Evaluation of the Regulatory Review Process for Pipeline Expansion in Canada: A Case Study of the Trans Mountain Expansion Project

by

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Ethics Statement

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Abstract

A good review process ensures government agencies approve projects which are in the public's interest and reject those that are not. Recently, the Canadian review process for pipelines has undergone scrutiny with numerous studies pointing to major flaws. This report presents a case study evaluation of the regulatory review and approval process for the Trans Mountain Expansion Project. The Project review process led by the National Energy Board is evaluated relative to nine best practices based on a survey of intervenors in the hearings. The main conclusion is that the review process does not meet any of the best practices and is deficient. Even so, intervenors largely agreed on how it could be improved. The results are also compared to a similar study evaluating the Enbridge Northern Gateway Project Joint Review Process, and the conclusions attained were similar. This report aims to contribute to improving the Canadian review process.

Keywords: pipeline; review process; Trans Mountain Expansion Project; best practices; evaluation framework; National Energy Board

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List of Acronyms

BP	Best Practice
BC	British Columbia
BC EAO	British Columbia Environmental Assessment Office
bpd	Barrels per day
CEAA	Canadian Environmental Assessment Agency
CEAA 2012	Canadian Environmental Assessment Act 2012
ENGP	Enbridge Northern Gateway Project
GHG	Greenhouse Gas
GIC	Governor in Council
JRP	Joint Review Panel
KM	Kinder Morgan
KMC	Kinder Morgan Canada
MOE	BC Minister of Environment
NEB	National Energy Board
NEBA	National Energy Board Act
SFU	Simon Fraser University
TERMPOL	Technical Review Process of Marine Terminal and Transshipment Sites
TM	Trans Mountain Pipelines
TMEP/ The Project	Trans Mountain Expansion Project
TMEP NEB Panel	Trans Mountain Expansion Project National Energy Board Panel

Chapter 1.

1.1. Introduction

The objective of this research project is to evaluate the Canadian pipeline approval process through a case study analysis of the Trans Mountain Expansion Project (also referred to as 'TMEP' and 'The Project' in this report). The pipeline is proposed by Trans Mountain Pipelines (TM), an energy transportation and distribution company that intends to triple the capacity of the existing 1,150 km Trans Mountain pipeline that transports oil from Alberta to British Columbia (BC) and Washington State. (TM, 2013a). TM proposes to reactivate sections of the current pipeline, enlarge storage terminals, create new pump stations and expand the marine terminal in Burnaby. The heavy oils will be shipped to the United States and to Asian markets (TM, 2013a; Gunton et al., 2015). TM filed the TMEP's application before the National Energy Board (NEB) on December 16, 2013, and received the NEB's approval recommendation on May 19, 2016, and the federal government's approval on November 29, 2016 (TM, 2013a; NEB, 2016a; NEB, 2016b). Construction is anticipated to begin in 2017 and continute until 2019, with an overall estimated capital cost of $7.4 billion as of March 2017 (TM, 2017). Hence, the Project will have economic, social and environmental implications for the two involved provinces, as well as for all of Canada.

1.2. Background and Context

Proposed pipelines in Canada must undergo a regulatory review and approval process in accordance with federal legislation including the *Canadian Environmental Assessment Act 2012 (CEAA 2012*) (S.C. 2012, c. 37) and the *National Energy Board Act (NEBA)* (R.S.C., 1985, c. N-7). They are also subject to provincial statutes of the impacted provinces, such as the BC *Environmental Assessment Act (*BC *EAA)* (S.B.C. 2002, c. 43) and the Alberta *Environmental Protection and Enhancement Act (AEPEA)* (R.S.A. 2000, c. E-12) in the case of the TMEP.

Large pipeline projects often overlap different jurisdictions and therefore can be subject to different review processes administered by each jurisdiction (Sadler, 1996). To reduce overlap, the review and approval process may be undertaken by a Joint

Review Process (JRP), under s.40 of the *CEAA 2012* and cooperation agreements between the federal and provincial governments (CEAA, 2016a). In the case of the TMEP review, the federal environmental review under *CEAA 2012* and under the *NEBA* were administered as a joint review under the NEB. BC and Alberta also integrated their respective environmental reviews with the federal review under cooperation or equivalency agreements. The integrated review process administered by the TMEP NEB Panel was designed to comply with the provisions of the *NEBA,* with the responsible authority section of the *CEAA 2012,*and the cooperation and equivalency agreements of the provincial legislation of the provinces involved. Therefore, the term "joint" is used in this report to indicate that the panel is responsible for reviewing the TMEP under several acts. The panel for the TMEP will be referred to as the “NEB Panel” or “the Panel” for consistency.

1.3. Purpose and Objective

The purpose of this research is to evaluate the TMEP review process, based on an evaluation framework using best practice criteria (BP) developed by Roggenbuck (2015), Joseph (2013) and Van Hinte et al. (2007). This evaluation framework consists of identifying BPs for major project reviews based on a literature review, and evaluating the review process relative to these BP criteria (Joseph, 2013). The framework has been applied to proposed oil and gas pipeline projects in Canada by Van Hinte et al. (2007), Wozniak (2007), Broadbent (2014), and Roggenbuck (2015). This project will apply the same evaluation framework that was used by Roggenbuck (2015) to evaluate the ENGP.

The objective of this research is to assess the degree to which each of BPs are met by the TMEP review process through a survey of stakeholders involved in the hearings. The findings will be compared to Roggenbuck’s results from the evaluation of the Enbridge Northern Gateway Project Joint Review Panel (ENGP JRP). This method will identify strengths and weaknesses in the TMEP review process and make recommendations for improving it.

1.4. Case Study Overview

The Trans Mountain Expansion Project is intended to increase the existing pipeline's capacity from 300,000 oil barrels per day (bpd) to 890,000 bpd (TM, 2013a). The expansion twins the existing pipeline, running from Edmonton, Alberta to Burnaby, British Columbia. Once at the Westridge Marine Terminal in Burnaby, the heavy oil will be shipped to the United States Midwest and to Asia Pacific markets (TM, 2013a; Gunton et al., 2015). TM believes Canadian oil can be sold at more competitive prices if shipped to international markets (TM, 2013a). TM states that the TMEP will strengthen Canada's economy and bring tax revenue and royalties to both the involved provinces and the federal government, which can be invested to benefit Canadians (TM, 2013a). The project will also have potentially adverse impacts on the environment, economy, and socio-cultural systems (Gunton et al., 2015).

The expansion is controversial. Many stakeholders participating as intervenors in the NEB hearings oppose the TMEP due to concerns over adverse environmental impacts (TM, 2013a; Gunton et al., 2015). Intervenors are individuals or groups directly affected by the pipeline or who have expertise to contribute during the pipeline's evaluation (NEB, 2013a). Several Aboriginal groups voiced their opposition through media and court challenges (Jang, 2015; Hoekstra, 2015; Bailey, 2017). For example, the Tsleil-Waututh First Nation addressed issues around the duty to consult First Nations, a constitutional right, through its court case against the NEB and the Canadian federal government (Jang, 2015). Other issues addressed by non-profit environmental organizations, such as Living Oceans and Raincoast Conservation Foundation, were the lack of oral cross-examination and the failure to consider climate change (Living Oceans and Raincoast Conservation Foundation, 2016).

Potential environmental impacts highlighted in the EA process contribute to the growing concerns among stakeholders. For instance, construction and operation would adversely impact local air quality and cause noise pollution disturbing local communities and wildlife (Simpson, 2015; NEB, 2016a). The increased marine shipping traffic could harm marine populations, such as the Chinook salmon and killer whale pods, both important resources for BC (Lacy et al., 2015). Oil spills which may occur along the pipeline route, or from terminal or tankers, may damage fragile ecosystems, property

values, and communities. Spills along the coast would affect aquaculture, ecotourism, and other operations such as utility lines and ferry landings (NEB, 2016a).

1.5. Rationale

Given the controversy and potential adverse impacts associated with the TMEP and other pipeline proposals, it is important to have an effective review process that provides the information necessary to make sound decisions and has the confidence of all stakeholders and the public. The findings of this research will evaluate the process and identify how to improve the review and approval process to meet this objective. This research will be relevant to improve the review process for major projects both in Canada and in other countries.

Past studies have shown that Canadian review panels of proposed projects do not meet all BPs. Van Hinte et al. (2007) evaluated the CEAA and NEB project assessment process, finding flaws in the review process according to EA good practices. The study showed that the review process had a lack of adequate decision-making criteria, evaluation methods, consideration of alternatives for the project, and did not adequately address equity and compensation issues. Moreover, Wozniak (2007) highlighted deficiencies in the review process of the Mackenzie Gas Project (MGP), mainly the lack of transparency. Roggenbuck (2015) evaluated the ENGP JRP and also found deficiencies in the consultation process, compensation plans and decision criteria. This research will build on this previous research by completing the first comprehensive evaluation of the TMEP review process.

1.6. Methodology

The evaluation of the TMEP's review and approval process will use the following evaluation framework (Roggenbuck, 2015) (Figure 1.1):

1. Describe the Trans Mountain Expansion Project and its potential impacts;
2. Describe the current approval and regulatory process for the project;
3. Identify best practice criteria for major project reviews based on a literature review;
4. Evaluate the review process for the project relative to the best practice criteria based on a survey of intervenors in the TMEP process and an examination of the evidentiary record;

5. Make conclusions and recommendations for improving the review process for major energy projects.

1. Describe the Trans Mountain Expansion Project and its potential impacts.

The first step is to provide an overview of the TMEP. The description is based on information provided on the TM website, the NEB's TMEP web page and the TM's project application, supplemented by evidence submitted by intervenors.

2. Describe the current approval and regulatory process for the project.

The next step is to describe the current review process. The Province of British Columbia website (2015) and Government of Alberta's Environment and Sustainable Resource Development annual report (Alberta Government, 2015) contains relevant information regarding provincial jurisdiction, both past and present, over the review process. The NEB website and the CEAA website describe the relevance of federal jurisdiction over both the review and approval processes. Finally, the *NEBA* and the *CEAA 2012* outline the legal requirements that the review process must follow.

3. Identify best practice criteria for major project reviews based on a literature review.

The 18 best practice criteria (BP) used in this evaluation were developed by Van Hinte et al. (2007) and Joseph (2013), and adapted to pipeline reviews by Roggenbuck (2015). The survey was also adapted from Roggenbuck (2015), with several minor changes. The survey questions were grouped into nine themes (Roggenbuck, 2015).

4. Evaluate the review process for the project relative to the best practice criteria based on a survey of intervenors in the TMEP process and an examination of the evidentiary record.

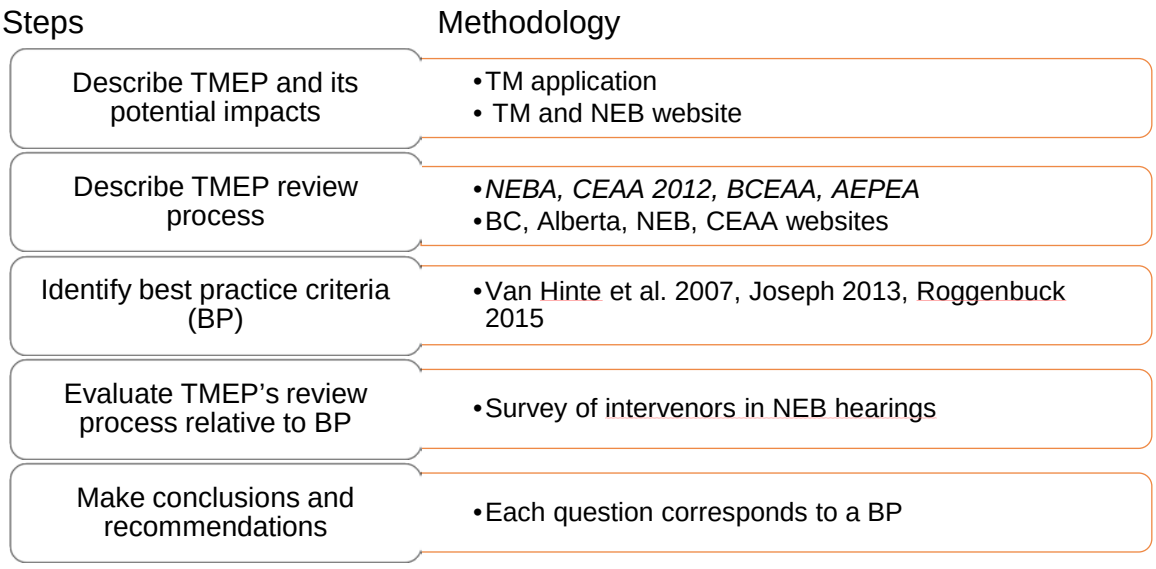
The survey was sent to all 412 intervenors in the TMEP NEB hearing process. The intervenors were diverse, including First Nations, government agencies, members of the public, industry, academia, non-governmental organizations and environmental groups. Their correspondence information was found on the NEB online registry database for the TMEP. Respondents were asked a series of Likert-scale, multiple choice and open-ended questions to determine their level of agreement on questions

tailored to evaluate the review process based on BP. The review process was also evaluated based on a brief comparison with results from the evaluation on the ENGP JRP, which used a similar methodology (Roggenbuck, 2015).

5. Make conclusions and recommendations for improving the review process for major energy projects.

This research assessed the degree to which best practice criteria were met. It identified the strengths and weaknesses of the review process, as well as the level of support for certain reforms from participating intervenors. This report provides recommendations for mitigating deficiencies using the responses from the open-ended questions and conclusions from the statistical summaries and comparisons with ENPG.

Figure 1.1 Evaluation Framework of the TMEP Review and Approval Process



1.7. Report Outline

This report is divided into five chapters. Chapter one provides an overview of the case study by describing the proposed pipeline project and the background of its regulatory review. Chapter two describes the TMEP project by giving an overview of the Project's key components, location, timeline, benefits, alternatives and potential impacts. Chapter three provides more detail about the TMEP regulatory review and approval process. It describes the associated legislation, agencies involved and the process that led to the formation of the NEB Panel for the TMEP. Chapter four is the analysis of the

survey results, supplemented by findings from the literature review. It also briefly compares the findings to ENGP (Roggenbuck, 2015). Chapter five summarizes the key findings, explains the key lessons from the comparison and provides recommendations for future reviews and direction for future research.

Chapter 2.

2.1. Introduction

This chapter provides an overview of the Trans Mountain Expansion Project (TMEP) and of the company proposing it, Trans Mountain Pipelines (TM). It begins with an overview of TM's history and current operations (2.2), including their intentions with the TMEP (2.3) and justification for its need (2.4). The chapter then summarizes the project's components (2.5), location (2.6) and timeline (2.7). It also overviews the scope of the TMEP's environmental assessment (2.8), potential environmental effects (2.9) and alternatives (2.10).

2.2. Company Overview

Kinder Morgan is a Texas-based energy company that started as Kinder Morgan Energy Partners (KMP), founded in 1997 (KM, 2015a). It grew through master limited partnerships and assets in refined petroleum pipelines, CO_2 production and transportation pipelines. After partnering with Natural Gas Pipeline Company of America, KMP turned into Kinder Morgan Inc. (KMI) (also known simply as Kinder Morgan (KM)). Other businesses within KMI include Natural Gas Pipelines, Products Pipelines, CO_2 and Terminals. As the largest energy infrastructure company in North America, KM employs 11,000 people and operates approximately 135,185 km of pipelines and 155 terminals (KM, 2015b). The pipelines transport natural gas, refined petroleum products, crude oil and carbon dioxide, while the terminals store gasoline, jet fuel and coal, among other products (KM, 2015b).

The Canadian division, Kinder Morgan Canada (KMC), currently operates 1,296 km of pipelines out of Calgary, Alberta, transporting approximately 20% of all liquid petroleum produced in Alberta (KMC, 2013). Their projects include: Trans Mountain pipeline system, Cochin pipeline system, Puget Sound pipeline system, Jet Fuel pipeline system, Westridge Marine Terminal, Vancouver Wharves terminal (BC) and North Forty terminal in Edmonton, Alberta (KMC, 2013). The Trans Mountain pipeline is the main component of the Trans Mountain pipeline system (TMPL). The TMPL was acquired when KM purchased Terasen Inc. in 2005, the Canadian company which owned many

natural gas distribution utilities in BC (KM, 2005). KMC also has recently completed four projects and has two projects still under construction (Table 2.1) (KM, 2015c). The TMEP is the only major new project currently proposed by KM in Canada. In the literature, the proponent may be referred to as Kinder Morgan, Kinder Morgan Canada, Trans Mountain, Trans Mountain Pipelines or Trans Mountain Pipeline ULC. In this report, the proponent will be referred to as Trans Mountain Pipelines (TM) for consistency.

Table 2.1 KMC Projects and their relation to the TMEP

Projects	Status	Relation to TMEP
Trans Mountain Expansion Project (TMEP)	Proposed in 2013	Main pipeline system
Base Line Terminal	Announced March 31, 2015 and in service second half of 2017	12 tanks with a capacity of 4.8 million barrels
Edmonton South Rail Terminal	Completed in 2015	South of existing Kinder Morgan Edmonton terminal
Edmonton Terminal Expansion Project	Completed in 2014	Expanded the existing TMEP terminal with 35 tanks and a capacity of 8 million barrels in Sherwood Park, AB
Alberta Crude Terminal	In service since 2014	TMEP terminal with 20 loading spots and a capacity of 40,000 bpd in Edmonton, AB
Trans Mountain Pump Station Expansion	Completed in 2007	Added 10 new pump stations along TMPL system
Anchor Loop Project	Completed in 2008	Twinned a 159 km section of TMPL and two new pump stations

Source: KM, 2015c

2.3. Project Description

TM intends to triple the capacity of the existing 1,150 km Trans Mountain pipeline, and transport oil across Alberta and British Columbia to international markets and Western Canada (KMC, 2013). The original Trans Mountain pipeline was built in 1953 and is still in operation. The expansion twins the existing pipeline, running from Edmonton, Alberta to Burnaby, British Columbia. It would increase the pipeline's capacity from 300,000 oil bpd to 890,000 bpd. The project also intends to reactivate sections of the current pipeline, enlarge storage terminals (i.e. in Burnaby, Sumas and Edmonton), create new pump stations (currently 23 active pumps and 40 petroleum

storage tanks) and expand the Westridge Marine Terminal in Burnaby. Once at the marine terminal, the heavy oils will be shipped by tanker to the United States Midwest and to Asia Pacific markets (KMC, 2013a; Gunton et al., 2015). TM planned to commence construction of the TMEP in September of 2017, with completion in 2019, with an overall estimated capital cost of $7.4 billion as of March 2017 (TM, 2013c; NEB, 2016a; TM, 2017).

2.4. Need for the Project

TM justifies the need for the expansion project by stating the need to provide additional pipeline capacity to transport increased Canadian oil production to new markets in the Pacific Rim, specifically the Canadian West Coast, Washington State, California, and Asia. As demand grows in these West Coast and offshore markets, Western Canadian oil producers and West Coast refiners have requested further oil transportation services (TM, 2015a). Shippers have committed to long-term financial contracts, comprising 80% of the TMEP's capacity (TM, 2015a; Allan, 2014). The contracts were signed by 13 companies that entered into 15 and 20 year agreements for a total volume of 707,500 bbl/d (TM, 2015b). The companies include: BP Canada Energy Trading Company, Canadian Natural Resources, Canadian Oil Sands Limited, Cenovus Energy Inc., Devon Canada Corporation, Husky Energy Marketing Inc., Imperial Oil Limited, Nexen Marketing Inc. Stratoil Canada Ltd., Suncor Energy Marketing Inc., Teroso Refining and Marketing Company, and Total E&P Canada Ltd. (TM, 2013i). The remaining percentage of shipment operations (20%) is reserved for spot shippers. As of March 2017, TM reported regaining full commitment from shippers, despite a dip in commitment by three per cent (i.e. 22, 000 bpd) in previous weeks (Bengaluru, 2017).

TM claims that shipping to international markets will allow Canadian oil to be sold at higher prices, which will increase revenue to the federal and involved provincial governments and increase the returns for Canadian oil producers. It is estimated by TM consultants that the higher oil prices attained by shipments on TMEP will generate an extra $23.7 billion in government tax revenue and 123,221 direct, indirect, and induced person-years of employment during the construction and operation of the project, which translates into 443 direct permanent jobs (The Conference Board of Canada, 2014).

2.5. Components

TMEP includes the construction of new pipeline segments and the reactivation of existing lines, as well as the building of facilities such as expanding marine terminals by adding new tanks and docks, new pump stations and power lines (TM, 2013a). The five pipeline segments are divided by location: (1) Edmonton, AB to Hinton, AB; (2) Hargreaves, BC to Darfield, BC, (3) Black Pines, BC to Hope, BC, (4) Hope, BC to Burnaby, BC and (5) Burnaby, BC to Westridge, BC (Figure 2.1). The first three (1-3) consist of new buried pipeline segments, summing to 987 km. The last two (4-5) involve the construction of two parallel 3.6 km buried segments. Additionally, two segments will reactivate the existing pipeline, from Hinton, AB to Hargreaves, BC (150 km) and from Darfield, BC to Black Pines, BC (43 km) (Figure 2.1). The pipeline segments range in diameter between 610mm to 762mm.

The Burnaby Terminal would connect to the Westridge Marine Terminal through two parallel 3.6 km buried delivery lines. TM will construct 20 new tanks at the Edmonton (5), Sumas (1) and Burnaby (14) terminals, and will demolish two existing tanks in Edmonton and Burnaby. These terminals currently have 57 tanks with a combined capacity of approximately 1,718,690 cubic meters (10,810,000 barrels). A dock able to host three Aframax vessels will be constructed at the Westridge Marine Terminal (TM, 2013a).

The Project includes 12 new pump stations at regular intervals along the pipeline (Figure 2.1) (TM, 2013a). Niton pump station would be reactivated and another pumping unit would be added to the Sumas pump station. The Project will also use the three existing pump stations (Edmonton, Edson, and Kingsvale). The electrical power for the pump stations would be supplemented by new power lines, approximately 4 km in length to the Black Pines station and 24 km to Kingsvale.

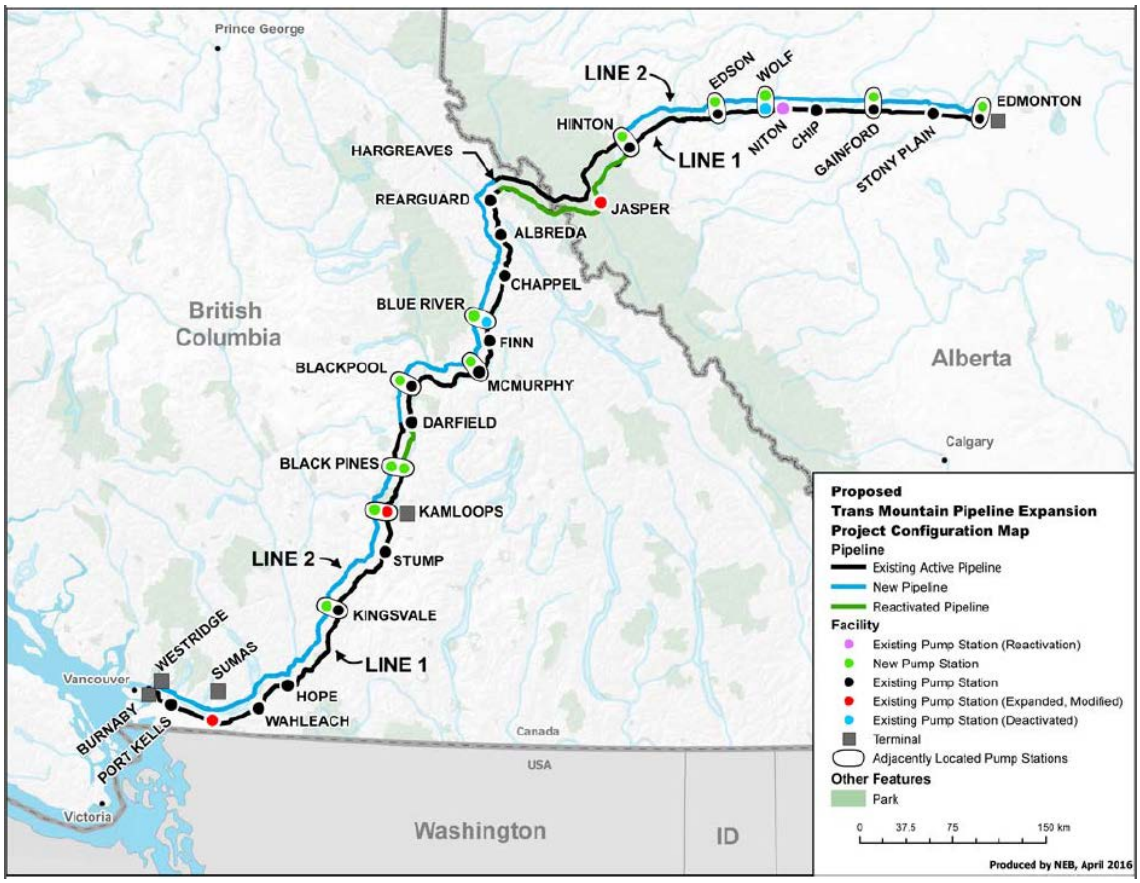
2.6. Location

TM plans to duplicate 89% of the existing pipeline right-of-ways (TM, 2013c). Therefore, 340 km of the pipeline right-of-way are located within Alberta and 651 km within British Columbia (Figure 2.1) (TM, 2013f; TM, 2013a). The expansion will run parallel to the current Trans Mountain for 73% of the total route. Sixteen per cent will run

through already disturbed terrain designated for infrastructure development and the remaining 11% will be new routes. The expansion pipeline would begin on the east side of Edmonton in Stratchona County, running through an existing right-of-way in the City of Edmonton, Alberta. The pipeline would take oil from the Western Canadian Sedimentary Basin and transport it to the City of Burnaby for export. The pipeline would cross through the Rocky Mountains, through a set route developed by the 2008 Anchor Loop Project. It would then traverse rich farmlands (cultivated and non-cultivated), industrial and urban development, and woodlands in Kamloops, the Fraser Valley and the Lower Mainland in BC. The land types include provincial lands, Crown federal reserve land, municipal and private lands. The pipeline would cross ten physiographic regions: Eastern Alberta Plains, Western Alberta Plains, Southern Alberta Uplands, Rocky Mountains, Rocky Mountains Trench, Columbia Mountains, Shuswap, Thompson, Cascade Mountains and Georgia Depression (TM, 2013f, Appendix H).

The Project would have 1,163 potential watercourse crossings, with 393 located in BC, and of which 202 are fish-bearing (TM, 2013e; NEB, 2106a). It would cross 4 major drainage basins and 21 watersheds. The pipeline would cross 66 Old Growth Management Areas (OGMAs) in BC, 538 wetlands, and four parks and protected areas in BC (i.e. Finn Creek Provincial Park, North Thompson River Provincial Park, Lac Du Bois Grasslands Protected Area, and Bridal Veil Falls Provincial Park). The TMEP oil tankers will mainly travel along an established shipping route between Port Metro Vancouver (PMV) area and the Pacific Ocean (Figure 2.2) (TM, 2013h). Tanker traffic would increase throughout the Burrard Inlet, the Fraser estuary, the Gulf Islands and the Salish Sea (i.e. Vancouver Harbour, the Strait of Georgia, Boundary Pass, Haro Strait and Juan de Fuca Strait) (TM, 2013h; Rainforest Conservation Foundation, 2014). The traffic routes to and from the Westridge Marine Terminal are also utilized for ferry and commercial traffic, mostly transiting from the mainland to the islands (i.e. the Gulf Islands, the San Juan Islands, and Vancouver Island). Currently, Westridge Marine Terminal loads on average five vessels with oil per month. The TMEP would result in 29 vessels per month, for a total of 34 tankers. Three oil loaded barges per month will also continue to operate, with no expansion.

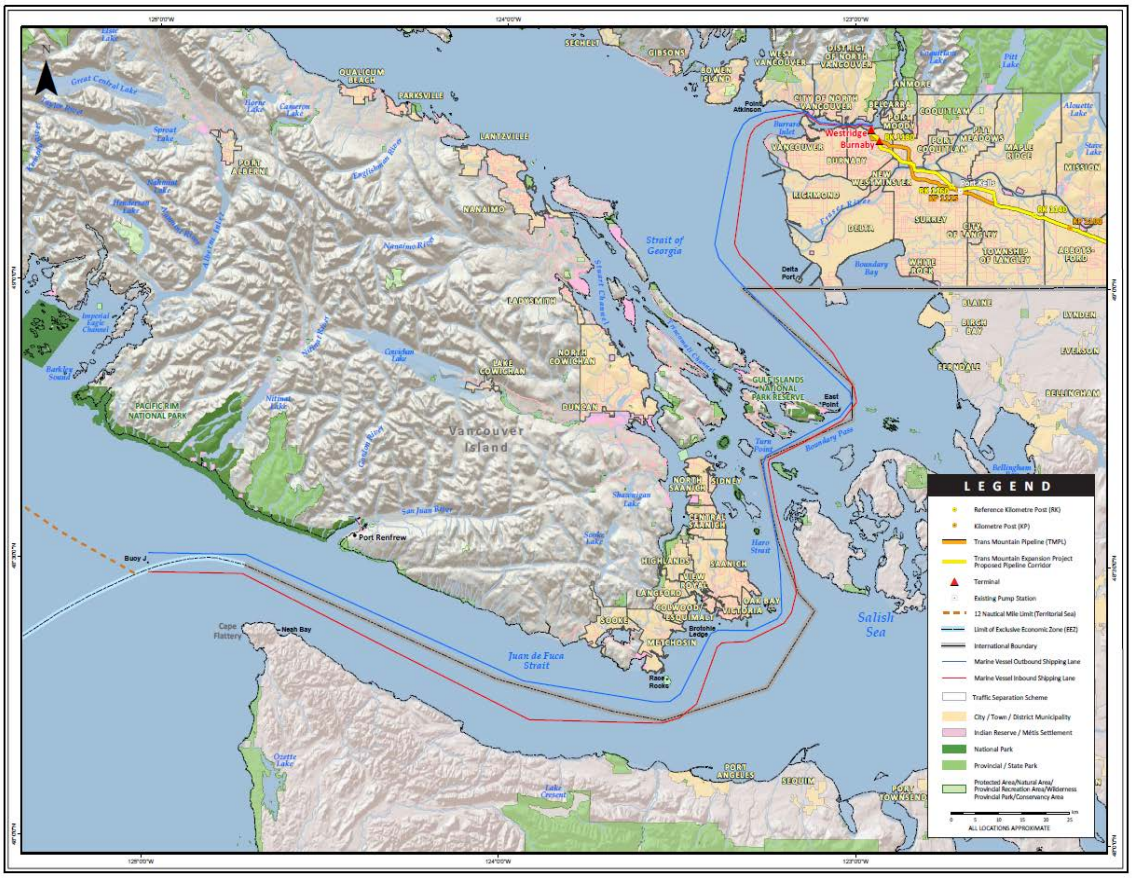
Figure 2.1 Map of the TMEP proposed by TM



Source: NEB, 2016i

Figure 2.2 Map of the TMEP's Shipping Lanes and Tanker Traffic

On water, the blue line indicates the marine vessel outbound shipping lanes, the red line indicates the marine vessel inbound shipping lanes, and the brown line indicates the 12 nautical mile limit (territorial sea). On land, the orange line is the Trans Mountain pipeline and the bright yellow is the proposed expansion pipeline corridor.



Source: NEB, 2016j

2.7. Project Phases and Timing

TM submitted its application for the TMEP to the NEB on December 16, 2013. Discussions and meetings with regulators as well as stakeholder engagement began in late spring 2012 in order to complete requirements for the TMEP's Facilities Application and Tolling Application. The NEB released their first hearing order in early April 2014, selecting intervenors who would participate in the review process. The NEB continued to host oral hearings and engage with stakeholders until releasing their recommendation

on May 19, 2016. The NEB recommended approval of the TMEP with 157 conditions (NEB, 2016a). The Governor in Council (GIC) later approved the TMEP with the 157 conditions on November 29, 2016 (NEB, 2016b). The TMEP construction will last 3 years, between 2017 and 2019, and the TMEP operation would begin in December 2019.

Table 2.2 indicates the anticipated length of time for the construction of the Project's components (both pipeline and facilities), divided by the quarter of the year the construction will begin and end (TM, 2013e; TM, 2016; NEB, 2016c). The construction of the main pipeline segments is estimated to take approximately a year and a half, whereas the terminals would take two years, and the pump stations approximately six months. The construction is preceded by a year of clearing and preparation.

Table 2.2 TMEP Construction Timeline

Construction Component	Start Year	End Year
Main pipeline segments	Q1, Year 2	Q4, Year 3
Pump stations	Q1, Year 2	Q2, Year 3
Terminals	Q4, Year 1	Q4, Year 3

Source: TM, 2013e; NEB, 2016c

2.8. Scope of the Project

The scope of TMEP's assessment includes the following components of the project (NEB, 2014a):

- pipeline segments (existing and new)
- reactivation of existing segments
- pump stations (existing and new)
- pump units (existing and new)
- delivery lines
- removal of existing tanker dock
- loading docks

- utility dock
- tanks

Under paragraphs 19(1)(a) through (h) of the *CEAA 2012*, TMEP's environmental assessment of these components is required to take into account the following factors (NEB, 2014a):

- the project's environmental effects
- cumulative effects
- the significance of these effects
- public comments
- mitigation measures
- follow-up programs
- the project's purpose
- alternatives
- changes caused by the environment
- community knowledge
- Aboriginal Traditional Knowledge (ATK)

The scope of these factors is defined by the spatial and temporal boundaries of the project's potential effects on the environment. The spatial boundaries include the areas the TMEP may affect, such as the area in which an ecological component or a population occurs and functions (NEB, 2014a). The temporal boundaries incorporate the TMEP effects throughout all of the project stages (i.e. construction, operation and maintenance, foreseeable changes, mitigation, habitat replacement and site reclamation). The temporal boundaries also account for natural time variations, for instance the life cycles of species (i.e. wildlife and vegetation) in relation to the project's activities and the time required for an effect to become evident. Subsection 2(1) of the *CEAA 2012* requires the scope of the factors to be applied to the "environment", which includes land, water, air, organic and inorganic matter, living organisms and interacting natural systems. For the TMEP, this requirement includes all ecological components impacted by the "designated project", hence by the pipeline and its facilities.

Since marine shipping was not part of Trans Mountain's application, it was not considered within the scope of factors under *CEAA 2012* (NEB, 2013b). Even so, the

potential environmental and socio-economic effects of marine shipping activities that would result from the TMEP (i.e. accidents and malfunctions) (NEB, 2013c) is the fifth issue considered by the Board (for the full List of Issues, see section 3.5.3) (NEB, 2013d). Therefore, the TMEP NEB Panel extended the scope of factors to marine traffic and tanker ships, hence including their potential effects under the *NEBA* (NEB, 2016a). While this component of the Project undergoes a TERMPOL review, the NEB Panel would review information on regulatory regimes and mitigation measures as applied to navigation and safety (Transport Canada, 2014).

2.9. Environmental Effects

TM identifies approximately 162 adverse impacts of the TMEP in its application (Gunton et al., 2015). This section will give a brief overview of some of the TMEP's potential effects on the environment.

The Project's pipeline component is divided into five new segments (Table 2.3), each with its own regional characteristics that determine the pipeline's potential environmental effects. The pipeline crosses different environmental settings, such as agriculture lands, pasture, woodlands, urban, industrial and parks, among others (TM, 2013f). Therefore, each segment will have different areas of concern as priorities, also indicated in Table 2.3, which the proponent must account for. For instance, the Lower mainland contains the Fraser Valley, where fertile agriculture lands supply local and international food markets. The pipeline route raises concerns about soil productivity damage and contamination of groundwater during construction and in case of an oil spill. Indeed, several stakeholders, including private land owners, Collective Group of Landowners Affected by Pipeline, Yarrow Village, and government agencies such as Metro Vancouver, expressed their concerns about the TMEP's impacts on soil and agriculture production (NEB, 2016a). TM established an "Agricultural Management Plan" for soil handling to prevent contamination, and hired an Agricultural Monitor (a Professional Agrologist) who monitors soil compaction and performs on-site inspections to respect soil handling protocols (TM, 2013e).

The Burnaby terminal, Westridge Marine Terminal and tankers expose the Salish sea and Burrard Inlet to potential damages to water quality and marine species. Participants, such as Metro Vancouver, the Yorkson Watershed Stewardship

Committee, the Cowichan Tribes, and the Salmon River Enhancement Society, expressed concerns about adverse effects on surface water quality and quantity, specifically the alteration or loss of riparian habitat (NEB, 2016a). The TERMPOL review process evaluates these impacts, and the Board overviews the safety and navigation measures proposed by TM. Trans Mountain committed to using trenchless crossing techniques, avoiding situating the entry and exit points of the pipeline in riparian areas, as well as a series of Environmental Protection Plans.

Oil spills and leakage along the Project's facilities present a well-known concern for proposed pipeline projects. An accident or spill could contaminate groundwater, soils, and surface water, and disturb many ecosystems. Intervenors, for instance Living Oceans and Raincoast Conservation Foundation, and commentors, such as the Conversations for Responsible Economic Development, included in their NEB submissions their doubts about the proponent's ability to detect leaks, response time, quality of response plans and compensation plans. Shxw'ōwhámel First Nation, Peters Band and Coldwater Indian Band included in their evidence potential groundwater impacts due to leaks or spills. Trans Mountain maintans that their prevention measures, groundwater monitoring programs at selected facilities, and leak detection systems on tankers will be effective at mitigating risks. Other important potential environmental impacts to consider are greenhouse gas emissions, impacts on the physical environment and impacts on wetlands (Gunton et al., 2015). The construction and operation of the pipeline would increase CO_2 emissions and change environmental parameters, such as global average temperature. The physical environment could be altered, causing terrain instability and changing topography. Wetlands could also be altered, lost or contaminated due to a spill.

Table 2.3 Potential Regional Environmental Effects of TMEP's pipeline segments

Pipeline Segment	Regions Characteristics	Potential Environmental Effects
Edmonton to Hinton	Region: Dense urban development Rivers: Pembina River, McLeod River	Air emissions from Edmonton terminal
Hargreaves to Darfield	Region: Mountainous forested terrain, rural residential and agricultural parcels Rivers: Fraser River, Albreda River, Camp Creek Valleys: Fraser River valley, North Thompson River valley	Effects on South Jasper caribou range Effects on grizzly bear populations Loss of wildlife habitat
Black Pines to Hope	Region: Rolling grasslands (North), Forested and mountainous terrain (South) Rivers: Thompson River, Nicola River Valleys: Coldwater River valley, Coquihalla River valley	Disturbance of grasslands and associated species at risk and native vegetation Avian collisions with power lines at Kingsvale pump station
Hope to Burnaby	Region: Prairies, Mountainous terrain Rivers: Fraser River, Vedder River, Sumas River, Salmon River, Brunette River Valleys: Salmon River valley, Fraser valley	Effects on soil quality and fertility Effects on old-growth forests Effects on fisheries in Fraser River and estuary
Burnaby to Westridge	Region: Dense urban development	Air emissions from loading and processing at the Westridge Marine Terminal and the Burnaby Terminal Effects on marine fish and fish habitat in the Burrard Inlet Effects on migratory birds and marine birds

Shipping route between Port Metro Vancouver (PMV) area and the Pacific Ocean	Region: Burrard Inlet, Fraser estuary, Gulf Islands and Salish Sea	Disturbance to marine fish habitat due to vessel wake Injury or mortality of marine fish Auditory injury or sensory disturbance to marine mammals due to underwater noise

Source: TM, 2013f; NEB, 2016a

2.10. Alternatives

Section 19(1)(g) of the *CEAA 2012* mandates the proponent to consider alternative means of carrying out the designated project, along with the potential economic, technical and environmental implications. The "alternative means" include different routes for the pipeline, locations for terminals and methods of development, implementation and mitigation (TM, 2013k). While only the preferred alternative undergoes an EA, the environmental effects of the alternatives must be considered. The preferred option must be confirmed by the NEB Panel, and it has been (NEB, 2016a).

TM considered different locations for the Westridge Marine Terminal, namely Kitimat and Roberts Bank in Delta, BC (TM, 2013d; NEB, 2016a, p.261). Expanding existing facilities proved less expensive than the additional infrastructure costs for building a new terminal (i.e. $1.2 billion in capital costs) and had a lower footprint (avoiding the need for an additional 100 acres of land, 14 km of pipeline, and 7 km trestle bridge) (TM, 2013k; NEB, 2016a, p.261). Two alternative pipeline corridors crossing the Fraser River and the Pembina River were also examined. The deliberations consisted of a discussion with stakeholders and First Nation communities along the proposed routes (NEB, 2016a). For instance, TM consulted the Lower Nicola Indian Band and the Popkum First Nation to discuss preferred corridors crossing their reserves (NEB, 2016a). The preferred corridor did not receive approval from the Shxw'ōwhámel First Nation. Despite the lack of First Nations' approval, the NEB recommended in favour of the TMEP's preferred route (TM, 2015a; NEB, 2016a). After suggestions from residents and stakeholders, the proponent changed the proposed route of the Westridge Delivery Pipelines (the route between Burnaby Terminal and Westridge Marine Terminal) from beneath Burnaby streets to a trenchless route along Burnaby Mountain.

2.11. Summary

Trans Mountain Pipelines maintains that the TMEP will benefit Canada by providing new pipeline capacity to accommodate the transportation demand from increased production of Canadian oil and by increasing the returns to oil producers through accessing new, higher priced markets in the Pacific Rim. Others maintain that the TMEP is not needed and will result in significant net costs to Canada. Considering these challenges and the overall debate about expanding the Canadian pipeline network, it is important that the TMEP be subject to a diligent and comprehensive review process to assess its benefits and risks. This review and approval process for pipelines will be examined in the following chapter.

Chapter 3.

3.1. Introduction

The review of projects crossing international and/or interprovincial boundaries often requires the involvement of several jurisdictions. In Canada, the federal and provincial governments have formed agreements to reduce overlap and duplication in the assessment of these projects.

This chapter will describe the arrangements between federal and provincial agencies over energy project reviews such as the TMEP and their governing legislation - starting with the primary authority, the NEB (3.2) followed by the CEAA (3.3). It will then overview the equivalency agreements and cooperation agreements which established the collaboration between provinces and federal agencies regarding the review of projects that overlap their jurisdictions (3.4). It will then provide a description of the TMEP's NEB process (3.5), including the application phase and hearing schedule.

3.2. The NEB and the *NEBA*

The NEB is the federal agency in charge of regulating proposed interprovincial and international pipeline projects, such as the TMEP. It must do so while considering the Canadian public interest by factoring economic, environmental and social effects into its decisions - as part of its mandate (NEB, 2016d). The NEB is responsible to ensure environmental protection and sustainable development during all stages of a project, including the planning, construction, operations, decommissioning, and abandonment stages. It must also monitor and enforce a project's terms and conditions.

After receiving an application from a proponent, the NEB has 15 months to complete its review according to four objectives:

- thoroughly examine a project’s potential effects before the project is permitted to proceed;
- confirm that approved projects are not likely to cause significant adverse effects or contribute to significant adverse cumulative effects;
- provide an opportunity for meaningful public and Aboriginal participation; and

- ensure that the NEB's process and its decisions or recommendations are transparent and reflect the input received from those participating in the EA and regulatory review process (NEB, 2016e).

The NEB is bound by several acts, including the *National Energy Board Act (NEBA)*, the *Canadian Environmental Assessment Act 2012* (*CEAA 2012*), the *Canada Oil and Gas Operations Act* (R.S.C., 1985, c. O-7), the *Canada Petroleum Resources Act* (R.S.C., 1985, c. 36 (2nd Supp.)), as well as a series of regulations. The *NEBA* encompasses the standards for reviews of oil and gas projects. Specifically, s. 52 of the *NEBA* relates to pipeline approvals, listing criteria the NEB should follow to make a recommendation:

1. Whether the pipeline is and will be required by the present and future public convenience and necessity;
2. the availability of oil, gas, or any other commodity to the pipeline;
3. the existence of markets, actual or potential;
4. the economic feasibility of the pipeline;
5. the financial responsibility and financial structure of the applicant, the methods of financing the pipeline and the extent to which Canadians will have an opportunity to participate in the financing, engineering and construction of the pipeline; and
6. any public interest that in the Board's opinion may be affected by the issuance of the certificate or the dismissal of the application (*NEBA* R.S.C.1985, c. N-7, s. 52).

While public interest is not defined in the *NEBA*, the NEB's document *Pipeline Regulation in Canada: A Guide for Landowners and the Public* (NEB, 2010) defines it as follows:

> The public interest is inclusive of all Canadians and refers to a balance of economic, environmental, and social interests that change as society's values and preference evolve over time. The Board estimates the overall public good a project may create and its potential negative aspects, weighs its various impacts, and makes a decision.

The NEB issues a *Filing Manual*, updated every year, which must be followed by proponents. The manual (NEB, August 2016) specifies that applications must include:

- a description of the action being sought by the applicant;

- a description of the purpose of the application;
- consultation activities and outcomes;
- notification made to commercial third parties;
- engineering design of the project;
- environmental and socio-economic assessment of the project;
- economic and financial information on the applicant and the project; and
- lands information including the general pipeline route.

The NEB decides whether to have public hearings for the given proposed project. Large pipeline projects with opposition from stakeholders or crossing international or interprovincial boundaries usually require hearings.

3.3. The CEAA and the *CEAA 2012*

The CEAA is a federal review body responsible for managing environmental assessments (CEAA, 2015). CEAA is accountable to the Minister of Environment and Climate Change and is the responsible authority for most federal EAs except those under the jurisdictions of the Canadian Nuclear Safety Commission (CNSC) and the National Energy Board (NEB). The NEB must respect the conditions set by the CEAA and its associated legislation in its review of pipeline projects under its jurisdiction. This section overviews the EA process under CEAA's jurisdiction to describe the EA requirements and procedures the NEB must also follow.

The CEAA is bound by the *Canadian Environmental Assessment Act, 2012* (*CEAA 2012*) which came into force on July 6, 2012 (*CEAA* S.C. 2012, c. 19, s. 52). The *CEAA 2012* contains the conditions for EAs for any designated resource project in Canada, as well as the criteria decision-makers must consider before reaching a decision on approving or rejecting a project. Among its associated regulations, pipelines are listed in the *Regulations Designating Physical Activities* [SOR/2012-147]. These regulations state the thresholds for a project to be considered a "designated" project and require an EA by the reviewing bodies (i.e. CEAA, CNSC or NEB). For instance, a project proposing to construct, operate, decommission and eventually abandon a new pipeline of 40 km in length or more, and on a new right of way, will trigger an EA and review process. The TMEP meets the criterion for a designated project.

EAs under a Designated Authority under CEAA 2012

EAs serve several functions which aim to minimize the adverse effects of proposed projects on the environment and affected stakeholders (CEAA, 2015). EAs aim to protect the environment and promote sustainable development by employing the precautionary principle, by ensuring the regulating authorities are respected and by considering the project's cumulative effects and social effects. The EA's responsible authority must promote cooperation and coordination between all stakeholders, including governments and the public, to provide meaningful participation and communication (CEAA, 2015). Furthermore, all these functions must be fulfilled in a timely and cost-effective manner. Section 4 of the *CEAA 2012* lists the following nine functions of an EA:

1. protects components of environment within legislative authority of parliament from significant adverse environmental effects caused by a designated project;
2. ensures that designated projects that require the exercise of a power or performance of a duty or function by a federal authority under any Act of Parliament other than this Act to be carried out, are considered in a careful and precautionary manner to avoid significant adverse environmental effects;
3. promotes cooperation and coordinated action between federal and provincial governments with respect to environmental assessments;
4. encourages communication and cooperation with Aboriginal peoples with respect to environmental assessments;
5. ensures that opportunities are provided for meaningful public participation during an environmental assessment;
6. maintains completion of an environmental assessment in a timely manner;
7. ensures that projects, as defined in section 66, that are to be carried out on federal lands, or those that are outside Canada and that are to be carried out or financially supported by a federal authority, are considered in a careful and precautionary manner to avoid significant adverse environmental effects;
8. encourages federal authorities to take actions that promote sustainable development in order to achieve or maintain a healthy environment and a healthy economy; and
9. encourages the study of the cumulative effects of physical activities in a region and consideration of those study results in EAs (*CEAA 2012*, s. 4).

The *CEAA 2012* states that environmental assessment of designated projects must consider the following factors:

- The environmental effects of a project, including the environmental effects of malfunctions or accidents that may occur in connection with a project and any cumulative environmental effects that are likely to result from the project in combination with other physical activities that have been or will be carried out;
- The significance of the above effects;
- Public comments;
- Mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;
- The requirements of the follow-up program with respect to the designated project;
- The purpose of the designated project;
- Alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such alternative means;
- Any change to the designated project that may be caused by the environment;
- The results of any relevant study conducted by a committee;
- Any other matter relevant to the environmental assessment that the responsible authority, or the Minister of the Environment, requires to be considered;
- In making its report, the responsible authority, or the Minister of the Environment, must determine the likelihood of significant adverse effects taking into account mitigation measures and whether any likely significant adverse effects can be justified in the circumstances (*CEAA 2012*, s. 19).

As stated in the first function, the EA aspires to protect the *environment* by providing an encompassing assessment of the designated project's effects on components of the environment. Section 2 of the *CEAA 2012* defines the environment as "components of the Earth, and includes land, water and air, including all layers of the atmosphere; all organic and inorganic matter and living organisms; and the interacting natural systems that include these components" (*CEAA 2012,* s. 2). As later defined in section 5, the EA of the designated project must account for its effect on:

- fish and fish habitat;
- aquatic species;
- migratory birds;
- Aboriginal peoples' health and socio-economic conditions, physical and cultural heritage;
- the current use of lands and resources for traditional purposes; and

- any structure, site or thing that is of historical, archaeological, paleontological, architectural significance; and
- any change occurring on federal lands, in a province other than the one where the project is carried out, or outside Canada (*CEAA 2012*, s. 5).

A project may cause significant adverse effects on any of the above environmental and social components. The significance of these adverse effects on the environment can be assessed according to the Operational Policy Statement *Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under CEAA 2012*, prepared by CEAA in November 2015 to replace the 1994 reference guide (Government of Canada, 2015). A residual environmental effect can be considered adverse if the effect remains, or is predicted to remain, after mitigation measures have been implemented. Specifically, the effect is considered significant based on its magnitude (i.e. severity), geographical extent (i.e. widespread and cumulative), duration and frequency (i.e. long-term and/or frequent, future effects), timing (i.e. biological activity, project phase, socio-culutral considerations), and reversibility (i.e. recovery from the effect and return to baseline conditions) (Government of Canada, 2015). The likelihood of the effect (its probability and uncertainty) is also examined.

The EA conducted by the CEAA or a responsible authority must be completed within 365 days (Figure 3.1) (CEAA, 2016a). Aboriginal consultation is supposed to be integrated throughout all stages of the process. The EA process begins with the proponent submitting a project description to CEAA, which in turn decides whether an EA is required based on the description and the *CEAA 2012*'s criteria. The *project description* document also outlines the intended public consultation process, the stakeholders involved and a description of the project's components. Once CEAA accepts the completed project description, it will inform the public of the designated project on its Registry website. The public voices their opinion during 20 days after CEAA's announcement, commenting on the project's potential significant adverse effects and on the need for an EA. After 45 days, CEAA decides whether an EA is mandatory and discusses cooperation with the province or refers the designated project to another responsible authority. If the CEAA decides that no EA is needed, other federal decisions or approvals for the project may proceed, if required. If it determines an EA is needed,

CEAA or the responsible authority will announce the EA through a notice of commencement (NOC) (*CEAA 2012,* s. 17).

For interprovincial pipelines such as the TMEP, the responsible authority is the NEB. The NEB has the obligation to conduct the EA along with its review under the *NEBA* and issue a report with respect to the EA and *NEBA* review (*CEAA 2012*, s.22; *NEBA*, s.58(6)) within 15 months of the project application being deemed complete (*NEBA,* s.52(4)). The report must contain the NEB's findings with respect to the project and proposed mitigation measures, and follow-up programs (*CEAA 2012*, s. 29(1)). The NEB offers any interested parties an opportunity to participate. An interested party is defined as a person directly affected by the designated project, or someone who has relevant information or expertise (*CEAA 2012,* ss.2(2)). Once the NEB's report (application for a certificate) is complete, the NEB submits the report to the Minister of Natural Resources and makes the report public (*CEAA 2012,* s.29(2); *NEBA,* s. 52). The report contains the NEB's recommendation about whether the pipeline should receive a certificate under the *NEBA s.52*, and regardless of the recommendation, the terms and conditions necessary to meet the public interest.

In the report, the NEB considers any aspects directly related to the pipeline and to be relevant, which may include:

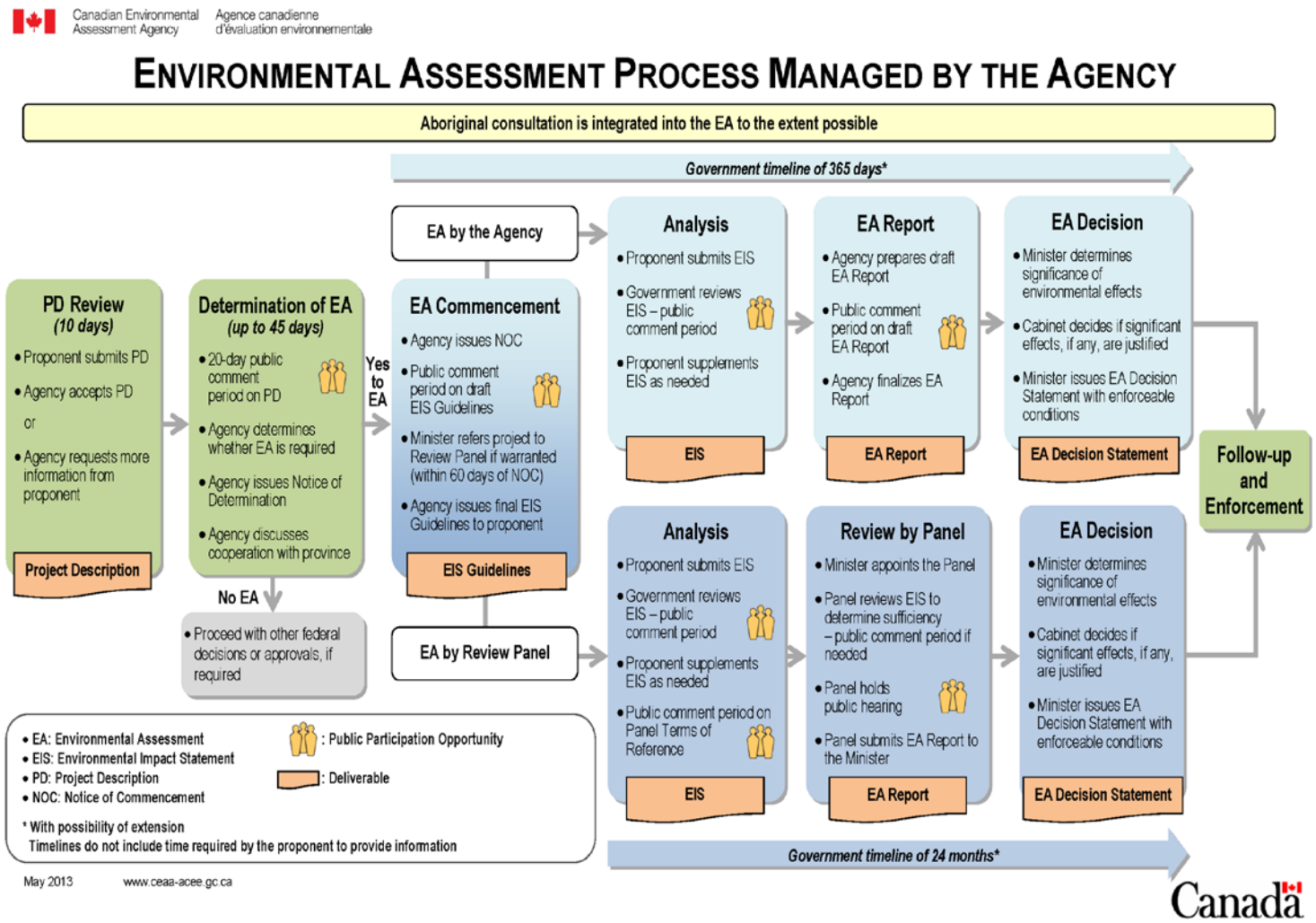
- the availability of oil, gas or any other commodity to the pipeline;
- the existence of markets, actual or potential;
- the pipeline's economic feasibility;
- the applicant's financial responsibility, financial structure, their methods of financing the pipeline;
- the extent to which Canadians can participate in the pipeline's financing, engineering and construction; and
- any public interest that in the Board's opinion may be affected by the issuance of the certificate or the dismissal of the application (*NEBA*, s.52(2)).

The Governor in Council (GIC) is the final decision-maker for an EA done by the NEB. After the NEB submits the report to the Minister of Natural Resources, the GIC may order the Board to reconsider the recommendations, or the terms and conditions (*NEBA*, s.53(1)), within a specific time limit if needed (*NEBA*, s.53(2)). Once the report is

deemed final and conclusive by the GIC per sections 52 and 53 of the *NEBA* and sections 29 and 30 of the *CEAA 2012*, the GIC may direct the NEB to issue a certificate for the pipeline or to dismiss the application for the certificate (*NEBA*, s.54(1)). The GIC determines whether the pipeline is likely to cause significant adverse environmental effects that can be justified under circumstances or not justified, or whether the project is not likely to cause significant adverse environmental effects (*CEAA 2012*, s. 31(1)(a)). The GIC may also direct the NEB to issue a decision statement to the pipeline proponent (*CEAA 2012*, s. 31(1)(b); *NEBA*, s.54(1)) that

> (i) informs the proponent of the decision made under paragraph (a) with respect to the designated project and,
>
> (ii) if the decision is referred to in sub-paragraph (a)(i) or (ii), sets out conditions — which are the implementation of the mitigation measures and the follow-up program set out in the report with respect to the environmental assessment or the re-consideration report, if there is one — that must be complied with by the proponent in relation to the designated project (*CEAA S.C. 2012*, c. 19, s. 52, s. 31).

Figure 3.1 Federal Environmental Assessment Process in Canada



Source: CEAA, 2016a

Note: This figure represents the EA process followed by the CEAA or a Review Panel, yet is not representative of the NEB EA process which only follows a similar structure and timeline as the CEAA. The decision-making authority for an EA done by the NEB remains with the GIC, rather than by the Minister of Environment and Climate Change for determining the significance of environmental effects and with the GIC for deciding whether these effects are justified (which is the case for an EA process performed by the CEAA or a Review Panel).

3.4. Equivalency and Cooperation Agreements

The TMEP is among proposed projects that overlap jurisdiction between the provinces of British Columbia and Alberta, and the federal government. This section overviews the provincial authorities involved in the TMEP and the equivalency and cooperation agreements between the provinces and the federal government that are supposed to minimize duplication of efforts by allowing the NEB to undertake the EA on behalf of the federal and provincial governments.

British Columbia

The BC *Environmental Assessment Act* (BC *EAA*) (S.B.C 2002, c.43) is the legislation for the environment assessment process for the Province of British Columbia. The BC Environmental Assessment Office (BC EAO) administers the BC *EAA* and develops policies and practices to supplement the BC *EAA* and its associated regulations which provide the framework for EAs in BC (Province of British Columbia, 2015). Proposed projects may trigger an EA under the *Reviewable Projects Regulation* (B.C. Reg 370/2002). The regulation lists the types of projects and sets thresholds that trigger the EA requirement, usually based on proposed size or production capacity. The BC Minister of the Environment (MOE) may also order projects that are not defined as reviewable in the BC *EAA* to undergo a BC EA if the Minister thinks a review is necessary due to the potential for significant adverse effects. Moreover, proponents may also opt into undergoing an EA. The assessment examines the effects of the project on "valued components" (i.e. environmental, economic, social, heritage and health effects). The effects can be both positive or adverse effects. The assessment most often is performed by the BC EAO, however the MOE can also appoint a hearing panel or a commission instead. The BC *EAA* contains time limits for the completion of the assessment and for the proponent to answer information requests, however other details on conducting EAs are not included.

The MOE or the BC EAO determines assessment scope, procedures and methods for conducting the assessment, which are designed depending on the individual project. If a project is designated as "reviewable" and/or has potential adverse effects, then construction cannot begin unless the proponent receives an Environmental Assessment Certificate. The BC EAO has the opportunity to contact stakeholders and invite them to participate in the review process. The BC EAO must also investigate the

proponent's procedure to determine adverse effects and their mitigation plans to prevent them. The BC EAO then summarizes its review in a comprehensive report, including recommendations for the ministers: Minister of Environment and a minister representing the project (for some projects, this remains the MOE). The ministers make the final decision about whether the project receives an EA certificate and sets conditions under which it may proceed. The details of the individual steps with comprise the BC EA process, and has the following eight steps (Rutherford, 2016):

1. Determining whether an assessment is required
2. Determining the review path
3. Determining how the assessment will be continued
4. Developing and issuing the application information requirements
5. Preparing and submitting the application for an EA Certificate
6. Reviewing the application for an EA Certificate
7. Preparing the assessment report and referring to the Ministers
8. Deciding whether to issue/not issue an EA certificate

Environmental Assessment Equivalency Agreement (2010) between the NEB and the BC EAO

According to the *Agreement between the NEB and the Environmental Assessment Office of British Columbia – Environmental Assessment Equivalency Agreement (2010)*, the BC EAO has designated NEB assessments as "equivalent" to a BC EA under the BC *EAA* (NEB and BC EAO, 2010). Even so, the BC EAO is not exonerated from its decision-making responsibilities. Indeed, in the court case *Coastal First Nations v. British Columbia (Environment)* (2016 BCSC 34), the Supreme Court of British Columbia ruled that BC must still decide whether or not to issue an Environmental Assessment Certificate for the project under the BC *EAA,* and decide what conditions to attach to the certificate (S.B.C. 2002, c.43) (Sears, 2016). In addition, the province still has responsibilities to conduct consultations with Aboriginal groups. The BC *EAA* authorizes the BC EAO to enter into an agreement with the NEB on performing assessments, but it does not authorize the BC EAO to agree to exempt reviewable projects from a certificate under s.17.

Alberta

Alberta Environment and Sustainable Resource Development (AESRD) is the ministry for the Province of Alberta that administers several acts directed at sustainable resource development, and environmental and human health protection (Alberta Government, 2105a). Energy projects are subject to the *Responsible Energy Development Act* (R.S.A. 2012, c. R- 17.3), the *Environmental Protection and Enhancement Act* (*EPEA*) (R.S.A. 2000, c. E-12) and the *Alberta Energy Regulator Rules of Practice* (Alta Reg 99/2013), among others. The *EPEA* aims to protect air, land and water by regulating the process for EAs, approvals and registrations. The review may address design plans, site suitability, proposed monitoring programs, and methods of minimizing the generation and release of substances. Alberta Environment and Energy Resources Conservation Board overlap authority with the AESRD for the review of energy projects in Alberta. On October 1, 2014, their authority transitioned into a single regulatory body, the Alberta Energy Regulator (AER). The AER took over the responsibilities of issuing environmental and water permits and regulatory investigations for proposed energy developments from Alberta ESRD. The Alberta Utilities Commission (AUC) is another federal agency regulating Alberta's energy projects, including pipelines

(Denstedt et al. 2015). Large energy projects approved by the regulators must receive a licence, order or permit (Denstedt et al. 2015), undergo a EA process and review under the *EPEA*.

There are four stages to Alberta's EA process: (1) determination of need, (2) preparation of EIA report, (3) technical review, and (4) completeness decision (Alberta Environment, 2004). The public is supposed to be consulted through all stages of the process. The Regional Environmental Manager, the Director responsible for the EA, receives the proponent's application from Alberta Environment and determines whether an EA process is needed. If an EA is needed, the Terms of Reference for the EA are drafted and coordination with other federal and provincial departments is organized, if needed. The EA report is complete once it is reviewed and deemed sufficient by a Review Team representing Alberta Environment and associated public agencies. The Regional Environmental Manager will be the last to decide whether the EA is sufficient, and issue the needed licences, orders or permits.

Canada-Alberta Agreement on Environmental Assessment Cooperation (2005)

Canada and Alberta have an agreement on environmental assessment cooperation that is supposed to ensure that a project's environmental effects are considered by both governments (Government of Canada, 2005). The agreement outlines that a project requiring an EA by both parties can undergo a single environmental assessment and review process. The roles and responsibilities of both parties need to be delineated to ensure accountability and predictability. According to section 5.6.1 of the cooperation agreement, the federal government is the Lead Party for proposed projects which are located on federal lands or require federal approval(s). The parties coordinate regarding the analysis of EA information, evaluation of environmental effects, and the timing of decisions.

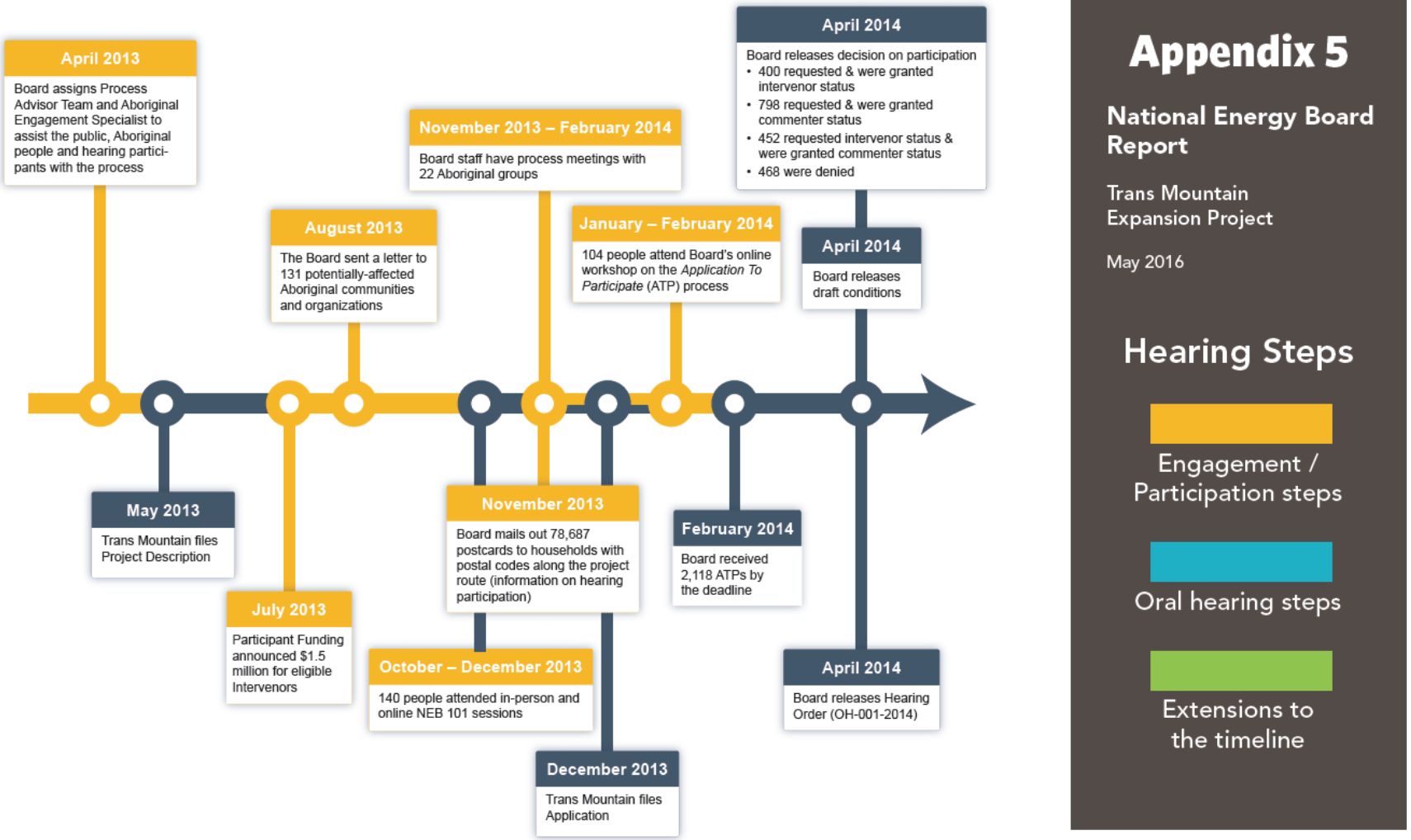
3.5. TMEP's NEB Review Process

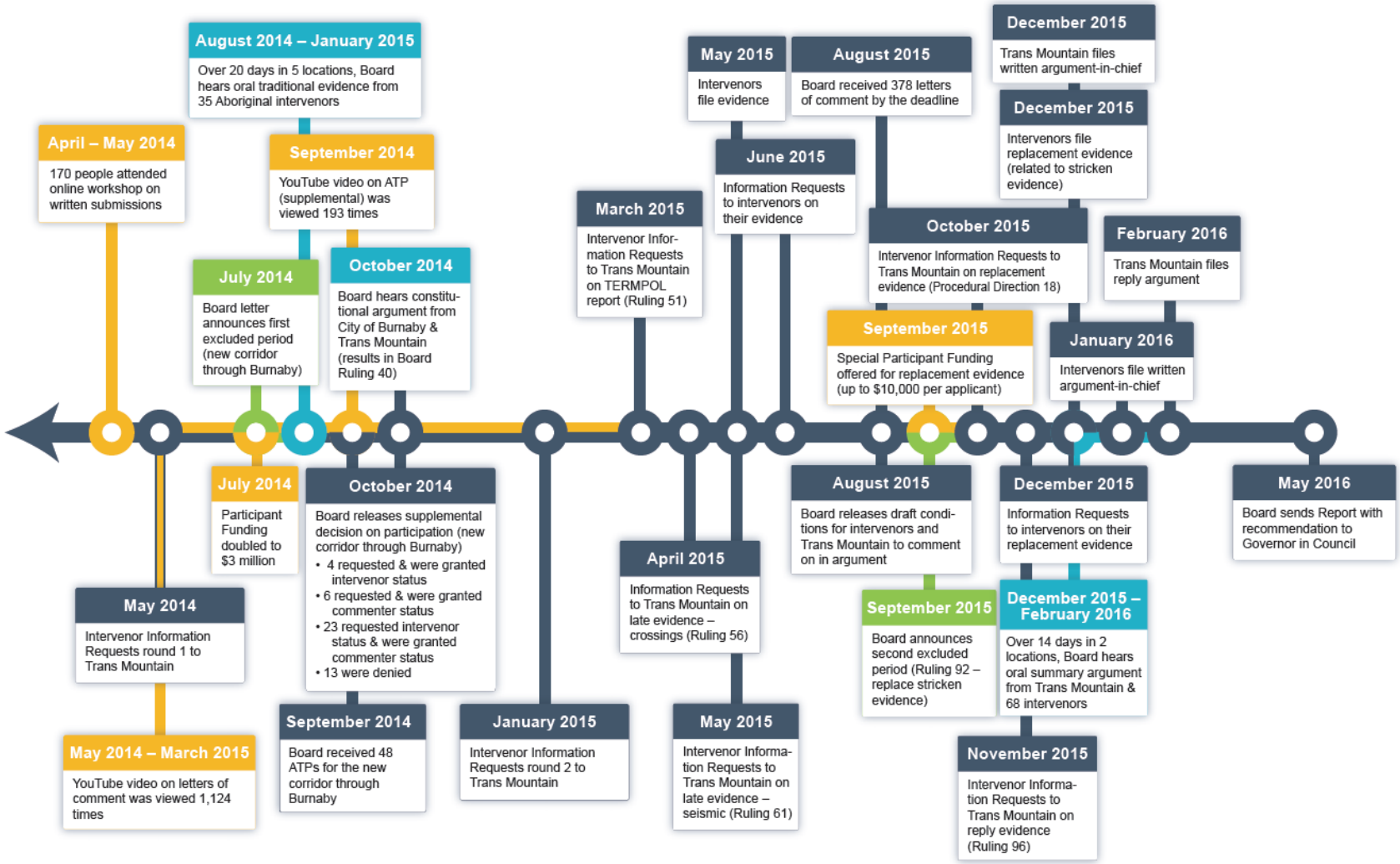
This section describes the TMEP NEB review process in detail by summarizing the proponent's application process and the timeline of hearings, outlined in Figure 3.2.

The NEB hearing process for the TMEP followed eight basic steps (NEB, 2013e; NEB, 2016e). First, the proponent filed an application with the NEB in December 2013. Second, a Hearing Order was prepared and the Board began the consultation process by notifying the public about the hearing. The Hearing Order contained the List of Issues to allow participants to prepare questions regarding solely the issues to be considered by the NEB. Third, any person or group interested in participating in the hearings applied to the NEB. Fourth, the Board then decided who could participate and how (i.e. as an intervenor or commentor - see section 3.5.4 for definitions), on a case-by-case basis. Fifth, those selected as intervenors could file written evidence. Sixth, intervenors could file information requests with the NEB, asking for more information from the Board, the proponent or from other intervenors who had submitted evidence. The NEB could also request information from intervenors and the proponent. Seventh, all other participants not involved as intervenors were asked to follow the Hearing Order's directions regarding their involvement. They could participate in oral questioning of witnesses or submit a final argument. The project proponent and registered intervenors also submitted final arguments to the NEB. Finally, the NEB prepared a report with its recommendations, sent it to Governor in Council and made it publicly available.

Figure 3.2 Hearing Steps for the NEB Panel for TMEP

The orange text boxes contain the engagement and participation steps. The blue text boxes indicate the oral hearing steps and the green text boxes are the extensions to the timeline.





Source: (NEB, 2016k)

3.5.1. Proponent's (TM) Application

Trans Mountain Pipelines (TM; proponent) filed their TMEP project description with the NEB on May 23, 2013. They submitted their complete application on December 16, 2013 after the Board approved the project description as complete in accordance to the *Filing Manual* and the Board's *Rules of Practice and Procedure, 1995.* The application contained 8 volumes with several subsections (TM, 2013a - TM, 2013h):

- Volume 1: Application Summary;
- Volume 2: Project Overview, Economics and General Information;
- Volume 3: Consultation;
    - Volume 3A: Public Consultation;
    - Volume 3B: Aboriginal Engagement;
    - Volume 3C: Landowner Relations;
- Volume 4: Project Design and Execution;
    - Volume 4A: Engineering;
    - Volume 4B: Construction;
    - Volume 4C: Operations;
- Volume 5: Environmental and Social-Economic Assessment;
    - Volume 5A: Biophysical Effects;
    - Volume 5B: Socio-Economic Effects;
    - Volume 5C: Biophysical Technical Reports;
    - Volume 5D: Socio-Economic Technical Reports;
- Volume 6: Environmental Compliance;
    - Volume 6A: Environmental Compliance;
    - Volume 6B: Pipelines Environnemental Protection Plan;
    - Volume 6C: Facilites Environnemental Protection Plan;
    - Volume 6D: Westridge Marine Terminal Environnemental Protection Plan;
    - Volume 6E: Environmental Alignment Sheets;
- Volume 7: Risk Assessment and Management of Pipeline and Facility Spills;
- Volume 8: Marine Transportation;
    - Volume 8A: Marine Transportation;
    - Volume 8B: Technical Reports on Marine Environment;
    - Volume 8C: TERMPOL Study Reports.

Volume 1 is an overview of the TMEP application, summarizing the content of each volume and its conclusions (TM, 2013a). Volume 2 overviews the applicant, the regulatory framework, the project's need, the pipeline routing and facilities location, as well as the project schedule and budget (i.e. costs and benefits) (TM, 2013b). The public consultation is examined in Volume 3, which is separated into three sections focusing on

the public (stakeholders, local government and community groups) (A), Aboriginal communities (B) and landowners (C). The section on each group (public, Aboriginal communities, or landowners) covers the group's vision, principles, goals and design of stakeholder engagement program. Volume 3 also describes the incorporation of feedback from the consultation program into the project's design (TM, 2013c). The project design is enclosed in Volume 4, along with the technical details of the construction, operations and maintenance plans (TM, 2013d). This volume reports TM's engineering standards, pipeline and facility design, and watercourse crossing methods. Volume 4B describes the construction plans and schedule; while Volume 4C discusses environmental policy, emergency preparedness and spill response.

Volume 5 contains the EA, including the biophysical and socio-economic components and their associated technical reports in separate subsections (TM, 2013e). Volume 6 presents TM's environmental compliance plans, which describe the company's commitments to protecting the environment and ensuring the safety of their workers by marking environmental features during pre-construction, performing environmental inspections and monitoring, and implementing educational programs for personnel. Each major project component (i.e. pipelines, facilities, Westridge Marine Terminal) has a subsection with its environmental protection plan (TM, 2013f). The risk assessment and management is reviewed in Volume 7, where the prediction and management of oil spills is a primary focus. The volume includes TM's measures to prevent oil spills, the level of risk, their emergency response plans and a financial assessment in response to spills (TM, 2013g). Finally, Volume 8 introduces the marine component of the project and its associated cumulative effects and risk assessments, spill management plan, and technical reports (TM, 2013h). Volume 8C contains TERMPOL study reports, including fisheries resources survey, route analysis and risk analysis, among others.

3.5.2. Hearing Process

The Board began the consultation process as soon as it received the project description. One step was to decide on the funding required for consultation. The NEB also notified the public about the project and about its ongoing review by releasing two documents on April 2, 2014 on its online registry: Hearing Order OH-001-2014 and the Factors and Scope of Factors for the EA (NEB 2014a; NEB, 2014b).

The Factors and Scope of Factors document contains a description of the factors considered in the TMEP EA, and the scope of those factors (NEB 2014a). The Factors include the project's environmental effects, their significance, mitigation measures and alternatives; while the scope of those factors sets the spatial and temporal boundaries for considering the project's effects, based on the factors and the List of Issues. Chapter 2 section 8 has the complete list of factors and details on the scope.

The Hearing Order (NEB, 2014b) outlines the public hearing process and provides guidelines for the participants, such as a detailed timeline of the hearings, releases of material, workshops and submission deadlines. It also contains the List of Issues participants must consult to formulate their submissions and questions regarding only the issues listed (NEB, 2013d; NEB, 2014b). The TMEP NEB Panel considered 12 issues:

1. The need for the proposed project.
2. The economic feasibility of the proposed project.
3. The potential commercial impacts of the proposed project.
4. The potential environmental and socio-economic effects of the proposed project, including any cumulative environmental effects that are likely to result from the project, including those required to be considered by the NEB's *Filing Manual*.
5. The potential environmental and socio-economic effects of marine shipping activities that would result from the proposed Project, including the potential effects of accidents or malfunctions that may occur.
6. The appropriateness of the general route and land requirements for the proposed project.
7. The suitability of the design of the proposed project.
8. The terms and conditions to be included in any approval the Board may issue.
9. Potential impacts of the project on Aboriginal interests.
10. Potential impacts of the project on landowners and land use.
11. Contingency planning for spills, accidents or malfunctions, during construction and operation of the project.
12. Safety and security during construction of the proposed project and operation of the project, including emergency response planning and third-party damage prevention.

The NEB Panel did not consider the environmental and socio-economic effects associated with upstream activities such as the production of the oil transported on the pipeline or downstream use of the oil transported by the pipeline. However, subsequent to the hearings, the newly elected Liberal government required assessment of upstream greenhouse gas emissions that may be generated by the pipeline (Government of Canada, 2016).

3.5.3. Hearing Participants

As part of the application process, the NEB granted intervenor status to 412 out of 1006 applicants, and commentor status to 452 out of 1111 applicants (NEB, 2016a). The Board announced its designation of intervenors and commentors, their 'approved method of participation' and their duties in the Hearing Order (NEB, 2014b). Intervenors included Aboriginal people, businesses, communities, landowners, residents and non-governmental and government organizations. Intervenors were defined as any individual or groups directly affected by the pipeline or who have expertise to contribute during the pipeline's evaluation (NEB, 2013a; NEB, 2014c). *Commentors* were allowed to submit a single comment letter, were not permitted to explicitly participate during the hearing, and were not part of the notifications list. *Intervenors* were allowed to: file written evidence, ask questions during the hearing, respond to notices, comment on draft conditions and present written and oral arguments. The exact timeline for these submissions is illustrated in Figure 3.2 above. The NEB's Participant Funding Program (PFP) also provided $3,085,370 in support of 72 intervenors' participation in the hearings, of which 79% was offered to Aboriginal groups (NEB, 2016f).

3.5.4. Submissions: Written Evidence, Information Requests and Comments

All submissions during hearings are available on the NEB's online public registry. Participants may submit different types of evidence and arguments regarding the project (i.e. reports, statements, oral Aboriginal traditional information, photographs and letters). The type of evidence submitted has restrictions on the contents. Oral submissions could not reveal any scientific data, only personal knowledge or oral tradition. The participant presents the evidence under oath or affirmation that the information is precise and

accurate to the best of their knowledge. Written evidence can be prepared by consulting companies or members of the intervenor group.

Normally, the testing of the evidence in NEB hearings is carried out through oral cross examination. However, in the TMEP process, the NEB did not allow oral cross examination. The Board justified its decision by stating that there were legislative time limits and a large number of intervenors (NEB, 2016a). The NEB also stated that the evidence could be adequately tested by submitting written questions, known as Information Requests (NEB, 2016a). Intervenors submitted over 15,000 questions to TM during three major rounds of Information Requests. If intervenors remained unsatisfied by TM's answer, they could request the Board to compel TM for details (NEB, 2016a).

Intervenors could also file notices of motion requesting that the Board make changes in the process, for instance a modification of a deadline. The Board received 291 motions, mostly focusing on extending deadlines, requests to file late evidence, constitutional questions, and allegations of apprehension of bias of Panel members, among others.

The NEB held 159 open houses or workshops to help intervenors through the participation process by providing guidelines on written submissions (i.e. writing information requests, evidence, notices of motion, final arguments; how to file documents), and oral submissions (i.e. presenting argument, commenting on conditions, oral hearing format). Commentors also could attend workshops to receive guidelines on writing and filing letters of comment.

3.5.5. Timeline of Hearings

The following table (Table 3.1) presents key milestones for the TMEP review, with the initial dates set out by the NEB for the hearings (NEB, 2014b) and the actual dates after the process encountered various delays (NEB, 2016a). The delays were mostly related to new or missing information surfacing to complete the proponent's application. For instance, on June 10, 2014 TM confirmed a new preferred corridor through Burnaby Mountain for its proposed delivery lines, for which the NEB Panel allowed additional time between 11 July 2014 to 3 February 2015 to complete necessary studies and gather information (NEB, 2016a). The process was also delayed due to a

conflict of interest that developed when one of the TM consultants (Stephen Kelly) was appointed to the NEB, which resulted in his evidence being revoked on August 21, 2015 and the need for TM to file replacement evidence (NEB, 2016a).

The hearing of Aboriginal traditional evidence took five months longer than expected, with the last hearing taking place in Calgary on January 28, 2015. The hearings for Aboriginal people were delayed after requests from several groups expressed concerns with the schedule's interference with the sockeye salmon harvest (NEB, 2016a). Subsequently, the filing of letters of comment from commenters, of written evidence by intervenors and of written argument-in-chief by the proponent were also delayed, by about one year.

Table 3.1 TMEP Hearing Timeline

Event	Dates (Initial and Revised)
Preliminary Information Package (Project Description)	23 May 2013
TM filed application	16 December 2013
Scope of Factors released	2 April 2014
Hearing Order released	2 April 2014
Board announced hearing participants	2 April 2014
Board Information Requests to TM - round one	17 April 2014
Intervenor Information Requests to TM - round one	2 May 2014
Oral Statement registration deadline	5 June 2014
Board Information Requests to TM - round two	4 July 2014
Oral Hearings - Aboriginal Traditional Evidence	27 August 2014 - 28 January 2015 (revised from 5 August 2014 - 4 September 2014)
Commenters file letters of comment	18 August 2015 (revised from 9 September 2014)
Intervenor Information Requests to TM - round two	11 September 2014
Intervenors file written evidence	27 May 2015 (revised from 3 November 2014)
Board Information Requests to TM and to intervenors - round three	18 December 2015
Reply evidence from TM	13 January 2015
TM files written argument-in-chief	15 December 2015 (revised from 20 January 2015)
Oral Hearings - TM Evidence	17 December 2015 (revised from Late- January 2015)
Intervenors file written argument-in-chief	12 January 2016 (revised from 6 February 2015
Oral Hearings - Intervenors Evidence	19 -29 January 2016 (BC) 2-5 February 2016 (AB) (revised from February 2015)
TMEP NEB Report released	19 May 2016 (revised from 2 July 2015)
GIC Decision	29 November 2016 (revised from August 2016)

Source: NEB, 2014b; NEB, 2016a; TM, 2016

There were three sessions of oral hearings, each dedicated to a certain group. Aboriginal groups were the first to attend the hearings, stating their oral traditional evidence from August 27, 2014 to January 28, 2015. The proponent went second on December 17, 2015. Finally, intervenors presented their oral statements, with the BC hearings taking place on January 2016 in Burnaby, and Alberta hearings on February 2016 in Calgary. A total of 39 volumes of evidence consisting of tens of thousands of pages were produced from these hearings (NEB, 2016a).

The Province of Alberta announced their support of the pipeline in their NEB submission on January 12, 2016 (Alberta Government, 2016). On January 11, 2016, the

Province of British Columbia announced five conditions the project must meet for it to receive provincial support (Province of British Columbia, 2016a; Province of British Columbia, 2016b). The five conditions were:

1. The successful completion of the TMEP's environmental review process;
2. World-leading marine oil spill response, prevention and recovery systems for B.C.'s coastline and ocean to manage and mitigate the risks and costs of heavy-oil pipelines and shipments;
3. World-leading practices for land oil spill prevention, response and recovery systems to manage and mitigate the risks and costs of heavy-oil pipelines;
4. Legal requirements regarding Aboriginal and treaty rights are addressed, and First Nations are provided with the opportunities, information and resources necessary to participate in and benefit from a heavy-oil project; and
5. British Columbia receives a fair share of the fiscal and economic benefits of a proposed heavy-oil project that reflect the level, degree and nature of the risk borne by the province, the environment and taxpayers (Province of British Columbia, 2016b).

Finally, on January 10, 2017, the BC EAO issued an Environmental Assessment Certificate for the project with 37 legally enforceable conditions focused on ongoing consultation with First Nations and strong protection of wetlands, wildlife habitat and endangered populations (Province of British Columbia, 2017).

The NEB Panel delayed the release of its TMEP recommendations report (the Report) to the GIC from 2 July 2015 to 25 January 2016, then to 19 May 2016. The Report released on 19 May 2016, recommended the approval of the TMEP with 157 conditions. On the same day as the Report was issued, the federal government imposed three interim measures for pipeline reviews (i.e. for TMEP and Energy East Pipeline project which were being reviewed by the NEB at the time). The first measure was for Environment and Climate Change Canada to assess the upstream greenhouse gas emissions associated with the project and announce their findings in a draft Upstream Greenhouse Gas (GHG) Assessment report. During the summer of 2016, there was public consultation and engagement on the draft Upstream GHG Assessment report, and the final version was released in November 2016 (Environment and Climate Change Canada, 2016). The second measure was set by the Minister of Natural Resources to form a Ministerial Panel to conduct another public consultation session on the TMEP and

the NEB process. The Ministerial Panel was composed of three experienced members, including a First Nation chief and two government officials, tasked with reporting what the TMEP NEB Panel may have missed. The Ministerial Panel engaged communities and Indigenous groups potentially affected by the project for their input through a series of public hearings (Ministerial Panel, 2016). The third measure was for the Ministerial Panel to undertake more extensive consultation with Indigenous people, without the intent to substitute for the Crown's consultations but to complement them. The engagement was performed through summer 2016 by the Ministerial Panel and their report was released in November 2016. These measures resulted in the final decision by the GIC being delayed four months (i.e. seven months in total after receiving the original Report and recommendations from the NEB), from August 2016 to December 2016.

The Minister of Environment and Climate Change (2016) issued a report that estimated the upstream greenhouse gas emissions (GHG) of the Trans Mountain pipeline system and its proposed expansion. It concluded that the TMEP's 890,000 oil barrels per day would release a total of 21 to 26 megatonnes of carbon dioxide equivalent per year, which includes 13 to 15 megatonnes due to the building and operation of the pipeline plus 8 to 11 megatonnes resulting from upstream production of the oil transported on the pipeline. The estimated upstream emissions assumed that most of the oil transported on the pipeline would be produced even if the pipeline was not built and hence the incremental upstream emissions from the pipeline would be minimal.

The information and feedback gathered during the more extensive consultations with Indigenous Peoples were directly reported to the Government of Canada to complement the Crown's own consultations. The NEB, Natural Resources Canada and Transport Canada also received a budget of $16.5 million over three years, starting in 2016-2017, to perform more extensive consultations with Indigenous Peoples regarding the TMEP and future proposed projects.

The Ministerial Panel was asked by the Minister of Natural Resources, Jim Carr, to identify gaps in the TMEP review process, specifically to:

- review and consider input from the public via an online portal;
- meet with local stakeholder representatives in communities along the pipeline and shipping route;

- meet with Indigenous groups that wish to share their views with the panel, noting that the panel's work will complement, not substitute for, the Crown consultations; and,
- submit a report to the Minister of Natural Resources no later than November 1 (Ministerial Panel, 2016).

The Ministerial Panel received 35,259 responses from its online questionnaire, 20,154 emails, and hosted 44 meetings in 11 cities with almost 2,500 participants. After careful revision of all submissions and hearing notes, the Ministerial Panel identified six high-level questions that needed to be addressed prior to making a decision on the TMEP. The questions are as follow:

1. Can construction of a new Trans Mountain Pipeline be reconciled with Canada's climate change commitments?

2. In the absence of a comprehensive national energy strategy, how can policy-makers effectively assess projects such as the Trans Mountain Pipeline?

3. How might Cabinet square approval of the Trans Mountain Pipeline with its commitment to reconciliation with First Nations and to the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) principles of "free, prior, and informed consent?"

4. Given the changed economic and political circumstances, the perceived flaws in the NEB process, and also the criticism of the Ministerial Panel's own review, how can Canada be confident in its assessment of the project's economic rewards and risks?

5. If approved, what route would best serve aquifer, municipal, aquatic and marine safety?

6. How does federal policy define the terms "social license" and "Canadian public interest" and their inter-relationships?

On November 29, 2016, the federal government announced the approval of the Trans Mountain Expansion Project with 157 conditions. The federal government did not explicitly address the findings of the additional reports that it had commissioned.

3.6. Summary

The TMEP was reviewed by a three member panel composed of NEB members, filling the requirements of both the *NEBA* and the *CEAA* regarding the EA process. Under the equivalency and cooperation agreements, the involved provinces (i.e. British

Columbia and Alberta) relied on the NEB to conduct the EA reviews. Although the provinces could rely on the NEB process, they had to make their own decisions under their provincial EA legislation whether to approve the project and what conditions to attach to the approval. The TMEP NEB review process followed eight basic steps for which the NEB released guidelines contained in the *Filing Manual* and Hearing Order. The hearing process limited the number of intervenors and commentors who could provide input (i.e. written evidence, comments, information requests) on a set of factors considered by the NEB. Although the timeline varied from the initial schedule, the TMEP NEB Panel produced their report in May 2016 recommending the approval of the TMEP with 157 conditions - a recommendation the federal government accepted in November 2016.

Chapter 4.

4.1. Introduction

This chapter summarizes the evaluation of the TMEP's review process relative to eighteen best practice criteria (BP) grouped into nine themes. The evaluation is based on a survey of intervenors in the process. The survey used for this evaluation is the same as the one used for the evaluation of the ENGP review process (Roggenbuck, 2015), with minor changes.

This chapter includes a description of the survey methods (4.2), the characteristics of the respondents (4.3), the limitations of this research and analysis (4.4), a summary of survey findings grouped by theme (4.5 to 4.13) and a description of the relationship between the assessment of the review process and the respondents' views on the TMEP (4.14). The survey results are also summarized (4.15), along with recommendations on how to improve the review process (4.16). This chapter also provides a brief comparison of the survey results for the TMEP with the results of Roggenbuck's (2015) evaluation of the ENGP review process (4.17).

4.2. Survey Method

Best practice criteria and themes

The survey asked respondents to rate the performance of the TMEP NEB review process in meeting a number of best practices (BP). The BPs (Table 4.1) are based on Roggenbuck (2015), which in turn are based on Joseph (2013) and Van Hinte et al. (2007). Roggenbuck designed the survey questions to test the degree to which the Enbridge Northern Gateway Joint Review Panel (ENGP JRP) met the BPs, and to examine intervenors' support for suggested changes to the review process. The same survey with a few minor changes, summarized in Appendix B, was used to evaluate the TMEP process. The minor changes include revising some survey questions to reflect some differences between the TMEP and ENGP review process and panel structure. For example, a question referring to cross-examination of witnesses was removed since the TMEP NEB Panel did not perform cross-examination. The wording of a few

questions was clarified to ameliorate the meaning of what was being asked. For example, a question on alternative means of carrying out the project was distinguished between commenting on the design and location of the TMEP, and alternative transportation options to the TMEP.

The BPs and survey questions are grouped into nine themes (Table 4.1). The nine themes include: administrative structure and efficiency; impartiality of NEB Panel, experts and federal government; scoping and List of Issues; methods of analysis; stakeholder and First Nations participation; decision-making structure and accountability; adequate information; legislative framework; and process objectives.

Table 4.1 Themes with Associated Best Practice Criteria and Survey Questions

Chapter Section	Theme	Best practice criteria	Description	Survey questions
4.5	Administrative structure and efficiency	Good process management	• Government employs strategies during reviews of applications to enhance the effectiveness of reviews such as work planning, budgeting, delineating roles and responsibilities, establishing timelines and milestones, and monitoring and reporting of progress.	6 23
		Provision of adequate resources	• Process is provided with sufficient funding, staff, leadership and time. • Funding is sufficient enough to allow government to conduct a review process that follows all good practices. • Staff have expertise in all aspects of the process and the issues raised by the application. Staff are continuous across individual reviews. • Sufficient leadership exists to propel the process. • Sufficient time is provided to enable a fair and thorough examination of a proposal's merits.	
		Clear and complete process description	• The review process is fully and explicitly described in publicly-available documentation. • The description clearly outlines the purposes and objectives of the process, the roles, responsibilities, and authority of all involved, and how all parties may participate. • The purposes and objectives of the review process are oriented around	

			rational decision-making that seeks to promote development in the public interest.	
		Use of precautionary practices	• The process exhibits precaution in its procedures and practice to address the uncertainties and risks associated with megaproject development. • Precautionary practices include: (a) risk assessment, (b) adaptive management, (c) caution with new technology, and (d) transparent risk communication.	
4.6	Impartiality of NEB Panel, experts and federal government	Consolidated review process managed by impartial, independent review body	• Review process consolidates all government reviews and decision-making into one single review instead of multiple reviews. • Review is led and managed by an independent review body (IRB) at arm's length from government. The IRB is focused on ensuring rational review. • The IRB has adequate resources, authority, and is unbiased, and publicly accountable.	7 8 22 26.I 26. III 26. V 26. VI
		Diligent evaluation of expert involvement	• Peer-reviewed inputs are favoured, and any research done for project review is opened to public scrutiny. • When experts are convened for input, the process is formal, structured, and transparent. Experts are hired by the review body for independence, and are vetted for expertise. A range of opinions are gathered from multiple experts. The process probes assumptions and reasoning, examines areas of agreement and disagreement, and highlights strengths and weaknesses in understanding. • Results of expert input sessions are documented and publicly reported. • Expert input is treated as one input alongside other valid sources of information.	
4.7	Scoping and List of Issues	Comprehen-sive scoping of assessment	• If the proposal is accepted and requires detailed review, then government conducts scoping to determine the nature of detailed review and to narrow it to key issues. • Through scoping the proponent receives feedback from government and stakeholders regarding issues raised by	9 10 11 12 13

			the proposal. • The scope of detailed review is formally established in a contract such as Terms of Reference (TOR), and the contract specifies the content of the proponent's application and how it should be prepared. • Regardless of any narrowing of the scope of reviews during scoping, review covers four essential topics: (1) project justification, (2) potential impacts and planned mitigation measures, including cumulative effects (3) alternatives and which is the best performer, and (4) likelihood of project success.	
4.8	Methods of analysis	Use of sound methods of impact assessment	• Only sound methods of impact assessment are used in project review. • Sound methods: (1) are suited to the review context, (2) are flexible and adaptable, (3) are scientifically robust, (4) are minimally reliant upon subjective inputs, (5) are easy to understand, evaluate, and put to use, (6) create useful outputs, (7) are highly accepted by users and stakeholders,(8) are cost-effective, and (9) are participative in that stakeholders are involved in their use. • Reference class forecasting and cost-benefit analysis are highly recommended methods of impact assessment.	14 15 16 17
		Impact assessment is independent and impartial	• Impact assessment work is done by an independent body with proponents and/or government paying, or by the proponent with proponent paying and safeguards in place to safeguard the quality of impact assessment. • There is good communication between impact assessors and project designers so that impacts are mitigated in manners that provide for the greatest net benefits. • Legal and procedural incentives, including the use of accredited impact assessors, exist to propel accurate, high-quality assessments without bias.	
		Project application is evaluated for completeness and accuracy	• Applications are checked for consistency with the TOR in terms of content and methods, and content (including significance conclusions) is scrutinized for quality and freedom from bias. Cumulative effects assessments are	

			scrutinized especially carefully. • Reviewers have the legal capacity to request that deficiencies in applications are addressed, and proponents are legally required to respond. Requests to proponents to address deficiencies are coordinated. • Once the application is deemed to be of acceptable quality and review of the proposal is deemed sufficient to enable a decision, the review body announces that the final application is complete and publishes the final version of the application. • The review body writes a decision recommendation based upon the content of the final application and publishes the recommendation.	
4.9	Stakeholder and First Nations participation	Effective stakeholder participation	• Mechanisms are in place providing stakeholders with the genuine capacity to influence outcomes. • All stakeholder groups are given the opportunity to be involved. • Involvement is extended to all steps in the process. • There are ample opportunities for learning. • Power imbalances among stakeholders are leveled. • The means in which stakeholders are involved facilitates conflict resolution. • Stakeholders have the power to affect decisions.	18 19 20 25 28 43
		Clear and complete communica-tion	• Communication is clear, consistent, timely, precise, regular, ongoing, but limited to what is necessary for the decision. • Communication supports the participation of all parties in the process; confidentiality provisions do not inhibit participation. • Communication is made publicly available, free and easy to access, and is tailored to the audience. • Communication is run through a 'single window portal'.	

		Obligations to First Nations met	• Government ensures that the project review process adheres to and promotes the principles in the *UN Declaration on the Rights of Indigenous Peoples* as well as any obligations established in the Nation's constitution. • The requirement for meeting obligations to Indigenous Peoples are defined in government policy. • The final decision on a project application requires free and informed consent of Indigenous Peoples prior to project approval.	
4.10	Decision-making structure and accountability	Use of structured decision procedures	• All major decision-making is structured and guided by clearly defined decision-making criteria. • Decision criteria are clear and follow from high-level policy. • There is minimal discretion given to decision-makers.	21 24
		Clarity of decision-making	• Approval decisions are linked to the findings of the review process, and are justified by reference to society's objectives, values, and interests. • Approval decisions and their rationale(s) are expressed clearly in a decision statement. • Approval decisions are put on hold for a limited period of time to allow for appeals to be heard. If found to have merit, then approvals are suspended until the appeal is resolved. • If elected officials conduct final decision-making then protections are in place to address their potential bias. If an independent body makes final decisions, then mechanisms are in place to provide accountability. • Approvals specify terms and conditions which: describe allowable procedures and maximum permitted impact outcomes; are clear and specific; are supported by stakeholders, experts and empirical evidence; are consistent with high level policy; and are mandatory and backed by law.	
4.11	Adequate information	High-quality objective information that adresses	• The review body obtains all information based on good science, necessary to make a decision. • All information and evidence is adequately assessed and tested. • All information and evidence is open to	26. II 26. IV 26. VII 26. VIII 26. IX 26. X

		decision-making criteria	public scrutiny. • All information and evidence is peer-reviewed by impartial independent sources.	27
4.12	Legislative framework	Clear, certain and transparent process legislation	• All key elements of the process are established in law. • Legal text is clear, specific, unambiguous, consistent, and distinguishes the EA process from other legal requirements and processes • Legal text uses mandatory language (e.g., "must" and "shall") and minimizes discretion. Flexibility is retained only where necessary to enable the process to be appropriately adapted to context • The purpose of EA is written into law and is to rationally inform decision-making and promote sustainability and development in the public interest.	29
4.13	Process objectives	Confidence in process integrity and fairness of final decision	• The EA process (or review process) meets a number of desirable outcomes: integration of stakeholders' perspectives, serves the public interest, moves towards sustainability, addresses concerns, cost-effective, reduces conflict. • Participants have confidence in the integrity of the overall process and have confidence in the ability of the process to result in a fair and just decision.	30 33 34 35 36 37 38 39 40 41 42 43

Source: Adapted from Roggenbuck (2015), Joseph (2013), Van Hinte et al. (2007)

Confidentiality

The survey was distributed by email invitation through FluidSurveys, a secure Canadian online survey server. FluidSurveys guarantees confidentiality by securing all information in data centers residing in Canada. The data is under constant surveillance, maintained by power feeds and generators. All accounts are secured through encrypted passwords with complex text to prevent individuals or machines from multiple guessing attempts. The survey respondents' identity is protected using Secure Socket Layer Encryption and encrypted communications between the respondents' browser and the server. Moreover, no questions in the survey require the respondent to reveal their identity. A FluidSurvey tool that generates unique codes for each participant was used to track the completion of the survey by participants. Survey results are only communicated

through average statistical responses. Names of intervenors are not mentioned within the final report, presentations, or elsewhere. Finally, the data contained in the final report will be stored on a burned compact disc and kept for two years in a locked filing cabinet at a Simon Fraser University office. The data will then be destroyed. The consent form, in Appendix A, describes the research purpose and goals, the survey overview, the participant's voluntariness and confidentiality terms. The form gives participants the right to refuse participation or to withdraw from the study, as well as ensures the security of their identity. Contact information to the research investigators and to the SFU Office of Research Ethics was provided, in case these rights were breached by the researchers.

Survey Participants

All 412 intervenors participating in the TMEP NEB process were contacted, as well as the proponent (TM). Email addresses and phone numbers were obtained from the intervenor's "Application of Participation" form, publicly available on the NEB online registry. Each individual intervenor and group first received an email invitation to participate in the survey. Intervenors listed a primary contact, and upon preference, additional contacts. Only the primary contact received the invitation so as to avoid over representing any particular intervenor group. When the primary contact did not respond to email invitations, they were contacted by phone. Secondary and additional contacts were invited to participate if the primary contact did not respond to any communications. If the additional contacts did not respond, the intervenor's websites or online registries were searched to find any representative who may be familiar with the review process.

Survey Timing

The objective of the research is to evaluate the review process and not the final decision resulting from the process. Therefore, survey distribution and deadlines were set to try to ensure that the surveys were completed prior to the release of the NEB's recommendation on May 19, 2016 to reduce potential impacts of the final recommendation on the respondents' evaluation of the process. To achieve this objective, the survey email invitation was sent to primary contacts on March 29, 2016. Participants received two reminders, one week and one day prior to the first deadline of April 15, 2016. An email extending the deadline to April 30 followed, after which phone calls began and secondary contacts received email invitations. Most respondents (97%) completed the survey before the NEB released their recommendation on May 19, 2016.

The data collection for this report closed on June 30, 2016 for a total of three months of data collection.

Survey Design

The first page of the survey was the consent form, requiring participants to agree to the terms and conditions before commencing the survey (see Appendix A). Survey questions were a mixture of multiple choice and Likert-scale questions. The multiple choice questions asked about the participant's background (e.g. the intervenor group they are associated with, the province they reside in, their experience with the oil and gas industry, etc.) and their views regarding certain statements about the quality of the TMEP review process (e.g. selecting a statement about whether the NEB Panel was biased towards the proponent). Likert-scale questions asked respondents to state whether they strongly agree, agree, are neutral, disagree or strongly disagree with statements describing the NEB process. Open-ended questions were also asked to allow participants to elaborate on their views. All questions were optional and the survey took between 20 to 60 minutes to complete. A copy of the survey, with the results, is provided in Appendix B.

Survey Results

The data produced by the survey are both quantitative and qualitative. Answers to Likert-scale and multiple choice questions were analyzed using statistical summaries reported as percentages of respondents who agree or disagree with statements describing the process. Answers stated as "strongly agree" were grouped with "agree" to assess levels of support and agreement, and "strongly disagree" and "disagree" were combined to assess levels of disagreement. The comments to open-ended questions were reviewed to find patterns and identify frequency of responses. Responses to open-ended questions were directly quoted in the final report to support conclusions from the statistical summaries, while keeping the participants anonymous. The results were also supplemented with information from the literature review and from evidence submitted by certain intervenors who chose not to answer the survey but suggested that their written evidence and final arguments be reviewed. Relevant information from the evidence of these intervenors is referenced in the analysis where appropriate.

Response Rate

Of the 412 intervenors contacted, 69 responded to the survey yielding a response rate of 16.7%. The confidence interval for the survey sample is +/- 10.8% at a 95% confidence level. Of the 412 interevenors contacted, nineteen intervenors unsubscribed from the survey and 46, including the project proponent, did not respond to invitations to participate.

After the April 15, 2016 deadline, a focus was put on contacting a sub group of the 412 intervenors, specifically the 98 intervenors who submitted written evidence and/or final arguments during hearings due to their higher familiarity and engagement with the review process. Of the 69 respondents to the survey, 34 respondents had submitted written evidence and/or final arguments during hearings. The response rate of that sub group of 98 intervenors is 34.7%.

4.3. Characteristics of the Respondents

Intervenors in the TMEP NEB hearings and survey respondents were categorized into 9 groups (see Table 4.2). The table displays the percentage of survey respondents from each intervenor group, based on the percentage of intervenors identified in each category. As illustrated in Table 4.2, the respondents were generally representative of the intervenors, albeit with a slightly higher proportion of respondents from environmental organizations and a lower proportion from residents/landowners. The majority of responding intervenors were residents/landowners, environmental organizations, Aboriginal groups or independent citizens.

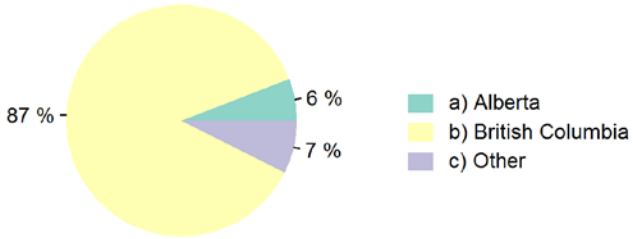
Table 4.2 Percentage of Population and Survey Respondents by Category

Background	% Intervenors	% Survey respondents
Resident/landowner	52%	33%
Environmental Organization	5%	18%
Aboriginal Group	17%	14%
Local Government	6%	10%
Academia	3%	6%
Oil and Gas Industry	8%	11%
Community group	2%	4%
Federal government	2%	3%
Other (i.e. local realtor, health authority, labour union, education centre, consultant)	4%	11%

Residence

Most respondents resided in British Columbia (88%), 6% in Alberta and 6% in another province (i.e. Nova Scotia and Saskatchewan) or country (i.e. Washington State, USA) (Figure 4.1).

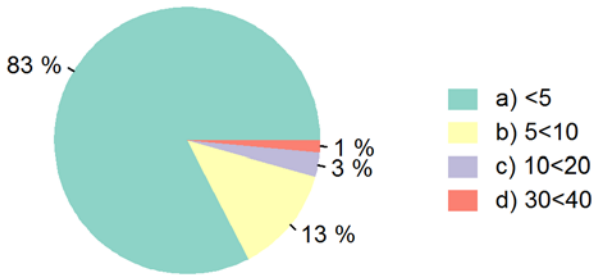
Figure 4.1 Respondents' Place of Residence



Experience

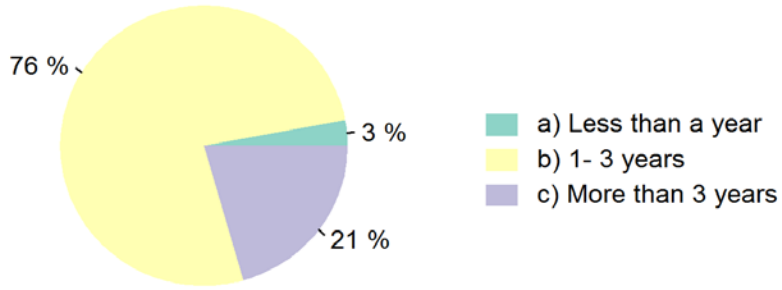
The majority of respondents had less than 5 years of experience with the Canadian pipeline review process (83%) (Figure 4.2). Respondents declaring higher years of experience (around 6 to 10 years) had previously worked for the oil and gas industry or for energy project reviewers, both at federal and provincial levels. Moreover, nine respondents were legal counsel (10%).

Figure 4.2 Respondents' Years of Experience with Pipeline Reviews



Most respondents were involved in the TMEP review process for about one to three years (76%), while 21% were involved for more than 3 years (Figure 4.3).

Figure 4.3 Respondents' Years of Experience with TMEP review



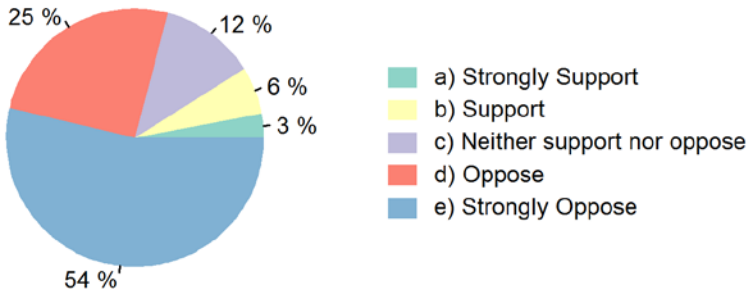
Five respondents were also involved in the ENGP review, giving them at least four to five years of experience with pipeline review processes.

Participants standing/opinion about the Project

Only 9% of respondents supported the TMEP, while 79% opposed it, with 54% strongly opposing it (Figure 4.4). Moreover, 54% of respondents believed there should be a moratorium on oil sands development, 32% believed oil sands development should

be slowed down, and 12% believed the current rate is about right. Only 2% believed the development is not fast enough.

Figure 4.4 Respondents' Position/Perspective on the TMEP



Respondents supporting the TMEP cited its economic benefits to Canada. One respondent stated that Canada is a "resource based economy and getting its resources to the market is essential for our national economic prosperity". Another respondent argued that a pipeline is a safer mode of transportation than shipping by rail or trucks.

A common reason among intervenors for opposing the Project was that it will make it more difficult to meet the global and Canadian goal of reducing greenhouse gas emissions (an issue raised by 9 intervenors). As one respondent remarked:

> As a country we should be moving in the direction of sustainable energy - the constant expansion and focus on oil is detrimental to the environment and the long term economics of our country. If anything, being involved in this process has strengthened my opinion that government policy is biased toward the oil companies and short sighted in respect to transitioning to renewable energy sources.
>
> Further, by selling our resources in a raw state, we are limiting the potential for Canadian processing jobs, the ability for Canada to be self sufficient in its own energy needs, and the revenue from selling value added product around the world. Refining our bitumen in Canada would also make us more responsible for our greenhouse gas emissions, leading to improvements in methods to refine and use hydrocarbon based fuels.

Respondents were also opposed to the TMEP due to its environmental risks, both on marine and land based components (24 respondents). The majority mentioned the risks of oil spills on marine systems, land and wildlife.

4.4. Limitations

Several factors should be noted in interpreting the survey results. First, the survey results are based on responses from 69 of 412 intervenors in the TMEP NEB hearings. Although the characteristics of the respondents are generally representative of the entire group of intervenors, it is important to keep in mind that the responses of the subset may not accurately reflect the views of all intervenors. Second, a number of intervenor groups withdrew from the process because they thought the process was deficient. For example, the Canadian Press (2015) reported that 35 participants, including the Wilderness Committee and the Canadian Parks and Wilderness Society, withdrew from the review process. Hence, the responses in the survey may understate the criticisms of the process because the findings do not include the responses from those who dropped out because they were critical of the process.

It is also important to acknowledge that the responses reflect views and perceptions of intervenors that are shaped by many factors such as their views on oil sands development and the TMEP process. Whether this is a limitation or not is unclear. On the one hand, specific views of intervenors on the TMEP may impair their ability to provide an accurate and fair assessment of the NEB process generally. On the other hand, the perceptions of intervenors are a critical factor in determining the effectiveness of the process; a good process should command the confidence of all participants regardless of their views of the project being evaluated. Further, the impact of the NEB decision on respondents' evaluation of the process was minimized by having them complete the survey prior to the NEB decision and thus not having the outcome of the process bias the perceptions of the process' quality. Two respondents (3%) answered the survey after the deadline due to conflicting personal timelines. Their responses were still pertinent to the study and included in the analysis. Considering the small number of respondents who did not meet the deadline, their responses were not analyzed separately even though their views may have been altered based on the NEB recommendation.

Even so, several intervenors mentioned a conflict of interest and discomfort in responding before the decision was released. In particular, federal departments were reluctant to complete the survey. Certain intervenor groups also had a limited number of members familiar with the process, some of whom had already retired or did not feel

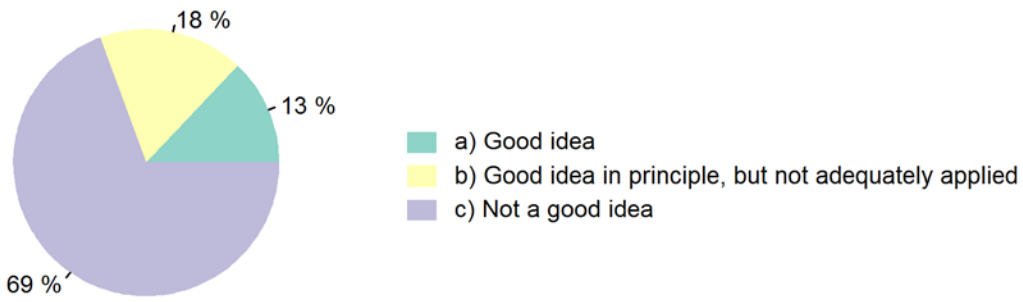
comfortable answering for the entire organization. This led to certain intervenor groups being underrepresented (see Table 4.2 in section 4.3).

4.5. Administrative Structure and Efficiency

The TMEP NEB review process description found on the NEB's website along with the NEB's mandate (NEB, 2016g) contains an outline of the NEB Panel's purposes and objectives, as well as the responsibilities and the authority of all participating parties. The website describes the NEB's involvement with the CEAA and the NEB Panel's responsibilities under the associated acts of both agencies, including the CEAA's mandate for environmental assessment and the NEB's goal to promote public interest. As mentioned in Chapter 3, the TMEP review process consolidated the mandates and review processes of the NEB, CEAA, and BC and Alberta provinces into a single (also referred to as joint or equivalent) review process undertaken by the NEB Panel. The rational for consolidation is to improve the efficiency of the process by reducing duplication.

The majority of respondents (69%) believed that the harmonization into a single review process was not a good idea (Figure 4.5). Thirteen percent agreed that harmonization was a good idea and 18% agreed with harmonization in principle, but they claimed that it was not properly applied to the TMEP review.

Figure 4.5 Agreement on Harmonization



Respondents opposed to harmonization (69%) expressed concerns that harmonization under the NEB would weaken consideration of the CEAA's mandate of assessing environmental impacts and regional concerns of provinces such as BC. It could also increase the risk of the NEB Panel missing important information or contributions due to time restrictions and to the higher number of documents it must review. As stated by several intervenors:

> The NEB does not have the expertise or capacity to do a rigorous CEAA review.

> Environmental assessment should be conducted by people competent to do the job objectively, thoroughly, and impartially. The NEB lack the expertise and are much too close to the fossil fuel industry to conduct a fair and adequate environmental assessment.

> Different mandates and different stakeholders require multiple reviews.

Many intervenors advocated for multiple reviews. Three intervenors mentioned the benefits of having a BC specific review in order to fully and accurately represent the concerns and opinions of BC residents. One respondent added that a BC EA review process would be easier to follow, as the NEB process proved "complex and cumbersome".

Similar sentiments were expressed by respondents who believed that harmonization was a good idea in principle, but was not adequately applied to the TMEP (18%). A local government official commented:

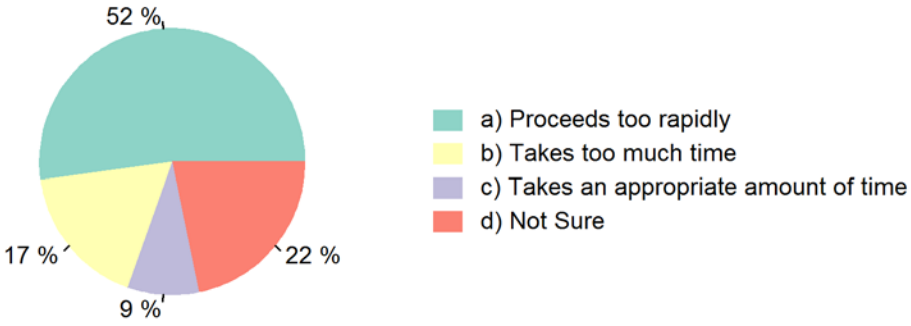
> I think it's important to find efficiency in the process through harmonization, as it's important to respect the time and resources of the proponent. That being said, harmonization should not come at the cost of an adequate review, which arguably has been the case with NEB reviews under *CEAA 2012*.

Intervenors expressed concerns with the NEB's inadequate management of the review. One respondent explicitly stated:

> You can't put the fox in charge of the chicken coop. The agency responsible for promoting Canadian energy exports cannot be the agency reviewing and passing judgment on the environmental impacts of energy export projects.

There was also concern that the process did not allow sufficient time to review and assess the evidence. Only 9% of respondents said the review took the appropriate amount of time (Figure 4.6). Fifty-two percent (52%) believed the TMEP's review proceeded too rapidly, 17% that it took too much time and 22% were not sure.

Figure 4.6 Agreement about TMEP Review Process Duration



While the NEB Panel tried to be efficient with its allocated resources and management of the review, these results indicate that intervenors did not agree with the harmonized structure of the process and most felt the process was too short to provide a thorough review.

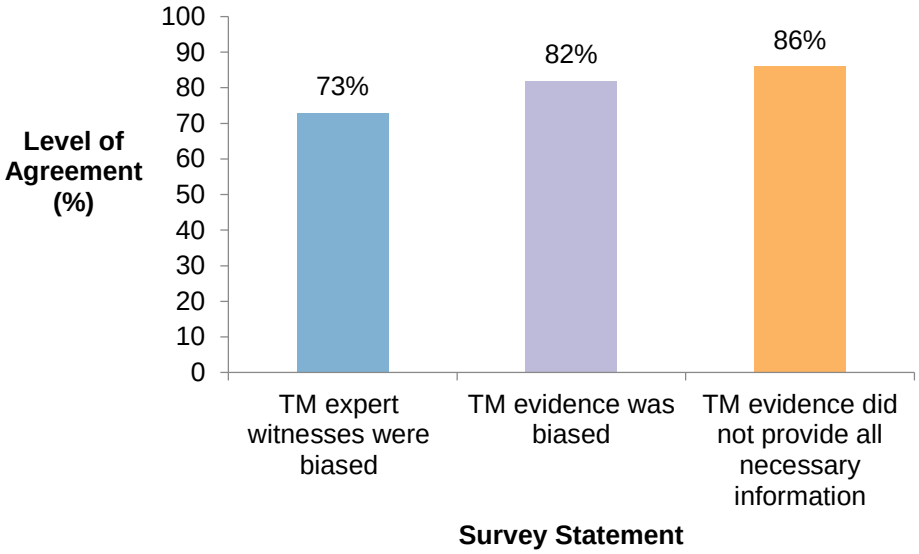
4.6. Impartiality of the NEB Panel, Experts and the Federal Government

The formation of a NEB Panel under the *CEAA* and the *NEBA* for large energy projects aims to create an impartial review process managed by an independent review body. The TMEP NEB Panel should be impartial when examining the evidence submitted by the proponent and intervenors. However, only 10% of respondents thought the NEB Panel would fully consider all the evidence and make an unbiased recommendation on the TMEP. Only 15% of respondents viewed the NEB as unbiased (Figure 4.7). Almost two-thirds (55%) of respondents agreed that the NEB exhibited bias against intervenors opposed to the TMEP and 9% agreed that the bias was against the applicant (TM) and/or intervenors in support of the TMEP (Figure 4.7).

Figure 4.7 Agreement about TMEP NEB Panel Bias

Having impartial, objective evidence that is accepted by all the participants is also an essential component of a good review process. The evidence is often offered by expert involvement. However, approximately three-quarters (73%) of respondents felt that TM's expert witnesses showed bias in favor of the TMEP and 82% of respondents felt that the evidence submitted by TM was biased to exaggerate the benefits and understate the risks of the TMEP (Figure 4.8). Moreover, 86% did not believe that TM's evidence provided all the necessary information to make a decision on the TMEP (Figure 4.8). The perception of bias in the evidence submitted by other intervenors was much lower. Only 37% agreed that the intervenors' witnesses displayed bias towards their clients, while 41% agreed that the evidence submitted by the intervenors was biased in favor of the intervenors' interests.

Figure 4.8 Agreement that TM and its Evidence were Biased



The federal government's and NEB's impartiality during decision-making is also essential for the integrity of the review and approval process. The Governor in Council (GIC) must consider all evidence, account for the potential bias within the process, and make a decision representing Canada's interest. Even though the federal government had not announced its decision to approve the TMEP prior to the survey, only 10% of respondents agreed that the federal government would fully consider all the evidence and make an unbiased decision on the TMEP. Similarly, government agencies that participated in the review process should not exhibit any bias. However, only 16% of respondents believed the federal agencies exhibited no bias.

Almost two-thirds of respondents (63%) agreed that the NEB Panel had already made up its mind on the TMEP before the review process commenced (Figure 4.9) and 55% agreed that the federal government had made up its mind in advance (Figure 4.10).

Figure 4.9 Agreement that NEB Panel Already Made up its Mind about the TMEP Before the Review Process Commenced

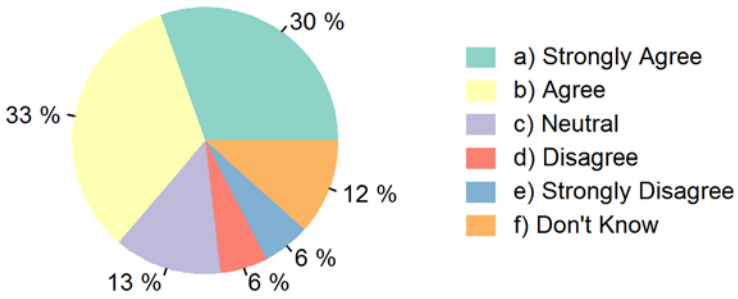
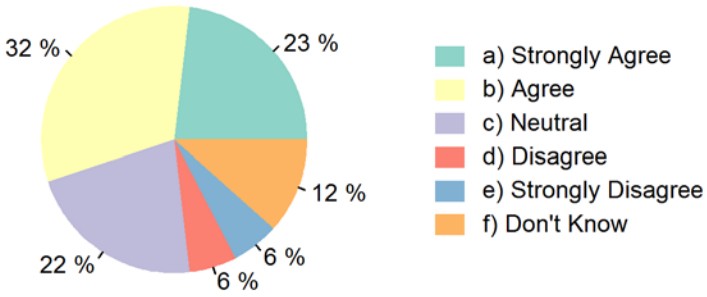


Figure 4.10 Agreement that Federal Government Already Made up its Mind about the TMEP Before the Review Process Commenced



4.7. Scoping and List of Issues

The scoping phase of a project is an important step in the review process that identifies the project components (i.e. land-based components and tanker routes), their geographical location, and issues that will be addressed in the review. In the TMEP review, the NEB Panel consulted the proponent, stakeholders and governments about potential environmental issues that may arise during the project's construction and operation. The Panel then used their input to finalize the following list of key issues: (1)

project need, (2) economic feasibility, (3) potential commercial impacts, (4) potential environmental and socio-economic effects, including cumulative effects and (5) those of marine shipping activities, (6) appropriateness of the general route and land requirements, (7) suitability of the design, (8) NEB's terms and conditions, (9) potential impacts on Aboriginal interests and (10) on landowners and land use, (11) contingency planning for spills, accidents or malfunctions, and finally (12) safety and security, including emergency response planning and third-party damage prevention, during all stages of the project (NEB, 2014a; NEB, 2014b). Additional issues could be raised by intervenors if they demonstrated that a specific and detailed interest had been "directly affected" by an issue on the list (NEB, 2014d).

The Board excluded the environmental and socio-economic effects associated with upstream activities, the development of oil sands, or the downstream use of the oil transported by the pipeline. The Board did not consider these issues since it deemed them not relevant to the Project and incidental for its approval (NEB, 2014d). [1]

Only 11% of respondents were satisfied with the scope of the project as defined by the NEB Panel for the hearings (i.e. the physical components of the TMEP that were included in the assessment) and only 11% were satisfied with the List of Issues. Moreover, only 12% of respondents were satisfied with the process used to determine these issues. Respondents identified eighteen issues that they thought should have been included in the TMEP review (Table 4.3).[2]

Upstream and downstream effects, particularly those related to GHG emissions, were mentioned most frequently. A respondent noted that if the Panel would not consider upstream GHG emissions then it should also omit upstream economic benefits when considering the benefits of the project. As one respondent stated:

> It's ridiculous to conduct a review of major new fossil fuel infrastructure without considering the most important impact of that infrastructure. Without considering climate change, the process is a sham.

The failure to fully consider cumulative impacts was also identified. As one resident stated:

[1] Subsequent to the completion of the TMEP NEB review, the federal government has added consideration of upstream effects from pipeline construction to the review of TMEP and other proposed pipelines (Government of Canada, 2016).

> The NEB insisted on separating assessment of the proposed new pipeline from the existing pipeline, despite the well known risk issues of a project expansion - for example financial and environmental risks, for which established insurance assessment procedures invariably require the total structure, not just the new component, be considered in total.

Several intervenors mentioned the Project's impact on other affected countries, such as on US tribes and communities, and risks outside the territorial sea of Canada (Table 4.3).

When asked how the process for determining the List of Issues could have been improved, respondents focused on better communication with intervenors prior to deciding upon the List of Issues, and broadening the number of intervenors allowed to participate. Several respondents believed they were not given the opportunity to comment and provide input on what should be included in the List of Issues before the List was finalized.

Table 4.3 Issues Omitted from the TMEP Review

Issue	Count
Upstream and downstream effects	20
Climate change	14
Effect of increased tanker traffic	9
Risk of oil spills	8
Cumulative impacts	8
Rights of First Nations	8
Alternatives	5
Impact on water (freshwater, stream-crossings, ocean)	4
Proponent's business plan (i.e. corporate structure, tax avoidance, cost-benefit analysis)	4
Health impacts	3
Diluted bitumen (content of oil)	3
Greenhouse gas emissions	3
Impacts on other countries and waters	3
Local and residential property devaluation	3
Community engagement	2
Sustainable energy economy	1
Local government cost implications	1

4.8. Methods of Analysis

In preparing its application, the proponent used a number of methods to assess potential effects of the project. The NEB provides guidance in their *Filing Manual* (NEB, 2016e) on the types of information that should be included in the application but provides no clear guidance on the methods that should be used to generate this information. Consequently, the proponent has discretion to choose its own methods. The methods used by the proponent should be acceptable to stakeholders and the NEB Panel to ensure the approval decision is based on complete information and good science. The methods should be:

- suited to the review context
- flexible and adaptable
- scientifically robust
- minimally reliant upon subjective inputs
- easy to understand, evaluate, and put to use
- create useful outputs
- highly accepted by users and stakeholders
- cost-effective
- participative in that stakeholders are involved in their use (Joseph, 2013; Roggenbuck, 2015).

Overall, 75% of respondents were not satisfied with the methods used by TM to evaluate and assess the impacts of the TMEP. Only 4% rated the methods as excellent, while 13% rated the methods to be adequate but could benefit from improvements (Figure 4.11). Moreover, only 16% of respondents agreed that the NEB provided clear guidance on the methods that should have been used to assess the impacts of the TMEP.

Figure 4.11 Agreement that TM's Methods of Impact Assessment were Adequate

The most commonly expressed concern regarding TM's analysis was the reliance on having TM consultants undertake the analysis instead of independent third party scientists or consultants (11 respondents). As one respondent commented:

> I think the accepted standards of efficacy by industry and consultants employed by industry are much lower than those of academic or scholarly reviewers. Kinder Morgan could have their assessment methods improved by consulting with academic scientists, especially those who are actively publishing in peer reviewed journals.

Another common concern (9 respondents) was the lack of more detailed evaluations, especially with respect to local impacts and low probability/high impact events. One local government official answered:

> Documents provided on impacts, including environmental and emergency management, were cursory in nature, providing few local details. Intervenors were expected to search the entire volume of submitted documentation to find materials that affected them locally.

Another local government official commented:

> Additionally, TM's risk assessment methods did not reflect best practices and over emphasized the probability and ignored the potential harm when probability seems low.

Two respondents were not satisfied by the limited sampling and modeling techniques, mentioning air quality modeling as an example. According to these respondents, the models used did not create useful outputs, as they did not fully reflect the natural environment and all possible impacts on different ecosystems. Additionally, the scope of the method proved narrow by excluding the global context of adverse impacts, such as the Project's effects on climate change (also an issue not on the List considered by the NEB Panel, see section 4.7. Scoping). Respondents would also have

preferred higher standards for impact assessment, especially impacts on salmon and marine environments.

4.9. Stakeholder and First Nations Participation

Effective stakeholder and First Nations involvement is a key best practice for review processes. The NEB is mandated to consult the public, groups and First Nations to gather insights about potential impacts to ensure the Project is in the public's best interest. Therefore, mechanisms providing stakeholders with the genuine capacity to influence outcomes are important. TM organized six phases of engagement, permitting stakeholders to give feedback in public open houses, workshops, one-on-one meetings, public presentations, online discussion forums, comment forms, and directly through email and telephone contact (TM, 2013j). Some stakeholder groups and governments were also given the opportunity to participate in the NEB hearings.

Just 18% of respondents agreed that all parties potentially affected by the TMEP were given adequate opportunity to participate in the review process (Figure 4.12), and only 13% agreed that stakeholders were given sufficient opportunities to learn and become informed of the issues raised by TM’s application (Figure 4.13). One issue raised by respondents was that the NEB restricted intervenor participation to only those directly affected by the pipeline or who had expertise about the Project. Eleven respondents commented that intervenor status should be extended to all concerned citizens to fully represent Canada's standing on the TMEP.

Figure 4.12 Agreement that Public Participation was Adequate

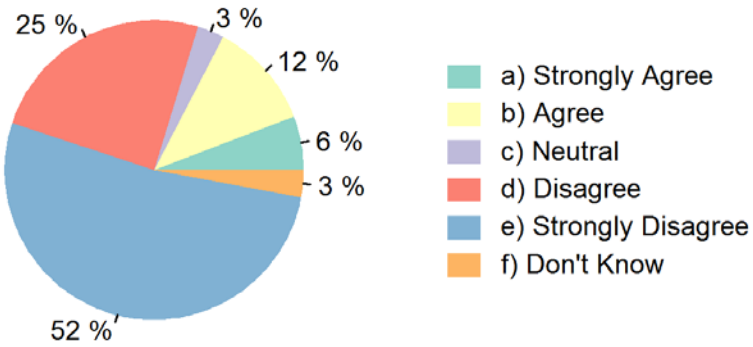
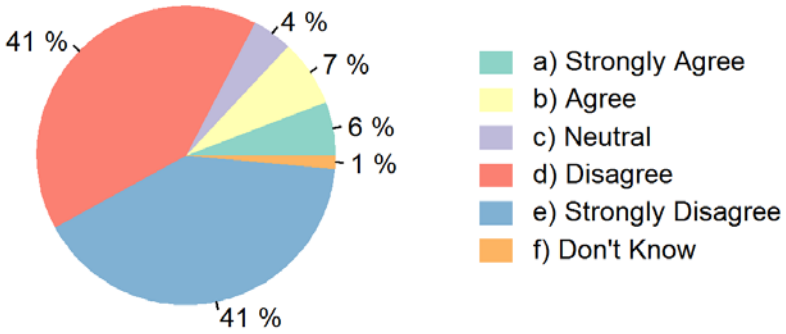


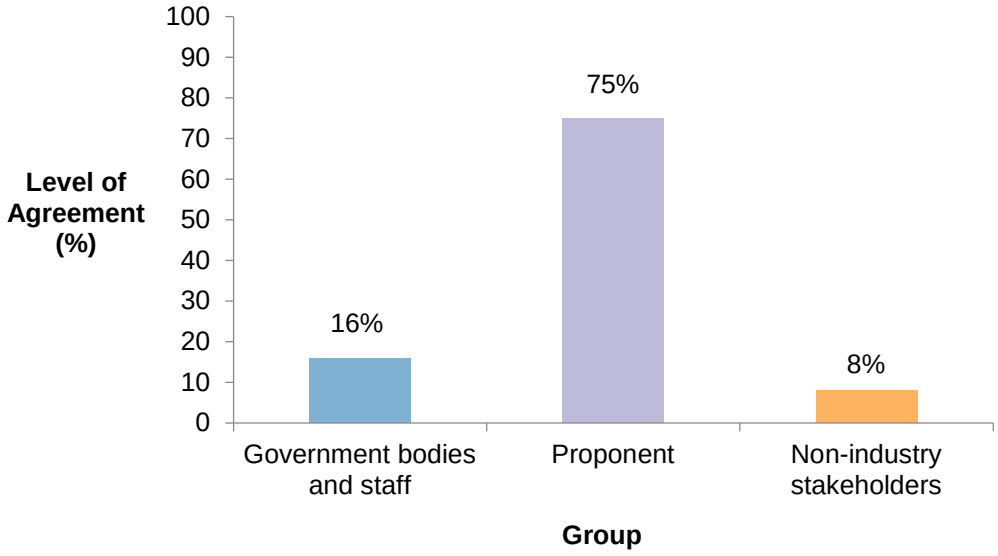
Figure 4.13 Agreement that Opportunity to Learn about TMEP was Adequate



Public participation was also constrained by lack of information on the process and lack of resources to participate. Only 30% of respondents agreed that the publicly available documentation on the NEB process (i.e. *Hearing Process Handbook*) (NEB, 2013e) provided all parties with a clear description of the process and clear instructions on how to participate. Only 8% of respondents answered that non-industry stakeholders including First Nations, environmental and community groups, had adequate resources to participate (Figure 4.14). Only 16% believed government bodies and staff had adequate resources. Three-quarters of respondents (75%) thought that the proponent had adequate resources. Only 13% believed the NEB Panel adequately integrated

Aboriginal perspectives into decision-making and only 7% believed the public's perspectives were adequately integrated.

Figure 4.14 Agreement that Stakeholder Groups had Adequate Resources to Participate



4.10. Decision-making Structure and Accountability

Clear decision-making criteria

The NEB Panel's decision to recommend approval or rejection of the Project and the government's final decision on the Project should follow structured decision procedures, with clearly defined and transparent decision-making criteria. The decision-making criteria for the TMEP are provided in the relevant legislation (*NEBA* and *CEAA 2012*) and include determining whether the Project is needed, feasible, in the public interest and whether it will generate significant adverse environmental effects and whether these significant effects can be justified in the circumstances (CEAA, 2015; NEB, 2016a).

As shown in Table 4.4, only 16% of respondents considered these decision-making criteria (i.e. evaluation criteria) to be appropriate for the scope of the assessment and only 19% considered the criteria to provide clear guidance to decision makers, while 58% considered the evaluation criteria too vague.

Table 4.4 Agreement about Appropriateness of Decision-Making Criteria

Survey statement	Level of Agreement
Evaluation criteria provided clear guidance to decision makers.	19%
Evaluation criteria were appropriate for the scope.	16%
Evaluation criteria were too vague.	58%

Accountable decision maker

The final decision on the TMEP was made by the GIC based on recommendations from the NEB. Respondents were asked to rate this decision-making structure along with four other options (Table 4.5). The current process was supported by only 9% of respondents. The most popular option (45%) was a consensus agreement among all key stakeholders and First Nations impacted by the pipeline. Other options received between 3% and 16% of support.

Table 4.5 Agreement about Final Decision-Making Authorities

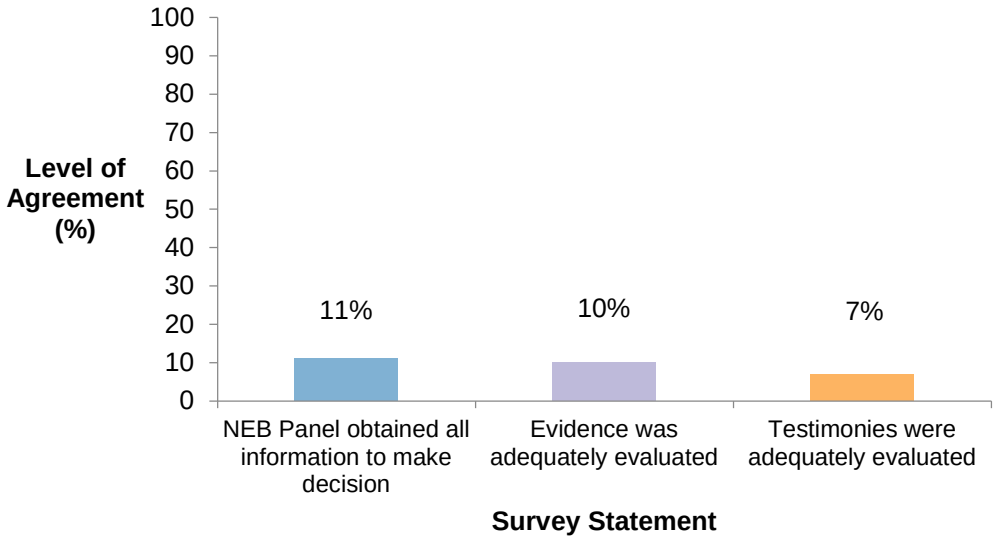
Final Decision-Making Authority	Level of Agreement
Governor in Council (elected politicians in the federal government cabinet) based on recommendations from the NEB/CEAA Panel (current process)	9%
The NEB/CEAA Joint Review Panel (JRP)	6%
Elected politicians in the federal and affected provincial governments based on recommendations from the NEB/CEAA JRPs	3%
Elected politicians in the federal, affected provincial governments, and First Nations governments based on recommendations from the NEB/CEAA JRPs	16%
Consensus agreement among all key stakeholders and First Nations impacted by the pipeline	45%
Other, specify	22%

4.11. Adequate Information

The information gathered during the project review should address all key decision-making criteria and provide the deciding authority with the information necessary to make sound decisions. The information must be accurate, comprehensive and address the decision-making criteria. Only 11% of respondents agreed that the NEB Panel obtained all the information necessary to make an informed decision on the TMEP

(Figure 4.15). Only 11% of respondents agreed that TM's submitted evidence was based on good science, while 43% agreed that intervenors' evidence was based on good science. Moreover, only 10% agreed that the evidence was adequately evaluated and tested during the NEB hearing (Figure 4.15).

Figure 4.15 Agreement about Adequate Information and of its Evaluation



Respondents' perception of the adequacy of evidence varied depending on the type of evidence presented. As seen in Table 4.6, the respondents who agreed that specific categories of evidence and of the application were adequate ranged from 6% to 43%, with a median of 12%. The highest level of agreement was for economic feasibility of the Project (43%), while the lowest ratings were for public interest and alternatives to the TMEP (6%). These low ratings demonstrate that a large majority of respondents did not agree that the review process provided the necessary information on the key issues associated with the decision-making criteria.

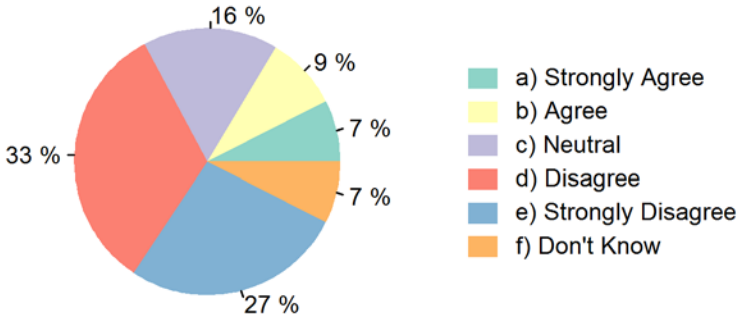
Table 4.6 Agreement about "Application and Evidence" Survey Statements

Survey Statement The application and evidence adequately assessed:	Level of Agreement
Economic feasibility	43%
Alternatives means (e.g. alternative transportation options) of meeting TMEP objectives	30%
Availability of oil and condensate to be shipped	28%
Benefits of the TMEP	26%
The need for the TMEP	22%
Existence of markets	22%
Costs of the TMEP	18%
Stakeholders negatively impacted by the TMEP	12%
Cumulative impacts	10%
Adverse environmental impacts of the TMEP	8%
Likelihood of significant adverse impacts of the TMEP	8%
Compensation and mitigation measures to address negative impacts of the TMEP	8%
The public interest	6%
Alternative means (e.g. design, location) of carrying out the TMEP	6%
Alternatives to the TMEP	6%

4.12. Legislative Framework

A best practice is to have the EA process defined in legislation to provide certainty and clarity on how the process operates. A law's clarity increases with the employment of mandatory language, such as the words "must" and "shall", which minimizes discretion and provides clearer obligations than for instance, "may". Furthermore, good practices for a strong legislative framework for the review process include writing the purpose of the project review into law. The purpose must inform decision-making and promote sustainability. Finally, all key elements of the process should be established in law. As shown in Figure 4.16, only 16% of respondents agreed that the legislative framework for the NEB Panel provided adequate clarity and certainty.

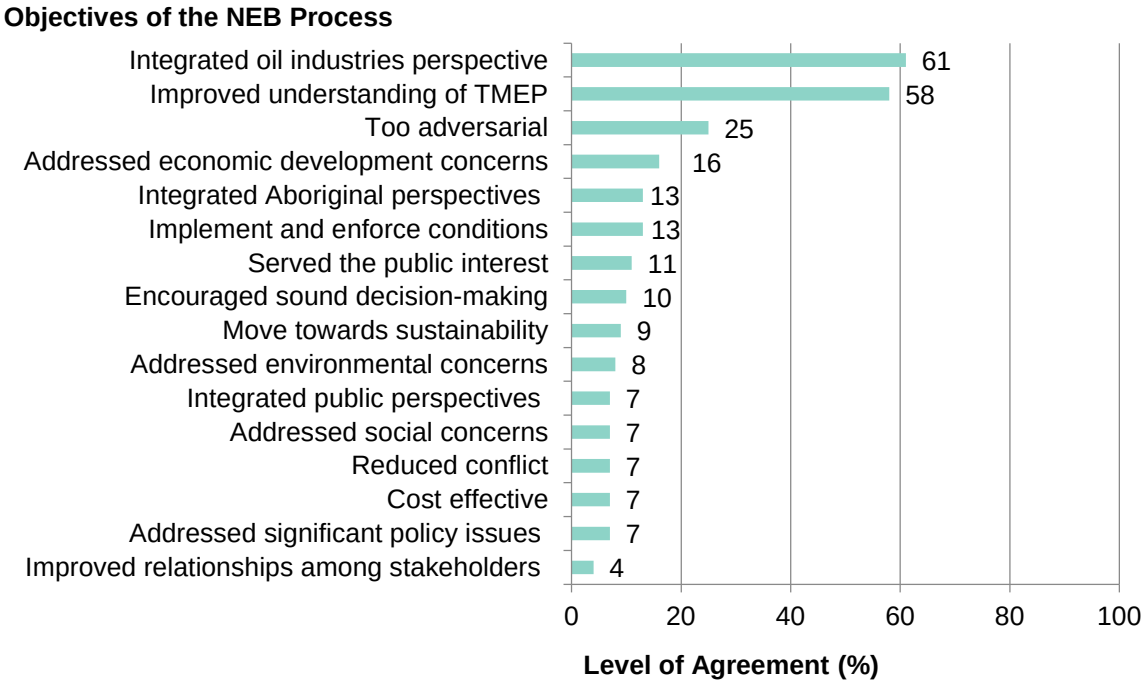
Figure 4.16 Agreement that Legislative Framework is Adequate



4.13. Meeting Process Objectives

Respondents were asked whether the NEB process achieved various objectives (Figure 4.17). The level of agreement that the objective was achieved ranged from only 4% to 16% for 13 of 16 objectives. The two objectives with the highest agreement were integrating the oil industry's perspective in the decision (61%) and improving the understanding of the TMEP (58%).

Figure 4.17 Agreement that Objectives of the Process were Met



Overall, only 11% of respondents rated the NEB process as good, while 86% rated it as poor (Figure 4.18). Furthermore, very few respondents (7%) would recommend a future project evaluation to follow the same review process (Figure 4.19). Interestingly, while 79% would not recommend using a similar process again, 26% agreed that they would participate in a similar process again while 23% stated they would not (Figure 4.20).

Figure 4.18 Agreement about NEB Panel's Performance

Overall how would you rate the TMEP NEB Panel as:

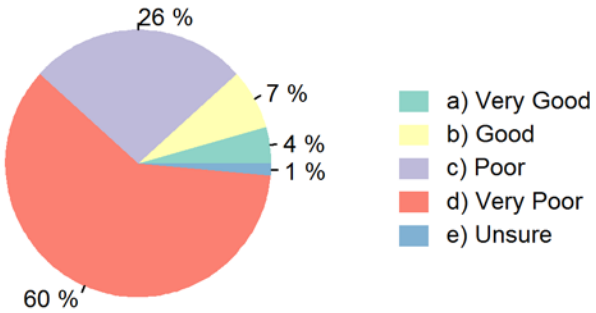


Figure 4.19 Agreement about Modeling Future Review Processes after the TMEP's NEB Process

I would recommend that future pipeline projects are evaluated through review panel processes modeled after TMEP NEB process:

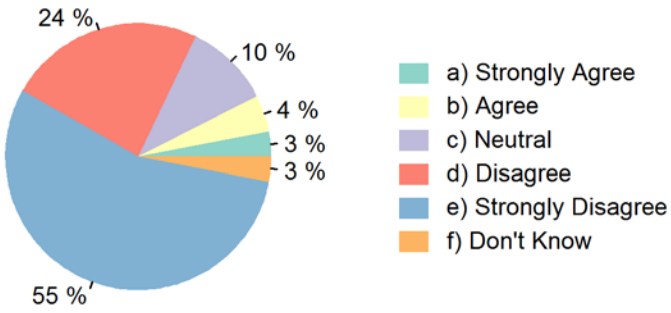
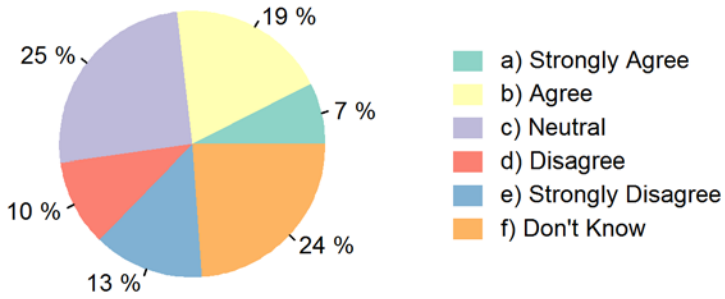


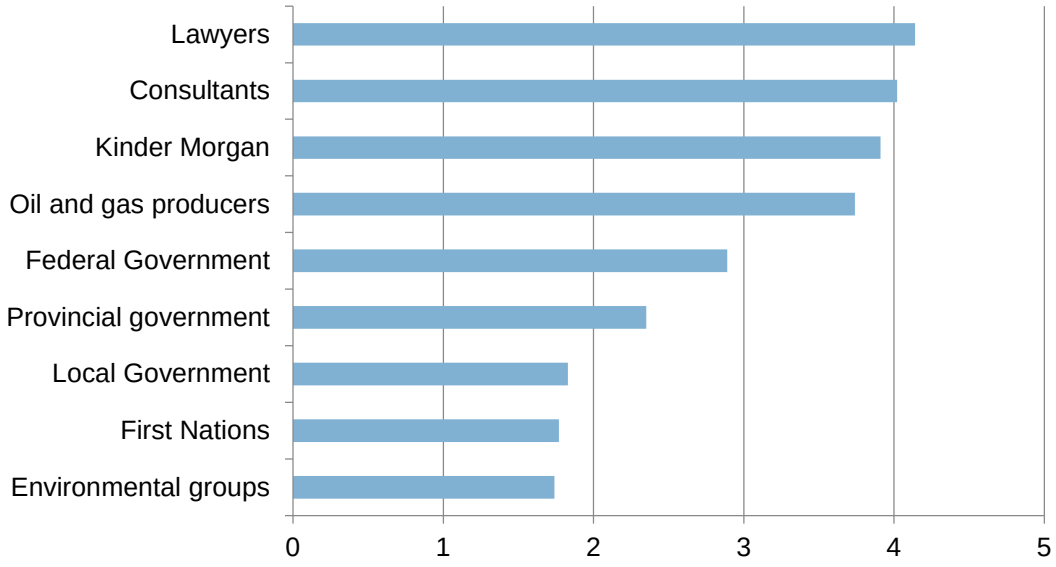
Figure 4.20 Respondents' Level of Interest in Participating in another NEB process



Respondents believed lawyers, the proponent (TM), consultants, and oil and gas producers were among the groups that benefited the most out of the process (Figure 4.21). The groups perceived to have the lowest level of benefit were First Nations, environmental groups and local governments.

Figure 4.21 Level of Benefit Received by Type of Participant from NEB Panel

Each group is rated on a scale of 1 to 5 by survey respondents, represented by their average score below. A score of 1 indicates the participating group received the least benefit, whereas a score of 5 indicates the group received the most benefit.



4.14. Relationship between Assessment of the Review Process and Views on TMEP

It is interesting to examine the relationship between respondents' evaluation of the review process and the attitudes towards the TMEP (Table 4.7). Almost all (94%) of the respondents who indicated that they opposed the Project also believed the NEB process was a poor review process, while respondents who supported the Project were more evenly split between those who rated the process as good (60%) and those rating it as poor (40%). The majority (88%) of respondents who neither supported nor opposed the project rated the review process as poor.

Table 4.7 Cross Table of Respondents' Preferences for the TMEP and the NEB Panel

		Preference for NEB Panel		
		Good Process	Unsure about Process	Poor Process
Preference for TMEP	Support the project	60%	0%	40%
	Neither support nor oppose the project	0%	12%	88%
	Oppose the project	6%	0%	94%

4.15. Summary of TMEP Best Practice Outcomes

Overall, the first conclusion is that the TMEP NEB review process does not meet any of the best practice criteria and has serious deficiencies that need to be addressed (Figure 4.22) (Table 4.8). Each best practice theme was evaluated based on participants' level of agreement to all questions within a BP theme. Questions phrased negatively were inverted to ensure comparibility with results from questions phrased positively. The average level of agreement from all questions within a BP theme was taken to represent the respondents' views on the BP's performance (Table 4.8). Best practices were *met* if the average level of agreement with statements for the BP was 75%- 100%, *partially met* if the level of agreement was between 51% and 74%, and not met if agreement was below 50%. All best practices received levels of agreement between 11-26% (Figure 4.22). In their overall assessments, only 11% of respondents rated the NEB Panel as good or very good based on its performance, and only 7% would recommend that future pipeline projects be evaluated through review processes modeled after the NEB process (Figures 4.18 and 4.19).

Figure 4.22 Agreement on Best Practices Met

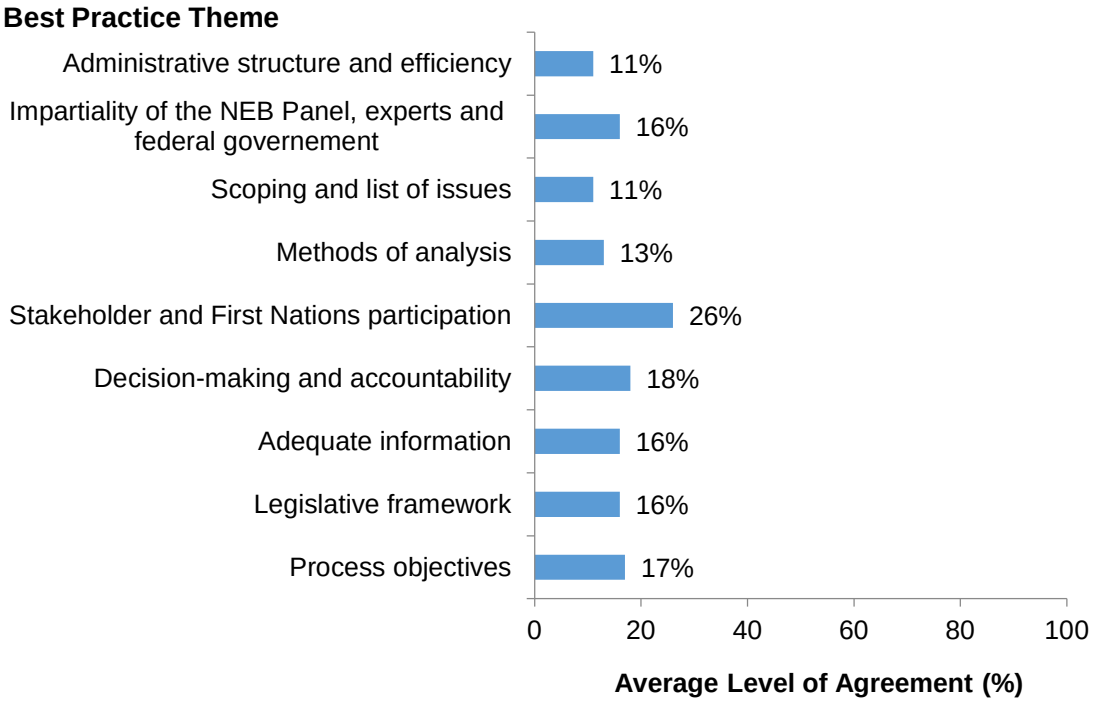


Table 4.8 TMEP Summary Assessment of Best Practices

Best Practice	Description	Assessment	Comments
Administrative structure and efficiency	The review process took the appropriate amount of time, and the harmonization into a single review process is a good idea.	Not Met	Most respondents believed the review process did not take the appropriate amount of time, with the majority thinking it proceeded too rapidly. Respondents also believed harmonization was not properly applied to the TMEP review.
Impartiality of the NEB Panel, experts and federal government	The reviewer and the federal government fully considered all the evidence before making an unbiased decision, and had not already made up their mind about the project before the review process commenced. All evidence submitted by the proponent and intervenors was complete and unbiased. Experts from the proponent and intervenors did not have any bias.	Not Met	Respondents believed the TMEP NEB Panel, as well as the fedearl government, already made up their mind in favor of the project before the review process commenced. Respondents also believed TM experts to be biased.
Scoping and List of Issues	Participants were satisfied with the scope of the project and its List of Issues as defined by the review body for the project's hearing.	Not Met	The scope of TMEP review left out important issues, such as upstream and downstream effects (later included), climate change, effects of increase tanker traffic, risk of oil spill, and cumulative effects.
Methods of analysis	The methods that the review body used to assess the impacts of the project were excellent. The reviewer provided clear guidance on the methods used to assess project impacts.	Not Met	Respondents believed the methods of analysis were not adequate, requiring more detailed analyses by independent parties.
Stakeholder and First Nations participation	All parties potentially affected by the TMEP were given adequate opportunity to participate in the process. All stakeholders had adequate resources to participate and the review process integrated all stakeholders' perspectives.	Not Met	Parties potentially affected by the project were given adequate opportunity to participate, however some parties were excluded due to the review panel's criteria, and not all parties received adequate resources to meaningfully participate.

Decision-making structure and accountability	The decision-making criteria were appropriate, precise and provided clear guidance to decision makers.	Not Met	The NEB and CEAA evaluation criteria used by the TMEP NEB Panel were not clear, resulting in criteria such as public interest, need of the project, and significant of adverse effects, vague and poorly justified by the reviewer.
Adequate information	All information was adequated evaluated, encompassed all types of evidence, and was based on good science. The reviewer obtained all information to make a decision.	Not Met	The TMEP NEB Panel did not receive all the necessary information to make an informed decision, especially about alternatives for the project, compensation and mitigation measures, and cumulative effects.
Legislative framework	The legislative framework was adequate.	Not Met	Respondents believed the legislative framework to be insufficient, lacking clarity and certainty.
Process objectives	The review process met a number of desirable objectives that increased the confidence in reaching a fair and just decision.	Not Met	Respondents believed the review process increased their understanding of the TMEP, however they did not believe it reached other objectives such as serving the public interest, reducing conflict and improving relationships among stakeholders.

4.16. Improving the Process

Respondents were asked to state their level of agreement with seventeen potential reforms to the pipeline project review process as well as to suggest any other reforms they think should be considered (Table 4.9) (Figure 4.23). Most of the proposed reforms (11) were supported by over two-thirds of respondents. Almost all of the respondents (94%) agreed that TM should have full liability for any damages caused by the TMEP. Respondents also strongly supported the following reforms: having potential impacts assessed by independent scientists rather than experts hired by TM (89%); requiring the applicant to have a comprehensive compensation plan approved by the Panel (that specifies the types of damages eligible for compensation, what parties would be compensated, and how damage costs would be determined) (88%); requiring cost-

benefit analysis (87%); providing more resources for intervenor participation (87%); requiring the proponent to perform an extensive public consultation process following public consultation guidelines (84%); and having government provide more detailed technical guidelines on methodologies to assess the project's impacts and risks (84%).

There was also strong support for involving stakeholders and both levels of government in the appointment of panel members conducting the reviews (74-78%), providing First Nations with a veto over projects impacting their interests (72%), and implementing a consensus based stakeholder negotiation process to review the project (71%).

Two proposed reforms asked intervenors their level of agreement with conducting separate review processes instead of having a single review. One possible reform would be to keep the reviews under the *NEBA* and the *CEAA 2012* separate - a reform which received 61% of support. Another potential reform would be to have the province and the federal government conduct separate EA reviews instead of having a single review. This received agreement of 56% of respondents.

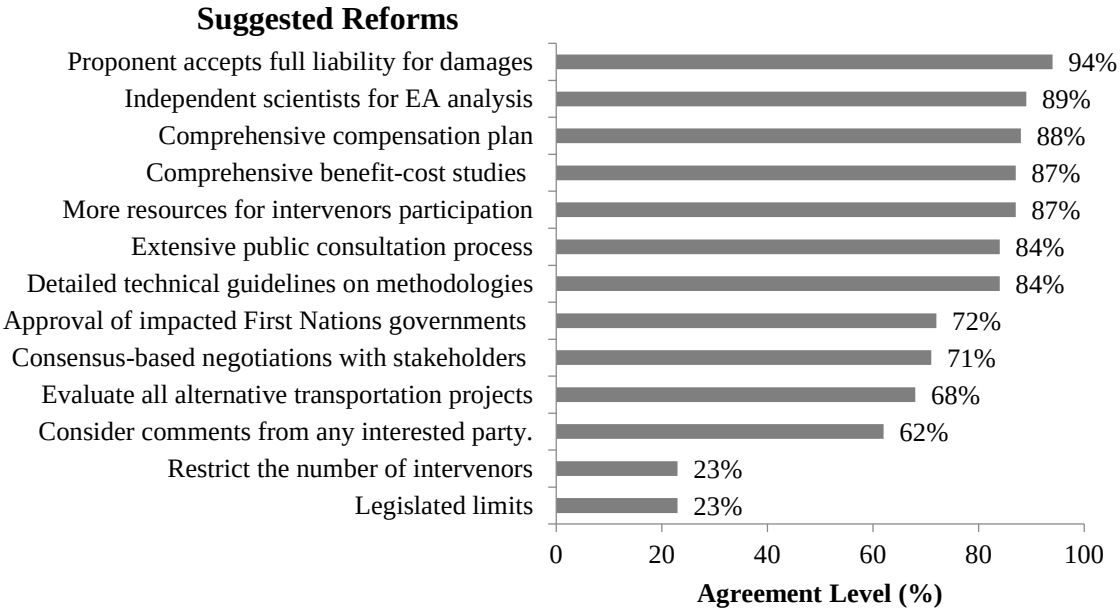
Interestingly, the two reforms that were implemented in the 2012 changes to the *CEAA* received very little support: imposing legislative time limits (23%) and restricting the number of stakeholders allowed to participate in NEB hearings (23%)

Table 4.9 Respondents' Opinion of the Suggested Reforms

Suggested reform	Level of Agreement
As a condition for project approval require the applicant to accept full liability for any damages caused by the project and document ability to pay off any damages.	94%
Have government review agencies hire independent scientists to conduct impact assessment analysis rather than using experts that are employed by, or hired by the project applicant. (The costs of the independent analysis would be financed by a levy applied to the applicant)	89%
Require the applicant to have a comprehensive compensation plan approved by the review panel that specifies what types of damages would be eligible for compensation, what parties would be compensated, and how damage costs would be determined.	88%
Include a requirement for comprehensive benefit-cost studies for all major projects reviews.	87%
Provide more resources for intervenors to participate in the process.	87%
Require the applicant to complete an extensive public consultation process in accordance with detailed public consultation guidelines prior to submitting an application.	84%
Have government prepare more detailed technical guidelines on methodologies that should be used to assess the project's economic, social and environmental impacts and risks.	84%
The appointment of a review panel for major energy projects should be made jointly by the federal government, impacted provincial governments, and impacted stakeholders instead of just by the federal government.	78%
The appointment of a review panel for major energy projects should be made jointly by the federal government and impacted provincial governments instead of just by the federal government.	74%
Require the approval of impacted First Nations governments before projects can be built.	72%
Require the applicant to engage in consensus-based negotiations with stakeholders and attempt to reach stakeholder agreement on major project issues prior to submitting an application (if agreement is not reached despite the best efforts of the applicant the project could still be submitted for review).	71%
Complete an integrated evaluation of all alternative transportation projects for shipping oil instead of evaluating each project separately.	68%
Require the NEB to consider comments from any interested party.	62%

The environmental assessment process under the *Canadian Environmental Assessment Act* and the pipeline approval process under the *National Energy Board Act* should be conducted as two separate review processes under separate review panels instead of being combined into one hearing process.	61%
The environmental assessment process of the federal government and impacted provinces should be conducted as two separate processes instead of being combined into a single hearing process.	56%
Restrict the number of intervenors in the hearing to only those deemed by the NEB to be directly affected by the project and/or have relevant expertise.	23%
Impose legislated limits specifying the maximum time for project review.	23%

Figure 4.23 Agreement about Suggested Reforms



4.17. Comparison of TMEP and ENGP

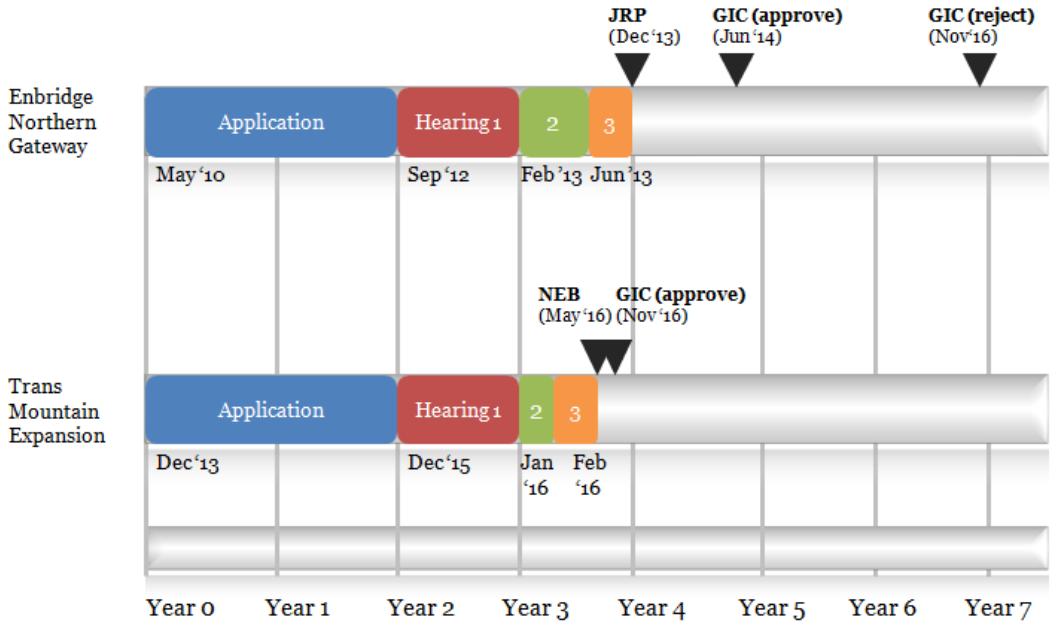
The same evaluation framework was applied to the Enbridge Northern Gateway project (ENGP) by Lauren Roggenbuck in 2015. Her survey, conducted between November 21, 2013 and May 1, 2014, was distributed to 96 intervenors who submitted written evidence or underwent cross-examination during the review process. This section will briefly describe the difference between both projects and their review processes.

Key differences in project components and review processes

ENGP and TMEP are both proposed pipelines crossing British Columbia and Alberta to deliver oil to foreign markets. In May 2010, Enbridge proposed two new pipelines along the same route between Edmonton, AB and a new marine terminal in Kitimat, BC: one pipeline would export oil from Alberta and the second pipeline would import condensate to Alberta. The export pipeline would transport 525,000 bpd to the terminal, which would then be shipped by approximately 331 tankers per year. TMEP is a twinning of an existing pipeline for 1,150km, from Edmonton, AB to Burnaby, BC, proposed in December 2013.

ENGP was reviewed by a three person Joint Review Panel (JRP) made up of one member appointed under CEAA and two members from the NEB. The JRP recommended the approval of the ENGP project in December 2013, subject to 209 required conditions. The NEB Panel recommended TMEP's approval with 157 conditions in May 2016. The GIC first approved ENGP on June 17, 2014. However the review process and decision were challenged in several court cases, and on November 29, 2016, the federal government announced its rejection of the project. On the same date, the federal government announced its approval of TMEP. Some key differences between the two review processes are the composition of their panels, cross-examination and duration. The ENGP Panel was composed of CEAA and NEB members, whereas only NEB members sat on TMEP Panel. Cross-examination of witnesses was allowed in the ENGP review, yet not in the TMEP process. Finally, the review of ENGP took almost twice as long as the review of the TMEP (64 months for ENGP; 36 months for TMEP) (Figure 4.24). These differences may influence the perception intervenors had about the given review process.

Figure 4.24 Comparison of TMEP and ENGP Timelines



The red, green and orange stages represent the three hearings hosted by the associated Panel. The black triangles indicate the dates when the Panels and the Governor in Council pronounced their decisions. Each year is identified by a grey line, spanning from the beginning of the application in Year 0 to Year 7, when the final decision on the ENGP project was announced. This figure demonstrates the shorter phases of hearings 2 and 3 for the TMEP and the shorter timeline used during the TMEP review. Indeed, the decisions by both authorities (i.e. Panel and GIC) took approximately one more year for the ENGP.

Qualitative comparison of survey results

On average, the results of both survey were very similar (Table 4.10). Although levels of agreement were slightly higher for all best practices for the ENGP, the ENGP and TMEP review processes both failed to meet any of the nine best practices (Table 4.10). While more comparative analysis of the two surveys is warranted, the general findings of the two surveys are similar: both review processes had serious deficiencies.

Table 4.10 Qualitative Comparison of Survey Results of TMEP and ENGP

Best Practice	Description	Level of agreement		Assessment	
		TMEP	ENGP	TMEP	ENGP
Administrative structure and efficiency	The review process took the appropriate amount of time, and the harmonization into a single review process is a good idea.	11%	33%	Not Met	Not Met
Impartiality of the reviewer, experts and federal government	The reviewer and the federal government fully considered all the evidence before making an unbiased decision, and had not already made up their mind about the project before the review process commenced. All evidence submitted by the proponent and intervenors was complete and unbiased. Experts from the proponent and intervenors did not have any bias.	16%	17%	Not Met	Not Met
Scoping and List of Issues	Participants were satisfied with the scope of the project and its List of Issues as defined by the review body for the project's hearing.	11%	30%	Not Met	Not Met
Methods of analysis	The methods that the review body used to assess the impacts of the project were excellent. The reviewer provided clear guidance on the methods used to assess project impacts.	13%	16%	Not Met	Not Met
Stakeholder and First Nations participation	All parties potentially affected by the TMEP were given adequate opportunity to participate in the process. All stakeholders had adequate resources to participate and the review process integrated all stakeholders' perspectives.	26%	44%	Not Met	Not Met
Decision-making structure and accountability	The decision-making criteria were appropriate, precise and provided clear guidance to decision makers.	18%	23%	Not Met	Not Met

Adequate information	All information was adequated evaluated, encompassed all types of evidence, and was based on good science. The reviewer obtained all information to make a decision.	16%	25%	Not Met	Not Met
Legislative framework	The legislative framework was adequate.	16%	25%	Not Met	Not Met
Process objectives	The review process met a number of desirable objectives that increased the confidence in reaching a fair and just decision.	17%	21%	Not Met	Not Met

Note: The TMEP survey included 69 responses of the 412 intervenors contacted for a response rate of 16.7% and a confidence interval of 95%. The ENGP survey included 40 responses of the 96 intervenors contacted for a response rate of 42% and a confidence interval of 95%. No analysis of the statistical significance of differences between the two surveys was conducted. For both the TMEP and ENGP surveys, the level of agreement for all questions within a BP theme were averaged to reflect the overall agreement of whether the BP theme was met.

4.18. Conclusion

Three conclusions emerge from the survey. First, the respondents in the TMEP NEB review process give the process a very low rating. They are highly critical of the way the process was structured and managed. Second, and on a more positive note, there is a high degree of agreement on how to improve the process. Third, the conclusions do not differ from the qualitative comparison with ENGP JRP results. Overall, the respondents from both review processes were dissatisfied with the process and agreed on how to improve it.

Chapter 5.

5.1. Key Lessons

The objective of this research was to evaluate the TMEP's review and approval process using an evaluation framework. TM's application was reviewed to explain the proposed project and to understand its need, components and potential impacts (Chapter 2). The legislative framework of the current review and approval process for energy projects in Canada was summarized, along with a description of the TMEP NEB Panel, including its strengths and challenges (Chapter 3). The performance of the TMEP NEB review process was then assessed based on a survey of intervenors in the NEB hearings (Chapter 4). The evaluation provided insights for recommendations on how to improve the process discussed in this chapter.

The overall conclusion is that a large majority of the responding intervenors were not satisfied with many aspects of the review and approval process, stressing the need for improvement. More than three quarters of respondents (86%) believed the review process to be poor. The results indicate that the TMEP review had problems with all of the BPs, receiving less than 30% level of agreement for each BP being met (Table 4.8) (Figure 4.22).

5.2. Recommendations

The following recommendations are based on the survey responses and are listed in the order of the degree of support among intervenors. It is also important to note that the recommendations are consistent with the findings in the Roggenbuck (2015) survey and hence are supported by both the TMEP and ENGP survey results.

Recommendation 1: *Project proponents should be required to have a comprehensive compensation plan approved by the review panel that specifies which types of damages would be eligible for compensation and which parties would be compensated. The plan should specifically require the applicant to accept full liability for any damages and document their ability to pay for damages.*

A comprehensive compensation plan is part of the BP administrative structure and efficiency, supported by 88% of respondents (Section 4.16). The proponent should ensure the potential damages created by their project, identified in the EA, are properly assessed and mitigated in manners that provide the greatest net benefits and that ensure the proponent is liable for any adverse effects from the project, supported by 94% of respondents (Section 4.16). The compensation plan should be similar to an insurance policy and include: confirmation of financial resources to pay compensation, adverse impacts covered by compensation, methods for determining compensation for adverse impacts, who is eligible for compensation and dispute resolution mechanisms (Gunton et al., 2015). If the EA or the compensation plan is incomplete, the review body should have the legal capacity to request that deficiencies in the application be addressed. This compensation requirement should be included in the relevant pipeline review process legislation. Such legislative obligations could increase the confidence intervenors have in the review panel's ability to ensure the proponent covers damages and is held accountable for accidents.

Recommendation 2: *Governmental review agencies, such as the NEB, should hire independent scientists financed by a levy attached to the application to conduct impact assessment analysis*, *rather than using experts that are employed by the project applicant.*

Intervenors did not have confidence in the accuracy of TM's evidence (82%) and did not believe TM's evidence was based on good science (73%). Many intervenors also believed the proponent's experts conducting the EA displayed a bias for the project (73%). Intervenors' confidence and trust in the review process would be increased if they knew experts preparing the evidence were independent scientists without bias for the proponent. Many intervenors mentioned the need for detailed, consistent and higher standards for impact assessment. Independent scientists could introduce scientifically robust and impartial methods to assess impacts. More trust for the EA of independent assessors hired by the review agency would also reduce costs to intervenors, who currently duplicate evidence to verify the proponent's studies.

Recommendation 3*: Governmental review agencies should identify recommended EA methods, such as cost-benefit analysis, and should provide comprehensive guidelines for applying the methods.*

Cost-benefit analysis (CBA) is a highly recommended method of analysis. Eighty-seven percent (87%) of intervenors believed a CBA should be a requirement for the proponent. A comprehensive CBA could provide enough information for the review panel to make knowledgeable decisions to determine if a project is in the public interest. Indeed, the current exchange of information between the applicant and the Panel is not deemed adequate by intervenors, with only 11% of TMEP respondents believing the NEB Panel obtained all necessary information to make their recommendation. Most respondents (84%) also indicated that the government should prepare more detailed technical guidelines on methodologies used to assess the project's economic, social and environmental impacts. Guidelines would aid in maintaining consistency when the proponent applies these methods to meet the standards expected by review bodies and stakeholders.

Recommendation 4: *Governmental review agencies should provide more resources for intervenors to participate in the process*.

The NEB provides some funding to intervenors. In the case of the TMEP, the NEB provided $3,085,370 to 72 eligible intervenors, of which 79% was offered to Aboriginal groups (NEB, 2016f). However, only 15% of participants believed their stakeholder group had adequate resources to participate effectively in the review process and 8% believed non-industry stakeholders such as First Nations, environmental and community groups did. Alternatively, 75% thought the proponent possessed an adequate amount of resources to participate. While the proponent may receive financial benefits from a completed project to pay for the application process, intervenors require funding. Several intervenors mentioned the need to hire lawyers to understand the process or hire consultants to generate evidence, which are costly actions. The participation of intervenors is important for a thorough evaluation and to carry out the reviewing agencies' mandates.

Recommendation 5: *The applicant should complete an extensive public consultation process in accordance with detailed public consultation guidelines prior to submitting an application. Guidelines should specify the need for consensus-based negotiations with stakeholders and an attempt to reach stakeholder agreement on major project issues prior to submitting an application (if agreement is not reached despite the best efforts of the applicant, the project could still be submitted for review).*

On average, TMEP respondents agreed that the applicant should conduct extensive public consultation (84%) and consensus-based negotiations with stakeholders (71%) prior to submitting an application. Several intervenors mentioned not being informed or consulted about the project before the application was accepted. Indeed, only 18% of respondents agreed that all parties potentially affected by the project were given adequate opportunity to participate in the review process. Reaching agreements between stakeholders and the proponent is not a condition for approval, however the public should feel satisfied with the level of engagement and the opportunities to voice their concerns and opinions if a collaborative process is taken on. Stakeholder participation is a key BP that ensures the review panel receives the necessary information to make a decision with the least conflict among stakeholders.

Recommendation 6: *The appointment of a review panel for major energy projects should be made jointly by the federal government, impacted provincial governments, and impacted stakeholders instead of just by the federal government.*

This suggested reform was supported by 78% of TMEP respondents. This recommendation received slightly more support than the appointment of a review panel being made jointly by only the federal government and impacted provincial governments instead of just by the federal government (74%). Respondents expressed concerns about the independence of the NEB Panel, and its ability to fully consider the issues, without supporting certain views over others. For the outcomes of the process, respondents believed the NEB Panel integrated oil industries' perspective more so (61%) than integrating Aboriginal (13%) or public (7%) perspectives. To reduce conflict of interest or the appearance of a captured regulator, the appointment of the NEB review panel should be done not only by the federal government, but also by impacted provincial governments, impacted stakeholders and First Nations.

Recommendation 7: *A review process should require the approval of First Nations governments before projects can be built.*

Three-quarters (72%) of TMEP participants agreed that Aboriginal perspectives had not been properly integrated into decision-making, and 72% also agreed that First Nations approval should be required before projects can be built. To respect its *Obligations to Indigenous Peoples,* the government must ensure that the project's review

process adheres to and promotes the principles in the *UN Declaration on the Rights of Indigenous Peoples* as well as obligations established in the Nation's constitution (Joseph, 2013; Indigenous and Northern Affairs Canada, 2010). The government must comply with its duty to consult and to accommodate. According to the Supreme Court of Canada's decision in *Tsilhquot'in Nation v. British Columbia* (2014 2 S.C.R. 256), the approval of First Nations is required if the given project encroaches on lands where Aboriginal title is involved, unless the government's objective is compelling and substantial enough to override the First Nations rights and title. Notably, accepted projects which did not properly consult or accommodate First Nations are often challenged in court; actions which could be avoided with proper engagement of First Nations through the process and a formal approval from their governments.

Recommendation 8: *Complete an integrated evaluation of all alternative transportation projects for shipping oil instead of evaluating each project separately.*

While alternative oil transportation projects are considered in the application, they are done so briefly and not at a regional scale. The evaluation of these alternatives is done on a case-by-case basis, often not considered in entirety by appraising their costs and benefits. A general evaluation of the alternatives would allow more deliberation over their cumulative effects and tradeoffs, and possibly extend the issues considered in their assessment. This recommendation is supported by 68% of respondents.

Recommendation 9: *The review panel should be required to consider comments from any interested party.*

Approximately 62% of TMEP respondents believed the NEB Panel should consider comments from any interested party. Currently, any party may submit a letter of comment, however not everyone may participate as an intervenor. The *CEAA 2012* restricted the allocation of intervenor status to individuals or groups with expertise or directly affected by the project. Even so, the support for this reform indicates that participants already involved as intervenors believe more people should be allowed to participate in the decision-making for high-profile national projects.

Recommendation 10: *The List of Issues should be extended to include additional issues which concern stakeholders*.

This recommendation was suggested by several TMEP intervenors in open-ended questions, and finally honored by the new federal government, which extended the list to include TMEP's upstream and downstream effects (Government of Canada, 2016). However, issues in common between the TMEP and the ENGP still omitted from the review process include GHG emissions, cumulative effects, community engagement, effects of increase tanker traffic, risk of oil spill, climate change and open water area environmental assessment. Applying recommendation 5 to conduct an extensive public consultation prior to submitting an application could improve the communication between the applicant, the Panel and intervenors before deciding upon the List of Issues and produce a more inclusive list.

Recommendation 11: *The review process should require cross-examination of witnesses.*

The need for cross-examination was mentioned directly by ten TMEP respondents. Cross-examination would allow an adequate and thorough evaluation of the evidence, which would increase the trust stakeholders have for the evidence presented and for the review process. The TMEP NEB Panel used information requests to test evidence, yet this method is not sufficient to properly examine flaws and inconsistencies in the application nor to demonstrate potential bias of experts. Cross-examination should be a requirement by any review panel to ensure transparency and credibility in the process.

Recommendation 12: *Governmental review agencies should allow more time for the review process.*

Currently the NEB has 15 months to complete its review. Only 9% of TMEP respondents believed this was an appropriate amount of time to conduct the review, while half of respondents (52%) believed the review proceeded too rapidly. Only 23% believed legislated time limits specifying the maximum time for project reviews should be imposed. Allocating more time for the review process would allow the review panel to properly consult all stakeholders, perform a thorough analysis of the evidence, and make an informed decision.

Recommendation 13: *All of the main provisions should be in legislation governing the review process.*

The legislative framework for the review process for pipelines was one of the lowest rated best practices for the TMEP. Only 5% of TMEP respondents believed the legislative framework for the NEB Panel provided clarity and certainty. The use of mandatory language ensures a law's clarity and clearer obligations. The purpose of the review process should be written in law, as well as any provisions which ensure the review process adequately follows best practices.

5.3. Future Research

This research adds to the literature on BP for EA and its contributions could be explored and expanded on in future research. For instance, the responses of intervenors to certain reforms remain uncertain and the design of proposed reforms needs additional work. A priority for future research is the issue of harmonizing the review process. The reform of separating the EA process by the federal and impacted provincial governments, each doing their own assessment instead of being combined into a single hearing process, was suggested to intervenors. On average, just over half of intervenors (56%) agreed with the separation and 31% disagreed (as seen in Table 4.9 in Chapter 4). Similarly, approximately half of intervenors (61%) believe the EA should be conducted under the *CEAA 2012* and the pipeline approval process under the *NEBA*, as two separate processes conducted by different agencies and panels. Future research could focus on finding the preferences among intervenors regarding the ideal structure for the review and approval process.

5.4. Conclusion

Overall, respondents believed the current review process performed by the NEB does not meet the nine best practices set out in this research and is deficient. Even so, the respondents also demonstrated a substantial degree of consensus on how the process could be improved. This evaluation of the TMEP review process based on BP and comparison to ENGP results should be seen as a contribution to improving the Canadian review process.

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Appendix A.

Informed Consent

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Evaluation of the Regulatory Review Process for Pipeline Expansion in Canada: A Case study of the Trans Mountain Expansion Project

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Research Purpose and Goals: The purpose of this research is to evaluate strengths and weaknesses of the joint review process for the Trans Mountain Expansion Project and to make recommendations for improving the review process. This research is being undertaken by an independent research team at Simon Fraser University. The results of the research will be publicly available after completion of the study. As a participant in the review process, your responses are important to ensure the accuracy of the research results.

About this Survey: The webpages that follow ask a series of questions about your perspective on best practices for environmental assessment and your perspective on the quality of the joint review process for the Trans Mountain Expansion Project. The survey should take approximately 30 minutes.

Voluntariness: You have the right to refuse to participate in this study. If you decide to participate, you may still choose to withdraw from the study at any time without any negative consequences to the Trans Mountain Expansion regulatory review process you or your organization is currently involved in.

Confidentiality: Your identity will be kept confidential and no information you provide through this survey will be attributed to you or presented in a way that could be attributed to you. If you have any questions about the protection that we have in place for you, please contact the principal investigator, Katherine Zmuda at [...]@sfu.ca. If you have any concerns about your rights as a research participant and/or your experiences while participating in this study, you may contact Dr. Jeffrey Toward, Director, Office of Research Ethics at [...]@sfu.ca or 778-[...]

Agreement

1. I agree to be surveyed for the purposes of the project named above.
2. The purpose and nature of the survey have been explained to me.
3. I have had a chance to ask questions concerning the purpose and nature of the survey, the project, and my questions have been answered to my satisfaction.
4. I understand that taking part in this study is entirely voluntary. It is my right to decline to answer any questions and to choose not to complete the survey by clicking “exit the survey” which appears at the bottom of each page of the survey.
5. I understand that there are minimal risks associated with my participation in this survey.
6. My name will not be used in the project; rather, a number will be used to identify all respondents. The use of a secure and encrypted web server located in Canada will ensure the confidentiality of my identity.
7. I understand that I can obtain the study results from the principal investigator, Katherine Zmuda (via email [...]@sfu.ca)

I have read this consent form and I have had a chance to ask questions concerning any areas that I did not understand. By clicking “Agree and begin the survey” button, I am consenting to participate in this study.

☐ Agree and begin the survey

Appendix B.

Survey Summary Report

Informed Consent

Response	Chart	Percentage	Count
Agree and begin the survey		100.0%	95
		Total Responses	**95**

1. a) Please tell us with which of the following groups you are associated.

Response	Chart	Percentage	Count
Local government		12.8%	11
Oil and gas industry		4.7%	4
Other industry		4.7%	4
Consultant		1.2%	1
Aboriginal group		14.0%	12
Environmental organization		18.6%	16
Academia		5.8%	5
Other, please specify		50.0%	43
		Total Responses	**86**

(Other, please specify)

b) Were you legal counsel to the group you are associated with?

Response	Chart	Percentage	Count
Yes		12.8%	11
No		87.2%	75
		Total Responses	**86**

2. a) How many years of experience do you have with the Canadian pipeline review process?

The 84 response(s) to this question can be found in the appendix.

b) If applicable, could you briefly describe your past role in the pipeline review process?

The 58 response(s) to this question can be found in the appendix.

3. In which province do you currently reside?

Response	Chart	Percentage	Count
Alberta		7.0%	6
British Columbia		86.0%	74
Other, please specify		7.0%	6
		Total Responses	**86**

3. In which province do you currently reside? (Other, please specify)

#	Response
1.	Washington State, US
2.	Nova Scotia
3.	washington state, USA
4.	San Juan Islands, Washington State, USA
5.	Saskatchewan

4. Approximately how long have you been involved with the Trans Mountain Expansion Project (TMEP) review?

Response	Chart	Percentage	Count
Less than a year		3.5%	3
1- 3 years		76.5%	65
More than 3 years		20.0%	17
		Total Responses	**85**

5. Did the intervenor group you were involved with submit written evidence to the TMEP Joint Review Panel (JRP)?

Response	Chart	Percentage	Count
Yes		72.1%	62
No		27.9%	24
		Total Responses	**86**

6. Which of the following represents your view?

Response	Chart	Percentage	Count
a) Consolidating the NEB, CEAA, and BC and Alberta provincial review processes under a single review panel is a good idea.		14.5%	11
b) Consolidating the NEB, CEAA, and BC and Alberta provincial review processes under a single review panel is a good idea in principle, however it did not apply adequately for the TMEP review		22.4%	17
c) Consolidating the NEB, CEAA, and BC and Alberta provincial review processes under a single review panel is not a good idea.		63.2%	48
		Total Responses	**76**

Elaborate on your answer to question 6 (optional)

The 51 response(s) to this question can be found in the appendix.

7. Which of the following statements matches your opinion?

Response	Chart	Percentage	Count
a) The JRP did not exhibit any bias for or against the TMEP and the intervenors during the hearing process.		15.0%	12
b) The JRP exhibited bias against the applicant (TMEP) and/or intervenors in support of the TMEP during the hearing process.		8.8%	7
c) The JRP exhibited bias against intervenors opposed to the TMEP during the hearing process.		53.8%	43
d) Not sure		22.5%	18
		Total Responses	**80**

If you answered b or c in Question 7, please elaborate or provide examples of JRP bias in your opinion.

The 41 response(s) to this question can be found in the appendix.

8. Which of the following statements matches your opinion?

Response	Chart	Percentage	Count
a) Federal government agencies participating in the JRP hearing exhibited bias in favor of TMEP.		39.5%	32
b) Federal government agencies participating in the JRP hearing exhibited bias against the TMEP.		0.0%	0
c) Some federal government agencies exhibited bias in favor of the TMEP, while others exhibited bias against TMEP in the JRP hearing.		9.9%	8
d) Federal government agencies participating in the JRP hearing did not exhibit bias for or against the TMEP.		17.3%	14
e) Not sure		33.3%	27
		Total Responses	**81**

9. Please indicate your agreement with:

	a) Strongly Agree	b) Agree	c) Neutral	d) Disagree	e) Strongly Disagree	f) Don't know	Total Responses
I. I am satisfied with the process that the JRP used to determine the list of issues to be considered in the TMEP hearing.	4 (5.1%)	5 (6.4%)	2 (2.6%)	13 (16.7%)	48 (61.5%)	6 (7.7%)	78
II. I am satisfied with the list of issues determined by the JRP for the TMEP	3 (3.8%)	7 (9.0%)	1 (1.3%)	15 (19.2%)	49 (62.8%)	3 (3.8%)	78

hearing.							
III. I am satisfied with the scope of the project as defined by the JRP for the hearing (i.e. the components of the TMEP that were included in the assessment).	5 (6.4%)	5 (6.4%)	2 (2.6%)	13 (16.7%)	49 (62.8%)	4 (5.1%)	78

10. The process for determining the list of issues could have been improved by:
The 63 response(s) to this question can be found in the appendix.

11. Please identify any important issues that were omitted from the JRP's list of issues (if any).
The 65 response(s) to this question can be found in the appendix.

12. Please identify any issues on the JRP's list of issues that should have been omitted from the hearing (if any).
The 21 response(s) to this question can be found in the appendix.

13. Please identify any components and/or activities that should have been added to the JRP's definition of the TMEP's scope used in the hearings.
The 42 response(s) to this question can be found in the appendix.

14. Please rate your familiarity with the National Energy Board's (NEB) Filing Manual for Pipeline approval applications.

Response	Chart	Percentage	Count
a) Very familiar		7.9%	6
b) Somewhat familiar		60.5%	46
c) Not familiar		31.6%	24
		Total Responses	**76**

15. The methods that should have been used to assess the impact of the TMEP were clearly identified by the NEB and Canadian Environmental Assessment Agency (CEAA).

Response	Chart	Percentage	Count
a) Strongly agree		3.9%	3
b) Agree		11.8%	9
c) Neutral		17.1%	13
d) Disagree		26.3%	20
e) Strongly disagree		27.6%	21
f) Don't know		13.2%	10
		Total Responses	**76**

16. The methods that Kinder Morgan (the proponent) used to assess the impact of the TMEP were:

Response	Chart	Percentage	Count
a) Excellent (i.e. no issues)		5.3%	4
b) Adequate, but could benefit from a few improvements		11.8%	9
c) Poor/inadequate		75.0%	57
d) Don't know		7.9%	6
		Total Responses	**76**

17. Do you have any suggestions for how Kinder Morgan could have improved their assessment methods?

The 56 response(s) to this question can be found in the appendix.

18. All parties potentially affected by the TMEP were given adequate opportunity to participate in the review process.

Response	Chart	Percentage	Count
a) Strongly agree		5.3%	4

b) Agree		10.5%	8
c) Neutral		3.9%	3
d) Disagree		23.7%	18
e) Strongly disagree		52.6%	40
f) Don't know		3.9%	3
		Total Responses	**76**

19. Stakeholders were given sufficient opportunities to learn and become informed of the issues raised by Kinder Morgan's application.

Response	Chart	Percentage	Count
a) Strongly agree		5.3%	4
b) Agree		7.9%	6
c) Neutral		3.9%	3
d) Disagree		42.1%	32
e) Strongly disagree		39.5%	30
f) Don't know		1.3%	1
		Total Responses	**76**

20. Do you have any suggestions on how the JRP process could have improved stakeholder involvement?

The 62 response(s) to this question can be found in the appendix.

21. Please indicate your agreement with:

	a) Strongly Agree	b) Agree	c) Neutral	d) Disagree	e) Strongly Disagree	f) Don't know	Total Responses
I. The scope of the NEB and CEAA evaluation criteria for project evaluation are appropriate (i.e. the criteria include all relevant	4 (5.5%)	7 (9.6%)	7 (9.6%)	24 (32.9%)	26 (35.6%)	5 (6.8%)	73

considerations that should be taken into account).							
II. The evaluation criteria provide clear guidance to decision-makers for their deliberations on whether to approve pipeline applications or not and what conditions to apply if they do approve the pipeline.	4 (5.5%)	9 (12.3%)	12 (16.4%)	19 (26.0%)	24 (32.9%)	5 (6.8%)	73
III. The evaluation criteria are too vague.	15 (20.5%)	27 (37.0%)	13 (17.8%)	9 (12.3%)	4 (5.5%)	5 (6.8%)	73

22. Please indicate your agreement with:

	a) Strongly Agree	b) Agree	c) Neutral	d) Disagree	e) Strongly Disagree	f) Don't Know	Total Responses
I. The JRP will fully consider all the evidence and make an unbiased recommendation on the TMEP.	3 (4.1%)	4 (5.5%)	7 (9.6%)	14 (19.2%)	38 (52.1%)	7 (9.6%)	73
II. The JRP had already made up its mind on the TMEP before the review process	21 (28.8%)	24 (32.9%)	9 (12.3%)	4 (5.5%)	4 (5.5%)	11 (15.1%)	73

commenced.							
III. The federal government will fully consider all the evidence and make an unbiased decision on the TMEP.	1 (1.4%)	6 (8.2%)	13 (17.8%)	19 (26.0%)	22 (30.1%)	12 (16.4%)	73
IV. The federal government had already made up its mind on the TMEP before the review process commenced.	17 (23.3%)	22 (30.1%)	16 (21.9%)	4 (5.5%)	4 (5.5%)	10 (13.7%)	73

23. The JRP process for the TMEP review:

Response	Chart	Percentage	Count
a) Proceeds too rapidly		50.7%	37
b) Takes too much time		16.4%	12
c) Takes an appropriate amount of time		9.6%	7
d) Not sure		23.3%	17
		Total Responses	**73**

24. Final decisions on pipeline applications like Kinder Morgan's application should be made by:

Response	Chart	Percentage	Count
a) Governor in Council (elected politicians in the federal government cabinet) based on recommendations from the NEB/CEAA JRPs (current process)		8.2%	6
b) The NEB/CEAA JRP		5.5%	4
c) Elected politicians in the federal and affected provincial governments based on recommendations from the NEB/CEAA JRPs		2.7%	2

d) Elected politicians in the federal, affected provincial governments, and First Nations governments based on recommendations from the NEB/CEAA JRPs		16.4%	12
e) Consensus agreement among all key stakeholders and First Nations impacted by the pipeline		42.5%	31
f) Other, please specify		24.7%	18
		Total Responses	**73**

24. Final decisions on pipeline applications like Kinder Morgan's application should be made by: (f) Other, please specify)

Optional space to explain your answers to Questions 21- 24.

The 28 response(s) to this question can be found in the appendix.

25. Please indicate your agreement with:

	a) Strongly Agree	b) Agree	c) Neutral	d) Disagree	e) Strongly Disagree	f) Don't know	Total Responses
I. Government bodies and staff involved in the JRP process had adequate resources to participate effectively.	4 (5.6%)	7 (9.9%)	10 (14.1%)	20 (28.2%)	9 (12.7%)	21 (29.6%)	71
II. The proponent had adequate resources to participate effectively in the JRP process.	31 (43.7%)	21 (29.6%)	4 (5.6%)	4 (5.6%)	2 (2.8%)	9 (12.7%)	71
III. Non-industry stakeholders such as First Nations, environmental	3 (4.2%)	3 (4.2%)	4 (5.6%)	11 (15.5%)	43 (60.6%)	7 (9.9%)	71

and community groups had adequate resources to participate effectively in the JRP process.							
IV. The stakeholder group that I was involved with had adequate resources to participate effectively in the JRP process.	2 (2.8%)	8 (11.3%)	4 (5.6%)	13 (18.3%)	43 (60.6%)	1 (1.4%)	71
V. Publicly available documentation on the JRP process provided all parties with a clear description of the process and clear instructions on how to participate.	3 (4.2%)	20 (28.2%)	17 (23.9%)	11 (15.5%)	19 (26.8%)	1 (1.4%)	71

26. Please indicate your agreement with:

	a) Strongly Agree	b) Agree	c) Neutral	d) Disagree	e) Strongly Disagree	f) Don't know	Total Responses
I. The evidence submitted by Kinder Morgan was biased to	37 (52.1%)	20 (28.2%)	5 (7.0%)	4 (5.6%)	1 (1.4%)	4 (5.6%)	71

exaggerate the benefits and understate the risks of the TMEP.							
II. The evidence submitted by Kinder Morgan provides all the necessary information to make a decision on the TMEP.	1 (1.4%)	6 (8.5%)	1 (1.4%)	20 (28.2%)	40 (56.3%)	3 (4.2%)	71
III. The evidence submitted by the intervenors was biased in favor of the intervenors' interests.	3 (4.2%)	24 (33.8%)	24 (33.8%)	9 (12.7%)	4 (5.6%)	7 (9.9%)	71
IV. At the end of the process, the JRP obtained all the information necessary to make an informed decision on the TMEP.	3 (4.2%)	5 (7.0%)	6 (8.5%)	18 (25.4%)	36 (50.7%)	3 (4.2%)	71
V. Kinder Morgan's expert witnesses showed bias in favor of the	28 (39.4%)	23 (32.4%)	8 (11.3%)	3 (4.2%)	0 (0.0%)	9 (12.7%)	71

TMEP.							
VI. Intervenors' expert witnesses showed bias in favor of their clients.	4 (5.6%)	22 (31.0%)	19 (26.8%)	11 (15.5%)	1 (1.4%)	14 (19.7%)	71
VII. The evidence submitted by Kinder Morgan was based on good science.	3 (4.2%)	5 (7.0%)	7 (9.9%)	20 (28.2%)	31 (43.7%)	5 (7.0%)	71
VIII. The evidence submitted by the intervenors was based on good science.	7 (9.9%)	23 (32.4%)	24 (33.8%)	3 (4.2%)	1 (1.4%)	13 (18.3%)	71
IX. The evidence was adequately evaluated and tested during the JRP hearing.	4 (5.6%)	3 (4.2%)	9 (12.7%)	10 (14.1%)	36 (50.7%)	9 (12.7%)	71
X. The testimony of expert witnesses was adequately evaluated and tested during the JRP hearing.	4 (5.6%)	1 (1.4%)	13 (18.3%)	10 (14.1%)	32 (45.1%)	11 (15.5%)	71
XI. The evidence	2 (2.8%)	6 (8.5%)	5 (7.0%)	9 (12.7%)	39	10	71

submitted by Kinder Morgan provided an accurate assessment of the costs and benefits of the TMEP.					(54.9%)	(14.1%)	
XII. The evidence submitted by intervenors provided an accurate assessment of the costs and benefits of the TMEP.	5 (7.0%)	17 (23.9%)	26 (36.6%)	3 (4.2%)	3 (4.2%)	17 (23.9%)	71

Optional space to explain your answers to Question 26.

The 34 response(s) to this question can be found in the appendix.

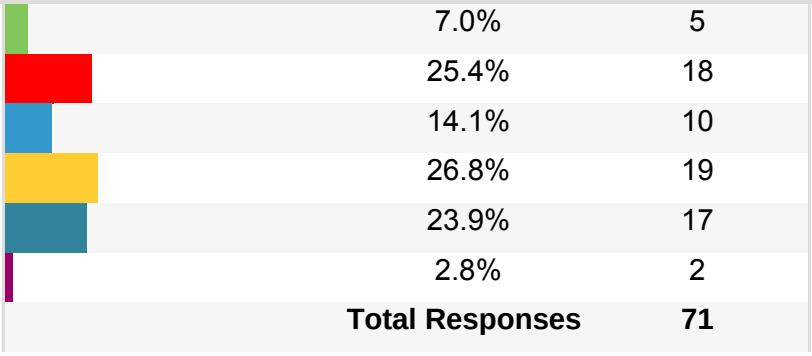
27. The application and evidence adequately assessed:

	a) Strongly Agree	b) Agree	c) Neutral	d) Disagree	e) Strongly Disagree	f) Don't know	Total Responses
I. The need for the TMEP	2 (2.8%)	12 (16.9%)	5 (7.0%)	18 (25.4%)	27 (38.0%)	7 (9.9%)	71
II. Alternatives to the TMEP	2 (2.8%)	3 (4.2%)	9 (12.7%)	16 (22.5%)	33 (46.5%)	8 (11.3%)	71
III. Benefits of the TMEP	6 (8.5%)	13 (18.3%)	12 (16.9%)	15 (21.1%)	19 (26.8%)	6 (8.5%)	71
IV. Costs of the TMEP	2 (2.8%)	10 (14.1%)	11 (15.5%)	10 (14.1%)	31 (43.7%)	7 (9.9%)	71
V. Adverse environmental impacts of	1 (1.4%)	4 (5.6%)	6 (8.5%)	15 (21.1%)	39 (54.9%)	6 (8.5%)	71

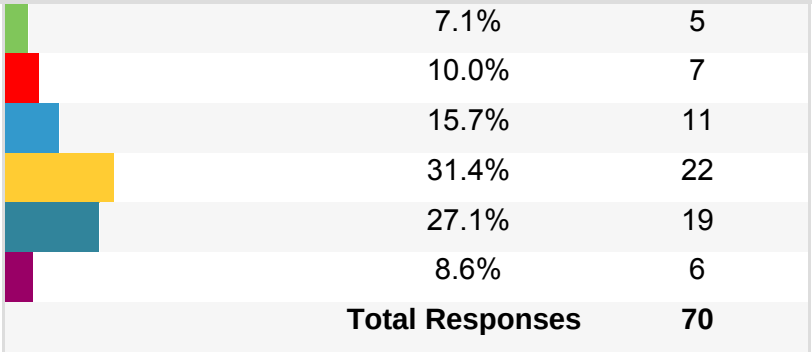
the TMEP							
VI. Likelihood of significant adverse impacts of the TMEP	3 (4.2%)	4 (5.6%)	4 (5.6%)	13 (18.3%)	42 (59.2%)	5 (7.0%)	71
VII. Cumulative impacts	2 (2.8%)	5 (7.0%)	4 (5.6%)	9 (12.7%)	44 (62.0%)	7 (9.9%)	71
VIII. Stakeholders negatively impacted by the TMEP	4 (5.6%)	4 (5.6%)	7 (9.9%)	14 (19.7%)	35 (49.3%)	7 (9.9%)	71
IX. Compensation and mitigation measures to address negative impacts of the TMEP	1 (1.4%)	4 (5.6%)	5 (7.0%)	12 (16.9%)	40 (56.3%)	9 (12.7%)	71
X. Economic feasibility	2 (2.8%)	10 (14.1%)	17 (23.9%)	7 (9.9%)	28 (39.4%)	7 (9.9%)	71
XI. Existence of markets	2 (2.8%)	13 (18.3%)	17 (23.9%)	11 (15.5%)	19 (26.8%)	9 (12.7%)	71
XII. Availability of oil and condensate to be shipped	4 (5.6%)	15 (21.1%)	23 (32.4%)	5 (7.0%)	12 (16.9%)	12 (16.9%)	71
XIII. The public interest	1 (1.4%)	3 (4.2%)	9 (12.7%)	9 (12.7%)	44 (62.0%)	5 (7.0%)	71
XIV. Alternative means (e.g. design, location) of carrying out the TMEP	2 (2.8%)	2 (2.8%)	16 (22.5%)	9 (12.7%)	35 (49.3%)	7 (9.9%)	71
XV. Alternative means (e.g.	1 (1.4%)	7 (9.9%)	12 (16.9%)	11 (15.5%)	32 (45.1%)	8 (11.3%	71

alternative transportation options) of meeting the objectives of the TMEP	)

28. The JRP communicated well with proponents and stakeholders during the JRP.

Response	Chart	Percentage	Count
a) Strongly agree		7.0%	5
b) Agree		25.4%	18
c) Neutral		14.1%	10
d) Disagree		26.8%	19
e) Strongly disagree		23.9%	17
f) Don't know		2.8%	2
		Total Responses	**71**

29. The legislative framework for the JRP provides adequate clarity and certainty.

Response	Chart	Percentage	Count
a) Strongly agree		7.1%	5
b) Agree		10.0%	7
c) Neutral		15.7%	11
d) Disagree		31.4%	22
e) Strongly disagree		27.1%	19
f) Don't know		8.6%	6
		Total Responses	**70**

30. Please indicate your agreement with:

	a) Strongly Agree	b) Agree	c) Neutral	d) Disagree	e) Strongly Disagree	f) Don't know	Total Responses
I. The JRP process served the	3 (4.2%)	5 (7.0%)	1 (1.4%)	23 (32.4%)	37 (52.1%)	2 (2.8%)	71

public interest.							
II. The JRP process is designed to help society move towards sustainability.	2 (2.8%)	4 (5.6%)	4 (5.6%)	13 (18.3%)	45 (63.4%)	3 (4.2%)	71
III. The JRP process adequately integrated Aboriginal perspectives into decision-making.	6 (8.5%)	3 (4.2%)	3 (4.2%)	10 (14.1%)	41 (57.7%)	8 (11.3%)	71
IV. The JRP process adequately integrated public perspectives into decision-making.	2 (2.8%)	3 (4.2%)	8 (11.3%)	14 (19.7%)	42 (59.2%)	2 (2.8%)	71
V. The JRP process improved relationships among stakeholders.	2 (2.8%)	1 (1.4%)	11 (15.5%)	11 (15.5%)	41 (57.7%)	5 (7.0%)	71
VI. The JRP process reduced conflict.	1 (1.4%)	4 (5.6%)	5 (7.0%)	14 (19.7%)	41 (57.7%)	6 (8.5%)	71
VII.The JRP process was cost-effective.	2 (2.8%)	3 (4.2%)	11 (15.5%)	12 (16.9%)	25 (35.2%)	18 (25.4%)	71
VIII. The JRP process adequately addressed all of the significant policy issues associated with the	3 (4.2%)	2 (2.8%)	3 (4.2%)	13 (18.3%)	46 (64.8%)	4 (5.6%)	71

TMEP.							
IX. The JRP process encouraged sound decision-making.	3 (4.2%)	4 (5.6%)	5 (7.0%)	11 (15.5%)	44 (62.0%)	4 (5.6%)	71
X. The JRP process adequately addressed environmental concerns.	3 (4.2%)	3 (4.2%)	3 (4.2%)	8 (11.3%)	50 (70.4%)	4 (5.6%)	71
XI. The JRP process adequately addressed social concerns.	2 (2.8%)	3 (4.2%)	5 (7.0%)	9 (12.7%)	47 (66.2%)	5 (7.0%)	71
XII. The JRP process adequately addressed economic development concerns.	3 (4.2%)	8 (11.3%)	11 (15.5%)	9 (12.7%)	32 (45.1%)	8 (11.3%)	71
XIII. I am confident that if the TMEP is approved, the conditions attached to approval will be fully implemented and strictly enforced by the federal government.	3 (4.2%)	6 (8.5%)	2 (2.8%)	14 (19.7%)	38 (53.5%)	8 (11.3%)	71
XIV. The JRP process improved my understanding of the TMEP.	8 (11.3%)	33 (46.5%)	10 (14.1%)	9 (12.7%)	9 (12.7%)	2 (2.8%)	71
XV. The JRP	5 (7.0%)	12	22	14	11	7	71

process was too adverserial.		(16.9%)	(31.0%)	(19.7%)	(15.5%)	(9.9%)	
XVI. The JRP process adequately integrated the oil industry's perspective into decision-making.	24 (33.8%)	18 (25.4%)	12 (16.9%)	4 (5.6%)	2 (2.8%)	11 (15.5%)	71

31. Please indicate your view about the time limits allocated to the project's review.

Response	Chart	Percentage	Count
a) The current legislated time limits should be shorter.		8.7%	6
b) The current legislated time limits should be longer.		27.5%	19
c) Maintain the current legislated time limits for project review (15 months with a possible extension of 3 months).		17.4%	12
d) There should be no legislated time limits.		46.4%	32
		Total Responses	**69**

32. Below is a list of possible reforms suggested by various stakeholders to improve the review process for major energy projects. Please indicate your views on the desirability of these reforms using the scale provided.

	a) Strongly Agree	b) Agree	c) Neutral	d) Disagree	e) Strongly Disagree	f) Don't know	Total Responses
I. Provide more resources for intervenors to participate in the process.	44 (62.0%)	16 (22.5%)	7 (9.9%)	2 (2.8%)	0 (0.0%)	2 (2.8%)	71

II. Have government prepare more detailed technical guidelines on methodologies that should be used to assess the project's economic, social and environmental impacts and risks.	35 (49.3%)	23 (32.4%)	6 (8.5%)	3 (4.2%)	1 (1.4%)	3 (4.2%)	71
III. Include a requirement for comprehensive benefit-cost studies for all major projects reviews.	37 (52.1%)	24 (33.8%)	5 (7.0%)	2 (2.8%)	0 (0.0%)	3 (4.2%)	71
IV. Have government review agencies hire independent scientists to conduct impact assessment analysis rather than using experts that are employed by, or hired by the project applicant. (The costs of the independent analysis would be financed by a levy applied to the applicant).	51 (71.8%)	11 (15.5%)	6 (8.5%)	2 (2.8%)	0 (0.0%)	1 (1.4%)	71
V. Require the applicant to complete an extensive	38 (53.5%)	19 (26.8%)	7 (9.9%)	3 (4.2%)	3 (4.2%)	1 (1.4%)	71

public consultation process in accordance with detailed public consultation guidelines prior to submitting an application.							
VI. Require the applicant to engage in consensus-based negotiations with stakeholders and attempt to reach stakeholder agreement on major project issues prior to submitting an application (if agreement is not reached despite the best efforts of the applicant the project could still be submitted for review).	29 (40.8%)	19 (26.8%)	14 (19.7%)	4 (5.6%)	4 (5.6%)	1 (1.4%)	71
VII. Impose legislated limits specifying the maximum time for project review.	3 (4.2%)	13 (18.3%)	16 (22.5%)	19 (26.8%)	13 (18.3%)	7 (9.9%)	71
VIII. Restrict the number of intervenors in the hearing to only those deemed by the NEB to be	7 (9.9%)	9 (12.7%)	7 (9.9%)	14 (19.7%)	31 (43.7%)	3 (4.2%)	71

directly affected by the project and/or have relevant expertise.							
IX. As a condition for project approval require the applicant to accept full liability for any damages caused by the project and document ability to pay off any damages.	47 (66.2%)	19 (26.8%)	2 (2.8%)	0 (0.0%)	1 (1.4%)	2 (2.8%)	71
X. Require the applicant to have a comprehensive compensation plan approved by the review panel that specifies what types of damages would be eligible for compensation, what parties would be compensated, and how damage costs would be determined.	44 (62.0%)	18 (25.4%)	2 (2.8%)	3 (4.2%)	1 (1.4%)	3 (4.2%)	71
XI. Require the NEB to consider comments from any interested	26 (36.6%)	18 (25.4%)	13 (18.3%)	5 (7.0%)	4 (5.6%)	5 (7.0%)	71

party.							
XII. The appointment of a review panel for major energy projects should be made jointly by the federal government and impacted provincial governments instead of just by the federal government.	23 (32.9%)	28 (40.0%)	7 (10.0%)	3 (4.3%)	5 (7.1%)	4 (5.7%)	70
XIII. The environmental assessment process under the Canadian Environmental Assessment Act and the pipeline approval process under the National Energy Board Act should be conducted as two separate review processes under separate review panels instead of being combined into one hearing process.	27 (38.6%)	15 (21.4%)	12 (17.1%)	5 (7.1%)	7 (10.0%)	4 (5.7%)	70
XIV. The environmental assessment process of the federal government and impacted	25 (35.7%)	14 (20.0%)	11 (15.7%)	10 (14.3%)	4 (5.7%)	6 (8.6%)	70

provinces should be conducted as two separate processes instead of being combined into a single hearing process.							
XV. The appointment of a review panel for major energy projects should be made jointly by the federal government, impacted provincial governments, and impacted stakeholders instead of just by the federal government.	24 (34.3%)	29 (41.4%)	6 (8.6%)	1 (1.4%)	5 (7.1%)	5 (7.1%)	70
XVI. Complete an integrated evaluation of all alternative transportation projects for shipping oil instead of evaluating each project separately.	17 (24.3%)	30 (42.9%)	8 (11.4%)	5 (7.1%)	5 (7.1%)	5 (7.1%)	70
XVII. Require the approval of impacted First Nations governments before projects can be built.	34 (48.6%)	15 (21.4%)	8 (11.4%)	3 (4.3%)	5 (7.1%)	5 (7.1%)	70

33. Overall how would you rate the TMEP JRP process?

Response	Chart	Percentage	Count
a) Very good		4.3%	3
b) Good		7.1%	5
c) Poor		25.7%	18
d) Very poor		60.0%	42
e) Unsure		2.9%	2
		Total Responses	**70**

34. What are the main strengths of the TMEP JRP process?

The 50 response(s) to this question can be found in the appendix.

35. What are the main weaknesses of the TMEP JRP process?

The 58 response(s) to this question can be found in the appendix.

36. Do you have any other ideas on how the joint review process should be improved?

The 40 response(s) to this question can be found in the appendix.

37. Which of the following statements describes your view with respect to the pace of oil sands development?

Response	Chart	Percentage	Count
a) The current rate of oil sands expansion is about right.		13.6%	9
b) Oil sands expansion is not fast enough.		1.5%	1
c) Oil sands expansion should be slowed down.		31.8%	21
d) There should be a moratorium on oil sands expansion.		53.0%	35
		Total Responses	**66**

38. What is your position/perspective on the TMEP?

Response	Chart	Percentage	Count
a) Strongly support		2.9%	2
b) Support		5.8%	4
c) Neither support nor oppose		13.0%	9
d) Oppose		26.1%	18
e) Strongly Oppose		52.2%	36
		Total Responses	**69**

If you support or strongly support the TMEP, can you summarize the reasons for your support?

The 11 response(s) to this question can be found in the appendix.

If you oppose or strongly oppose the TMEP, can you summarize the reasons for your opposition?

The 54 response(s) to this question can be found in the appendix.

39. How much did the JRP process change your perspective on the TMEP?

Response	Chart	Percentage	Count
a) Significantly		29.4%	20
b) Somewhat		22.1%	15
c) Not at all		39.7%	27
d) Unsure		8.8%	6
		Total Responses	**68**

40. How did the JRP process affect your opinion of the TMEP?

Response	Chart	Percentage	Count
a) more favorable towards the TMEP		4.3%	3
b) No change		30.4%	21
c) less favorable towards the TMEP		65.2%	45
		Total Responses	**69**

41. I would recommend that future pipelines projects are evaluated through review panels processes modeled after the TMEP JRP.

Response	Chart	Percentage	Count
a) Strongly agree		2.9%	2
b) Agree		4.3%	3
c) Neutral		10.1%	7
d) Disagree		23.2%	16
e) Strongly disagree		55.1%	38
f) Don't know		4.3%	3
		Total Responses	**69**

42. I would participate in another joint review process similar to the TMEP JRP process.

Response	Chart	Percentage	Count
a) Strongly agree		7.2%	5
b) Agree		18.8%	13
c) Neutral		26.1%	18
d) Disagree		10.1%	7
e) Strongly disagree		14.5%	10
f) Don't know		23.2%	16
		Total Responses	**69**

43. On a scale of 1 to 5 (i.e. 1 being very little and 5 being very much), rate how much you think each of the following groups benefited from the TMEP joint review panel hearing process.

	1 (very little)	2 (little)	3 (moderately)	4 (much)	5 (very much)	Total Responses
a) Provincial government	14 (20.3%)	27 (39.1%)	18 (26.1%)	6 (8.7%)	4 (5.8%)	69
b) Federal Government	8 (11.6%)	20 (29.0%)	19 (27.5%)	14 (20.3%)	8 (11.6%)	69
c) Local Government	31 (44.9%)	25 (36.2%)	9 (13.0%)	0 (0.0%)	4 (5.8%)	69
d) Applicant	2 (2.9%)	8	15 (21.7%)	14	30	69

(Kinder Morgan)		(11.6%)		(20.3%)	(43.5%)	
e) First Nations	41 (59.4%)	14 (20.3%)	5 (7.2%)	5 (7.2%)	4 (5.8%)	69
f) Environmental groups	38 (55.1%)	17 (24.6%)	10 (14.5%)	2 (2.9%)	2 (2.9%)	69
g) Oil and gas producers	4 (5.9%)	5 (7.4%)	19 (27.9%)	15 (22.1%)	25 (36.8%)	68
h) Consultants	2 (2.9%)	1 (1.4%)	17 (24.6%)	24 (34.8%)	25 (36.2%)	69
i) Lawyers	1 (1.4%)	2 (2.9%)	17 (24.6%)	17 (24.6%)	32 (46.4%)	69