



Basis of Estimate

Line 3 Replacement Deactivation Cost Estimate

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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

The scope of the project in relation to deactivation is to remove the pipeline and related facilities, which previously transported crude oil, from the ground through the State of Minnesota. Enbridge's US Line 3 Replacement pipeline route begins at the Joliette Valve near Neche, North Dakota, and extends 343 miles across Minnesota to the Superior terminal at Superior, Wisconsin. Approximately 330 miles of the route is located in Minnesota. As part of the project there will be new pump stations constructed adjacent to the existing Donaldson, Viking and Plummer pump stations and a permanent expansion of Clearbrook terminal including a new pump station. New pump stations will also be constructed at Two Inlets, Backus, Swatara and North Gowan.

1.2 DEACTIVATION COST ESTIMATE

The Minnesota Public Utilities Commission directed Enbridge to provide a Deactivation Cost Estimate ("DCE") for the Line 3 Replacement Project, similar to what is required by the National Energy Board ("NEB") in Canada for NEB regulated pipelines.¹ This estimate will be used to determine the amount of money that needs to be available in the Decommissioning Trust Fund being established for the Line 3 Replacement project. The L3R DCE followed the NEB methodology, where applicable.

2.0 ESTIMATE METHODOLOGY

Following the NEB's methodology, Enbridge has estimated the costs for all activities required to permanently deactivate (or in NEB terms, abandon) L3R including engineering and project management, permanent deactivation preparation, special treatment for crossings, pipeline removal, facilities removal and contingency. Enbridge obtained L3R specific estimates from contractors or applied information on costs from the construction of L3R, where it was determined that the NEB's unit costs for Canada would likely not apply. The following sections provide a description of how the estimate was calculated.

2.1 ENGINEERING & PROJECT MANAGEMENT

The NEB methodology uses a cost factor approach to the Engineering & Project Management costs for the DCE, which may include the following costs: regulatory, legal and finance support, external relations and land support, environment, health and safety support, operations support, stakeholder consultation, detailed cost estimates, planning, applications, detailed engineering and environmental studies, engineering and project management, construction management, project and cost control.

The factors are based on the length of the pipeline project and apply the factor to the sum of the costs in the following categories: Deactivation Preparation, Pipeline Deactivation-in-place, Special Treatment areas, pipeline removal and facilities costs.

The factors are as follows:

¹ The MPUC's Order Granting Certificate of Need as Modified and Requiring Filings refers to the process as Decommissioning. Where appropriate, and for consistency with filings with the NEB upon which this condition is based, Enbridge uses "deactivation" and "decommissioning" in this document. They are not intended to have different meanings.

If Pipeline deactivation project is:	Apply
<50 km (<31mi)	20%
50 to 500 km (31 to 311mi)	10%
>500 km (>311mi)	5%

For the purposes of the L3R DCE, the length of the pipeline removal in Minnesota is approximately 330 miles. This would result in the NEB cost factor of 5%.

2.2 PERMANENT DEACTIVATION PREPARATION

Part 2 of the NEB methodology, Abandonment (or Deactivation) Preparation, is broken in to two sub-sections: “Land access and Clean up” and “Pipeline Purging and Cleaning”.

2.2a Land Access and Clean up

The scope of activities in the NEB methodology in this section includes: access rights and permits, temporary work space, damages, re-establishing survey markers, as-built survey, updating GIS, and discharge rights.

For the L3R DCE, the above costs were taken from the estimates of the construction phase of L3R and applied to the DCE, as they are expected to be similar for the removal and deactivation as they would be for installation.

2.2b Pipeline Purging and Cleaning

The scope of activities in the NEB methodology in this section includes: pump or draw down gas; pipeline pigging; cleaning and purging, including pre-cleaning pig runs, isolating pipe sections, final cleaning pig runs, testing pipe for cleanliness; and waste storage and disposal.

For the L3R DCE, a request for proposal (“RFP”) was sent to a cleaning contractor, to which a cost estimate was provided for the purging and cleaning scope. Additionally, actual costs from a recent project were used to estimate the costs for purging and cleaning support, including cleanliness testing, and waste storage and disposal.

2.3 PIPELINE DEACTIVATION-IN-PLACE

The NEB methodology includes a section for Abandoning (or Deactivating) a pipeline in place. For the purpose of the L3R DCE, this section is assumed to be not applicable as the estimate will include the removal of all pipe, except for those sections of pipeline that required special treatment, which fall within Section 2.4, Special Treatment.

2.4 SPECIAL TREATMENT

The NEB methodology includes an estimate for specific sections of the pipeline that require special treatment for abandonment (or deactivation), such as horizontal direction drills (“HDD”), and major roadway crossings, railroad crossings or river crossings that are crossed by bore. For the L3R DCE, the

assumption is that these sections will not be removed, but will be cut, capped and filled with a grout material.

For the L3R DCE, a RFP was sent out to a pipeline contractor for the removal of the pipeline, with a request for the sections of pipe that are installed via HDD or bore to be cut, capped and filled with a grout material. The contractor provided this estimate separate from the removal scope.

2.5 PIPELINE REMOVAL

Part 5 of the NEB methodology, Pipeline Removal, is broken in to two sub-sections: "Pipeline Removal and Backfilling" and "Pipeline Removal – Land Restoration".

2.5a Pipeline Removal and Backfilling

The scope of activities in the NEB methodology in this section includes: removing impediments and topsoil stripping, excavation, cutting and capping of pipelines, cutting of pipeline sections and removal to stockpile, loading and hauling of removed lines, disposal of lines, coating and associated facilities, backfill, and compaction.

For the L3R DCE, the above costs were provided by a contractor in response to the RFP that was sent requesting removal costs.

2.5b Pipeline Purging and Cleaning

The scope of activities in the NEB methodology in this section includes: restoration, reclamation and remediation of contamination, fencing and clean-up, soil decompaction, re-vegetation, and inspection of removal activities.

For the L3R DCE, the above costs were provided by a contractor in response to an RFP that was sent requesting removal costs.

2.6 FACILITIES

Part 6 of the NEB methodology, Above-Ground Facilities, is broken in to thirteen sub-sections, based on separate parts of the facility. A cost estimate for each sub-section was provided by the contractor as part of the RFP response. The unit price removal costs were then applied to each of the 8 facilities and mainline valve sites along the route in Minnesota. The sub-sections break down the unit price removal costs into the following categories

- a. Meter Manifold
- b. Valve Manifold
- c. Electrical Building
- d. Maintenance Building (not applicable – no maintenance buildings at stations)
- e. Above Grade Tank (not applicable – no tanks installed for L3R)
- f. Booster Pump Station (not applicable – no booster pumps on L3R)
- g. Below Grade Sump Tank
- h. Mainline Valve - Remote
- i. Mainline Valve - Manual (not applicable – no manual mainline valves)
- j. Mainline Instrument Building
- k. Pig Trap Assembly
- l. Pump Station (separated by pump configuration)

- 2-pump configuration
 - 3-pump configuration
 - 4-pump configuration
- m. Terminal Piping (not applicable – included in above estimates for L3R scope)

2.7 CONTINGENCY

The NEB methodology provides for a contingency inclusion in the DCE calculation. Enbridge uses the NEB approved factor of 13% of the entire cost estimate, with the exception of the Engineering & Project Management and provisions for post deactivation activities.

3.0 DEACTIVATION COST ESTIMATE

	Category	Total
1	Engineering & Project Management	\$42,000,000
2	Permanent Deactivation Preparation	\$61,000,000
3	Pipeline Deactivation-in-Place	N/A
4	Special Treatment (HDDs/Bores)	\$6,000,000
5	Pipeline Removal	\$750,000,000
6	Facilities	\$16,000,000
7	Contingency	\$108,000,000

Total **\$983,000,000**