

4415.0170 EVIDENCE OF CONSIDERATION OF ALTERNATIVE ROUTES

If the applicant is applying for a pipeline routing permit under parts 4415.0045 to 4415.0100, the applicant shall provide a summary discussion of the environmental impact of pipeline construction along the alternative routes consistent with the requirements of parts 4415.0140 to 4415.0145 and the rationale for rejection of the route alternatives.

The Applicants studied a variety of alternatives for routing. These alternatives consist of system alternatives, route alternatives, and route variations. The Applicants evaluated and compared several factors, including the ability to meet project objectives, technical and economic feasibility, and potential environmental impacts for each alternative.

The following sections describe the Applicants' process for selecting the project route and provide an analysis of alternatives. A detailed discussion of route alternatives is provided in Section 2.0, "Route Selection and Alternatives Analysis" of the Environmental Assessment Supplement. See Tab C of the Routing Permit Application docket as PL9/PPL-07-361.

The Applicants conducted extensive surveys and research to identify the optimal route for the project. Typically, the safest and least environmentally damaging route is within an existing right-of-way. Enbridge's existing Lakehead pipeline system provides some opportunities to use existing right-of-way and significant opportunities for collocation with the proposed project. Maximizing use of this existing Enbridge right-of-way for the project will decrease both environmental and land acquisition costs. However, in some cases, it may be advantageous to deviate from an existing right-of-way in congested or environmentally sensitive areas. These locations represent approximately 5.3 miles of deviations from the currently existing Enbridge right-of-way. Of these, approximately 1.7 miles occur in locations directly adjacent Enbridge Pipeline (Southern Lights) L.L.C.'s proposed Southern Lights 20-inch Crude Line, or "LSr Project" (MN PUC Docket No. PL9/PPL-07-360) between the Minnesota/North Dakota border in Kittson County and Clearbrook, Minnesota. None of the alternatives were adopted as the preferred route.

The Applicants identified and evaluated several options for routing its projects. These studies were designed to define a pipeline route that achieves respective project objectives, is technologically and economically feasible to construct, and minimizes impacts on landowners and the environment. The following sections provide a general discussion of the route selection process, an analysis of the various route alternatives evaluated for the projects, and a detailed comparison of minor route alternatives.

Initial Route Selection Process

During initial route studies, the Applicants determined that the projects should parallel its existing system from Neche, North Dakota to Superior, Wisconsin. However, this Enbridge right-of-way already contains multiple pipelines and in some instances, crossings, workspace, or right-of-way is constrained by the presence and proximity of these multiple existing pipelines. The Applicants

assessed the route from Neche, North Dakota to Superior, Wisconsin with the intent of maximizing the use of existing Enbridge right-of-way to the extent feasible while identifying specific areas where collocation may not be feasible. For environmental review purposes the Applicants analyzed environmental data and the proposed route based on the assumption that the previously proposed LSr Project would be present from the North Dakota/Minnesota border to Clearbrook, Minnesota.

The first step in the route selection process consisted of collecting publicly available environmental data to identify routing constraints. The sources of data consisted primarily of Geographic Information Systems (GIS) digital information layers including U.S. Geological Survey (USGS) topographic maps; USGS land use database; U.S. Department of Agriculture (USDA) Farm Services Agency 2003 and 2005 aerial photography; National Wetlands Inventory (NWI) maps; Minnesota Department of Natural Resources (MDNR) county biological survey maps; MDNR Natural Heritage information System database; Minnesota Department of Transportation (MDOT) highway maps; USDA state soil geographic (STATSCO and SSURGO) databases; and other natural feature databases obtained from the “data deli” on the MDNR website. The Applicants also consulted with the MDNR to identify other environmental routing constraints that may not be included in these publicly available data.

The next step involved mapping selected layers of the collected GIS data on 1:24,000-scale USGS topographic maps to identify the locations of environmental constraints within the study area. Existing major utility right-of-ways also were identified for potential use in collocation. Collocating the projects with the existing Enbridge right-of-way, generally on the southern/western edge of the right-of-way, between Neche and Superior was determined to be the initial route.

Refined Route Selection Process

The Applicants conducted a number of route reconnaissance efforts to further examine specific areas of concern identified during the desktop review. During the field review, the route was examined and adjustments were made to avoid or minimize potential impacts on sensitive environmental features, adjust for preferred construction alignment, or to accommodate landowner concerns. Further refinement of the route was completed as detailed engineering design efforts led to identifying specific facility modifications/additions. Enbridge’s existing pipeline right-of-way provides for collocation and use of existing right-of-way, but in some locations it may not be feasible to use existing right-of-way because of congestion, poor crossing conditions, or other constraints on the existing right-of-way. The Applicants completed the route refinement process after engineering, environmental, and landowner issues were identified and addressed.

The following sections provide a summary of the major and minor route alternatives identified as a result of these efforts. For environmental review purposes the analysis of environmental data includes both projects as they will be co-constructed south of Clearbrook. As stated in section 2.2.1 of the Environmental Assessment Supplement, environmental review north of Clearbrook was performed based on the assumption that the previously

proposed LSR Project would be present between the North Dakota/Minnesota border and Clearbrook, Minnesota.

Comparison of Major Route Alternatives

The Applicants conducted a detailed quantitative analysis of environmental impacts along each major route alternative. This analysis used the same sources of publicly available environmental data described above in the Initial Route Selection Process, supplemented by field reviews. The analysis primarily focused on land use issues and wetland and waterbody crossings. In total, the Applicants identified and compared a variety of factors for each route, including: total length, proximity to an existing right-of-way, NWI-mapped wetlands and forested wetlands, highly wind erodible soils, depth to water table, hydric soils, agricultural land, forest and herbaceous lands, intermittent and perennial waterbodies, railroads, roads, and major highways.

After review, the Applicants identified two major route alternatives in Minnesota for the project; the Great Lakes Gas Alternative and the Fond du Lac Alternative. Evaluation of the Great Lakes Gas Alternative corridor led to the selection of the current Enbridge corridor as the preferred, and therefore the proposed route. The route provides better access for construction and operation, and avoids an area of significant biodiversity along the Great Lakes Gas Alternative corridor and better accommodates future facility expansion.

While the existing Enbridge corridor through the Fond du Lac Indian Reservation is preferred, the Fond du Lac Alternative remains a viable corridor given the uncertainty of favorable easement negotiations with the Fond du Lac Band within the reservation. The Applicants will notify landowners of the Projects along both routes until such time when a definitive route is selected.

Refer to Section 2.2.3, “Comparison of Major Route Alternatives” of the Environmental Assessment Supplement for a detailed discussion of the major route alternatives considered for the projects. See Tab C of the Routing Permit Application docket as PL9/PPL-07-361.

Comparison of Minor Route Alternatives

The Applicants reviewed areas along the preferred route where construction of the project will pose challenges due to impingements on the construction right-of-way from existing features. As with the analysis of major route alternatives, a detailed quantitative analysis of environmental impacts was conducted along each minor route alternative. The Applicants identified 7 minor route alternatives in Minnesota for the projects. None of the alternatives were adopted as the preferred route.

Refer to Section 2.2.4, “Comparison of Minor Route Alternatives” of the Environmental Assessment Supplement for a detailed discussion of the minor route alternatives considered for the projects. See Tab C of the Routing Permit Application docket as PL9/PPL-07-361.