitude greater than the study costs.

Response from Northwest Refining, Inc. September 16, 2007
No comment

[1] "Value" – The value of the projected work and technical outcome for the budgeted amount of the project, based on your estimate of what the work might cost in research settings with which you are familiar.

Financial commitment from other sources – A minimum of 50% of the total project must come from other sources to meet the program guidelines. Support less than 50% from Industrial Commission sources should be evaluated as favorable to the application.

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 14A-01 (**CONSIDER FUNDING WITH CONDITION**)
Merits: The project would provide jobs, although likely not as many as predicted, as a competitive 50,000 B/D refinery would be expected to employ no more than 200 people, versus the 250-500 projected.

Flaws: There is no mention of product distribution. North Dakota already produces more gasoline and distillate products than total state consumption. There is currently no infrastructure in place to transport refined petroleum products from Williston. To be complete, the study needs to evaluate the costs to build petroleum product pipelines to allow products to be shipped to markets large enough to consume this product. As the state's oil production is currently limited by pipeline capacity, not refining capacity, building a new refinery without addressing product pipeline capacity will not meet the goals of the Oil and Gas Research Council.

Reviewer 14A-02 (**FUND**)
The study methodology, analysis of crude oil supply, and evaluation of refined products market are referenced in a general way that doesn't match their importance and value to the council. Study results should specifically address each of these areas.

The potential benefits of the study are huge. Pages 4 and 5 of the proposal say it all, "The development of a new oil refinery in North Dakota will have a huge impact on the whole state. New, high paying jobs will be created during the construction and operational phase of the project. Along with new businesses and jobs, the local areas and the state will see an increase in tax revenues to the cities, counties, and State. The new wealth may also have the potential of revitalizing some of the small, rural communities in the surrounding area with the addition of new families. The research and data of the preliminary engineering feasibility study may be used by other potential investors in the private sector looking at financing other oil refinery facilities, transmission lines, etc. in North Dakota; by other oil and energy companies planning to expand their base of operations to North Dakota; by agencies of North Dakota involved with the development of oil and gas resources; by the North Dakota State Legislature in exploring potential incentives to spur additional development in the oil and gas industry within the state; and by the colleges and universities to use as a template and guide to conduct additional studies related to the oil and gas resources within the State."

Response from Northwest Refining, Inc. September 16, 2007

Let me start by apologizing for the briefness and lack of pertinent information in the proposal presented to the Commission. We needed to try and expedite this application and did not have due diligence in its content.

However, after saying this, let me clarify what we are trying to accomplish with this preliminary study. This study is what we call a "critical path" type of study to determine whether there are "road blocks" that cannot and will not allow the continuation of this intended project. We explained this in the meetings we had with one commissioner, commission oil and gas executives, state representatives, and representatives of the Governor. We hope to answer some of the following questions:

- *What is the oil output potential in Western ND, and Eastern Montana?*
- *Why is the ND Oil Industry dependant on Canadian company owned pipe lines to get some of its production to refineries outside the State for processing?*

- *Why, when we have oil and gas potential, we have the second or third highest prices for refined products, as reported in the media, than other states that do not have production?*
- *Why, if we have enough refining capacity in the state to meet our needs, has the Governor had to sign an executive order, as reported in the media, to allow distributors to buy gas and diesel from Canadian firms and why have the distributors had to try to find sources outside the state to fill the need.*

These questions are not the focus of the feasibility study, however, it is critical to answer these questions when determining the feasibility of establishing a refinery in Western ND.