



NORTH DAKOTA PUBLIC SERVICE COMMISSION

**APPLICATION OF
ENBRIDGE PIPELINES (NORTH DAKOTA) LLC
To Amend
CERTIFICATE OF CORRIDOR COMPATIBILITY**

**NORTH DAKOTA SYSTEM EXPANSION PHASE 6 PROJECT
February 2008**



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APPLICATION TO AMEND CORRIDOR CERTIFICATE

SECTION A

DESCRIPTION OF PROPOSED FACILITY

- A.1. DESCRIBE THE TYPE OF FACILITY ADDRESSED IN THIS APPLICATION. THE DESCRIPTION SHALL INCLUDE THE PURPOSE OF THE FACILITY AND THE TECHNOLOGY TO BE EMPLOYED.**

A.1.a Type of Facility

Enbridge Pipelines (North Dakota) LLC (“EPND”) ¹ owns and operates a 950-mile existing underground petroleum pipeline system that extends from eastern Montana through North Dakota to Clearbrook, Minnesota. Part of the system, known as the 8-inch Beaver Lodge /Alexander segment in Williams and McKenzie Counties, was placed in service in the mid 1980s by Portal Pipeline Company under the North Dakota Public Service Commission’s Order in Case No. 10,472. EPND acquired this pipeline from Portal Pipeline Company in 1996.

In this application, EPND is proposing to optimize its system capacity through the construction of the next phase of its system expansion program referred to hereinafter as the North Dakota System Expansion Phase 6 (NDSE6) Project. This project will enable EPND to increase capacity on its existing pipeline system by early 2010 through the injection of a drag reducer agent (DRA) and the addition of horsepower at appropriate facility upgrades, as described in more detail in Section A.3 below. All station upgrades will be constructed on lands already owned by EPND at the existing station sites and no new land will be required. EPND also proposes to install one new tank at its existing Beaver Lodge Tank Farm Facility. This installation will require approximately 4.2 acres of new land, which EPND plans to acquire in fee. No new pipeline along the route will be required as part of the North Dakota System Expansion 6 Project (NDSE6) other than minor station piping that may be necessary at existing station sites.

¹ EPND is a wholly owned subsidiary of Enbridge Energy Partners, L.P. (Enbridge Partners), which is a Delaware master limited partnership headquartered at 1100 Louisiana, Suite 3300, Houston, Texas 77002 (ph. 713-821-2000; www.enbridgepartners.com).



A.1.b Purpose of Proposed Facilities

The purpose of the NDSE6 Project is to relieve the bottleneck and apportionment of pipeline capacity that shippers are currently experiencing on the EPND System into Clearbrook, Minnesota. Such upgrades proposed herein will enable EPND to transport an incremental 51,600 barrels per day (bpd) of crude petroleum from the Williston Basin to its Clearbrook Metering Facility and to refinery centers throughout PADD II and beyond. The NDSE6 Project will also provide the additional capacity required to meet forecast nominations on the EPND system and avoid anticipated capacity constraints that result in apportionment of crude oil moved on the EPND System. As proposed, the NDSE6 Project is the most reliable, efficient, and cost effective alternative to meet the rising demand for additional pipeline capacity from the Williston Basin region of North Dakota and Montana to reach a wide number of refinery markets through interconnects with EPND affiliates and third-party pipelines at Clearbrook, as described in more detail in Section C.1.

A.2. DESCRIBE THE TYPE, SOURCE AND FINAL DESTINATION OF THE PRODUCT TO BE TRANSMITTED BY THE PROPOSED FACILITY.

As defined in its FERC Tariff on Rules and Regulations, EPND currently transports the following commodities within its multi-pipeline system:

- Mixed Blend Sweet Crude (SW)
- Mixed Blend Sour Crude (SO)

The primary source of supply for the EPND System is production from the Williston Basin spanning Montana, North Dakota, South Dakota and Wyoming, as well the provinces of Saskatchewan and Manitoba.

The primary geographical sources for SO and SW that will be transported on the NDSE6 Project are those regions of Montana and North Dakota that comprise the western and central portion of the Williston Basin.

The NDSE6 Project would increase pipeline capacity from 110,000 bpd to approximately 161,600 bpd of delivery capacity into the Enbridge Clearbrook Terminal Facility in Clearbrook, Minnesota. At Clearbrook, EPND will have the ability to deliver



such volumes of crude oil to the pipeline facilities of the non-affiliated Minnesota Pipe Line Company for ultimate redelivery to refineries in the Minneapolis/St. Paul area, or the ability to deliver such volumes to the Enbridge Lakehead system² for further transportation into Midwestern markets via the Lakehead System, which is currently being expanded in stages to increase capacity by 400,000 bpd between Superior, Wisconsin and the Chicago area through completion of the Southern Access Project. Additionally, the Enbridge Mainline System will be expanded by early 2010 to increase capacity by 450,000 bpd between Alberta, Canada and Superior, Wisconsin (including capacity increases downstream of the EPND interconnect at Clearbrook) subject to receiving appropriate regulatory approvals for the Alberta Clipper Project. The Alberta Clipper Project is slated to be in-service on December 31, 2009. Thus, the EPND system expansion will allow access through Clearbrook to a vast network of pipeline infrastructure to allow Williston Basin producers and EPND shippers market access to a variety of refinery hubs in Minnesota, the greater Chicago area, Michigan, Cushing and through an interconnect with ExxonMobil line in Illinois, all the way to the U.S. Gulf Coast refinery hub.

As shown in Table 1 below, the NDSE6 Project creates incremental capacity along each pipeline segment of the EPND System, allowing increased crude oil to be transported from the Williston Basin in North Dakota and Montana to Clearbrook, Minnesota.

² Enbridge Energy, Limited Partnership, a wholly owned subsidiary of Enbridge Partners, owns and operates the U.S. portion of the Enbridge Mainline System, which is commonly referred to as the "Lakehead System." Enbridge Pipelines Inc., owns and operates the Canadian portion of the Enbridge Mainline System which interconnects with and delivers into Enbridge Energy, Limited Partnership's "Lakehead System" at the International Border near Neche, North Dakota. These operationally integrated pipeline systems together form the longest liquid petroleum pipeline in the world. Together, these two systems are referred to as the "Enbridge Mainline System." During 2007, the Lakehead System transported an average of 1.543 million bpd.



Table 1

Location	Current Capacity	Phase 6 Capacity	Incremental Capacity
ex-Alexander to Trenton	63,000 bpd	80,500 bpd	17,500 bpd
ex-Trenton to Beaver Lodge	93,000 bpd	127,600 bpd	34,600 bpd
ex-Beaver Lodge to Stanley	104,500 bpd	141,200 bpd	36,700 bpd
ex-Stanley to Minot	104,500 bpd	144,000 bpd	39,500 bpd
ex-Minot to Clearbrook	110,000 bpd	161,600 bpd	51,600 bpd

A.3. SIZE AND DESIGN:

A.3.a. Electric Facility – Not Applicable.

A.3.b. Provide a description of the size and design of the PIPELINE facility including, but not limited to, the following:

- A.3.b.(1) Width of right-of-way;**
- A.3.b.(2) Estimated distance between surface structures such as manholes or block valves;**
- A.3.b.(3) Pipe size;**
- A.3.b.(4) Approximate length of facility;**
- A.3.b.(5) Maximum design operating pressure and temperature;**
- A.3.b.(6) Maximum design flow rate; and**
- A.3.b.(7) The number and general location of compressor or pumping stations**

A.3.b. Description of size and design of pipeline facility

As stated in Section A.1, no new pipeline is being proposed as part of the NDSE6 Project. EPND proposes to maximize capacity on its existing pipeline system through the injection of a drag reducer agent (DRA) and the addition of new pumping units at existing station sites as described in more detail below in Section A.3.b.(7). All upgrades to the eleven station sites will be constructed on land already owned by EPND and no new land will be required. EPND also proposes to install one new storage tank at its existing Beaver Lodge tank farm facility. This installation will require new land, which EPND plans to acquire in fee.

A.3.b.(1) Width of the Right of Way
Not Applicable.

A.3.b.(2) Estimated Distances Between Surface Structures
Pumping stations are spaced approximately 28 miles apart, on average.

A.3.b.(3) Pipe Size
Not Applicable.

A.3.b.(4) Approximate Length of Facility

Not Applicable.

A.3.b.(5) Maximum Design Operating Pressure and Temperature

The maximum allowable operating pressure of the EPND system is 1480 psig. The maximum temperature of the petroleum is anticipated to be 104°F.

A.3.b.(6) Maximum Design Flow Rate

Generally, liquids pipelines are designed at a specified capacity for a known liquid. Most liquids pipelines transport a variety of liquids. The change in fluid characteristics (density, viscosity, etc.) of the transported liquids will affect the capacity of the pipeline. Liquids are also batched in a pipeline in a repeatable sequence. Both the fluid characteristics and batch sequence will affect the capacity of the pipeline.

Two definitions are used to describe pipeline capacity: “Design Capacity” and “Annual Capacity”.

- Design Capacity is the theoretical capacity of the pipeline for given types of liquids and their batch sequence. Design Capacity is calculated assuming theoretically ideal operating conditions. With respect to the NDSE6 Project, the Design Capacity is 170,100 bpd.
- Annual Capacity is the average sustainable throughput over a year. Annual Capacity is calculated assuming historic average annual and operating conditions. These operating conditions include scheduled and unscheduled maintenance, normal operating problems and crude supply availability. Annual Capacity of a pipeline is typically 95% of Design Capacity. As shown on the following page, Table 2 provides design data pertinent to the system upgrades described herein.



Table 2

		NDSE6 Project Capacities (bpd)
Ultimate and Design Capacity	Theoretical Capacity	170,100
Annual Capacity	Average sustainable rate over a year	161,600
Operating Factor	Historical percentage of full system utilization	95%

A.3.b.(7) The Number and General Location of Pumping Stations

The NDSE6 project will consist of the following upgrades at eleven existing pumping station sites. Enclosed herein are the related plot maps depicting the location of each upgrade at the existing station site. (See Exhibits B.1 – B.11.)



Location, Size and Design of Proposed Upgrades

A.3.b.(7)(i) Alexander Station Upgrades - Pump Station Addition / Modification:

Location

- Address: Hwy 85S & County Road 9
Alexander, ND 58831
- Legal Description: SE/4-SW/4, Sec. 18, T152N,
R101W, McKenzie Co., ND

Pumping Capacity Upgrades

- Installation of new 2000 HP pump/motor for new flow rate
- Installation of new 2500 HP VFD to handle horsepower requirements and operation
- New Stand-alone Control Building
- DRA Skid and equipment

Land Requirements

All upgrades described above will be constructed on land owned by EPND. No new land will be required at this station site.

Plot Map of Proposed Upgrades within Station Site

See Exhibit B.1.



A.3.b.(7)(ii) Trenton Station Upgrades

Location

- Address: 4807 Hwy 1804
Trenton, ND 58853
- Legal Description: SE/4-SE/4, Sec. 34, T154N, R102W,
Williams Co., ND

Pumping Capacity Upgrades

- **(8" Pipeline) - Pump Station Addition / Modification:**
 - None required
- **(10" Pipeline) - Pump Station Addition / Modification**
 - DRA Skid and equipment

Land Requirements

All upgrades described above will be constructed on land owned by EPND. No new land will be required at this station site.

Plot Map of Proposed Upgrades within Station Site

See Exhibit B.2.

A.3.b.(7)(iii) Beaver Lodge Station Upgrades:

Location

- Address: 10351 60th Street NW
Tioga, ND 58852
- Legal Description: SE/4-SW/4, SW/4-SE/4 Sec. 32,
T156N, R95W, Williams Co., ND

Pumping Capacity Upgrades:

- Installation of one (1) new 3000 HP pump/motor to meet head and throughput requirements
- Installation of new 3500 HP VFD to handle horsepower requirements and operation
- Modify existing booster pump
- Add 1 – 200 HP can booster pump in parallel with existing
- Manifold modification to eliminate some excessive suction loss
- New stand-alone Control Building
- DRA Skid and equipment
- SCADA upgrades

Storage Capacity Upgrade

- New 100,000 bbl. nominal volume storage tank
- Piping as required to access incoming and outgoing header(s)
- Tank mixer(s), tank gauging system, and associated power and communication cable feeds.

Land Requirements

- Station Upgrades: All station upgrades as described above will be constructed on land owned by EPND. No new land will be required at this station site.
- New Storage Tank: Approximately 4.2 acres (400' x 450') of new land will be required for the storage tank at Beaver Lodge, which EPND will acquire in fee. EPND is considering three locations



indicated as Options 1, 2 and 3 on the aerial/plot maps enclosed herewith as Exhibit B.3.

Aerial and Plot Maps of Proposed Upgrades within Station Site

See Exhibit B.3.

A.3.b.(7)(iv) Stanley Station Upgrades:

Location

- Address: 6150 Hwy 8
Stanley, ND 58784
- Legal Description: NW/4-SW/4, Sec. 27, T156N, R91W,
Mountrail Co., ND

Pumping Capacity Upgrades:

- Installation of a new 3000 HP single pump/motor
- Installation of a new 3500 HP VFD
- New Stand-alone Control Building
- DRA Skid and equipment
- SCADA upgrades
- New 4160 V Power Service Installation

Land Requirements

All upgrades described above will be constructed on land owned by EPND. No new land will be required at this station site.

Plot Map of Proposed Upgrades within Station Site

See Exhibit B.4.



A.3.b.(7)(v) Blaisdell Station Upgrades:

Location

- Address: 6271 63rd Ave. NW
Berthold, ND 58718
- Legal Description: SE/4-NE/4, Sec. 21, T156N, R88W,
Mountrail Co., ND

Pumping Capacity Upgrades:

- Installation of a new 3000 HP single pump/motor
- Installation of a new 3500 HP VFD
- New Stand-alone Control Building
- DRA Skid and equipment
- New 4160 V Power Service Installation

Land Requirements

All upgrades described above will be constructed on land owned by EPND. No new land will be required at this station site.

Plot Map of Proposed Upgrades within Station Site

See Exhibit B.5.

A.3.b.(7)(vi) Minot Station Upgrades:

Location

- Address: 2625 Railway Ave.
Minot, ND 58703
- Legal Description: SE/4-SE/4, Sec. 18, T155N, R82W,
Ward Co., ND

Pumping Capacity Upgrades:

- Site Development (berms, containment, fencing and grading)
- Installation of three (3) new 2000 HP pump/motor combinations – one will be a spare
- Installation of three (3) new 2500 HP VFD(s) to handle horsepower requirements and operation
- Two new 250 HP booster pumps
- New Stand-alone Control Building
- DRA Skid and equipment
- New 4160V Power Service

Land Requirements

All upgrades described above will be constructed on land owned by EPND. No new land will be required at this station site.

Plot Map of Proposed Upgrades within Station Site

See Exhibit B.6.



A.3.b.(7)(vii) Denbigh Station Upgrades:

Location

- Address: 6202 Center Ave. N
Towner, ND 58788
- Legal Description: SW/4-SW/4, Sec. 21, T156N, R77W,
McHenry Co., ND

Pumping Capacity Upgrades:

- Installation of a new 2000HP pump – utilize existing 2500 HP motor and 3000 HP VFD
- Installation of a new 2000 HP pump/motor
- Installation of one new 2500 HP VFD
- New Stand-alone Control Building
- DRA Skid and equipment

Land Requirements

All upgrades described above will be constructed on land owned by EPND. No new land will be required at this station site.

Plot Map of Proposed Upgrades within Station Site

See Exhibit B.7.



A.3.b.(7)(viii) Pleasant Lake Station Upgrades:

Location

- Address: 3751 Oaklane Road
Rugby, ND 58368
- Legal Description: NW/4-SE/4, Sec. 5, T156N, R71W,
Benson Co., ND

Pumping Capacity Upgrades:

- Site Development (berms, containment, fencing and grading)
- Installation of a two new 2000 HP pump/motors
- Installation of two new 2500 HP VFD's
- New Header and Piping, including valves etc.
- New Stand-alone Control Building
- DRA Skid and equipment
- New 4160 V Power Service Installation

Land Requirements

All upgrades described above will be constructed on land owned by EPND. No new land will be required at this station site.

Plot Map of Proposed Upgrades within Station Site

See Exhibit B.8



A.3.b.(7)(ix) Penn Station Upgrades:

Location

- Address: 550 71st Ave. NE
Penn, ND 58362
- Legal Description: SW/4-NW/4, Sec. 25, T155N, R66W,
Ramsey Co., ND

Pumping Capacity Upgrades:

- Installation of a new 2000HP pump – utilize existing 2500 HP motor and 3000 HP VFD
- Installation of a new 2000 HP pump/motor
- Installation of one new 2500 HP VFD
- New Stand-alone Control Building
- DRA Skid and equipment

Land Requirements

All upgrades described above will be constructed on land owned by EPND. No new land will be required at this station site.

Plot Map of Proposed Upgrades within Station Site

See Exhibit B.9.



A.3.b.(7)(x) Bartlett Station Upgrades:

Location

- Address: RR
Lakota, ND 58344
- Legal Description: NE/4, Sec. 25, T153N, R61W,
Ramsey Co., ND

Pumping Capacity Upgrades:

- Site Development (berms, containment, fencing and grading)
- Installation of a two new 2000 HP pump/motors
- Installation of two new 2500 HP VFD's
- New Header and Piping, including valves etc.
- New Stand-alone Control Building
- DRA Skid and equipment
- New 4160 V Power Service Installation

Land Requirements

All upgrades described above will be constructed on land owned by EPND. No new land will be required at this station site.

Plot Map of Proposed Upgrades within Station Site

See Exhibit B.10.



A.3.b.(7)(xi) Larimore Station Upgrades:

Location

- Address: 3750 Highway #2
Larimore, ND 58251-9714
- Legal Description: NE/4-SW/4, SE/4-SW/4 Sec. 25, T152N,
R55W, Grand Forks Co., ND

Pumping Capacity Upgrades:

- Installation of a new 2000HP pump – utilize existing 2500 HP motor and 3000 HP VFD
- Installation of a new 2000 HP pump/motor
- Installation of one new 2500 HP VFD
- New Stand-alone Control Building
- DRA Skid and equipment
- SCADA upgrades

Land Requirements

All upgrades described above will be constructed on land owned by EPND. No new land will be required at this station site.

Plot Map of Proposed Upgrades within Station Site

See Exhibit B.11.



A.4. TIME SCHEDULE

A.4.a. Certificate of Corridor Compatibility

Expected on or before April 30, 2008.

A.4.b. Route Application

Route application was submitted in February 2008 as part of this consolidated Application to amend Certificate of Corridor Compatibility and Route Permit.

A.4.c. Route Permit

Expected before April 30, 2008.

A.4.d. Construction Start Date

Proposed commencement date for construction is May 2008.

A.4.e. Construction Complete

Estimated construction completion date is on or before December 2009.

A.4.f. In Service Date

Estimated in service date is on or before December 2009, with full capacity reached in early 2010.

APPLICATION TO AMEND CORRIDOR CERTIFICATE

SECTION B STUDIES

B.1 CULTURAL RESOURCE INVESTIGATIONS

Cultural resource investigations have been conducted for all the proposed study areas. (as described in section D.1) Investigations at Alexander, Trenton, Stanley, Blaisdell, Denbigh, Penn, and Larimore stations were conducted as part of previous pump station projects, which were subsequently authorized by the North Dakota PSC in Docket No. PU-06-349. Investigations at Beaver Lodge, Minot, Pleasant Lake and Bartlett stations could not be documented for the entire project area; therefore, a new study was completed. The new study concluded that no historic properties would be affected by the proposed NDSE6 Project at the Beaver Lodge, Minot, Pleasant Lake, and Bartlett stations. The North Dakota Historical Society's ("SHSND") concurred (ND SHPO REF.:08-0047). A copy of the new study and SHSND concurrence is enclosed herewith as Exhibit C. The following is a station-by-station summary of previous cultural resource studies and results.

B.1.a Alexander Station

Kadmas, Lee & Jackson, Inc. completed a Class I File Search (search of the SHSND site and manuscript files) on June 30, 2006 for previous upgrade work at the Alexander Station. The Class I File Search revealed that two previous cultural resource investigations were conducted in the project vicinity as detailed in the manuscripts, *Williston to Charlie Creek: A Cultural Resource Inventory Along the Western Area Power Administration 115KV Transmission Line From the Williston Substation to the Charlie Creek Substation, Williams and McKenzie Counties, North Dakota (2004)* and *Archaeological Investigations Along the Portal Beaver Lodge to Alexander Pipeline Williams and McKenzie Counties, North Dakota (1984)*. The manuscripts identified one cultural resource site in Section 18, T152N, R101W, McKenzie County, North Dakota. However, that site is not located near the Alexander Station.

B.1.b Trenton Station

Kadrmars, Lee & Jackson, Inc. completed a Class I File Search on July 6, 2006 for previous upgrade work at the Trenton Station. The Class I File Search revealed four previous cultural resource investigations in the project vicinity as detailed in the manuscripts: *Addendum to: Plains Pipeline Trenton Loop: A Class III Cultural Resource Inventory in Williams and McKenzie Co., North Dakota (2005)*; *Plains Pipeline Trenton Loop: A Class III Cultural Resource Inventory in Williams and McKenzie Co., North Dakota and Addendums B and C and D (2005)*; *Cultural Resource Investigation Williston to Wolf Point Transmission Line Roosevelt Co., MT & Williams Co., North Dakota (2002)*; and *Archaeological Investigations Along the Portal Beaver Lodge to Alexander pipeline Williams and McKenzie Counties, North Dakota (1984)*. The manuscripts did not identify any cultural resource sites in Section 34, T154N, R102W, Williams County, North Dakota where the Trenton station is located.

B.1.c Stanley Station

Research for previous upgrade work at the Stanley Station revealed that two cultural resource investigations had been conducted in the vicinity of the station as detailed in the manuscripts: *North Dakota Highway Department Projects No. F-7-002; 089 Negative Declaration Survey Report (1976)* and *Cultural Resources Investigations Along U.S. Highway 2 in Ward, Mountrail, and Williams Counties, North Dakota Vol. 1 (2001)* had been previously submitted. The manuscripts identified two cultural resource sites in Section 27, T156N, R91W, Mountrail County, North Dakota, where the Stanley Station is located. Neither site is within the Stanley study area.

B.1.d Blaisdell Station

Earthworks, Inc. completed a Class III Cultural Resource Inventory of the Blaisdell Station prior to construction of the station as described in the manuscript, *Enbridge Pipelines (North Dakota) LLC, Phase 4 Pipeline Expansion Project Pumping Stations: A Class III Cultural Resource Inventory, Grand Forks, McHenry, Mountrail, and Ramsey Counties, North Dakota (2006)*. The inventory recorded one cultural resource site at the Blaisdell Station. The site consists of historic buildings, historic cultural materials, abandoned farm equipment and piles of lumber. Earthworks, Inc. recommended the site as not eligible for the National Register of Historic Places (NRHP). The SHSND concurred.

B.1.e Denbigh Station

Earthworks, Inc. completed a Class III Cultural Resource Inventory of the Denbigh Station prior to construction of the station as described in the manuscript, *Enbridge Pipelines (North Dakota) LLC, Phase 4 Pipeline Expansion Project Pumping Stations: A Class III Cultural Resource Inventory, Grand Forks, McHenry, Mountrail, and Ramsey Counties, North Dakota*. One new cultural resource site was recorded. The site consists of a segment of Burlington Northern Santa Fe Railway. The full railway line is currently unevaluated for inclusion on the NRHP. However, the portion of the railway line in the proposed project area has been greatly reduced by past and continued maintenance, and most, if not all, historic materials have been replaced. Earthworks, Inc. recommended the site as not eligible for the NRHP. The SHSND concurred.

B.1.f Penn Station

Earthworks, Inc. completed a Class III Cultural Resource Inventory of the Penn Station prior to construction of the station as described in the manuscript, *Enbridge Pipelines (North Dakota) LLC, Phase 4 Pipeline Expansion Project Pumping Stations: A Class III Cultural Resource Inventory, Grand Forks, McHenry, Mountrail, and Ramsey Counties, North Dakota*. The inventory recorded six new architectural and historical cultural resource sites. Five of the six sites are recommended as not eligible for the NRHP. A grain elevator located near the project area is unevaluated and assumed to be potentially eligible for inclusion on the NHRP. The SHSND concurred. The grain elevator is not located within the Penn Station study area.

B.1.g Larimore Station

Earthworks, Inc. completed a Class III Cultural Resource Inventory of the Larimore Station prior to construction of the station as described in the manuscript, *Enbridge Pipelines (North Dakota) LLC, Phase 4 Pipeline Expansion Project Pumping Stations: A Class III Cultural Resource Inventory, Grand Forks, McHenry, Mountrail, and Ramsey Counties, North Dakota*. No new or previously recorded sites were identified.

B.2 WETLAND ASSESSMENT

EPND conducted a wetland assessment of the project area in Fall 2007. As part of this assessment, existing wetland delineation reports were reviewed for the Alexander, Trenton, Stanley, Blaisdell, Denbigh, Penn and Larimore Stations. No wetlands are present near any of these stations.

Merjent, Inc. of Minneapolis, Minnesota, completed a wetland survey of the Beaver Lodge, Minot, Pleasant Lake, and Bartlett Stations in October 2007. Two wetlands were identified at the Pleasant Lake Station. However, these wetlands will not be disturbed by project activities. No wetlands were identified at the Beaver Lodge, Minot and Bartlett Stations. A copy of the wetland survey report is enclosed herewith as Exhibit D.

B.3 BIOLOGICAL RESOURCES

A review of the study areas did not identify areas where animals or plant species that are unique or rare to the state would be irreversibly damaged by the proposed project. On November 26, 2007, EPND sent a letter to the North Dakota Game and Fish Department (NDGFD) to determine whether the proposed project would have significant adverse effects on unique or rare animal or plant species. A response from the NDGFD was received on December 21, 2007 stating that the project would not result in significant adverse impacts on wildlife or wildlife habitat, including endangered species. A copy of the NDGFD response is enclosed herewith as Exhibit E.



APPLICATION TO AMEND CORRIDOR CERTIFICATE

SECTION C

NEED FOR FACILITY

C.1. AN ANALYSIS OF THE NEED FOR THE PROPOSED FACILITY BASED ON PRESENT AND PROJECTED DEMAND FOR THE PRODUCT TRANSMITTED BY THE FACILITY, INCLUDING THE MOST RECENT SYSTEM STUDIES SUPPORTING THE ANALYSIS OF THE NEED.

C.1.a Planned Use and Purpose

Demand for crude oil transportation on the Enbridge Pipelines (North Dakota) LLC (“EPND”) System has been increasing in recent years, rising from 68,500 barrels per day (bpd) in 2004 to 89,400 bpd on average in 2007. This rising demand for export pipeline capacity has been driven by numerous factors but most importantly include the increasing crude oil production from the Williston Basin of North Dakota and Montana as well as the additional volumes that are being delivered into the Guernsey Hub via the Express Pipeline system. With an oversupply at the Guernsey Hub and the limited export pipeline capacity to transport these increasing crude oil volumes to market, a significant crude price differential has been created periodically in the last two years between the Guernsey and Clearbrook markets. EPND has received urgent requests from producers and shippers in the Williston Basin area, and continues to respond to this market demand for additional pipeline capacity by undertaking a number of expansions on its North Dakota System to help address the immediate and forecasted transportation needs of its shippers.

Building upon the numerous expansion projects³, which this Commission has approved in various docketed proceedings since 2005, EPND is proposing a sixth expansion referred to as the North Dakota System Expansion Phase 6 (NDSE6) Project. As stated in Section A.1, EPND proposes to optimize the throughput capacity of its existing pipeline system through the injection of DRA and the addition of new pumping units at existing station sites. Moreover, with the

³ In Docket No. PU-05-274, EPND’s Phase 1 and 2 Expansion Projects were approved by the North Dakota Public Service Commission (ND-PSC) and placed in-service in 2005 and April 2007 respectively. In Docket Nos. PU- 06-317; PU-06-330; and PU-06-349, EPND’s Phase 3, 4 and 5 Expansion Projects were approved by the ND-PSC and was fully placed in-service on January 2008.



increasing demand for export pipeline capacity, especially as the Williston Basin production continues to ramp up, these upgrades are immediately needed to help relieve the bottleneck and avoid or limit apportionment of pipeline capacity that shippers are currently experiencing on the EPND System into Clearbrook, MN, despite the fact EPND's Phase 5 expansion has been gradually placed in-service in 2007 and fully placed in-service to reach the current 110,000 bpd capacity by January 2008.

The primary purpose of the NDSE6 Project is to transport additional crude oil from the Williston Basin in North Dakota and Montana to meet the growing demand for crude oil by Midwest refinery markets. As previously stated, ENPD will increase its pipeline capacity from 110,000 bpd to approximately 161,600 bpd of delivery capacity into the Enbridge Clearbrook Terminal Facility in Clearbrook, Minnesota. At Clearbrook, EPND will have the ability to deliver such volumes of crude oil to the non-affiliated Minnesota Pipe Line for ultimate redelivery to refineries in the Minneapolis/St. Paul area, or the ability to deliver such volumes to the Enbridge Lakehead system. These customers ultimately serve refinery markets throughout the Midwest, including refineries in Wisconsin, Illinois, Indiana, Ohio, and Michigan.

The need for the project is dictated by:

- An increase in Williston Basin crude oil supply;
- A lack of existing pipeline capacity exiting the Williston Basin on which to ship crude oil to desirable refinery markets;
- An increase in demand for crude oil transport capacity on EPND system from EPND's shippers;
- Ongoing moderate increases in capacity of refineries in the United States;
- Declines in crude oil production from other parts of the onshore United States requiring refineries to turn to new basins of supply;
- A desire by refineries to acquire their raw feedstock supplies from domestic and North American supply as opposed to supplies from more unstable regions of the world.



Demand for crude oil in the United States has increased over the past several decades and is expected to continue increasing into the foreseeable future. According to the Energy Information Administration⁴, consumption of crude oil and refined products is projected to increase about 30% over the next two decades, from 20.7 million bpd in 2005 to 26.9 million bpd in 2030. This historic and predicted increase in demand is evident in EPND's pipeline system, which has seen a 72% increase in shipped volumes over the past ten years. EPND's system is presently operating at full annual capacity, and with the addition of new pumping units which will add another 51,600 bpd of pipeline capacity, the EPND system will be optimized to safely operate at the ultimate design capacity.

Despite use of alternative energy and conservation efforts, the demand for petroleum continues to increase, while reliable crude oil supplies from many U.S. domestic regions continue to decrease. According to the United States Department of State⁵, continued political instability in several of the United States top suppliers is creating supply-side uncertainty. For example, security concerns and insurgent attacks on oil infrastructure in Iraq have kept oil output at or below prewar levels. Violent crime, income disparity, ethnic conflict, and civil protest have repeatedly threatened, reduced, or suspended oil exports from countries like Algeria, Nigeria, and Ecuador. Venezuela has repeatedly threatened to divert its oil exports to markets other than the United States. These factors suggest that an ever larger share of United States oil supply will need to be produced and shipped domestically, at least for the short term.

According to the Energy Information Administration⁶ (EIA), the North Dakota and Montana portion of the Williston Basin has about 850 million barrels of proven oil reserves. These reserves are expected to continue to increase as development of the basin continues and as operators increase their knowledge and experience in completing wells. Recent estimates of potential oil resources suggest substantially higher oil reserves. A new assessment of proven reserves from the United States Geological Survey is due in early 2008.

⁴ Energy Information Administration, 2007, Annual Energy Outlook 2007, Report # DOE/EIA-0383(2007), Washington, DC.

⁵ United States Department of State, 2008. Final Environmental Impact Statement for the Keystone Oil Pipeline Project, Washington, DC.

⁶ Energy Information Administration, 2006. Technology-Based Oil and Natural Gas Plays: Shale Shock! Could There Be Billions in the Bakken? Washington, DC.



Although crude oil is widely available in the Williston Basin⁷, there is a lack of existing pipeline capacity on which to ship oil to market. Currently, two pipeline systems export crude oil out of the region: EPND, and Kinder Morgan's Platte Pipeline. Both of these pipelines are fully utilized; they are unable to move crude oil without expansion or modification of their existing facilities. This lack of take-away capacity has resulted in a system bottleneck for the Williston Basin, resulted in a discounting of crude prices at the Guernsey Hub compared to WTI price, and thus, has prompted some producers to close wells or postpone production.

Because of the increased demand for crude oil in the United States, uncertain supply of crude oil from other world supplies, availability of Williston Basin crude oil, and lack of existing pipeline capacity to carry the Williston Basin crude oil to market, EPND is proposing to construct the NDSE6 Project. The NDSE6 Project would provide capacity for an additional 51,600 bpd to transport Williston Basin crude oil to market. This additional capacity has been requested by EPND's customers.

The proposed NDSE6 is designed to benefit regional crude oil explorers, gatherers, and producers; as well as refiners, by helping to relieve the petroleum transportation bottleneck within this region. Once completed, it is anticipated that the NDSE6 Project would increase pipeline capacity from 110,000 barrels per day to approximately 161,600 barrels per day of delivery capacity into the Enbridge Clearbrook Terminal Facility for subsequent delivery of such crude oil supplies to the interconnecting facilities of non-affiliated Minnesota Pipe Line Company ("Minnesota Pipe Line") or to enter the Enbridge Lakehead System, for further delivery to Midwestern refineries and beyond.

As demonstrated above, the NDSE6 Project is immediately needed and in the public interest. These upgrades will provide the incremental capacity necessary to enable shippers to have better access to more profitable crude markets.

⁷ North Dakota Department of Mineral Resources, 2006. Williston Basin Crude Oil Transportation Bottleneck Volume 33, Number 2. Bismarck, ND.

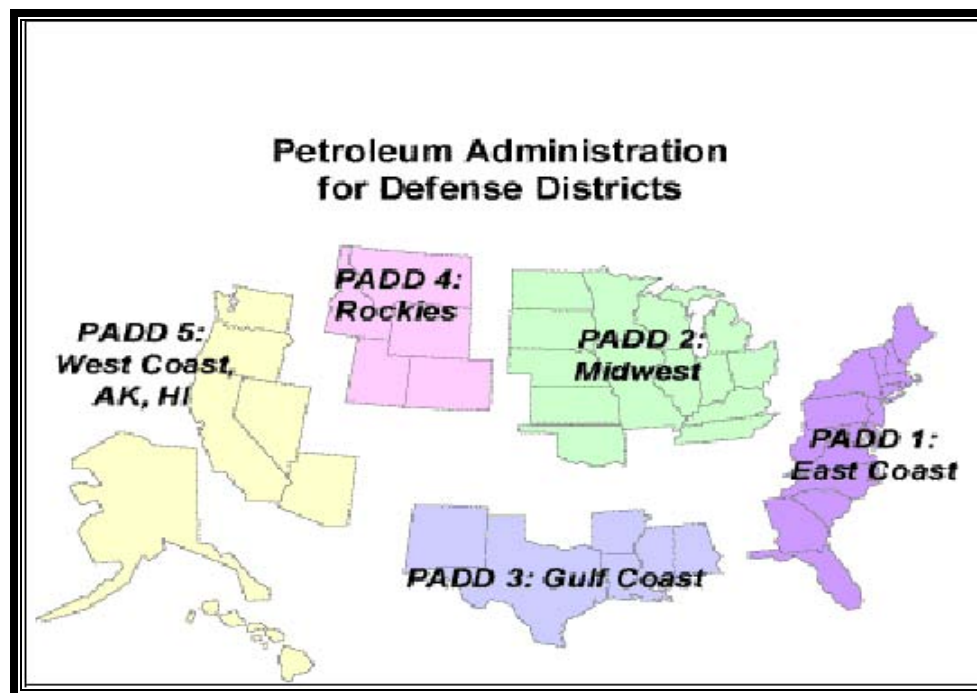


C.1.b Petroleum Supply and Demand in Midwest

The petroleum-using public in the U.S. Midwest consumes over 5.2 million bpd of refined petroleum products, (according to the most recent statistics available from the U.S. Energy Information Administration, a statistical arm of the Department of Energy (“EIA”)), which includes gasoline, jet fuel, diesel fuel, asphalt, heating fuel and petrochemical products produced from crude oil. To meet this demand, refineries in PADD II (see map of Petroleum Area Defense Districts as defined by the U.S. Department of Energy in Figure b.1 below) processed 3.3 million bpd of crude oil in 2005. Major Upper Midwest refineries located in Minnesota, Wisconsin, Illinois, northern Indiana, Michigan, and Ohio are currently served directly or indirectly by the Enbridge Lakehead System. More specifically, EPND delivers, through its interconnecting facilities at Clearbrook, over 20 percent of its crude oil supplies to Minnesota Pipe Line which ultimately serves two Minnesota refineries. [An expansion of the Minnesota Pipe Line between Clearbrook and the Minneapolis/St. Paul area, currently under construction, will result in increased deliveries at Clearbrook into Minnesota Pipe Line off the EPND or Lakehead System.] The remaining 80 percent of EPND’s crude oil supplies will enter the Enbridge Lakehead system at Clearbrook for ultimate delivery to other Midwest refineries and beyond to other market hubs.

*U.S. Department of Energy, Energy Information Administration's
"Annual Energy Outlook," <http://www.eia.doe.gov/oiaf/aeo/>*

Figure 7853.0240-1





C.1.c. Williston Basin crude production is increasing

Williston Basin crude oil production has experienced significant growth in eastern Montana and Western North Dakota.

While producers in Montana and North Dakota can and do deliver into other refinery markets, the Midwest offers the largest refinery demand and thus is an attractive and stable market.

Crude oil from the Williston Basin offers Midwestern consumers and refiners the needed supply source to meet consumer demand for petroleum products. Enbridge has a number of current expansions, including the NDSE6 Project, that will allow Midwestern refiners the needed access to supply sources to meet consumer demand for petroleum products.

C.1.d. Crude Oil Pipeline Capacity is Constrained

The continued growth of crude production in the Williston Basin means that, even as EPND is completing its current expansion, there is a continued shortage of capacity. Constrained pipeline capacity throughout the basin remains a major concern to the industry and state governments, as apportionment on the EPND System may continue after the current expansion.

C.1.e. Advantages to U.S Refinery Sector and U.S. Public

Increased crude oil supply is critical to realizing the significant economic and strategic benefits that will add to growing U.S. refinery demand and ultimately to the residential and industrial refined products' consumer. The Interstate transmission pipelines, such as those operated by EPND, are practical and secure means of meeting the Midwest's need for petroleum. No combination of railroad tank cars and/or tanker trucks could effectively and economically move huge quantities of crude oil to Midwest refineries.

C.1.f. Related Expansions on the North Dakota Interstate System

Since constructing the transmission line from Minot to Clearbrook, Minnesota in 1962, EPND has provided safe, economic and reliable access to crude oil, and consequently industry and consumers with a supply of refined products.

In addition to the NDSE6 Project detailed in this application, EPND has completed its Phase 5 program and placed such pipeline facilities in-service gradually during 2007 and was fully operational by January 2008 adding approximately 30,000 bpd of incremental capacity to the pipeline system.

As proposed, the NDSE6 Project will build off the Phase 5 program existing expansion, with the addition of increased capacity of the existing stations.

C.1.g. Future North Dakota System Expansion(s)

At this time, EPND has no further plans to expand its North Dakota System. However, as forecasts for production from the Williston Basin continue to be updated and through ongoing planning with shippers, EPND will periodically review the long term sustainable need for even more pipeline capacity beyond this EPND Project.

C.1.h. Summary:

The objective of the NDSE6 Project is to alleviate a capacity bottleneck to Clearbrook, thus allowing the EPND System to transport substantially increased volumes of crude petroleum from the Williston Basin to its Clearbrook Metering Facility and to refinery centers throughout PADD II and beyond. The NDSE6 Project will relieve the near term forecast capacity bottleneck for crude oil moved on the EPND System. The most reliable, efficient, and cost effective alternative for accomplishing this objective is the construction and operation of the NDSE6 Project.

C.2 ALTERNATIVES TO THE PROPOSED FACILITY

EPND has performed a reasonable and defensible alternative analysis that involves consideration of environmental, engineering and economic factors in a multi-disciplinary and iterative fashion. Thus, the following alternatives to the NDSE6 Project were considered:

C.2.a Action Alternative: In light of the overall increase in Williston Basin production, the requirements by shippers to increase pipeline capacity and the current apportionment that is being experienced on the EPND System today, a “no action” alternative is unacceptable to EPND and its shippers.

C.2.b Trucking Alternative: Currently, there is not sufficient tanker trailer truck capacity to transport the incremental 51,600 barrels of crude oil per day. Moreover, the trucking alternative significantly overburdens current public road capacity. Additionally, should the truck capacity issue be resolved, EPND or its shippers would need to expand trucker loading/unloading facilities at suitable locations to allow receipt into the Enbridge Clearbrook Tank Farm and Terminal Facility. While trucks are a vital part of the crude gathering and distribution network, pipelines are a safer and more economical alternative for transporting this volume of crude oil for these distances. The potential in-service date of additional trucking, road and off-loading capacity is not known. The reliability of this alternative in northern climates is compromised by periodic restriction in truck traffic due to winter storms and spring road restrictions or other weather related or capacity availability restrictions.

- **a discussion of the design and the geographical area affected:**
In order to transport an incremental 51,600 bpd of crude oil proposed by the NDSE6 Project, a fleet of thousands of tractors and trailers would be required as detailed below:

Computation of Trucking Requirements

Crude oil volumes = 51,600 bpd

Per Truck capacity = 150 barrels per truck

Number of trucks required = $51,600 / 150 = 344$ trucks per day

Assume each truck requires loading, in-transit full (2 days), in-transit empty (2 days) and unloading time
Number of trucks in transit = $344 \times 2 \text{ days} = 688 \text{ trucks}$
Number of trucks returning empty = $344 \times 2 = 688 \text{ trucks}$
20% of the in-transit trucks loading and unloading = 275 trucks
Total truck requirements = $688 + 688 + 275 = 1,651 \text{ trucks}$
(ignoring scheduled/unscheduled down time)
Number of drivers required = $1,651 \times 2 \text{ drivers/truck} = 3,302 \text{ drivers}$

In order to facilitate this operation, significant truck loading and offloading terminal facilities would have to be constructed at Beaver Lodge and Clearbrook. In addition, it is likely that substantial upgrades and ongoing maintenance would be required (at public expense) to the connecting roadways along the entire route.

- **an estimate of the in-service date:** EPND believes that it is impossible for the required terminal facilities at both Beaver Lodge and Clearbrook to be constructed on the same timeline as the NDSE6 Project. Additionally, EPND does not have an estimate of the time required to acquire the trucking fleet described above, how long it would take to attract and train the associated drivers, nor how extensive the roadway upgrade program would be.
- **a discussion of the method of operation:** This operation would be highly labor intensive, with a significant workforce required at both terminal locations to allow for the constant loading and offloading requirements. This option would require a significant driver pool to maintain the constant movement of the entire truck fleet.
- **its costs:** Based on the North Dakota Petroleum Council's "Williston Basin Crude Oil Transportation Bottleneck White Paper" dated March 2006, the approximate transportation costs to move 51,600 bpd by truck would range between \$6.00 to \$10.00 per barrel. Therefore the estimated transportation costs would range between \$113 and \$188.3 million dollars per year (ignoring the costs of new vehicles and infrastructure facilities necessary).
- **its economic life:** With mileage that the trucks would incur in steady service, EPND estimates that the economic life of a truck would not exceed 4 to 5 years. The truck loading and unloading terminals would have an estimated economic life of 25 years. EPND

does not have an assessment of the impact that this amount of incremental truck traffic would have on the various roadways.

- **its reliability:** This operation would be inherently much less reliable than the NDSE6 Project as truck traffic is affected by weather conditions, mechanical failure, manpower (driver shortages), road maintenance or closures. Trucks have a significantly higher rate of accidents affecting driver and public safety than compared to pipelines, according to the National Transportation Safety Board.

Trucking cannot compete with pipelines for volumes over long distances given physical limitations on truck and unloading facilities that are required to sustain operations of this nature. Therefore this alternative was not further considered.

C.2.c Rail Alternative: Currently, there is not sufficient rail tanker car capacity to transport the incremental 51,600 bpd to Clearbrook, nor would it allow continued transport at Clearbrook to Minnesota refineries or east of Clearbrook to other Midwest refineries. The rail tanker car alternative would require the construction (by EPND or its shippers) of rail car loading and off-loading facilities. Also, the construction of new lateral above ground rail service that poses additional risk and impact to landowners and the public. While rail tanker cars are a vital part of the short-haul distribution network for crude oil, pipelines are a safer and more economic transportation alternative. The potential in-service date of additional truck-to-rail, rail tanker car, rail line, and off-loading capacity is not known. The reliability of this alternative in northern climates is compromised by periodic restriction in truck traffic to deliver to rail due to winter storms and spring road restrictions or other weather related or capacity availability restrictions.

- **a discussion of the design and the geographical area affected;** in order to transport 51,600 bpd of heavy oil, a fleet of rail cars would be required as detailed below:

Computation of Railcar Requirements

Crude oil volumes = 51,600 bpd

Rail car capacity = 600 barrels per rail car

Tank cars required = $51,600/600 = 86$ rail cars per day



Estimated time to move each rail car from Beaver Lodge to Clearbrook (various carriers and through various rail assembly yards) = 3-5 days

Number of cars in transit = $86 \times 5 \text{ days} = 430 \text{ cars}$

Number of cars returning empty = $86 \times 5 = 430 \text{ cars}$

20% of the in-transit cars loading and unloading = 172 cars

Total tank car requirements = $430 + 430 + 172 = 1,032 \text{ cars}$
(ignoring scheduled/unscheduled down time)

Approximately 1,032 rail cars would have to be in route each day, making the roundtrip between those two locations in approximately 10 days. In order to facilitate this operation, significant spur lines, rail sidings, and terminal facilities would have to be constructed at Beaver Lodge and Clearbrook. In addition, substantial upgrades and ongoing maintenance would be required to the connecting railways.

- **an estimate of the in-service date:** EPND believes that it is impossible for terminal facilities at both Beaver Lodge and Clearbrook to be constructed on the same timeline as the NDSE6 Project. Additionally, EPND does not know if the number of rail cars required are available, nor do we have an estimate of the time that would be required to manufacture them. Moreover, EPND does not have an estimate of the time required to construct the necessary upgrades associated with the railway infrastructure.
- **a discussion of the method of operation:** This operation would be highly labor intensive, with a significant workforce required at both terminal locations to allow for the constant loading and offloading requirements and railcar operation.
- **its costs:** Based on the North Dakota Petroleum Council's "Williston Basin Crude Oil Transportation Bottleneck White Paper" dated March 2006, the approximate transportation costs to move 51,600 bpd by rail would range between \$6.00 to \$10.00 per barrel. Therefore the estimated transportation costs would range between \$113 and \$188.3 million dollars per year (without considering the costs of new rolling stock and infrastructure facilities necessary).
- **its economic life:** With mileage that the cars would incur in steady service, the applicant estimates that the economic life of a rail car

would not exceed 10 to 15 years. The rail loading and unloading terminals would have an estimated economic life of 25 years.

- **its reliability:** This operation would be inherently much less reliable than the NDSE6 Project. The entire operation would be subject to weather related delays, delays caused by scheduling conflicting rail traffic, and a significant mechanical/maintenance requirement exposure based on the number of rail cars involved in this operation.

C.2.d Pipeline System Alternatives: An alternate pipeline route does exist through the Enbridge Pipelines (North Dakota) LLC. system (“Enbridge North Dakota System”) to Clearbrook, Minnesota through potential reversal of what is known as the “Portal Link” crossing the international border near Estevan, Saskatchewan and the Enbridge Mainline System from Cromer, Manitoba to Clearbrook, Minnesota. This alternative was rejected on the basis of a longer route and higher cost to shippers. As well, reversal of the Portal Link meets other bottlenecks of capacity on the Enbridge Saskatchewan and Enbridge Mainline (current under a separate Alberta Clipper expansion as recently approved by the Commission under Docket No. PU-07-108.

Another third-party pipeline is being planned through North Dakota on a north-to-south basis to an area near St. Louis, Missouri and a lateral line to Cushing, Oklahoma. This pipeline referred to as the Keystone Project is being proposed by TransCanada Keystone Pipeline, LLC (“Keystone”) to construct a new 1,833-mile pipeline from Alberta, through North Dakota, South Dakota and on to Patoka, Illinois which the NDPSC approved in Docket Nos. PU-06-421 and PU-07-152 respectively. The Keystone Pipeline is not an alternative system as it does not have receipt facilities within North Dakota nor does this system connect to the Minnesota, Wisconsin and greater Chicago area markets that the Enbridge System serves. Additionally, in order for Williston Basin crude oil to access the Keystone Pipeline, construction of interconnecting facilities would be required.

C.2.e Alternative EPND Pipeline route: Since EPND does not propose to install a new pipeline as part of its NDSE6 Project, no alternative EPND Pipeline route was considered.

EPND proposes to increase its pipeline capacity by optimizing its existing pipeline system through the use of DRA and the installation of new pumping units at existing station sites as described in more detail in Section A.3. EPND believes this is the most efficient and cost effective combination of capital cost and pumping horsepower requirements for the required capacity.

- The in-service date for the NDSE6 Project is on or before December 31, 2009.
- The NDSE6 Project operations will be operationally integrated with the existing EPND System.
- The cost of the North Dakota portion of the NDSE6 Project is \$119.7 million.
- The economic life of the NDSE6 Project for this purpose is based on a 25-year depreciation; however, the functional life of the proposed facilities are indefinite following normal maintenance and inspection practices of the federal regulated interstate pipeline system.
- The EPND System operates year-round, round-the-clock, with the exception of planned system down-time for inspection, maintenance or repair purposes or unplanned down-time due to interruptions in receipts or refinery outages and/or operational disruptions caused by regional power outages or other reasons.

C.2.f A summary of the conclusions reached with respect to the alternative and the reason for its rejection

The objective of providing a cost effective and efficient de-bottlenecking of crude oil transportation downstream of Beaver Lodge is met by the NDSE6 Project as presented in this Application. The NDSE6 Project minimizes environmental and landowner impact and, when integrated with the existing NDSE6 System, provides the safest, most efficient and cost effective alternative to link the growing demand for crude oil supplies in the Midwest with increased and reliable domestic supplies from North Dakota and Montana. Thus, all other alternatives discussed herein were rejected.



**C.3. STATEMENT CONCERNING DEVIATION FROM MOST RECENT
10-YEAR PLAN**

EPND's currently filed 10-year plan with the ND-PSC is enclosed herein as Exhibit F. At the time of filing, EPND did anticipate the need for the proposed project as disclosed in Schedule H and I of this plan.

APPLICATION TO AMEND CORRIDOR CERTIFICATE

**SECTION D
LOCATION**

D.1 STUDY AREA

EPND defined its study area to be appropriate for the specific expansion work proposed at each of the eleven existing stations (see Table 3). The study area selected for the proposed NDSE6 Project is all located on the land owned by EPND at each existing pump station site with the exception of new land EPND proposes to acquire in fee to install the new storage tank at its Beaver Lodge Tank Farm Facility in Williams County. No new pipeline is proposed herein. Presumably, the study areas should be sufficient to allow the Commission to evaluate the factors addressed in Chapter 49-22-09 of the North Dakota Century Code. The extent of the study areas for each station is described in Table 3 below.

Table 3

STATION	STUDY AREA
Alexander	Limited to current land owned by EPND as depicted in Exhibit B.1.
Trenton	Limited to current land owned by EPND as depicted in Exhibit B.2.
Beaver Lodge	<p><u>For the new pumping units</u> – Study area is limited to current land owned by EPND as depicted in Exhibit B.3.</p> <p><u>For the new storage tank</u> – Study areas includes three optional location sites each approximately 400' x 450' as depicted in Exhibit B.3. EPND plans to acquire such land in fee for the new storage tank.</p>
Stanley	Limited to current land owned by EPND as depicted in Exhibit B.4.
Blaisdell	Limited to current land owned by EPND as depicted in Exhibit B.5.
Minot	Limited to current land owned by EPND as depicted in Exhibit B.6.
Denbigh	Limited to current land owned by EPND as depicted in Exhibit B.7.
Pleasant Lake	Limited to current land owned by EPND as depicted in Exhibit B.8

STATION	STUDY AREA
Penn	Limited to current land owned by EPND as depicted in Exhibit B.9.
Bartlett	Limited to current land owned by EPND as depicted in Exhibit B.10.
Larimore	Limited to current land owned by EPND as depicted in Exhibit B.11.

D.2 EVALUATION CRITERIA LEADING TO SITE SELECTION

Evaluation criteria as described in North Dakota Administrative Code (North Dakota Rules) Chapter 69-06-08-02 was used to guide and govern the siting of the proposed expansion project. Detailed discussions of these criteria, including descriptions, potential impacts, and mitigation measures where appropriate are provided below.

D.2.a. Exclusion Areas

Exclusion areas are areas excluded in the consideration of a route for a transmission facility, or in the case of the proposed project, the expansion of an existing facility. No exclusion areas are located within the study areas. Table 4 below identifies exclusion areas that were considered for the project.

Table 4

EXCLUSION AREA	WITHIN STUDY AREA
National Parks	No
National Memorial Parks	No
National Historic Sites	No
National Historic Landmarks	No
National Natural Landmarks	No



EXCLUSION AREA	WITHIN STUDY AREA
National Monuments	No
National Wilderness Areas	No
State Parks	No
State Historic Sites	No
State Monuments	No
State Historical Markers	No
State Archaeological Sites	No
State Nature Preserves	No
County Parks	No
County Recreational Areas	No
Municipal Parks	No
Parks Owned or Administered by Other Governmental Subdivisions	No
Areas Critical to the Life stages of Threatened or Endangered Animal or Plant Species	No
Areas Where Animals or Plant Species that Are Unique or Rare to this State Would be Irreversibly Damaged	No

D.2.b. Avoidance Areas

Avoidance areas are areas that are not considered in the routing of a transmission facility, or in the case of the proposed project, the expansion of an existing facility, unless there is no reasonable alternative. With the exception of businesses and residences within 500 feet of the project, no avoidance areas are located within the study area. A discussion of residences and businesses within 500 feet of the study areas is provided below. Table 5 below identifies avoidance areas that were considered for the project.

Table 5

AVOIDANCE AREA	WITHIN STUDY AREA
National Historic Districts	No
National Wildlife Areas	No
National Wild, Scenic, or Recreational Rivers	No
National Wildlife Refuges	No
National Grasslands	No
State Wild, Scenic, or Recreational Rivers	No
State Game Refuges	No
State Game Management Areas	No
State Management Areas	No
State Forests	No
State Forest Management Lands	No
State Grasslands	No
Historical Resources Which Are Not Specifically Designated as Exclusion or Avoidance Areas	No
Areas Which Are Geologically Unstable	No
Within Five Hundred Feet [152.4 Meters] of a Residence, School, or Place of Business	Yes



Reservoirs and Municipal Water Supplies	No
Water Sources for Organized Rural Water Districts	No
Irrigated Land	No
Areas of Recreational Significance Which Are Not Designated as Exclusion Areas	No

D.2.b.(1) Areas within 500 feet of Farmhouse, Rural Residence, or Place of Business.

Four businesses and two residences were found within 500 feet of the proposed study area near Penn Station (see Table 6 below).

As stated in North Dakota Century Code 49-22-05.1, the five hundred foot [152.4 meter] avoidance area criteria for an inhabited rural residence may be waived by the owner of the inhabited rural residence in writing. EPND is in the process of obtaining waivers from the residences and businesses described below.

Table 6

FEATURE	PUMP STATION	APPROXIMATE DISTANCE FROM PIPELINE (FEET)
Residence	Penn	350
Residence	Penn	340
Business	Penn	100
Business	Penn	350
Business	Penn	425
Business	Penn	425

D.2.c. Selection Criteria

Selection criteria are those environmental resources on which the project must have an acceptable minimum amount of impact, as determined by the Commission. Table 7 on the following page identifies selection criteria that were considered for the project. Where impacts to selection criteria are possible, a discussion of potential impacts and mitigation measures that will be implemented is provided.

Table 7

SELECTION CRITERIA	POTENTIAL IMPACT WITHIN STUDY AREA
Agricultural Production	No
Family Farms and Ranches	No
Land Suitable for Irrigation	No
Surface and Groundwater Flow Patterns	No
Noise Sensitive Areas	No
Visual Effects	No
Extractive and Storage Resources	No
Wetlands	No
Woodlands	No
Communication or Electric Control Facilities	No
Human Health and Safety	Potential
Animal Health and Safety	Potential
Plant Life	Potential

D.2.c.(1) Human Health and Safety

Despite its excellent safety record, the transportation of crude oil involves some risk to the public. Perhaps the most obvious risk to human health is the potential for fire in the event of an accident and subsequent release. Toxic exposure from crude oil through skin contact, ingestion, or vapor inhalation can also be a risk.

EPND will design, construct, test, operate, and maintain the proposed in accordance with all applicable laws and standards. The U.S. Department of Transportation's pipeline standards are published in Part 195 of Title 49 of the Code of Federal Regulations. The regulations are intended to ensure adequate protection of the public and to prevent accidents and failures. Part 195 specifically addresses petroleum pipeline safety issues. It specifies material selection and qualification; minimum design requirements; and protection from internal, external, and atmospheric corrosion.

D.2.c.(2) Animal Health and Safety

Impacts to wildlife would be limited to the construction of the new storage tank at the Beaver Lodge Station and construction of the new substation within the property already owned by EPND at the Pleasant Lake Station. Wildlife generally located in these study areas include animals such as: white-tailed deer, coyote, woodchuck, badger, cottontail, mink, mouse, vole, hawk, kestrel, partridge, owl, flycatcher, thrush, vireo, warbler, wren, sandpiper, heron, turkey, pheasant, snake, and a variety of other mammals, birds, reptiles, and amphibians.

In total, about 4.1 acres of grassland at the Beaver Lodge Station and 0.09 acre of grassland at the Pleasant Lake Station would be converted to industrial land by the project. Due to small nature of the project over a large geographic area, these acreages represent only a very small percent of available wildlife habitat on a regional basis. Additionally, local wildlife is generally adapted to the daily noise and ongoing operational activities at these stations. Therefore, impacts to wildlife are expected to be minimal.

EPND consulted with the NDGFD regarding potential impacts on wildlife and wildlife habitat, including endangered species. The NDGFD responded that

the project would not result in significant adverse impacts on wildlife or wildlife habitat, including endangered species.

D.2.c.(3) Plant Life

As stated above, about 4.2 acres of grassland would be converted to industrial land by the project. Since grassland is generally the only vegetative community present near the Beaver Lodge and Pleasant Lake Stations, vegetation did not play a factor in site selection.

D.2.d. Policy Criteria

Policy criteria are those factors which are positively affected by project that may lead the Commission to give preference to an applicant. These factors are discussed below.

D.2.d.(1) Location and Design

EPND has designed the proposed expansion project to take advantage of its existing facilities to the maximum extent practical. Proposed expansion at nine of the eleven stations will be conducted within the existing fenced, graveled facility. Expansion at the remaining two station facilities will be limited to the areas required to construct a new power substation and new 100,000 BBL storage tank. EPND considered an alternative location for the storage tank; however, the proposed location of the tank is the most economical and constructible option.

D.2.d.(2) Training and Utilization of Available Labor in This State for the General and Specialized Skills Required

The number of construction workers that would be hired locally during construction would vary depending on the contractor selected for the project. Pipeline and station construction requires qualified liquid petroleum pipeline station contractors, and it is unlikely that there are qualified local pipeline contractors capable of completing the project. If a non-local contractor is awarded this project, it likely that up to 75 percent of the workers would be



non-local. The remaining 25 percent would be hired from the local population currently residing in nearby areas of North Dakota.

EPND does not anticipate hiring additional permanent employees to operate the pumping stations. Operation of these facilities can be managed by the existing workforce.

D.2.d.(3) Economies of Construction and Operation

Crude oil and natural gas are North Dakota's leading mineral product, and North Dakota is the ninth largest producer of crude oil and natural gas in the country. The lack of space on existing pipelines in North Dakota has adversely affected the state's economy. It has resulted in a significant drop in price for petroleum produced locally and has prompted some local producers to close wells and postpone production. The proposed pumping station expansions would add additional capacity to North Dakota pipelines, boost the economy, and allow the state to capitalize on tax revenue gathered from production and extraction taxes.

Beneficial impacts on the economy would also result during construction from temporarily hiring local employees, and from a relatively large-scale, temporary influx of non-local construction workers. Unemployment in the area would see a temporary drop, and payroll taxes would temporarily rise.

Local businesses would benefit from demands for goods and services generated by the temporary workforce's need for food and lodging. In addition to purchases by workers, EPND would purchase some materials necessary for construction of the project locally. EPND estimates that local purchases made for construction of the project would primarily include consumables, fuel, equipment rental, and miscellaneous construction-related materials (e.g., office supplies).

D.2.d.(4) A Commitment of a Portion of the Transmitted Product for Use in This State

EPND does not own any of the crude oil in its system, and does not determine the destinations for the products transported by its system. EPND's business is to provide transportation service to its customers as a

common carrier, and to receive a fee for that service pursuant to tariffs authorized by the Federal Energy Regulatory Commission under the Interstate Commerce Act. Demand on our common-carrier pipeline system is currently for transport to Clearbrook so shippers can interconnect with Minnesota and Upper Midwest refineries. In the case of Minnesota refineries, the products processed at these refineries are, however, returned in part to meet the consumer and petro-chemical demand of the North Dakota producers.

D.2.d.(5) The Coordination of Facilities

As previously mentioned, EPND has designed the proposed expansion project to take advantage of its existing facilities to the maximum extent practical.

D.2.d.(6) Monitoring of Impacts

EPND is committed to protecting the environment and complying with all applicable environmental laws, regulations, and standards. EPND is proposing to implement environmental training and environmental inspection throughout the course of the project.

D.2.d.(6)(i) Environmental Training

To communicate the environmental requirements of the project to project personnel, EPND would require environmental training of all project personnel prior to construction. EPND would:

- require environmental training of all personnel (both contractor and EPND) visiting or working at the job site;
- require everyone who attends training to sign an acknowledgement form and be issued, as a proof-of-training, a copy of the training booklet and a hardhat sticker; and

- require all personnel to display a hardhat sticker when on a job site or dismiss personnel from the job site until it is obtained through completion of training.

D.2.d.(6)(ii) Environmental Inspection

Environmental monitoring, in the form of ongoing inspection, will be conducted during and following construction. Inspectors will monitor compliance with required environmental protection measures, permit conditions, and specifications, and provide ongoing oversight for day-to-day issues that may arise during construction. Contract specifications will incorporate environmental protection and mitigation measures, and contractors will be expected to implement these measures in the field. Contractor training and project orientation will also be provided by EPND.

D.2.d.(7) Utilization of Existing and Proposed Rights-of-Way and Corridors

As previously mentioned, EPND has designed the proposed expansion project to take advantage of its existing facilities to the maximum extent practical.

D.3 RELATIVE VALUE OF EVALUATION CRITERION

The proposed project involves the expansion of existing facilities. Therefore, the corridor or study area that was selected for evaluation was limited to the property owned by EPND at its existing pump station sites (see section D.1). Alternative options, which are discussed in section C.2, are not feasible for this project with the exception of the storage tank location at the Beaver Lodge Station. Two storage tank location options were evaluated in this application.

D.4 CRITERIA TO BE EVALUATED

- Exclusion Areas;
- Avoidance Areas;
- Selection criteria;
- Policy criteria;

- Design and construction limitations; and
- Economic considerations.

Complete descriptions, potential impacts, and mitigation measures relevant to the six criteria cited above are provided in section D.2.

D.5 GENERAL MITIGATIVE MEASURES TO BE TAKEN

Mitigation measures to minimize adverse impacts of the proposed project are identified throughout this document. In addition, EPND proposes to adopt its Environmental Guidelines for Construction (EGC), which is enclosed herewith as Exhibit G. EPND's EGC provides a more detailed discussion of the guidelines and mitigation measures that EPND would implement on this project. It was developed based on EPND's corporate experience implementing best management practices during construction.

In addition, EPND has developed a Spill Prevention, Containment and Control Plan (SPCCP) (see Exhibit H) that describes planning, prevention and control measures to minimize impacts of project-related spills during construction. The EGC and SPCCP are comprehensive, controlling documents that will be included in contract specifications.

Prior to construction of the project, Enbridge will assess the potential for encountering soil or groundwater contaminants that are within 500 feet of the existing stations. If a contaminant is discovered, Enbridge would follow internal guidelines to report the contaminant (see Exhibit I) and if necessary, developed and implemented appropriate avoidance or mitigation measures in accordance with applicable state or federal regulations.

D.6 QUALIFICATIONS OF PERSONS CONTRIBUTING TO THE STUDY

D.6.a. Jeff Mackenthun

Senior Analyst, Merjent, Inc.

Degree: BS, Environmental Studies, Bemidji State University

Experience: 10 years experience in pipeline environmental and regulatory compliance.

Other Training and Licenses: Professional Wetland Scientist – Society of Wetland Scientist; Certified Wetland Delineator – MN; FERC Environmental Compliance; FERC Environmental Report Preparation.

D.7 MAPS

D.7.a. Map of Evaluation Criteria within Study Area

EPND is enclosing herewith as Exhibit A, an overview map showing the configuration and related pump station sites of the its North Dakota pipeline system. EPND is also including as Exhibit B an aerial map showing location of each pump station proposed herein, and a Plot map depicting the location of each upgrade within the property owned by EPND (see Exhibit B.1 – B.11). Additionally, since EPND is submitting a consolidated application to amend its corridor certificate and route permit, a map of the ND PSC Exclusion and Avoidance Area as it relates to the Penn pump station upgrade is attached hereto as Exhibit B.9.

D.7.b. Mylar maps of study area.

Mylar maps have not been included with this application because this map producing process is no longer in use.