

Need for, Commercial Feasibility, and Economic Impact of the Trans Mountain Expansion Project

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For

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EXECUTIVE SUMMARY

1. I was retained by the Tsleil-Waututh Nation (**TWN**) to provide my professional opinion on the conclusions reached by the National Energy Board (**NEB**) in its May 2016 report on the need for, commercial feasibility of, and economic impact of the Trans Mountain Expansion Project (**Project**).
2. In its May 2016 report, the NEB concludes that there is a need for the Project, it is commercially feasible, and will result in a large net economic benefit. Those conclusions weighed heavily into the NEB's ultimate recommendation to the Governor in Council (**GIC**) that the Project is in the public interest.

The Board then considered all of the benefits and burdens associated with the Project, balancing Aboriginal concerns with other interests and factors (such as the need for the Project), before determining whether, in its opinion, the Project is in the public interest.¹

...

The Board finds that increasing pipeline capacity for the purpose of accessing Pacific Basin markets is important to the Canadian economy and that this economic benefit of the Project is significant.

As required by the legislation, the Board looks at the benefits and burdens of the Project before it...The forecast supply and market demand growth, combined with robust contractual and financial underpinnings for the Project, demonstrate that the applied-for facilities will be used and useful over their economic life.²

...

The National Energy Board (NEB or Board) finds that the Trans Mountain Expansion Project (Project) is in Canada's public interest, and recommends the Governor in Council (GIC) approve the Project.³

3. However, economic and political circumstances have fundamentally changed since the NEB hearing record closed on February 17, 2016, and the NEB issued its May 2016 report. Even if the NEB's report and recommendations could be relied on (which they cannot for the reasons outlined below), these changed circumstances are so fundamental that they require a reconsideration of the NEB's conclusions on the need for, commercial feasibility of, and economic impacts of the Project.
4. A number of new reports in relation to future production, supply, demand for transportation capacity, and market conditions have been released, including the NEB Energy Future 2016, NEB Energy Future 2016 Update, CAPP 2016 Outlook, and OPEC World Oil

¹ Canada, National Energy Board (NEB), *National Energy Board Report, Trans Mountain Expansion Project*, OH-001-2014 (Calgary: NEB, May 2016) at 46 ([A5A9H0](#)) ("**NEB, 2016**").

² NEB, 2016, *supra* note 3 at 309.

³ NEB, 2016, *supra* note 3 at xi.

Outlook 2016. These new reports all forecast a greatly reduced supply of crude oil (owing to decreased oil prices) relative to the projection the NEB relied on.

5. Significant political change (including in relation to Canada's climate change commitments) has also occurred. A further reduction in supply will likely follow from implementing Canada's climate change commitments.
6. Importantly, these fundamental changes in supply projections and political circumstances, in and of themselves, fundamentally alter the NEB's conclusions and could change the NEB's recommendation to the GIC that the Project is in the public interest.
7. These significantly changed conditions were recognized by the Ministerial Panel and highlighted in its recent report to the Minister of Natural Resources. In particular, the Panel raised the following question:

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?
8. In my professional opinion, the GIC cannot. All of the NEB's conclusions about the need for, commercial feasibility of, and economic impacts of the Project (as well as whether the Project is in the public interest) must be reconsidered in light of the changed economic and political circumstances.
9. Moreover, and in any event, the GIC should not rely on the NEB's May 2016 report and recommendations as they are unfounded and unreliable.
10. The conclusions the NEB reached cannot be relied on for a number of reasons. The NEB conducted its review under an unreasonably narrow scope of issues, relied on flawed analysis, failed to test the evidence it had before it, and did not seek to avail itself of timely and reliable facts. Moreover, the NEB did not:
 - (a) apply its definition of the public interest to assess the economic impacts of the Project;
 - (b) include the economic interests of all Canadians; or
 - (c) estimate the potential negative economic impacts of the Project.
11. After having reviewed the relevant evidence filed with the NEB, the new reports listed above, and other reports that I set out below, it is my professional opinion that:
 - (a) **There is currently no need for the Project.** Current pipeline and rail infrastructure is sufficient to transport oil available for export to market until at least 2025 based on current supply outlooks.

Moreover, should the proposed expansion on Enbridge's existing system of 800,000 barrels a day proceed, pipeline infrastructure will be sufficient to meet capacity without reliance on rail until at least 2025.

If current market conditions continue, or meaningful climate change policies are implemented, transportation capacity to meet export demand, without new pipeline projects, is sufficient well beyond 2025.

- (b) **There is no market for products proposed to be shipped on the Project.** Currently there is not an offshore market for these products. Very little diluted bitumen has been shipped from the Westridge dock in recent years for export to US destinations, and almost no diluted bitumen has been shipped to non-US destinations even after the NEB granted shippers tidewater access to develop those markets.
- (c) **Many years would be required to develop an offshore market for Alberta's diluted bitumen, if doing so is even possible.** The market for products proposed to be shipped on the Project is small and attempts by Canadian producers and off-shore refiners to establish that market have failed. Expanding into new markets is time consuming and expensive. It requires competitive pricing strategies and/or interlocking business relationships to assist in building trade. The NEB was provided no evidence to suggest that integrated relationships exist.

Trans Mountain's own expert, Mr. Kelly, explained under oath during the Part IV hearing approving the toll methodology for the Project *that development of markets in Asia is a very long and difficult process.*

- (d) **The price producers are likely to receive for diluted bitumen shipped on the Project will be lower, not higher, than the price they would receive in the Gulf Coast.** Market development challenges and realistic transportation costs mean that the price per barrel that Canadian oil producers would obtain in Asian markets are likely to be lower, not higher, than the prices in the developed North American market.
- (e) **The net economic impact of the Project becomes negative when:**
- a fulsome scope of issues is considered which extends beyond the private economic benefits of crude oil producers and includes direct economic costs and opportunity loss;
 - reliable and accurate pipeline and marine toll rates inform the analysis for both the Project and rail transport relied upon in the absence of the Project;
 - supply projections that reflect current market conditions and climate change commitments are developed and adopted;
 - crude oil prices based on market conditions are adopted;

- realistic expectations regarding market demand and potential market penetration inform the assessment;
- appropriate models reflecting economic impact are relied upon; and
- double counting of benefits does not take place.

(f) **The Project represents a net economic risk and cost to the Canadian economy with that risk and cost disproportionately falling on the shoulders of the Canadian public.**

12. Section 7 of this Report provides an outline of the work required to more fully and properly assess Project need, commercial feasibility, and economic impact.

1. STATEMENT OF QUALIFICATIONS

1.1 Education

13. I hold a Bachelor of Arts degree with a focus on Canadian history and economics from the University of British Columbia and a Masters of Arts degree in economics from the University of British Columbia.

1.2 Experience

14. I was employed as a capital budget analyst for the Crown Investment Corporation of the Government of Saskatchewan with responsibility for a number of crown corporations including SaskOil. Subsequently, I became senior economist for BC Central Credit Union which functions as a central banking services entity for the credit union system in British Columbia. In that capacity I was responsible for providing analysis and research on the BC economy for the benefit of credit union executives and members. I have held executive positions in the private sector including VP Finance for Parklane Ventures and Executive Director of Vancity Community Foundation. From 1992–1993 I was President and CEO of the Insurance Corporation of British Columbia.

15. In 1996 I established a consulting firm and have provided economic analysis, business development, and related advice to a variety of clients in the public and private sector. In 1998 I was appointed as Economic and Financial Advisor to the Royal Commission on the Quality of Condominium Construction in British Columbia.

16. I was Economic and Financial Advisor to the Fox Lake Cree Nation in negotiations with Manitoba Hydro on the Conawapa Generating Station. Conawapa is a proposed hydro development located in Northern Manitoba in the Fox Lake Resource Management Area. This 1,485 megawatt capacity station is being considered for future joint development between Manitoba Hydro, the provincial utility, and Fox Lake Cree Nation.

17. I was a qualified expert witness for the Alberta Federation of Labour during the NEB review of Northern Gateway and prepared evidence on the economic benefits presented by

the applicant, need and financial risk of the Project which was filed as evidence at the Hearing. I appeared as a witness on behalf of the AFL which represents Alberta's 170,000 unionized workers.

18. A copy of my curriculum vitae is attached as Appendix 1.

1.3 Expert's duty

19. I have prepared this report in accordance with my duty as an expert to assist: (i) TWN in conducting its assessment of the Project; (ii) provincial or federal authorities with powers, duties, or functions in relation to an assessment of the environmental and socio-economic effects of the Project; and (iii) any court seized with an action, judicial review, appeal, or any other proceeding in relation to the Project.
20. In preparing this report, I acknowledge that it is my duty to:
- (a) provide evidence that is fair, objective, and non-partisan;
 - (b) provide evidence that is related only to matters within my area of expertise; and
 - (c) provide such additional assistance as may reasonably be required to determine a matter in issue.
21. I acknowledge that my duty is to assist the entities listed in paragraph 19, not to act as an advocate for any particular party. This duty prevails over any obligation that I may owe any party, including TWN on whose behalf I have been engaged.

2. IS THERE A NEED FOR TRANS MOUNTAIN'S EXPANSION PROJECT?

22. The NEB in its Report on the Project recommended that the Project is in Canada's public interest, is needed and will be used and useful over its lifetime.
23. The NEB also found that market access and economic benefits associated with the Project, taken as a whole, are considerable. The NEB concluded that these benefits outweighed residual burdens. The NEB recommended that the GIC grant approval of the Certificate of Public Convenience and Necessity (CPCN) requested by Trans Mountain.
24. In my professional opinion, contrary to what the NEB concluded, the Project:
- (a) would result in a net negative impact on the Canadian economy because its economic benefits do not outweigh its economic costs or economic risks;
 - (b) is not needed to deliver Canadian crude oil to market; and
 - (c) it will not be meaningfully used or useful over its life.

25. The NEB did not assess Project need based on market conditions before it at the time, and relied on and adopted evidence that is based on flawed methodology and stale-dated figures.
- 2.1 The NEB did not (i) apply its definition of the public interest to assess the economic impacts of the Project, (ii) include the economic interests of all Canadians, and (iii) estimate the potential negative economic impacts of the Project**
26. The NEB defined the public interest as
- ...inclusive of all Canadians and refers to a balance of economic, environmental and social interests that change as society's values and preferences evolve over time. As a regulator, the Board must estimate the overall public good a project may create and its potential negative aspects, weigh its various impacts, and make a decision.⁴
27. However, the NEB did not evaluate the economic, social or environmental aspects of the Project in that way. Rather, it limited its examination of economic interests to a review of the private economic interests of Trans Mountain and Western Canadian crude oil producers. This limited scope was provided in the NEB's List of Issues included in the Hearing Order at the commencement of the proceeding.⁵
28. Most notably, the NEB stated in its List of Issues that "[it] does not intend to consider 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."⁶ The NEB relied on this limited scope of review throughout the hearing.
29. The NEB's decision to exclude the economic interests of all Canadians and not to estimate or assess the potential negative economic aspects of the Project, meant that the NEB did not consider economic costs to the Canadian economy; it considered only gross benefits to Trans Mountain and crude oil producers. For example:
- (a) while the NEB accepted Trans Mountain's premise that crude oil prices in Western Canada would be higher if the Project proceeds, it did not consider the economic cost to domestic refineries when they face higher feedstock costs at the refinery gate because of these higher crude prices. The NEB also did not consider the impact on Canadian consumers and businesses when the refining costs are passed onto end users, particularly at the pumps.⁷ The NEB ruled the negative impact on Canadian refiners from higher oil prices resulting from the Project as an upstream impact and, therefore, outside the scope of its review;

⁴ NEB, 2016, *supra* note 3.

⁵ Hearing Order OH-001-2014, released on July 29, 2013, Appendix "A": List of Issues for the Trans Mountain Expansion Project, Trans Mountain Pipeline ULC at 18 (the "[Hearing Order](#)").

⁶ Hearing Order, *supra* note 5 at 18.

⁷ B40-1: Trans Mountain Pipeline ULC, Responses to Information Request from Robyn Allan, IR 1.23(j) Market Demand at 207–208 ([A3X5V9](#)).

- (b) while the NEB accepted Trans Mountain's premise that in the absence of the expansion crude oil would be delivered by rail instead, it did not consider the negative economic impact and cost to Canada's rail sector when the expansion displaced rail transport. The NEB determined that the impact on the rail sector was outside of the scope of its review;
- (c) the NEB did not consider the lost jobs and lost value added potential in Western Canada's resource sector when diluted bitumen is shipped to foreign countries for further processing; and
- (d) the NEB did not consider the economic cost on tourism, commercial fishing and other businesses crowded out as a result of the Project.

2.2 The NEB failed to require Trans Mountain to provide the timely and accurate information required under the *National Energy Board Act*

30. The NEB stated in its Report that:

In making a recommendation on an application under section 52 of the NEB Act the Board considers the need for and the economic feasibility of a proposed pipeline.⁸

31. The NEB noted that paragraphs 52(2)(a), (b), and (c) of the *National Energy Board Act* (NEB Act) specifically require the NEB to have regard to:

- (a) the availability of oil, gas or any other commodity to the pipeline;
- (b) the existence of markets, actual or potential; and
- (c) the economic feasibility of the pipeline.

32. The NEB explained that:

These factors are directly relevant to the need for, and the continued use of, a project. The purpose of the Board's analysis in this regard is for the Board to come to a conclusion whether a project will be sufficiently used over its lifetime.⁹

33. In that regard, applicants for CPCNs must provide timely and accurate economic information on supply, transportation, markets, and financing.

34. However, the NEB did not assess the need for the Project, nor did it require Trans Mountain to submit timely and accurate data on supply, transportation, markets, and financing in relation to the Project to ensure that it could make a determination that the GIC can rely on.

⁸ NEB, 2016, *supra* note 4 at 293.

⁹ NEB, 2016, *supra* note 4 at 293.

2.2.1 The NEB did not rely on a current or objective supply forecast that reflects a realistic outlook of market conditions from 2016–2038

35. The NEB relied on the Canadian Association of Petroleum Producers (CAPP) June 2015 survey of producers to 2030, extrapolated to 2038 by Trans Mountain’s consultant, Neil Earnest, VP, Muse Stancil, for its estimate of crude oil supply.
36. CAPP does not forecast supply based on crude oil prices. CAPP submits a survey and “Producers responded to the survey using their own internal view of the long-term oil price. In this manner, CAPP is assuming that the oil price will be sufficient to make these projects economic so that this production will be available to the market.”¹⁰
37. CAPP’s forecast consistently overstates supply. In its 2006 report, CAPP explained this bias as follows:

As noted, the primary purpose for the forecast is to ensure producers have information to plan for increases in pipeline capacity to market their growing supplies of crude oil. As such, the forecast is prepared to not be too conservative because the cost of a small amount of surplus pipeline capacity is preferable to the lost revenue from shut-in production due to insufficient pipeline capacity.¹¹

38. The CAPP outlook is a tool to promote the development of new pipeline capacity, not a reflection of likely supply based on market conditions. Mr. Ernest and the NEB, which adopted and applied Mr. Ernest’s work, should not, therefore, have relied on it as a reliable forecast of oil supply available for transportation.
39. The NEB’s Energy Future 2016 was prepared in mid-2015.¹² It was slated for release in November 2015 while the hearing was ongoing but was released on January 27, 2016, after the December 15, 2015 deadline to file affidavits swearing evidence.¹³ Energy Future 2016 included a “Constrained Case” scenario based on relatively high, and rising, crude oil prices. The Constrained Case assumed expansions to Enbridge’s system and the Line 3 Replacement, but no new pipeline projects. Importantly, Energy Future 2016 did not incorporate commitments to mitigate climate change unless they were legally binding by mid-2015.

¹⁰ B427-3: Canadian Association of Petroleum Producers, *Crude Oil: Forecast, Markets & Transportation* (June 2015) at 1 ([A4T6E9](#)).

¹¹ C26-4c: Canadian Association of Petroleum Producers, *Canadian Crude Oil Production and Supply Forecast, 2006–2020* (May 2006) at 6.

¹² Canada, National Energy Board, “[Canada’s Energy Future 2016: Energy Supply and Demand Projections to 2040](#)” (January 2016).

¹³ A217-1: NEB Procedural Direction No. 18—Revised hearing events and steps table, Appendix 1 at 4 (24 September 2015) ([A4T5R5](#)).

40. Nevertheless, the Constrained Case showed that the Project would not be necessary until at least 2025 as existing and anticipated transportation infrastructure, with a modest reliance on rail, would be sufficient to deliver Western Canadian crude oil supply to market.¹⁴

2.2.2 The NEB did not test the existence of markets, actual or potential

41. The NEB made a prior decision to assist Western Canadian oil producers in developing non-US markets accessible by tidewater in its December 2012 ruling in which it approved 79,000 barrels a day of firm access to the Westridge dock.¹⁵ The NEB was assured by Trans Mountain and the firm shippers that if it approved the request for guarantee dock access, markets in Asia would—with certainty—be developed.¹⁶
42. Five shippers—PetroChina, Nexen, US Oil, Cenovus, and Astra—signed ten year take or pay contracts to ship a share of 54,000 thousand barrels a day to Westridge. US Oil said it was seeking firm access to serve its refinery in Washington state, but the other four companies confirmed their oil was off to Asia. “With regard to market development, the firm service provides a unique and important opportunity to assess whether west coast access makes sense for producers and offshore refiners.”¹⁷ The remaining 25,000 barrels a day of firm allocation was reserved for spot market open bidding.
43. The NEB approved Trans Mountain's request for firm service concluding as follows:
- The certainty of space and cost to the Westridge dock will likely, in the Board's view, enhance the ability of Canadian producers to develop long-term relationships with buyers in new markets and lead to increased acceptance and utilization of Canadian crude oil in non-traditional markets.¹⁸
44. The NEB failed to test the existence of, and potential for, markets against its prior decision to accomplish that goal. In my professional opinion, had the NEB done so it would have concluded that markets for Canada's crude oil in Asia do not exist and have not been developed despite serious regulatory and commercial efforts to do so.
45. The NEB did not test the veracity of Mr. Earnest's hypothesized markets against the evidence filed by Trans Mountain's former consultant Steven Kelly, VP, IHS, at the Part III Trans Mountain Expansion Project Application hearing, itself.

¹⁴ Canada, National Energy Board, “[Canada's Energy Future 2016: Energy Supply and Demand Projections to 2040](#)” (January 2016), Figure 10.7.

¹⁵ [Hearing Order RH-2-2011, Hearing Record](#), Application for Firm Service to the Westridge Dock.

¹⁶ [Hearing Order RH-2-2011, Hearing Transcript, Volume 5](#), Final Argument Trans Mountain, Committed Shippers, August 26, 2011.

¹⁷ [Hearing Order RH-2-2011, Hearing Transcript, Volume 5](#), Final Argument Trans Mountain, Committed Shippers, August 26, 2011 at para 6498.

¹⁸ [Hearing Order RH-2-2011, NEB Reasons for Decision](#), Application for Firm Service to the Westridge Marine Terminal on the Trans Mountain Pipeline System at 15.

46. For twenty-two months Intervenors relied on evidence supplied by Mr. Kelly on market prospects and economic impact from the Project.¹⁹ When Mr. Kelly was appointed as a permanent member of the NEB his evidence was struck from the hearing record and Trans Mountain replaced it with Mr. Earnest's report.
47. Intervenors could no longer rely on the assessment they had made of Mr. Kelly's evidence. They were required to evaluate Mr. Earnest's very different approach under tight time constraints necessitated by the NEB's conflict of interest action.
48. Whereas Mr. Kelly had honoured the NEB's definition of the scope of its review and limited his benefits assessment to heavy crude oil intended for shipment on the Project (the applied for capacity of 540,000 barrels a day—not the entire system), Mr. Earnest inappropriately expanded his work beyond the NEB's scope of review by including markets and economic benefits related to the light oil and synthetic crude oil that would be transported on the existing line.²⁰
49. Mr. Earnest should not have included the markets and potential economic impact of Trans Mountain's Line 1 as part of his benefits estimates as this was clearly outside of the scope of the NEB's hearing for the Project. For example, the NEB did not consider the environmental effects of operating Line 1 in tandem with the Project during the hearing. In fact, the NEB was explicit in its List of Issues that its scope was the Project, not the system.²¹ It reaffirmed this limited scope throughout the hearing. For example, it made the following observation in Ruling No. 31: "The Board also notes that the EMP (Emergency Management Program) documents relate to existing facilities that are not the subject of the present Project application."
50. However, the NEB failed to correct the improper scope of Mr. Earnest's evidence. Relying on the benefits set out in Mr. Earnest's evidence, the NEB concluded in its Report that gross benefits related to the entire system outweighed the more narrow definition of burdens created by the Project.
51. In addition, the contradictions between Mr. Kelly's and Mr. Earnest's evidence regarding the location and size of markets accessed as a result of the Project were substantive.
52. Such contradictions in the findings between Trans Mountain's two consultants asked to undertake the same analysis for the same client would normally be expected to alert a regulator to a high level of uncertainty about those markets. Instead, the NEB refused to

¹⁹ B1-5: Direct Written Evidence of Steven J. Kelly, IHS Global Canada Limited, Volume 2, Project Overview, Economics and General Information, Trans Mountain Expansion Project Application (16 December 2013) ([A3S0R1](#)).

²⁰ B427-2: Muse Stancil, *Market Prospects and Benefits Analysis of the Trans Mountain Expansion Project* (September 2015) at 9 ([A4T6E8](#)).

²¹ Hearing Order OH-001-2014, released on July 29, 2013, Appendix "A": List of Issues for the Trans Mountain Expansion Project, Trans Mountain Pipeline ULC at 18 (the "[Hearing Order](#)").

consider references by Intervenors to Mr. Kelly's evidence for any purpose, including as a method by which to test the veracity of Mr. Earnest's findings.

53. The NEB allowed only one round of Information Requests (IR) related to need and economic impact evidence filed by Mr. Earnest, whereas two rounds had been afforded Mr. Kelly's evidence. Trans Mountain failed to provide answers to the IRs in a way that would have allowed the NEB to properly test the evidence.
54. The NEB relied heavily on Mr. Earnest's evidence for its determination of need but the evidence was not subjected to adequate scrutiny. The NEB did not test the evidence based on similar assertions of markets and market development made in prior hearings. Rather, Trans Mountain improperly expanded the NEB's scope of review for its predicted benefits. This had the effect of overestimating Project benefits relative to the NEB's narrow consideration of environmental risk, which the NEB refused to similarly expand to include the entire system but were instead limited to those environmental risks associated with the Project.²²

2.2.3 The NEB did not test the commercial feasibility of the Project although it asserts that the commercial feasibility of the Project supports Project need

55. The NEB considered evidence from shippers whose committed volumes relate to light oil and refined product shipments on the existing line. The volumes these shippers would transport do not represent an increase in pipeline use.²³ For example, Tesoro currently ships along the existing line to its refinery in Anacortes. In its evidence Tesoro explained that, "Tesoro Canada decided to become a Firm Service shipper in order to be able to deliver a consistent reliable Canadian crude oil feedstock to TMRC's Anacortes Refinery in Washington State."²⁴ The NEB should not have relied upon contracts that do not represent an increase in pipeline use to support commercial feasibility since those contracts do not relate to the Project.
56. The NEB concluded that the Project was needed and commercially feasible by giving significant weight to the contracts signed by 13 shippers.²⁵ The NEB concluded in its Report that:

Trans Mountain said the current price environment has no impact on the long-term financial commitments shippers have made to the Project. In response to the Board's questioning, Trans Mountain stated that the financial commitments are binding and shippers do not have the option of walking away because of market changes, including short term price volatility.²⁶

²² C-9-31-1: Robyn Allan, Letter to NEB (19 May 2015) at 1-2 ([A4L3S6](#)).

²³ C50-1: Evidence of TMX Shippers (27 May 2015) ([A70250](#)); C-37-1-2: Written Evidence of BP Canada Energy Group ULC (27 May 2015) ([A4L8E2](#)).

²⁴ C-50-1-9: Written Evidence of Tesoro Canada Supply & Distribution Ltd. (27 May 2015) at 1 ([A4L7I9](#)).

²⁵ NEB, 2016, *supra* note 4 at 309.

²⁶ NEB, 2016, *supra* note 4 at 300.

57. The NEB did not require Trans Mountain to file these contracts so it could determine for itself the nature of the terms and conditions imbedded in them. For that reason alone the NEB was unable to determine if the weight it gave to the contracts is merited.
58. In my professional opinion, it was unreasonable for the NEB to assess the need for the Project based on contracts that were not filed by Trans Mountain as evidence in the hearing and which it therefore did not review during the hearing. Had the NEB reviewed the contracts, it would have concluded that they do not tie the shippers to the Project in the manner in which the NEB assumed.²⁷
59. When the shippers signed the contracts in 2012 it was the toll rates they would face that was important to them, not market conditions or the price of crude oil. If the tolls reach a rate higher than a pre-assessed limit, the commercial feasibility of the Project is compromised and shippers are free to terminate the shipping contracts.
60. Clause 3.2 (b) of the contracts states:
- If the Revised Toll exceeds the Open Season Toll Limit, the Shipper shall have the right to terminate this Agreement pursuant to Section 5.4(d);²⁸
61. It is capital costs that drive the Project's fixed costs and those fixed costs are paid for in the toll structure. The fixed costs are what shippers under contract will pay whether or not they use the pipeline capacity they have contracted for. This is why the contracts are referred to as take-or-pay.
62. The original \$5.5 billion capital cost of the Project established toll rates that shippers thought they would face when they signed the contracts. Once the Project has received its CPCN, Trans Mountain must deliver a revised capital budget. The revised capital budget will generate new toll rates which would be reflected in the "Revised Toll" referenced in Clause 3.2(b). If the Revised Toll exceeds the Open Season Toll Limit, the shippers can terminate the shipping contracts.
63. The Open Season Toll Limit is reflected in a Project capital cost of approximately \$6.8 billion.
64. In October 2015 Kinder Morgan Inc., Trans Mountain's parent informed its shareholders that the capital cost of the Project had increased to \$6.8 billion, but failed to inform the NEB. The NEB was informed that Trans Mountain had updated the capital cost to \$6.8 billion but the NEB did not ask Trans Mountain to file this information so it could be considered.²⁹

²⁷ [RH-001-2012, Facility Support Agreement](#) (27 March 2012).

²⁸ [RH-001-2012, Facility Support Agreement](#) (27 March 2012) at 10.

²⁹ C214-30-2: Thomas Gunton, "Public Interest Evaluation of the Trans Mountain Expansion Project," prepared for Living Oceans Society (December 2015) at page 42 ([A4W0R4](#)).

65. The NEB failed to appropriately assess the need for, and commercial feasibility of, the Project having regard to the shippers' right to terminate their shipping contracts and the fact that the Project capital cost now meets or exceeds the Open Season Toll Limit.
66. Doing so would have required the NEB to give much less weight to these contracts as evidence of commercial viability and Project need. Rather, the NEB should have tested commercial viability through alternative tests.
67. The increase in the Project's capital cost from \$5.5 billion to \$6.8 billion is an escalation of approximately 25 percent. This has implications for the ability of the Project to be financed, and raises further questions about the Project's commercial feasibility. The NEB, however, evaluated financing of the Project under the false understanding that the capital cost was estimated to be \$5.5 billion.
68. The conclusions in the NEB Report regarding commercial viability and its support for Project need are based on stale-dated costs. The conclusions cannot be relied upon.
69. The NEB also discussed Project need in terms of the public interest as it relates to producers and government obtaining the highest value for petroleum resources. The NEB found that:
- ...increasing pipeline capacity for the purpose of accessing Pacific Basin markets is important to the Canadian economy and that this economic benefit of the Project is significant.³⁰
70. As discussed above, the NEB did not assess whether this determination of public interest is in fact accurate. Evidence available to the NEB at the time its review was ongoing indicated that accessing Pacific Basin markets is not important to the Canadian economy. As well, publicly available information contradicted the conclusion that the net economic benefit of the Project is significant.
71. The NEB did not evaluate the net economic benefits of the Project because it did not assess the economic costs to the rest of the Canadian economy. The NEB limited its scope to assessing the private benefits to Trans Mountain and crude oil producers.
72. Because the NEB failed to require Trans Mountain to provide an update of Project capital cost when it knew the cost had been increased, it also did not ask to have Mr. Earnest recalculate the price lift benefits Mr. Earnest claimed would flow to all Canadian producers if the Project proceeds.
73. Mr. Earnest estimated that the Project would generate \$73.5 billion over 20 years from higher prices on crude oil for all crude oil produced in Western Canada. Mr. Earnest postulated these price lift benefits would arise in large part because shippers would pay lower tolls on Trans Mountain than they would pay to ship crude by rail if the Project were not built. The reliability of toll rates utilized in Mr. Earnest's analysis is very important.

³⁰ NEB, 2016, *supra* note 4 at 309.

74. As pipeline system transportation costs increase—as would be the case with the updated capital cost—the price received by crude oil producers decreases and capacity utilization on the system decreases. The competitiveness of the Project as a transportation alternative is reduced accordingly. Producers, constrained by long-term take or pay contracts, and paying for capacity they do not use, cut back on production that may otherwise have been produced, further decreasing the production of crude oil and limiting supply.
75. In my professional opinion, had up-to-date toll rates for the Project and an up-to-date supply outlook been applied to Mr. Earnest’s modelling, the NEB would have concluded that the price lifts identified by Mr. Earnest were effectively eliminated.
76. However, the NEB failed to consider the public interest impact and negative economic consequences to the Canadian macro-economy from such a scenario. In my professional opinion, not only is there no need for the Project when realistic transportation costs and supply are considered, the Project would, in fact, become a net economic cost to the Canadian economy.

3. MARKET FOR PRODUCTS PROPOSED TO BE SHIPPED ON THE PROJECT

3.1 Is there a market for products proposed to be shipped on the Project?

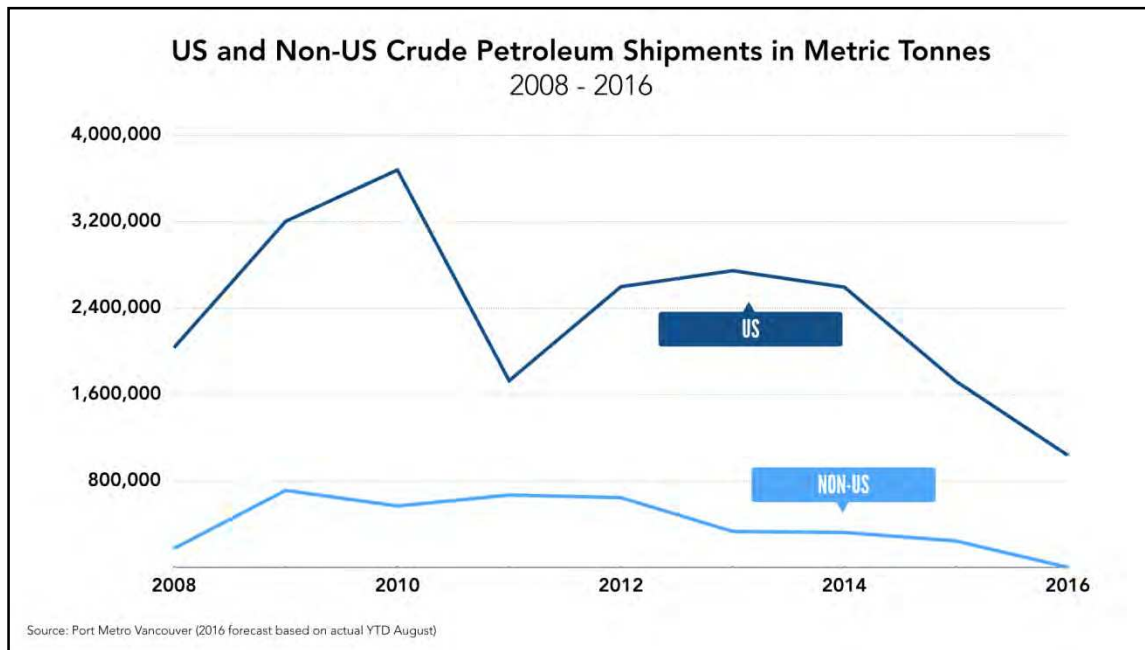
77. The products proposed to be shipped on the Project are diluted bitumen products. There is not currently an offshore market for these products. Very little diluted bitumen has been shipped from the Westridge dock in recent years for export to US destinations, and almost no diluted bitumen has been shipped to non-US destinations even as dedicated tidewater access was granted to develop these markets. It would require many years to develop an offshore market for Alberta’s diluted bitumen, if doing so is even possible.

3.1.1 The existence of markets was not tested

78. Neither the NEB nor Mr. Earnest tested market facts to determine the existence of markets or their potential to be developed.
79. More than half a decade ago Trans Mountain applied to the NEB for increased firm access to the Westridge dock. Oil producers were concerned over lost pipeline throughput capacity related to the oil spill in Marshall Michigan and the pressure restrictions placed on a number of aging pipelines that resulted because of it. Producers looked to the potential to develop offshore markets accessible by Trans Mountain. They sought an increase in guaranteed access to the dock to assist them in doing so.³¹

³¹ B1: RH-2-2011, Application for Firm Service to the Westridge Marine Terminal on the Trans Mountain Pipeline System (29 November 2010) ([A27445](#)); B16-2: RH-2-2011, Trans Mountain Opening Statement, Trans Mountain (22 August 2011) at lines 36–48 ([A2C2Y9](#)).

80. As set out above, the NEB granted 79,000 barrels a day of firm access to tidewater in 2012. The NEB was assured this would be sufficient to develop off-shore markets. The attempt to develop new markets accessible by tidewater has failed.
81. There are a variety of publicly available statistics that can assist in testing whether there is an off-shore market for diluted-bitumen. These include crude petroleum export volumes to US and non-US destinations by tidewater, the number of tanker loadings, and diluted bitumen commodity exports to non-US locations. Each of these are discussed below.
82. **Crude Petroleum Exports by Tidewater:** Graph 1, below, charts US and non-US crude petroleum exports from 2008–2016 as provided by Port Metro Vancouver (PMV).



Graph 1

83. PMV does not differentiate between light and heavy oil, but the statistics do give an indication of where waterborne crude is destined. The graph illustrates that crude petroleum exports to non-US destinations did not rise after firm access to Westridge was granted. Rather, they began to fall and are currently negligible. The promised development of Asian markets, for any crude grade, did not take place. Even off-shore markets to US ports have declined significantly since 2014.³²

³² Volumes provided by PMV do not differentiate between light and heavy oil. NEB export statistics show the vast majority of oil shipped by tidewater is light conventional or synthetic crude, not heavy oil.

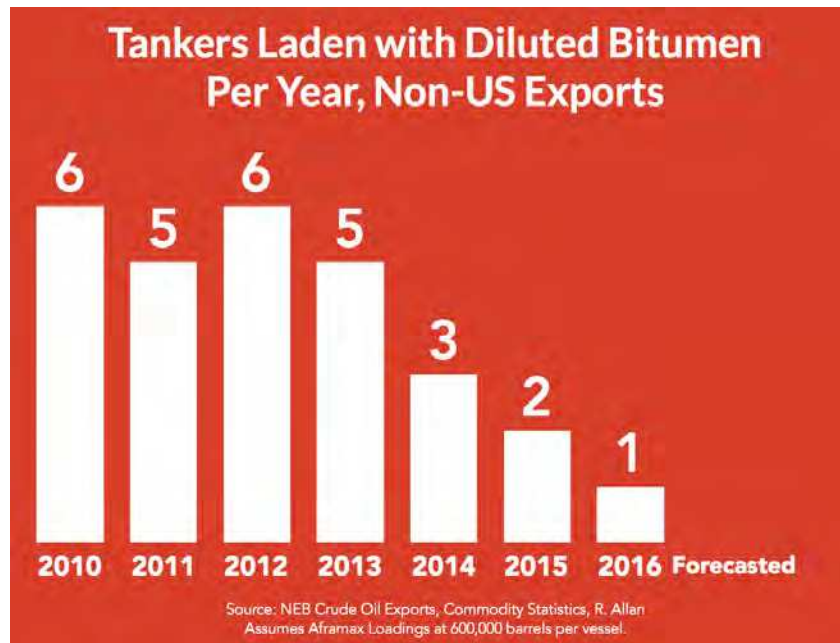
84. **Tanker Arrivals in Vancouver:** Graph 2 illustrates the number of tanker arrivals in Vancouver Port from 2007 - 2016. Panamax and the slightly larger Aframax tankers are loaded at Westridge. Trans Mountain told the NEB that an average of 60 tankers a year are loaded at the dock (5 per month) but this has not been the case since 2010. Demand for waterborne transport as measured by tanker loadings has declined since firm access was granted. Markets have not developed.



Graph 2

85. **Diluted Bitumen exports to Non-US Destination:** Graph 3 illustrates the number of tankers that have been loaded with diluted bitumen for export to non-US destinations each year from 2010 to 2016.

86. The NEB provides commodity export statistics by grade of crude oil, but does not indicate whether the shipments are from the east or west coast. So, for example, two tankers transported diluted bitumen to Italy via the St. Lawrence Seaway in 2012, so those tankers would be included in the 6 tankers that exported diluted bitumen to non-US markets in 2012. It is not clear if other east coast tanker loadings have occurred since. What this means is that since 2012 there have been no more than five tankers laden with diluted bitumen in any year destined for Asian markets.



Graph 3

87. Not only is the capacity at Westridge not being used as illustrated by Graph 1 and 2 above, almost none of the exports are diluted bitumen, as illustrated by Graph 3. Market development has been attempted but has not been remotely successful. Markets in Asia do not exist for Alberta's diluted bitumen
88. Moreover, Trans Mountain's expert evidence provided by Mr. Kelly, and then Mr. Earnest, contained contradictory claims about where markets for diluted bitumen might exist, the size of these markets and how long it would take to penetrate them. Mr. Kelly said that by 2018, about 213,000 barrels a day of diluted bitumen would go to Asia. Most of the rest of it, he said, would go to California. Mr. Kelly raised deliveries to Asia to 354,000 barrels by 2019 but capped deliveries at this level throughout his forecast to 2037.³³

³³ B1-5: Direct Written Evidence of Steven J. Kelly, IHS Global Canada Limited, Volume 2, Project Overview, Economics and General Information, Trans Mountain Expansion Project Application (16 December 2013) at 14 ([A3S0R1](#)).

89. Mr. Earnest opined that no heavy oil would go to California.³⁴ Mr. Earnest sent 40 percent more heavy oil to Northeast Asia instead. Mr. Earnest unreasonably concluded that more than 500,000 barrels a day of diluted bitumen would be shipped on the Project to Northeast Asia as soon as the Project is operational.
90. Mr. Earnest's conclusion is unreasonable for a number of reasons, including:
- the data set out above in Graphs 1-3 establish that there has been a net decrease in the amount of crude oil being shipped to Asia over the last five years despite concerted efforts by Canadian oil producers and Asian refiners to generate a much lesser degree of market demand during that time;³⁵
 - Trans Mountain provided evidence to the NEB during its Incentive Toll Settlement hearing in April 2016 *that it expected fewer than 30,000 barrels a day of crude oil would be delivered to the Westridge marine terminal during this year.*³⁶ Trans Mountain informed the NEB at the Firm 50 hearing that 20,000 barrels a day was enough to fill 1 tanker a month and 10,000 barrels a day would load two barges a month. PMV confirms 11 tanker arrivals between January and September, and the NEB's commodity export statistics indicate that so far this year, *less than a full tanker left Westridge with diluted bitumen destined for a non-US port*; and
 - Northeast Asian does not currently receive any heavy oil from Alberta but, according to Mr. Earnest, demand for half a million barrels a day of diluted bitumen will materialize by 2018.
91. To put this ambitious claim in context, Alberta's heavy oil producers have aggressively pursued the US Gulf Coast market for more than a decade. Trans Canada built Keystone as a 590,000 barrels a day dedicated line to service that market. Enbridge has also made investments in pipeline reversals and system expansions to deliver crude to the US Gulf Coast.
92. The Gulf Coast refines 8.4 million barrels a day of crude oil and represents 45% of the refining capacity in the US.³⁷ The Gulf Coast imports approximately 2 million barrels a day of heavy oil.³⁸ Significant investment in refinery upgrades were made to accept heavy oil generating a consistent demand for these products within the region.³⁹

³⁴ B427-2: Muse Stancil, *Market Prospects and Benefits Analysis of the Trans Mountain Expansion Project* (September 2015) at 10, 73–74, and Table A-12 ([A4T6E8](#)).

³⁵ B427-2: Muse Stancil, *Market Prospects and Benefits Analysis of the Trans Mountain Expansion Project* (September 2015) at 10, 73–74, and Table A-12 ([A4T6E8](#)).

³⁶ 2016 Final Toll Calculations, Trans Mountain, Schedule, April 2016, [ITS 29](#).

³⁷ U.S. Energy Information Administration, "[Gulf of Mexico Fact Sheet](#)" (22 June 2016).

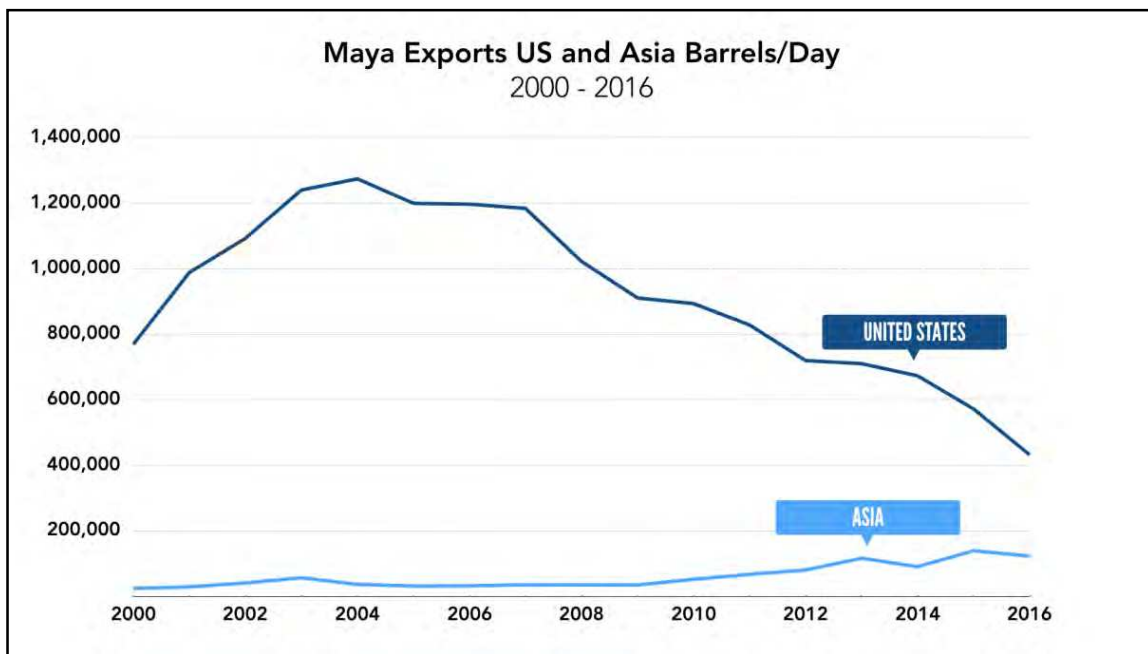
³⁸ U.S. Energy Information Administration, "[Crude Imports: Heavy Sour, PADD III](#)" (Gulf Coast).

³⁹ Robyn Allan, *Vancouver Sun*, "[Keep the oil sands wealth at home](#)," *Vancouver Sun* (17 May 2012), Tax incentives through the *Energy Policy Act—2005*.

93. After significant investment in market development for more than a decade, about 350,000 barrels a day of diluted bitumen is delivered from Canada to the US Gulf Coast.⁴⁰

3.1.2 The Asian market is very difficult to penetrate

94. Existing information confirms that heavy crude oil markets in Asia are limited and extremely difficult to penetrate. In recent years Mexico, through its national oil company, PEMEX, sought to increase its share of the Asian heavy oil market. PEMEX produces Maya, a grade similar in quality to Alberta's benchmark heavy oil, Western Canadian Select (WCS). Canadian heavy oil competes with Maya in the Gulf Coast. As Graph 4 illustrates, Maya volumes exported into the Asian market peaked at about 140,000 barrels a day in 2015, declining to about 120,000 barrels a day in 2016.



Graph 4
Source: PEMEX

⁴⁰ U.S. Energy Information Administration, "[Crude Imports: Heavy Sour, PADD III](#)" (Gulf Coast) (August 2016).

3.2 If there is a market for products proposed to be shipped on the Project how big is that market it?

95. The market for products proposed to be shipped on the Project is small and attempts by Canadian producers and off-shore refiners to establish that market have failed. Expanding into new markets is time consuming and expensive. It requires competitive pricing strategies and/or interlocking business relationships to assist in building trade. The NEB was provided no evidence to suggest that integrated relationships exist. The NEB was told that a market exists and that demand for heavy crude at higher prices outstrips the ability of the Project to supply into these markets.
96. If there is an expanded market for Alberta's diluted bitumen it is in the US Gulf Coast where there is a consistent and reliable demand for 2 million barrels a day. US Gulf Coast refineries have a consistent and reliable demand because those refineries have been configured to accept heavy oil. Canada's traditional competitors in this market are experiencing declining output.
97. This is why TransCanada and Enbridge are increasing their efforts to deliver Alberta's heavy oil to this market. US President Elect Trump stated during the election campaign that Keystone XL would be approved if he was elected.
98. Enbridge President of Liquids Pipelines, Guy Jarvis explained to shareholders that:
- ...our analysis of fundamentals of the US Gulf Coast has led to a strategic shift in thinking about the region which leads us to believe it can be an area of new growth for us. The region has always been a massive energy corridor, but its prominence in North America and globally is growing.⁴¹

3.3 If there is a market for products proposed to be shipped on the Project when could Canadian producers access it?

99. The NEB has been informed at prior hearings that it may take many years to develop an Asian market for the products proposed to be shipped on the Project. During the Part IV hearing approving the toll methodology that would be applied if the Project proceeds, Trans Mountain's expert, Mr. Kelly, *explained under oath that development of markets in Asia is a very long and difficult process*—in his words it is:
- ...far from simple and, if we're going to take China as a good example, I think it has to be recognized that there's not a pot of gold at the end of this rainbow. And the client, my clients—many of my clients who come to me for that kind of work—many of the same companies are shippers, potential shippers on the Trans Mountain Pipeline—recognize that development of markets in Asia will be a many-year process.⁴²

⁴¹ Enbridge Inc, "Day 2015 Investment Community Conference," [Transcript](#) (7 October 2015) at page 21.

⁴² RH-001-2012, Trans Mountain Pipeline ULC Part IV Application, [Hearing Transcript, Volume 3: Testimony of Mr. Steven Kelly for Trans Mountain Pipeline ULC](#) (14 February 2013) at paras 4439–4440.

100. Mr. Kelly, also testified during the Part IV Toll hearing for the Project that refining capacity in Asia is limited:

Let me say that—the refining capacity that is currently available to process Canadian bitumen—in China...is actually at the moment relatively modest...there can be many commercial arrangements that result in additional capacity to process Canadian heavy crude...It would be backstopped more likely by a term arrangement between possibly an integrated party, refiner—and by that, I mean a refiner and producer within the same corporate family, or a long-term supply arrangement by which both parties achieve their objectives.⁴³

101. The NEB is concerned that the Asian market is limited. However, it failed to directly bring these concerns to the GIC's attention in its Report and recommendations. They are, however, reflected in Condition 5—Sunset Clause and Condition 57—Commercial Support for the Project that the NEB proposed in its Report.
102. The Sunset Clause suggests the Project is not needed until 2023.
103. In August, 2015, the NEB drafted Condition 5 to read, "**Certificate expiration (sunset clause)**—unless the NEB otherwise directs prior to 30 June 2019, this [certificate/order] will expire on 30 June 2019, unless construction of the Project has commenced by that date."⁴⁴
104. In its Report released May 2016, the NEB extended the sunset clause deadline by a further two years. "**Certificate expiration (sunset clause)**—unless the NEB otherwise directs prior to 30 September 2021, this [certificate/order] will expire on 30 September 2021, unless construction of the Project has commenced by that date."⁴⁵
105. The extension to the Sunset Clause suggests that the NEB significantly changed its view as to the urgency of Project need. At least two years are required between commencement of construction to in-service date. *The Sunset Clause therefore anticipates a scenario whereby the Project does not become operational until 2023-2024.*
106. The time horizon in the Sunset Clause is an unusually long period. For example, it was three years for the Northern Gateway project.⁴⁶
107. Condition 57 further underscores a NEB concern that there is insufficient supply and market support for the Project.

⁴³ RH-001-2012, Trans Mountain Pipeline ULC Part IV Application, [Hearing Transcript, Volume 3: Testimony of Mr. Steven Kelly for Trans Mountain Pipeline ULC](#) (14 February 2013) at paras 4467–4469.

⁴⁴ A199-3; NEB Procedural Direction No. 17: Draft conditions for comment, Appendix A: Draft Conditions for Comment (12 August 2015) Condition 5 at 2 ([A4S1G2](#)).

⁴⁵ [NEB Order XO-T260-007-2016](#), Condition 5 at 33 (3 May 2016).

⁴⁶ [NEB Report of the Joint Review Panel for the Enbridge Northern Gateway Project, Volume 2: Considerations](#), (19 December 2013), Condition 2 at 366.

108. Condition 57 states:

Commercial Support for the Project—Trans Mountain must file with the Board, at least 3 months prior to commencing construction, confirmation, signed by an officer of the company, that:

a) the Project has secured agreements or contracts that remain in force with shippers for a minimum term of 15-years for no less than 60 per cent of its total capacity (890,000 barrels per day);⁴⁷

109. The NEB has established a condition that requires no less than 60 percent of the *system's* capacity, not sixty percent of the Project's capacity. The existing pipeline is capable of shipping 350,000 barrels a day when light oil and petroleum products are transported. The new pipeline has an applied for capacity of 540,000 barrels a day of diluted bitumen, for a system capacity of 890,000 barrels a day. Sixty percent of the system capacity is 534,000 barrels a day, but 350,000 barrels a day is related to the legacy pipeline transporting products that currently make their way to market—mostly by land to BC and Washington State.

110. Condition 57 means that the NEB foresees a situation whereby it would approve Project construction with committed contracts for only 184,000 barrels a day of diluted bitumen—35 percent of the applied for capacity. Committed contracts do not equate to actual use. Trans Mountain can commence construction with projected use of the new pipeline being potentially significantly less than 35 percent.

3.4 If there is a market for products proposed to be shipped on the Project, would access to that market increase the price per barrel of oil that Canadian producers are able to obtain?

111. The NEB concluded that a considerable benefit gained by the Project was the “likely reduction of discounts to Canadian crude.”⁴⁸ There is no evidence to support this conclusion other than that provided by Mr. Earnest in his benefits analysis.

112. Crude oil producers did not provide evidence during the Part III hearing which indicated that markets in Asia exist, or that the price Western Canadian crude oil will capture, if those markets develop, will be higher than prices received in North America. *Producers maintain that their reason for the Project's need is to provide optionality*—the option for producers to pursue market development they maintained may be afforded by the Project.

⁴⁷ NEB Order XO-T260-007-2016, Condition 5 at 33 (3 May 2016).

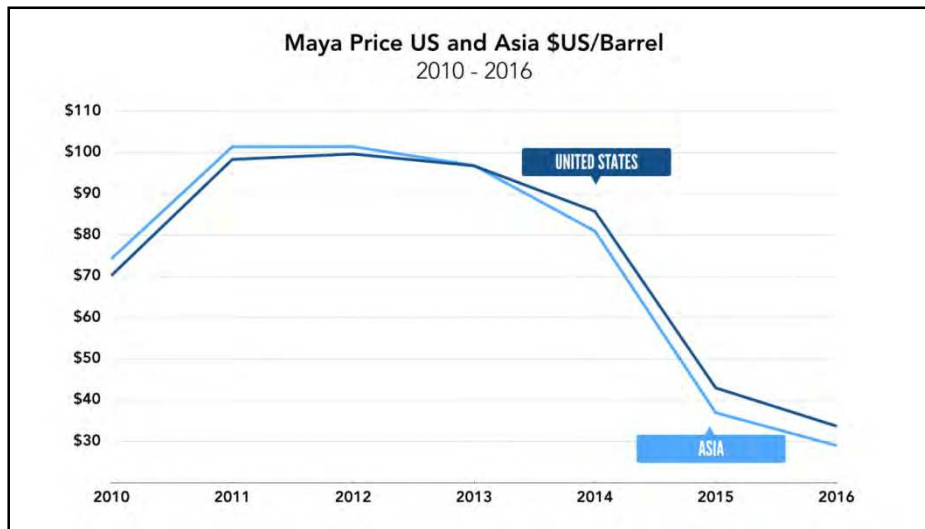
⁴⁸ NEB, 2016, *supra* note 4 at xiii.

113. The NEB is also aware from Mr. Kelly's evidence that Trans Mountain filed during the Part IV Hearing for the Project that it is wide differentials and deep discounts (low prices) that attract off-shore demand—particularly when long-term take or pay contracts are contemplated—not natural and expected discounts as have existed in the spot market since 2014.⁴⁹ Further, a number of heavy oil exporting countries are targeting Pacific Rim markets. As supply from numerous sources grows, this puts downward pressure on prices.
114. In my professional opinion, access to markets provided by the Project will not increase the price producers are able to obtain for their product particularly since market development is generally accompanied by price discounts.
115. During the Firm 50 review Chevron's expert witness, Dr. Stephen Gaske, explained how long-term take or pay contracts represent significant risk to shippers who do not have integrated relationships as follows:
- They go to Alberta and...buy oil...and they start offering a 10-year contract...and, as sellers, they will probably sell at what they think is a discount. Usually in these long-term arrangement deals, the person who takes on the greater risk, say the person is willing to commit to a long-term purchase, will get a discount, and the seller—the oil producer, say, in Edmonton, typically will sell at a lower price...the netback will actually go lower. They'll sell at a lower price and there will be a whole lot of potentially producers bidding against each other for that 10-year contract to supply somebody.⁵⁰
116. In attempting to build and sustain market share in Asia, PEMEX resorted to discounting its crude in that market relative to benchmark prices. That is, PEMEX increased its discount as a marketing strategy, but with little success. PEMEX has been trading Maya into the Asian market for years and yet could not successfully increase its market share in any meaningful way, even as it significantly reduced its price.

⁴⁹ RH-2-2011: Trans Mountain Pipeline ULC Firm 50 Application, [Reply Evidence of Mr Kelly](#), Canadian Crude Pricing Differential, Q1 (9 August 2011) at 3; [Hearing Order RH-2-2011, Hearing Transcript, Volume 5](#), Final Argument Trans Mountain, Committed Shippers, August 26, 2011 at paras 6203, 6508.

⁵⁰ [Hearing Order RH-2-2011, Hearing Transcript, Volume 3](#), August 24, 2011 at paras 4321–4323.

117. Graph 5 illustrates that since 2013 Maya has received a lower realized price in Asia than in the US Gulf Coast. This market fact directly contradicts Mr. Earnest's hypothesized higher prices in Asia.



Graph 5
Source: PEMEX

118. Mr. Earnest opined in his evidence that in order to achieve the market benefits from Western Canadian heavy oil exports to Asia that he forecasted, the price for heavy oil shipped on the Project must be higher in Asia than in the Gulf Coast:

It is critical that the Northeast Asian crude oil prices be high enough, relative to the Gulf Coast alternative, for crude oil to ship on TMEP...⁵¹

119. Market development challenges and realistic transportation costs mean that the price per barrel that Canadian oil producers would obtain in Asian markets are likely to be lower, not higher, than prices in the developed North American market.
120. In summary, in my professional opinion markets in Asia for diluted bitumen from Alberta do not currently exist, they will take many years to develop (if they can be developed at all), and the price producers are likely to receive will be lower, not higher, than the price they would receive in the Gulf Coast, particularly given long-term take or pay contract realities and the cost of transporting the lower quality crude to market.

⁵¹ B427-2: Muse Stancil, *Market Prospects and Benefits Analysis of the Trans Mountain Expansion Project* (September 2015) at 52 ([A4T6E8](#)).

4. IS ADDITIONAL TRANSPORTATION CAPACITY REQUIRED?

121. Current pipeline and rail infrastructure is sufficient to transport oil available for export to market until at least 2025 based on current supply outlooks.
122. Should the proposed expansion on Enbridge's existing system of 800,000 barrels a day proceed,⁵² pipeline infrastructure will be sufficient to meet capacity need without reliance on rail until at least 2025. If current market conditions continue, or meaningful climate change policies are implemented, transportation capacity to meet export demand, without new pipeline projects, is sufficient well beyond 2025.
123. Currently 4.2 million barrels a day of pipeline nameplate export capacity and approximately 1 million barrels a day of rail loading and offloading facilities exist to transport Western Canadian crude oil supply to market.⁵³ Export pipelines operate at less than nameplate capacity such that effective capacity of approximately 3.7 million barrels a day of pipeline infrastructure exists.⁵⁴
124. Although an average of approximately 90,000 barrels a day of rail transport is being relied upon for exports during 2016,⁵⁵ crude oil by rail does not necessarily mean pipelines are full. Oil producers have found rail to be a preferred method of delivering product to market in some circumstances and some continued reliance on rail would be expected to continue regardless of the amount of pipeline capacity available.
125. Crude oil available for export from Western Canada is approximately 3.5 million barrels a day (after adjusting Western Canadian supply for domestic refinery usage, demand for pipeline capacity to export refined petroleum products, volume loss from upgrading/volume gain from bitumen blending, and US demand for capacity to ship Bakken crude on Canadian takeaway capacity). This means there is excess pipeline capacity currently available.
126. The conclusion that there is excess pipeline capacity is supported by evidence of underutilization on a number of systems. Enbridge confirms that its light oil delivery system is under-utilized,⁵⁶ Trans Canada's Keystone is not fully utilized,⁵⁷ and Trans Mountain, although at near realizable capacity, is not operating at full realizable capacity.⁵⁸

⁵² Enbridge, "[Investment Community Presentation, Investors Third Quarter Earnings Call](#)" (3 November 2016), slide 37.

⁵³ Canada, National Energy Board, [Canada's Pipeline Transportation System](#) (August 2016), Appendix 8.

⁵⁴ Canada, National Energy Board, [Canada's Pipeline Transportation System](#) (August 2016), Appendix 8.

⁵⁵ Canada, National Energy Board, "[Canadian Crude Oil by Rail Exports—Monthly Data](#)" (24 October 2016).

⁵⁶ Enbridge, "[Investment Community Presentation, Investors Third Quarter Earnings Call](#)" (3 November 2016), slide 14.

⁵⁷ Trans Canada, "[Keystone Quarterly Surveillance Report for the Third Quarter Ended September 30, 2016](#)" (14 November 2016), Schedule 3.

⁵⁸ Trans Mountain Incentive Toll Settlement ITS-29, op. cit. Apportionment is not evidence of excess demand as Trans Mountain's calculation double counts volumes. Deliveries is the relevant metric.

127. In addition to possible expansion of Enbridge's existing system, TransCanada is actively pursuing approval of Keystone XL. US President-Elect Trump promised during the campaign that if elected he would immediately approve the Keystone XL pipeline.⁵⁹
128. Keystone XL would add an additional 830,000 barrels a day of new pipeline export capacity to the US Gulf Coast market.⁶⁰ These facilities would be operational prior to the Project's expected in-service date of late 2019.
129. The NEB was not provided with current or accurate data at the hearing upon which to assess whether the crude oil transportation system is experiencing capacity constraints. The NEB concluded the Project would be used and useful during its lifetime based on this outdated information.
130. Mr. Earnest based his supply of crude oil on projections from CAPP 2015. Mr. Earnest predicted the Project would be operating at full capacity based on this supply outlook. CAPP 2016 provides a significantly lower supply outlook than CAPP 2015. *In fact, if Mr. Earnest had relied on the supply projections in CAPP 2016, he would have predicted that up to at least 2025 there was no need for the Project.*
131. Mr. Earnest ran his model for the year 2025 without the Project but with a reduction in the Canadian crude oil supply of 500,000 barrels a day below the supply predicted in CAPP 2015.⁶¹ He sought to identify the impact a lower supply of this magnitude might have on his predicted price lifts by selecting one year upon which to run his model using that lower supply projection for that year. Mr. Earnest found that if the Project was not built, but supply was 500,000 barrels a day lower, that the impact on crude oil prices would be effectively the same. That is, 500,000 barrels a day of less supply in 2025 meant there was no need for the Project in that year (and by extension, no need for the Project up to that year).
132. CAPP 2016 reflects more current market conditions than CAPP 2015. CAPP 2016 projects 596,000 fewer barrels a day of supply in 2025 than CAPP 2015 estimated for that year. *What Mr. Earnest's analysis showed is that the Project is not needed and would not be used—there was no market demand by way of tidewater sufficient to pull barrels along the Project—if supply was 500,000 barrels a day less in 2025 than CAPP 2015 predicted.*
133. Such a supply outlook up to 2025 is the outlook CAPP is now predicting. Therefore, the assessment the NEB received of Project need confirms that when a more updated supply outlook is relied upon, the Project is not needed until at least 2025. Mr. Earnest incorporated a limited amount of Enbridge's possible expansion of its existing system but did not include Keystone XL in his assessment of pipeline export capacity. Such consideration would result in significant unused pipeline capacity even absent the Project.

⁵⁹ Donald J. Trump, [Tweet](#) (18 August 2015).

⁶⁰ TransCanada, "[About the Keystone XL Pipeline: A proposed oil pipeline under review for seven years.](#)"

⁶¹ B430-2: Trans Mountain Response to NEB Replacement Evidence IR, IR 09: Lower Supply Scenario at 36 ([A4U6X3](#)).

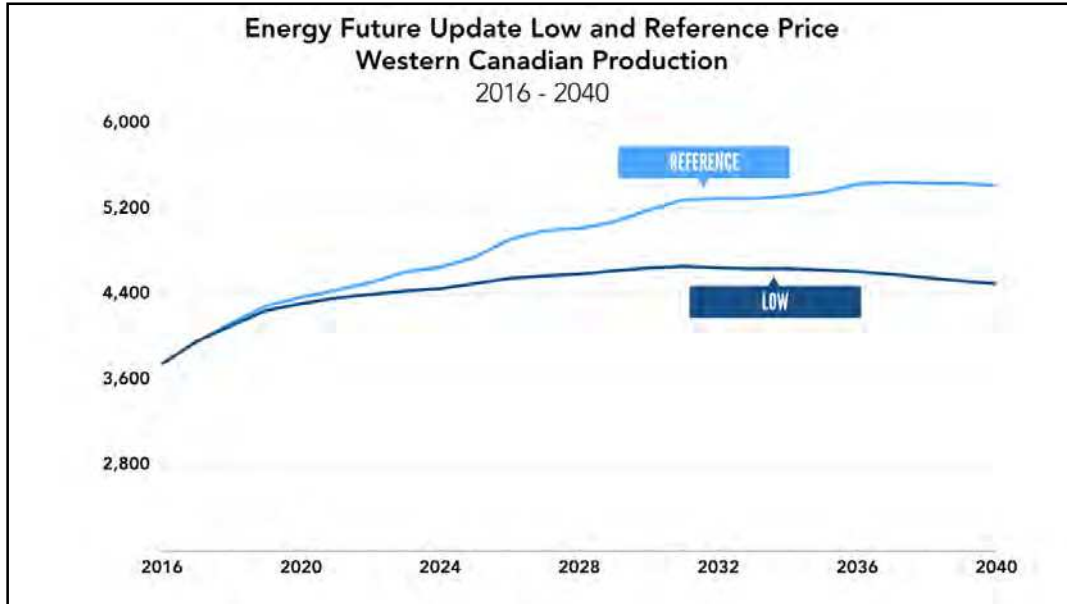
134. The NEB outlook for crude oil production—Energy Future 2016—was released in January 2016 (based on price forecasts developed in summer 2015 and absent consideration of climate change policies which were not law at that time). Included in Energy Future 2016 was a “Constrained Case” that examined transportation capacity utilization if no new projects such as Trans Mountain, Keystone XL, Northern Gateway or Energy East were constructed.⁶² The determination the NEB made was that with Enbridge enhancements, including the Line 3 Replacement, there would be a modest reliance on rail transportation capacity in 2025 of about 100,000 barrels a day.
135. The NEB revised Energy Future 2016 on October 26. However, the NEB did not update its “Constrained Case.” There is no discussion of the need for new pipelines in the revised report nor an updated estimate of oil available for export and pipeline takeaway capacity.⁶³ In its Update, the NEB assumes that “over the long-term (post 2020) infrastructure is built as needed...”⁶⁴ but did not suggest what that infrastructure need might be or when the NEB thought it might be needed.
136. The NEB has failed to provide the service it provided in Energy Future 2016 where it examined capacity utilization and supply available for export. The absence of this analysis has created a vacuum as Natural Resources Canada does not undertake this analysis on an ongoing and timely basis. NRCan does not produce forecasts of oil prices, production or supply. NRCan does not predict pipeline takeaway capacity or capacity utilization.
137. The evaluation of transportation capacity need requires an estimate of transportation capacity available, planned capacity, crude oil available for export (since production does not equal supply due to a number of factors including domestic refinery demand, volume loss from upgrading, and imported condensate for blending purposes), petroleum product transport and US demand for Canadian pipeline takeaway capacity.
138. Energy Future 2016 Update did not provide a revised estimate for oil available for export or takeaway capacity, but it did provide a Low Price Scenario. The Low Price Scenario predicts Western Canadian crude production peaking early in the next decade and declining marginally thereafter. Graph 6 illustrates the Energy Future 2016 Update Reference and Low Price production scenarios for Western Canadian crude.

⁶² Canada, National Energy Board, [“Canada’s Energy Future 2016: Energy Supply and Demand Projections to 2040”](#) (January 2016), Figure 10.7.

⁶³ Canada, National Energy Board, [Canada’s Energy Future 2016: Update—Energy Supply and Demand Projections to 2040](#) (October 2016).

⁶⁴ Canada, National Energy Board, [Canada’s Energy Future 2016: Update—Energy Supply and Demand Projections to 2040](#) (October 2016) at 14.

139. Neither the Reference Case nor the Low Price Scenario incorporate Canada's climate change commitments, or programs announced by a number of provinces, including Alberta's 100 MT cap on greenhouse gas emissions from oil sands operations. The Energy Future 2016 Update Report provides a list of the programs that are not considered in its outlook.⁶⁵ What this means is that although the Update Low Price Scenario reflects a more realistic view of future prices, it has not yet incorporated the impact of known climate change policies on future production. Doing so would be expected to further dampen production post-2020 than that illustrated in Graph 6.



Graph 6
Source: NEB

140. *Given current market conditions and likely pipeline capacity expansions to the US market, there is clearly sufficient transportation capacity available without pressure on price discounts for Canadian crude until at least 2025.* The question then becomes, which is the most likely production scenario into the coming decade?
141. Royal Dutch Shell Plc., Chief Financial Officer, Simon Henry informed shareholders on November 1, 2016 that:

We've long been of the opinion that demand will peak before supply. And that peak may be somewhere between 5 and 15 years hence, and it will be driven by efficiency and substitution, more than offsetting the new demand for transport.⁶⁶

⁶⁵ Canada, National Energy Board, [Canada's Energy Future 2016: Update—Energy Supply and Demand Projections to 2040](#) (October 2016), Appendix Table A.1.

⁶⁶ Bloomberg, [Energy Giant Shell Says Oil Demand Could Peak in Just Five Years](#) (2 November 2016).

142. The International Energy Agency (IEA) World Energy Outlook 2016 highlighted the structural change facing energy producers not only in the higher cost fields of the oil sands, but throughout the world:

The Paris Agreement, which entered into force on 4 November, is a major step forward in the fight against global warming. But meeting more ambitious climate goals will be extremely challenging and require a step change in the pace of decarbonization and efficiency.⁶⁷

143. As Energy Future 2016 Update Low Price Scenario illustrates, production begins to level off during this period since oil sands producers have relied on existing and in-construction projects to deliver production, while embarking on no new major projects. This is an outlook more in line, not only with current price expectations, but also a future where Canada plays its part in meeting the climate change targets it has committed to reach.
144. Canada has not engaged in an examination of the manner by which it can meet its international commitments to fight climate change and approve the Project. The need to do so was underscored in the Report prepared by the Minister of Natural Resources' Ministerial Panel on the Proposed Trans Mountain Expansion Project. The Panel identified six high-level questions that it commended to the Government of Canada for serious consideration—if not resolution. The first of the Panel's six questions is:

1. Can construction of a new Trans Mountain Pipeline be reconciled with Canada's climate change commitments?⁶⁸

145. **In my professional opinion, the Energy Futures 2016 Update Low Price Scenario is a more realistic starting point for evaluating production trends into the future. The trend shows that not only is there sufficient transportation capacity to 2025, the levelling off of production means no new transportation capacity would be required beyond that point.**

5. WHAT ARE THE NET ECONOMICS OF THE PROJECT?

146. The benefit case submitted by Trans Mountain which the NEB adopted and relied on in recommending that the Project is in the public interest, incorrectly represents gross private benefits to producers without regard to any economic costs as explained in the section addressing the NEB's limited scope of issues. The benefits case the NEB relied upon is a gross benefits assessment, not net. These gross benefits, themselves, are fundamentally flawed and unreliable.
147. The gross private benefits case relied on unrealistic assumptions about how markets function and the crude oil prices in those markets, unreasonable expectations regarding the magnitude and pace of potential market penetration, stale-dated projections of crude oil

⁶⁷ International Energy Agency, "[World Energy Outlook 2016](#)" (2016).

⁶⁸ Natural Resources Canada, "[Report from the Ministerial Panel for the Trans Mountain Expansion Project](#)" (1 November 2016) at 46.

supply available for export, and the cost of alternative rail transportation was overestimated.

148. Mr. Earnest presented a benefits case based on a reduction in the Canadian discount for crude—price lifts that he estimated to be \$73.5 billion. Trans Mountain also submitted a benefits case developed by Glen Hodgson, VP Conference Board of Canada.⁶⁹
149. Mr. Hodgson’s evidence provided an estimate of the impact of the Project construction and operation on GDP, persons years of employment and fiscal benefits. Mr. Hodgson also provided an estimate for fiscal impacts related to Mr. Earnest’s price lifts (that is, he did not perform an estimate of GDP or person years of employment related to Mr. Earnest’s \$73.5 billion price lifts figure). Mr. Hodgson’s inappropriately applied Input-Output analysis, made specification errors, engaged in double counting and adopted Mr. Earnest’s unsubstantiated price lift benefits figure for fiscal benefits estimating purposes.
150. In my professional opinion the net economic impact of the Project becomes negative when:
- a fulsome scope of issues are considered that extends beyond the private economic benefits of crude oil producers and includes direct economic costs and opportunity loss;
 - reliable and accurate pipeline and marine toll rates inform the analysis for both the Project and rail transport relied upon in the absence of the Project;
 - supply projections that reflect current market conditions and climate change commitments are developed and adopted;
 - crude oil prices based on market conditions are adopted;
 - realistic expectations regarding market demand and potential market penetration inform the assessment;
 - appropriate models reflecting economic impact are relied upon; and
 - double counting of benefits does not take place.
151. I discussed the NEB’s failure to consider the interests of all Canadians when evaluating Project economics in section 2, where I explained how the NEB’s failure to apply its definition of the public interest, or to test need and commercial feasibility, led it to an erroneous conclusion that Project benefits are considerable and outweigh residual burden. That is, the NEB approach in its scope and review of the evidence it had before it was flawed. The conclusion the NEB came to is not reliable as a result.

⁶⁹ Conference Board of Canada, Glen Hodgson, “[The Trans Mountain Expansion Project: Understanding the Economic Benefits for Canada and its Regions](#)” (21 September 2015).

152. The purpose of this section is to expand further on the lack of reliability or credibility of the benefits estimates from the perspective of methodological approach, particularly as it relates to the evidence filed by Mr. Hodgson.

5.1 What are the net economics of the Project in relation to (i) construction, (ii) operation, and (iii) royalties and taxes?

153. Mr. Hodgson developed GDP, person years of employment and fiscal tax and royalty benefits based on the capital cost to construct the Project and operating revenues from annual tolls over 20 years.

154. As explained above, Mr. Hodgson developed tax and royalty revenues based on Mr. Earnest's price lifts assessment but he did not undertake an estimate of GDP or person years of employment related to the price lifts predicted by Mr. Earnest.

155. Mr. Hodgson used an input-output model to predict GDP and person years of employment from construction and operation. To estimate fiscal benefits related to construction, operation and price lifts, he relied on a proprietary Conference Board model.

5.1.1 Construction

156. An input-output approach can be useful for a capital Project when spending is expected to occur over 3–5 years. However, an evaluation of the Project's opportunity cost should also have been included in the NEB's evaluation of the public interest. That is, in a public interest determination it is expected that consideration of the opportunities crowded out by Project construction would also be given. Under such an assessment for the Project, the gross benefits from construction would be greatly reduced, if not become negative.

157. This issue was raised by Intervenors at the NEB hearing; most notably Unifor and the Alberta Federation of Labour that represent almost 200,000 Canadian workers. These unions concluded that the lost jobs and lost economic wealth, as well as the crowding out of existing jobs in other sectors such as commercial fishing, that arise if the Project proceeds, outweigh its economic benefits.⁷⁰ The NEB determined that these considerations were outside the scope of its review and did not compel Trans Mountain to answer questions related to such issues on this basis. When addressing this view in its Report, the NEB contradicted its actions during the Hearing by suggesting that if the Intervenors held this view, they "had an onus to provide sufficient evidence to support such a view. They did not do so."⁷¹

⁷⁰ C5-4-1: Alberta Federation of Labour, Written Final Argument (1 December 2015) ([A4X4F3](#)); UNIFOR, Final Argument (1 November 2016) ([A4X3T9](#)).

⁷¹ NEB, 2016, *supra* note 4 at 309.

158. Irrespective of opportunity cost or crowding out of existing economic activity, for construction of an infrastructure project to be a net economic benefit to the Canadian economy it must be used and useful over its lifetime. Current market conditions suggest this not likely to be the case. A Project constructed that is subsequently run at below its break-even point (where capital costs are covered but not all operating costs) or in the case of below its shut-down point (the facility is idled and under care and maintenance or decommissioned) is a net economic cost, not a benefit.

5.1.2 Operations

159. Mr. Hodgson also undertook an Input-Output assessment of the benefit of the Project's operation. It is well known among economists that the use of Input-Output tables is not a reliable methodology for estimating the impact of 20 years of operating revenues. *For example, the Alberta Treasury Department warns against such a misapplication of input-output analysis.*⁷² However, Mr. Hodgson provided no indication in his report of the limitations to Input-Output analysis, although this is standard practice in consulting reports of this nature. The benefits Mr. Hodgson derived from operating revenues are not credible or reliable.
160. Notwithstanding that an Input-Output approach should not be used for modelling the economic impact of Project operations, even if it were an appropriate technique, Mr. Hodgson's application of Input-Output analysis to both the capital expenditure and the operating revenue represents double counting.
161. The capital cost of the Project cannot be a benefit both when it is capitalized and when it is expensed. Put simply, operating revenues (toll expenses to producers) pay for the repayment of debt and return on equity used to finance the Project. If both the capital stream and revenue stream are assumed to be benefits, where are the costs?
162. The inappropriate double counting is further illustrated by Mr. Earnest's approach to modelling the price lift benefits (reduction in discounts) he postulated would arise if Trans Mountain were built and displaced rail delivering crude oil to tidewater access through Kitimat.
163. According to Mr. Earnest, if the Project is not built, oil producers will pay tolls to ship the crude by rail instead. If Mr. Earnest's assumption is taken to its logical conclusion, costs from the Project's operation are incurred when rail is displaced. This cost is measured by lost revenue to rail companies. The economic impacts predicted by Mr. Hodgson would be negative under an approach where impacts on other sectors of the economy are considered.
164. Notwithstanding the inappropriate application of Input-Output analysis to the Project's operations, if Mr. Hodgson is going to undertake an Input-Output assessment of this nature, then he should have also undertaken an assessment of economic cost to the rail sector because of those operations. However, the NEB's limited scope of issues constrained his

⁷² Alberta Treasury Board and Finance, [Alberta Economic Multipliers](#) (2009) at 4.

assessment to an assessment of gross positive impact from operations not a net impact from operations and crowding out of displaced rail transportation activity.

5.1.3 Royalties and Taxes

165. Mr. Hodgson estimated a:

- fiscal impact from construction of \$1.2 billion over the construction period;
- fiscal impact from operation of \$3.3 billion over 20 years; and
- fiscal impact (including royalties) from Mr. Earnest's price lifts of \$23.7 billion over 20 years.

166. Table 1, below, provides an indication of the relative importance of each of these categories of benefits to the overall fiscal benefits of \$28.2 billion calculated by Mr. Hodgson.

167. When opportunity cost and lack of usefulness is considered, there are no net fiscal benefits from Project construction which represents 4 percent of the total fiscal benefits. The 12 percent of fiscal benefits from operations do not exist either because of the limited scope of issues, flawed methodological approach and double counting.

168. It is clear that the majority of the benefits the NEB relied upon to determine need and economic impact of the Project relate to Mr. Earnest's price lift benefits. As Table 1 illustrates, *84 percent of the fiscal revenues the Federal and Provincial governments anticipate from the Project are based on price lift benefits that do not exist.*

Total Fiscal Impact	\$28.2	100%
Project Capital Spend	\$1.2	4%
Project Operations	\$3.3	12%
Price Lifts (Reduction in Discounts)	\$23.7	84%

Source: The Conference Board Report

Table 1

169. In my professional opinion the Project represents a net economic risk and cost to the Canadian economy with that risk and cost disproportionately falling on the shoulders of the public interest as defined by the NEB when (i) economic costs and benefits are properly considered through an adequate scoping of the issues, (ii) evidence is fully tested, (iii) reliable and accurate toll rates and supply projections and other market factors are considered, (iv) realistic expectations regarding market demand and potential penetration exist, and (v) appropriate modelling that does not resort to double counting is applied.

5.2 Are there any inconsistencies with the approaches Trans Mountain (and its experts) have advanced in regulatory applications connected with the Project?

170. Trans Mountain has engaged in three hearings that are relevant to the veracity and reliability of the economic and market evidence the NEB has relied upon in its Report. In those hearings, Trans Mountain and its experts have advanced inconsistent positions on those issues. These hearings include the Firm 50 Application under Part IV of the NEB Act,⁷³ the Toll Methodology Application under Part IV of the NEB Act,⁷⁴ and the Public Interest Application under Part III, section 52 of the NEB Act.⁷⁵

171. There are a number of implications related to the contradiction in evidence and testimony provided by Trans Mountain and its experts from one hearing to the next. In particular:

- it brings into question the veracity and reliability of the evidence Trans Mountain filed at each of the Hearings;
- it exposes a tendency Trans Mountain has developed whereby it tailors its evidence to embellish the positive aspects of the request before the NEB while minimizing the potential limitations or risks that are likely to occur because of its request; and
- it provides evidence that Trans Mountain has contradicted the basis upon which it has developed assumed Project economics.

172. For example, Trans Mountain sought to prove that competition for its pipeline exists in the Part IV Toll Hearing in response to charges of monopoly power and unfair pricing practices that can accompany such market power, since Trans Mountain is the only Canadian oil pipeline with tidewater access. Trans Mountain's expert George Schink submitted evidence refuting Trans Mountain's market power by highlighting rail as a cost efficient and effective alternative to the pipeline, particularly for the transport of diluted bitumen—the product intended for shipment down the Project.⁷⁶

⁷³ RH-2-2011: Hearing Record, [Application for Firm Service to the Westridge Marine Terminal on the Trans Mountain Pipeline System](#).

⁷⁴ RH-001-2011: Hearing Record, [Application for Approval of the Transportation Service and Toll Methodology for the Expanded Trans Mountain Pipeline System](#).

⁷⁵ OH-001-2014: Hearing Record, [Application for Trans Mountain Expansion Project](#).

⁷⁶ RH-001-2011: Direct Evidence George R. Schink, [Potential for substantial Rail Competition](#) (10 January 2013) at 51 and detailed support in [Appendix A](#).

173. However, in the Part III Hearing Trans Mountain's experts Mr. Kelly and then Mr. Earnest provided a narrative where rail is more expensive by a significant margin. This evidence contradicted the notion that rail is a competitive alternative to the pipeline.
174. Similarly, in the Part IV Hearing Mr. Kelly provided evidence on the limitations of netback analysis as a useful indicator of Project impact, particularly where long-term contracts for pipeline capacity are concerned.⁷⁷ In his evidence filed at the Part III Hearing, Mr. Kelly did not alert the NEB to limitations of netback analysis, and considered all contracts as if they were entered into on the basis of short-term spot market pricing. Mr. Earnest did not incorporate any consideration of negotiated long-term contracts and their potential impact on netbacks in his analysis.
175. A compendium of a number of the inconsistencies regarding markets, need, and economic impact is provided below.
176. During the Firm 50 review Trans Mountain and its expert Mr. Kelly asserted that:
- (a) Firm access of 79,000 barrels a day under ten-year take-or pay contracts was sufficient to create market relationships in non-traditional markets accessible by tidewater access, most particularly in Asia;
 - (b) netbacks to producers would be enhanced by allocating firm shipments to the dock because it restricted 54,000 barrels a day of supply available for the North American market; and
 - (c) severe discounting of Canadian crudes makes exports attractive to markets served by tidewater access.
177. During the Toll Methodology Review, Trans Mountain claimed through its experts, Mr. Kelly and Dr. Schink, that:
- (a) the usefulness and reliability of netback analysis is limited when long-term take or pay contracts characterize shipping arrangements;
 - (b) crude by rail is a competitive alternative to the Project;
 - (c) markets in Asia do not exist and will take many years to develop if ever;
 - (d) the US Gulf Coast can absorb 1.5 million barrels a day of Canadian heavy crude; and

⁷⁷ RH-001-2011: [Written Reply Evidence of Steven Kelly](#) (31 January 2013) at 2 and 15.

- (e) extraordinary price discounts have led to increased shipper demand on the existing Trans Mountain pipeline.⁷⁸

178. During the Part III Review, Trans Mountain, through its experts Mr. Kelly and then Mr. Earnest, claimed that:

- (a) netback analysis is not constrained by take or pay contracts and there are no risks to the approach;
- (b) crude by rail is a more expensive alternative to pipeline transport and is responsible for widening differentials;
- (c) US Gulf Coast markets are limited; and
- (d) markets in Asia exist, are readily accessible, demand exceeds system supply, and offshore prices are higher than in North America.

5.3 What assumptions has Trans Mountain and/or the NEB made in relation to Project economics? Are they valid?

179. There are a number of assumptions made in Trans Mountain's expert reports, which were subsequently adopted and applied by the NEB in formulating its recommendation that the Project is needed and is in the public interest. These assumptions are invalid as they do not reflect market, economic or business theory and practice. These assumptions render the NEB's conclusions without merit. Many of these erroneous assumptions have been discussed above. Additional inconsistent or invalid assumptions include:

- (a) **The level of crude oil supply from 2016 - 2038 will be the same with or without the Project.** Mr. Earnest relies on capacity constraints and more expensive rail to generate a widening of crude oil discounts and then introduces the Project to predict price lift benefits as these discounts narrow. In doing so, Mr. Earnest violates a basic investment principle—the propensity for corporations to re-invest in profitable endeavours. Mr. Earnest predicts that crude oil prices will increase for all producers in Western Canada because of the Project, but stops his assessment there. If Mr. Earnest's price lifts were to occur because of the Project, oil producers would re-invest a portion of their profits, expanding output further. Mr. Earnest has made no accommodation for the impact on crude oil supply when that happens. Under normal economic conditions this incremental increase in supply from price lifts would put downward pressure on prices. This would return the economy to the differentials experienced before the Project and there would no longer be any price lift benefits attributable to the Project.

⁷⁸ In particular see: RH-001-2011: [Written Reply Evidence of Steven Kelly](#) (31 January 2013) at 2 and 15; RH-001-2011: Direct Evidence George R. Schink, [Potential for substantial Rail Competition](#) (10 January 2013) at 51 and detailed support in [Appendix A](#).

- (b) **If the Project is not built, crude by rail to Kitimat will take its place.** Marine loading facilities in Kitimat do not currently exist to ship the volume anticipated in Mr. Earnest's analysis. It is unclear as to why Mr. Earnest would not assume existing rail infrastructure would be relied upon to ship crude oil in the absence of the Project. Mr. Earnest's rail to Kitimat provides a misleading picture of likely crude delivery to market in the absence of the Project.
- (c) **The US-Canadian exchange rate is at par during the forecast period.** This assumption provides a marine transport cost that is lower than it would otherwise be if an exchange rate based on current market conditions were to be used.
- (d) **Crude by rail returns when the Project is operating at capacity.** Mr. Earnest assumes that when supply as predicted by CAPP 2015 exceeds the applied for capacity of the Project (540,000 barrels a day), rail will be used. The Project is *designed* to ship an average of 780,000 barrels a day. Much of the cost of doing so is incorporated in the Project's capital budget. The cost of expanding throughput capacity in this way would be almost negligible. If the pipeline were operating at capacity and supply were continuing to grow, as contemplated by Mr. Earnest's scenario, Trans Mountain would further expand its system, not have producers rely on rail. This approach would significantly reduce the price lift estimate, particularly post-2025.
- (e) **The price of crude oil in offshore markets is not affected by increased supply afforded by the Project.** There is no consideration in the analysis of the impact increased supply in international markets will have on reducing price. Mr. Earnest has unreasonably assumed that prices in Asia would be unaffected by an increase in supply of 500,000 barrels a day of diluted bitumen. This makes little economic sense.

5.4 What effects do the assumptions have on the NEB's Report and recommendations?

180. Effects of the assumptions on the NEB Report and recommendations include:

- (a) **The level of crude oil supply from 2016 - 2038 will be the same with or without the Project.** By limiting its scope of issues to exclude upstream impacts the NEB has failed to consider an obvious market response to Mr. Earnest's netback analysis. This is misleading. The NEB cannot have it both ways—adopt price lift benefits for 20 years, advance the figures related to these price lifts and then not alert the GIC to the likely disappearance of the price lift benefits (and the taxes related to them) when the economy adjusts.

- (b) **If the Project is not built, crude by rail to Kitimat will take its place.** Mr. Earnest's price lift benefits are postulated by a yet to be built marine facility in Kitimat despite promises made to initiate a tanker moratorium along BC's north coast. The NEB has recommended the Project based on a transportation scenario that contradicts Canada's promised policies, and does not reflect reality. The NEB has made its recommendation to approve a Project based on a false picture of what the alternative would be if the Project does not proceed.
- (c) **The US-Canadian exchange rate is at par during the forecast period.** It has been explained that the NEB did not require that accurate and reliable toll rates be applied to its assessment of the Project. Marine rates have also been similarly underestimated by Mr. Earnest partly because he assumed the exchange rate at par. Thus the NEB has decided the Project is economically feasible and benefits exist, when it has relied on toll rates that undermine feasibility and the benefits. This further compromises the reliability of the NEB's conclusions regarding these issues.
- (d) **Crude by rail returns when the Project is operating at capacity.** The NEB is aware of the design capacity of the Project. It questioned Trans Mountain on this issue during the Hearing. The NEB accepted a scenario of benefits as if Trans Mountain would not expand its capacity if supply exceeded the market's ability to deliver crude by pipeline. Since the Project benefits Mr. Earnest predicts are based on rail picking up future transportation need, his benefits are excessively aggressive. The NEB relies on the magnitude of these benefits to support its recommendation, when business practice suggests these benefits would cease as Trans Mountain expands throughput to designed capacity.
- (e) **The price of crude oil in offshore markets is not affected by increased supply afforded by the Project.** Trans Mountain has claimed that the Project will deliver 500,000 barrels a day to markets not currently served by Alberta's diluted bitumen. The NEB accepted this degree of market penetration, but did not consider the obvious and predictable impact such an expanded supply would be expected to have on international market prices. The failure to consider obvious market price adjustments further discredits the NEB's findings.

6. WOULD DELAYING A GIC DECISION IMPACT THE PUBLIC INTEREST IN RELATION TO THE PROJECT?

181. Since the December 15, 2015 deadline to file affidavits swearing evidence,⁷⁹ there have been a number of reports that have been released and a number of climate change commitments that have made by Canada and other countries. These include:

- **NEB Energy Future 2016** released January 27, 2016 based on prices and climate commitments that existed in mid-2015. This document illustrates the sensitivity of future production to market conditions and includes a template for evaluating capacity and oil available for export;
- **NEB Energy Future 2016 Update** released October 2016 based on prices and climate commitments that were law in mid-2016. Appendix Table A.1 lists the climate change commitments that have been announced but are not considered in the outlook. As well this outlook provides a low price scenario that can provide a basis for developing a realistic outlook of production under a scenario of lower prices for longer, and a resource sector in transition as it adjusts to the cost implications of meaningful climate change policies;
- **CAPP 2016 Outlook**, including forecast of domestic refinery demand, released June 2016. CAPP is overly ambitious in its supply projections but provides a basis upon which to evaluate the impact of lower prices on producer intentions. As well, it provides a reliable forecast of refinery demand in Western Canada which can assist in developing a reliable supply forecast from NEB production scenarios;
- **OPEC World Oil Outlook 2016** released October 26, 2016, projects 300,000 barrels a day of new supply from Alberta's oil sands by 2020 which is below projections developed by CAPP and the NEB. The OPEC outlook also identifies a number of issues related to the demand for heavy oil and why prospects may be limited;
- **Ministerial Panel Review** released November 1, 2016. The report raises high-level questions for consideration and includes salient information to inform the NEB how the public interest has evolved. The report asks: 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? and 3. 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?;

⁷⁹ A217-1: NEB Procedural Direction No. 18—Revised hearing events and steps table, Appendix 1 at 4 (24 September 2015) ([A4T5R5](#)).

- **COP21** ratified November 4, 2016 by 197 countries is designed to limit climate change. This treaty can be expected to dramatically reduce fossil fuel reliance and dramatically change market conditions for oil;
 - **Alberta GHG Cap** of 100 MT on oil sands production. Legislation was introduced November 1, 2016; and
 - **Alberta Royalty Review Advisory Report**, Alberta at a Crossroads, released January 29, 2016. The report discusses a potential for partial upgrading of bitumen at the source of extraction which would greatly reduce the need for imported condensate and reduce the demand for pipeline capacity, accordingly.
182. An evaluation of these outlooks, advisory and other reports, recent market trends and implications of climate change commitments on business investment decisions would impact the NEB analysis because they speak to market conditions and policy framework that directly affect demand, supply, and price.
183. The NEB developed its conclusions and recommendation based on outdated and unreliable information. A review that reflects current realities and future prospects could not only be expected to fundamentally alter the NEB's conclusions but could also change its recommendation that the Project is in the public interest.
184. Since transportation capacity is not required until at least 2025, and the long term need and commercial feasibility is uncertain, unless the Project is to be rejected, the public interest is served by delaying a decision.

7. **IS ADDITIONAL WORK REQUIRED?**

185. In my professional opinion, the additional work described below could have a significant impact on the NEB's conclusions on the need for the Project, the purported economic benefits of the Project, and ultimately on the NEB's recommendation on whether the Project is in the public interest. The following additional work is also required to address the changed economic and political circumstances identified by the Ministerial Panel in its Report:
- (a) Develop an updated and reliable crude oil available for supply forecast that takes into account a current price outlook (lower oil prices for longer), climate change commitments, targets and approaches, and the cost of transporting oil to market. As well, develop a reliable and current estimate of Western Canadian takeaway capacity by pipeline and rail.
 - (b) Re-evaluate transportation capacity needs based on 7 (a).
 - (c) Re-assess the economics of the Project based on 7 (a), and taking into account the information provided in this report.

- (d) Explore alternatives to the Project within a framework of Canada's sustainable economic development policy that, by definition, incorporates Canada's climate change goals. Alternatives to include, but are not limited to, value added opportunities in Alberta such as partial upgrading, full upgrading and/or refining.

Dated: November 25, 2016



Robyn Allan

Appendix 1

Robyn Allan Curriculum Vitae

Summary of Experience:

Robyn Allan is an independent economist and has held many executive positions in the private and public sectors including President and CEO of the Insurance Corporation of British Columbia, Vice-President Finance for Parklane Ventures Ltd., and Senior Economist for B.C. Central Credit Union.

For the past twenty years Robyn has been a consultant to business, government and First Nations in the areas of energy, immigration, business development and housing. Robyn was the Economic and Financial Adviser to the Barrett Commission of Inquiry into the Quality of Condominium Construction in British Columbia 1998 - 2000.

Robyn has taught Money and Banking, Public Finance and Micro and Macro Economics at the university level for the University of Regina and Kwantlen College. She has also written numerous articles on energy, business and economics for newspapers and magazines including the Globe and Mail, National Observer, Tyee, Vancouver Sun, Financial Post, Business in Vancouver and Enterprise Magazine.

Recent Experience and Reports:

Report: "Toward Financial Responsibility in British Columbia's Mining Industry" — May 2016, released by the Union of British Columbian Indian Chiefs

Economic and Financial Advisor to Fox Lake First Nation in negotiations with Manitoba Hydro on the Conawapa Generating Station Power Project.

Report: "Canadian Ship-Sourced Spill Preparedness and Response — An Assessment" submitted to the Tanker Safety Expert Panel Review, June 2013.

Expert Witness for the Alberta Federation of Labour at the National Energy Board Review of Northern Gateway. Submitted as evidence "An Economic Assessment of Northern Gateway" — January 2012

Economic and financial advise to a number of clients in British Columbia on natural resource and transportation issues.

Executive Positions (1978 - 1995):

- President and CEO, the Insurance Corporation of British Columbia (ICBC)
- Vice-President Finance, Parklane Homes
- Executive Director, Vancity Community Foundation
- Senior Economist, BC Central Credit Union
- Manager Auto Insurance, Saskatchewan Government Insurance (SGI)

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- Capital Budget Analyst, Crown Investments Corporation of Saskatchewan including among other crown corporations, Saskoil, Potash Corp., and SGI

Board Positions:

Vancouver Opera, Ballet BC, Samoth Capital Corporation and Dynasty Motor Car.

Education:

Bachelor of Arts degree—University of British Columbia 1976

Masters Degree in Economics—University of British Columbia 1978

Successful completion of first year of the Certified Financial Analyst course (CFA)

Canadian Securities designation, with honours.

Awards:

Robyn was awarded the Forty Under Forty distinction from Business in Vancouver as well as named by the Financial Post as one of Canada's top 200 CEOs.