

**Trans Mountain Pipeline ULC
Trans Mountain Expansion Project
NEB Hearing Order OH-001-2014
Responses to Information Request from
Robyn Allan**

1.01 Trans Mountain and the Public Interest

Reference:

- i) Volume 1, Project Overview, (A3S0Q7), 1-12
- ii) Volume 1, Project Overview, (A3S0Q7), page 1-14
- iii) Volume 1, Project Overview, (A3S0Q7), page 1-22
- iv) Volume 1, Project Overview, (A3S0Q7), page 1-79
- v) Volume 1, Project Overview, (A3S0Q7), page 1-5
- vi) Environmental Assessment Equivalency Agreement, Between the NEB and the Province of British Columbia, June 21, 2010. Agreement
- vii) Trans Mountain Expansion Project, OH-001-2014, List of Issues, Appendix 1, #4, Hearing Order
- viii) NEB, Filing Manual, January 2013, Definitions, Cumulative Effects
- ix) Application, Risk Assessment and Management of Pipeline and Facility Spills, Volume 7, Section 6.3.1, Economy, page 7-86, (A3S4V6)

Preamble:

Reference (i) states the, “Application is being made pursuant to Section 52 of the *National Energy Board Act* (NEB Act) for the proposed Project. The NEB will undertake a detailed review and hold a Public Hearing to determine if it is in the public interest to recommend a Certificate of Public Convenience and Necessity (CPCN) for construction and operation of the Project.”

Reference (ii) states, “On May 23, 2013 Trans Mountain filed a Project Description with the NEB, the first formal step in a comprehensive federal regulatory process seeking approval of the Project. Based on the results of early consultation with interested parties that began in 2012, and in recognition of the high level of public interest and the transition to the *CEA Act, 2012*, Trans Mountain recommended the NEB treat TMEP as a “Designated Project” under the *CEA Act, 2012*.”

Reference (iii) states, “Finally, the Project is required from a broader public interest perspective to ensure that producers and governments obtain the highest value for their petroleum resources. Canadians are the ultimate owners of petroleum resources as represented through their provincial governments. The Canadian public is deprived of receiving the full market value for these resources when it is not possible to access the highest value end markets.”

Reference (v) states, “...oil producer revenues in Western Canada are forecast to rise by \$45.4 billion over the first 20 years of the Project’s operations, as a result of higher netbacks that can be attributed to producers having access to new markets through the Project. This revenue associated with higher netbacks is expected to generate total federal and provincial fiscal

benefits of \$14.7 billion, with Alberta receiving \$8.2 billion and the federal government \$6.1 billion.”

Reference (iv) states, “Based on the regulatory process that applies as described in this section and in Section 1.3 of this volume, Trans Mountain’s evidence, and the participation of intervenors and stakeholders in the NEB process will ensure that a rigorous and comprehensive environmental review will be completed by the NEB for the Project. Trans Mountain believes the NEB’s environmental and public interest review of the Project, will meet BC’s condition 1 (successful completion of the Environmental Review Process).”

References (i) – (iv) appear to be the only direct references to the public interest in Volume 1.

Reference (ii) states that Trans Mountain and not the NEB determines the treatment of the Application pursuant to Canadian legislation, in particular whether or not the project falls under the definition of a “designated project” for purposes of environmental assessment.

Reference (vi) is the Environmental Assessment Equivalency Agreement between the Province of British Columbia and the National Energy Board.

Reference (vii) provides the list of issues in the public interest review and includes, “the potential environmental and socio-economic effects of the proposed project, including any cumulative environmental effects that are likely to result from the project, including those required to be considered by the NEB’s Filing Manual.”

Reference (viii) is the filing manual in effect when Trans Mountain prepared its Application and defines cumulative effects as, “Changes to the environment that are caused by an action in combination with other past, present and future human actions. (‘Action’ includes projects and activities.)”

Reference (ix) states that, “Pipeline spills can have both positive and negative effects on local and regional economies, both in the short and long term. Spill response and clean-up creates business and employment opportunities for affected communities, regions, and clean-up service providers. This demand for services and personnel can also directly or indirectly affect businesses and resource-dependant livelihoods. The net overall effect depends on the size and extent of a spill, the associated demand for clean-up services and personnel, the capacity of local and regional businesses to meet this demand, the willingness of local businesses and residents to pursue response opportunities, the extent of business and livelihoods adversely affected (directly or indirectly) by the spill, and the duration and extent of spill response and clean-up activities. Evidence from past incidents shows that economic activities would be affected if a large spill were to directly affect an HCA such as a community or water body. The magnitude of effects resulting from a small spill on land would be smaller.”

Request:

- a) Please confirm that the purpose of the Trans Mountain Expansion Project Public Hearing is to determine if it is in the public interest for Trans Mountain to construct the “Project” and operate the existing **plus** expanded system. If unable to confirm, please explain why

the public interest review would not extend to the cumulative impact of the entire system as defined by the existing system **and** an expansion to that system.

- b) Please confirm that references (i) – (iv) are the only direct references to the public interest in Volume 1. If not confirmed please provide all other references to the public interest in Volume 1 of the Application.
- c) Please confirm Trans Mountain’s understanding of reference (vi) and its relevance to the current NEB Hearing.
- d) Please identify where in reference (vi):
 - 1) direct references to any aspect of the public interest are made and provide Trans Mountain’s understanding of the meaning of those direct references; and
 - 2) the document explains that British Columbia’s public interest test will be served by the NEB process.
- e) Please confirm that the only reference that reflects Trans Mountain’s view of the public interest in Volume 1 of its Application is reference (iii). If not confirmed, please explain.
- f) Please provide any and all other direct references to the public interest as presented and endorsed by Trans Mountain in the body of the Application including an identification of whether it is Trans Mountain speaking to the issue, an expert witness speaking to the issue, or public interest is raised by or defined by a third party, such as the NEB and its requirements as determined by the Hearing Order, Filing Manual or as required by legislation and regulations.
- g) Please confirm that reference (iii) assumes the following links will achieve the public interest:
 - i) producers gain access to “higher valued end markets”;
 - ii) this access increases crude oil prices and producer netbacks;
 - iii) higher crude oil prices increase royalties paid to Canadians as represented through their provincial governments;
 - iv) higher crude oil prices (net of increased royalties paid) translate into a corresponding increase in producer profits;
 - v) producer profits are taxed at the federal rate of 15% and the provincial rate of approximately 10% (depending upon provincial rates in effect) resulting in increased federal and provincial fiscal revenues;
 - vi) the public interest is served when federal and provincial governments spend fiscal revenues (royalties and corporate taxes) generated from “higher valued end markets”.
- h) If not confirmed in (g), please indicate which of the links can be confirmed and summarize the missing links that Trans Mountain assumes will lead to the public interest being served as suggested in reference (iii).
- i) Please confirm that Trans Mountain is postulating that increased revenues from higher netbacks identified in reference (v) are achieved when it is possible for producers to “access the highest value end markets.” If unable to confirm, please explain how higher

netbacks attributed to producers having access to new markets through the Project in reference (v) relates to access to the highest value end markets in reference (iii).

- j) Please confirm that the Province of British Columbia does not receive royalties or provincial corporate tax revenue as a result of increased producer revenue from higher netbacks. If not confirmed please identify where in the Application it is shown that the Province of British Columbia receives royalties and direct provincial corporate tax revenue as a result of higher producer revenues as defined by higher netbacks.
- k) Please confirm that any potential fiscal benefit to British Columbia from higher producer revenues are assumed to result because of a per capita distribution share of the alleged federal tax revenues arising from federal corporate taxation of higher producer profits from higher netbacks. If not confirmed, please provide the source of fiscal benefits flowing to British Columbia because of higher netbacks.
- l) Please confirm that reference (iii) assumes pipeline transport to waterborne access is the only method by which full market value for petroleum resources can be achieved. If not confirmed, please explain:
 - 1) the meaning of “when it is not possible to access the highest value end use markets”;
 - 2) where those “highest value end use markets exist”; and
 - 3) how those markets will be accessed when Trans Mountain’s expansion takes place.
- m) Please confirm that when waterborne access is achieved on British Columbia’s west coast that a tanker leg of the journey to “new” markets remains and that shippers to those new markets must also bear the transport cost related to tanker transport. If not confirmed, please fully explain how the crude oil is assumed to reach “highest value end markets” once it arrives at the Westridge dock and confirm that any transport costs related to reaching those markets must be paid along with an identification of which parties are assumed to pay those transport charges.
- n) Please confirm that for purposes of reference (v) whereby oil producers’ revenues are predicted to rise by \$45.4 billion that this figure represents a proportionate share of the netback benefits assumed to result when expanded pipeline capacity comes on stream in 2018. If not confirmed, please explain fully how \$45.4 billion is derived.
- o) Please confirm that the predicted increase in total oil revenues from higher netbacks from 2018 - 2037 is \$140.3 billion, with Trans Mountain’s assumed share to be 26.6 percent plus \$8.2 billion deemed to be achieved from exports to Asia. If not confirmed, please provide the predicted total increase in oil revenues from higher netbacks on heavy crude oil sales in North America, and sales to Asia, deemed to be realized between 2018 - 2037.
- p) Please provide the working definition of the public interest relied upon by Trans Mountain in the preparation of its Application. If Trans Mountain did not rely on a working definition of the public interest, please advise.

- q) If a working definition relied on in the preparation of the Application is provided, please confirm:
- 1) that the owner of Trans Mountain, Kinder Morgan Energy Partners L.P. (KMP), had agreed to this working definition prior to the preparation of the Application;
 - 2) when Trans Mountain's US based owner agreed to the definition of the Canadian public interest relied on in the preparation of the Application; and
 - 3) if this agreement to the definition of the Canadian public interest by KMP, relied on by Trans Mountain (or KMC), was subject to KMP Board approval and, if so, when such Board approval was granted.
- r) Please confirm that KMP completely supports the Application and fully endorses representations and commitments made in the Application filed with the NEB. If not confirmed, please identify the representations and commitments made in the Application that KMP does not support.
- s) Please confirm that KMP is a US Master Limited Partnership with its head office in Houston, Texas, USA. If not confirmed, please describe KMP as a corporate entity and identify where its head office is located.
- t) Please confirm Trans Mountain's working definition of the public interest, if provided in answer to (p), was communicated to all relevant staff, consultants, contractors, or experts involved in the Application to inform them in the preparation of the materials provided in the Application. If not confirmed, please explain how staff, consultants, contractors, or experts determined the scope of the public interest definition that should have been considered by them in preparing the materials relied on in the Application.
- u) If confirmed in (t), please provide any memos, letters, emails, or other written documentation to illustrate the communication of this definition to staff, consultants, contractors and/or experts.
- v) Does Trans Mountain consider the public interest determination to be separate from an environmental assessment determination such that each should be assessed on their own merits and decided upon independently? Please explain fully Trans Mountain's view of the public interest and environmental interest determination.
- w) Please confirm that reference (iv) implies that the environmental review is not part of the public interest review but a distinct exercise when it states, "Trans Mountain believes the NEB's environmental **and** public interest review of the Project, will meet BC's condition 1 (successful completion of the Environmental Review Process). If not confirmed, please explain fully, with examples of how Trans Mountain combines the public interest review with the environmental review qualitatively and quantitatively in its Application. (Emphasis added).
- x) Does Trans Mountain agree that a quantification of the environmental impacts from the project, if approved, should be part of the process that is needed to evaluate whether the proposed project is in the public interest. If not, please explain how Trans Mountain considers public interest costs and benefits and how it considers environmental costs

and benefits and why considerations of the public interest and considerations of the environment would be separated.

- y) If Trans Mountain believes that public interest and environmental impacts are separate considerations, does this mean that Trans Mountain sees the evaluation of the public interest as exclusive of environmental considerations? If no, please explain how Trans Mountain views environmental considerations and how those views are reflected in its economic benefits case presented in Volume 1.
- z) Please confirm that the Application will fail the public interest test if public interest costs outweigh public interest benefits of the Application. If not confirmed, please explain Trans Mountain's view of the necessary and sufficient conditions required for the Application to be deemed not in the public interest.
- aa) Please confirm that the weighing of public interest costs and public interest benefits would be expected to result in a net cost-benefit quantification and that if the net cost-benefit quantification were negative, a recommendation for approval of the Application would not be in the public interest.
- bb) If not confirmed in (aa) please explain how a situation where the public interest costs outweigh the public interest benefits could be deemed to be in the public interest. If confirmed in (aa) please indicate where Trans Mountain has endeavoured to develop a costs versus benefits framework for the public interest and attempted to quantify such costs and benefits in the Application.
- cc) Please confirm that Trans Mountain provided a qualitative cost-benefit assessment of the overall affect of pipeline spills on the local and regional economy in the long and short term in reference (ix). If not a qualitative cost-benefit assessment of the economic impact of pipeline spills how would Trans Mountain characterize reference (ix).
- dd) Please confirm that when reference (ix) states, "The net overall effect (of a pipeline spill) depends on the size and extent of a spill, the associated demand for clean-up services and personnel, the capacity of local and regional businesses to meet this demand, the willingness of local businesses and residents to pursue response opportunities, the extent of business and livelihoods adversely affected (directly or indirectly) by the spill, and the duration and extent of spill response and clean-up activities" that this statement means it is possible for the economic benefits of a pipeline spill to exceed its economic costs. If unable to confirm please provide an explanation for what is meant by the "net overall effect."
- ee) Please confirm that if the economic benefits of an event, action or activity exceed its economic costs that Trans Mountain would consider that such an event, action or activity is in the public interest. If not confirmed, please confirm that there are events, actions or activities where the economic benefits exceed the economic costs, but the public interest is better served if the event, action or activity does not take place.

- ff) Please confirm that it is the National Energy Board and *Canadian Environmental Assessment Act* (CEEA) that determine whether the Application would trigger an environmental assessment under the *CEAA* and a Section 52 hearing under the *NEB Act*, and not Trans Mountain. If not confirmed, please explain.
- gg) Please confirm that had the legislation that existed before the *NEB Act (2012)* and the *CEAA Act (2012)* been in force when Trans Mountain filed its Application on December 16, 2013, that pursuant to the length of new pipeline right-of-way required in the Application that a Joint Review Panel consisting of representation from the CEEA and the NEB, a full public hearing under section 52 of the *NEB Act*, and an Environmental Assessment under the *CEAA* would have been required. If not confirmed, please provide Trans Mountain's understanding of the requirements under the recently replaced legislation and provide references to the former legislation supporting Trans Mountain's response.
- hh) Please confirm that a under the new legislation the Application is a "designated project" because more than 40 kilometres of new right of way is required. Please also include any other legislative requirements that would identify the proposed expansion project as a "designated project", and thus result in a Section 52 application under the NEB Act and an environmental assessment under the *CEAA*.
- ii) Please identify when, and for what purpose, Trans Mountain (or any of the entities that have owned Trans Mountain's assets since the pipeline came under the jurisdiction of the NEB) has filed an Application that required a review under the *NEB Act* section 52 and include references to any and all of the Application(s) including the NEB file number.
- jj) Please confirm the Province of BC is an intervenor in this Part III, Section 52 NEB Application. If not confirmed, please indicate Trans Mountain's understanding of the role of the Province of BC in this Hearing (OH-001-2014).

Response:

- a) The purpose of the Trans Mountain Expansion (TMEP) hearing is provided in section 52 of the *National Energy Board Act*, which sets out the criteria the Board must consider in making a recommendation as to whether a certificate of public convenience and necessity should be issued for the TMEP:

52. (1) If the Board is of the opinion that an application for a certificate in respect of a pipeline is complete, it shall prepare and submit to the Minister, and make public, a report setting out

(a) its recommendation as to whether or not the certificate should be issued for all or any portion of the pipeline, taking into account whether the pipeline is and will be required by the present and future public convenience and necessity, and the reasons for that recommendation; and

(b) regardless of the recommendation that the Board makes, all the terms and conditions that it considers necessary or desirable in the public interest to which

the certificate will be subject if the Governor in Council were to direct the Board to issue the certificate, including terms or conditions relating to when the certificate or portions or provisions of it are to come into force.

(2) In making its recommendation, the Board shall have regard to all considerations that appear to it to be directly related to the pipeline and to be relevant, and may have regard to the following:

(a) the availability of oil, gas or any other commodity to the pipeline;

(b) the existence of markets, actual or potential;

(c) the economic feasibility of the pipeline;

(d) the financial responsibility and financial structure of the applicant, the methods of financing the pipeline and the extent to which Canadians will have an opportunity to participate in the financing, engineering and construction of the pipeline; and

(e) any public interest that in the Board's opinion may be affected by the issuance of the certificate or the dismissal of the application.

(3) If the application relates to a designated project within the meaning of section 2 of the Canadian Environmental Assessment Act, 2012, the report must also set out the Board's environmental assessment prepared under that Act in respect of that project. [emphasis added]

The term "public interest" is defined in the NEB's strategic plan as follows: "The public interest is inclusive of all Canadians and refers to a balance of economic, environmental and social considerations that changes as society's values and preferences evolve over time."

The Joint Review Panel in the Enbridge Northern Gateway Project confirmed that the public interest and the public convenience and necessity test under Part III of the NEB Act focuses on the effects of the proposed project:

In the Panel's view, the public interest is inclusive of all Canadians, locally, regionally, and nationally, and refers to the integration of environmental, societal, and economic considerations. A determination in the public interest is based on findings of fact and a review of scientific and technical information.

When applying the "present and future public convenience and necessity" test under Part III of the National Energy Board Act the Panel must consider the overall "public interest." The National Energy Board Act requires the Panel to consider any public interest that may be affected by granting or refusing the application. The Panel considers the burdens the project could place on Canadians, and the benefits the project could bring to Canadians.

In making its recommendation, the Panel assesses all the evidence on the record, including:

- *the proposed engineering design and safety of the facilities;*
- *the economics of the proposed project including supply, demand, and access to the facilities;*
- *the effect the proposed project would have on the environment, as well as the effect the environment would have on the project; and*
- *the effect the proposed project would have on individuals, Aboriginal and non-Aboriginal groups, communities, and society. [emphasis added]*

The NEB Filing Manual states that the Board's purpose is to "promote safety, security, environmental protection and economic efficiency in the Canadian public interest through its regulation of pipelines, energy development and trade as mandated by Parliament. As a result, companies regulated by the National Energy Board Act (NEB Act) are required to obtain the Board's approval to, among other things: add new facilities or modify or abandon existing facilities; ..." The Board's review is thus focused on new facilities as well as modification or abandonment of existing facilities within its jurisdiction.

The scope of the hearing is whether the Application is in the public interest. The Hearing Order refers to the Project as described in Volume 1 of the Application and states that the Board will hold a public hearing to consider whether to recommend approval of this Project. Existing approved facilities, such as the legacy Trans Mountain Pipeline system, are not included in the Application for the Board's approval as they are currently operating under existing approvals.

The Board has previously reviewed new facilities proposed in facilities applications when existing and previously approved pipelines are in place. For example, in its Keystone XL decision (OH-001-2009), the Board said that an application was submitted for the Keystone XL Pipeline would be an addition to the Base Keystone. Base Keystone was defined as pipelines segments that were previously approved by the Board.

The relevant cumulative effects are described in the Board's List of Issues on page 18 of the TMEP Hearing Order: "the potential environmental and socio-economic effects of the proposed project, including any cumulative environmental effects that are likely to result from the project, including those required to be considered by the NEB's Filing Manual."

The NEB's Filing Manual defines cumulative effects as "changes to the environment that are caused by an action in combination with other past, present and future human actions." Therefore Trans Mountain's consideration of cumulative effects takes into account a variety of human actions. However, Trans Mountain is only seeking approval for the facilities described in the Application.

References:

Enbridge Northern Gateway Joint Review Panel Report (December 2013), Volume 2, 8. <http://gatewaypanel.review-examen.gc.ca/clfnsi/dcmnt/rcmndtnsrprt/rcmndtnsrprtvlm2c hp2-eng.html#s2>. Acquired May 14, 2014.

National Energy Board. 2010. Reasons for Decision, OH-001-2009, Keystone XL Pipeline, iii, 14 and 34. https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/418396/550305/604643/604441/A1S1E7_-_OH-1-2009_Reasons_for_Decision.pdf?nodeid=604637&vernum=-2. Acquired May 14, 2014.

National Energy Board. 2014. Filing Manual (Release 2014-01), v,.1-1. <http://www.neb-one.gc.ca/clf-nsi/rpblctn/ctsndrgltn/flngmnl/flngmnl-eng.pdf>. Acquired May 12, 2014.

National Energy Board. 2014. Strategic Plan (January 16, 2014). <http://www.neb-one.gc.ca/clf-nsi/rthnb/whwrndrgvrnnc/strtgcpIn-eng.html>. Acquired May 12, 2014.

- b) Confirmed, though the term public interest is used twice in Reference iv.
- c) Reference (vi) is an Environmental Assessment Equivalency Agreement between the NEB and the Environmental Assessment Office of British Columbia. The Equivalency Agreement states that the parties wish to promote a coordinated approach and share information. The Board's letter dated December 31, 2013 (A358R6) required Trans Mountain to distribute the Application to Participate Notification to three representatives from the British Columbia Environmental Assessment Office.
- d) The request is not relevant to the Application. The Environmental Assessment Equivalency Agreement speaks for itself. Please refer to the responses to Allan R IR No. 1.01a and Allan R IR No. 1.01c.
- e) Please see the response to Allan R IR No. 1.01a. Given that the entire Application was submitted to the National Energy Board (NEB) under section 52 of the *National Energy Board Act* and that the NEB will determine whether the Project is in the public interest, the entire Application reflects Trans Mountain's view of the public interest with respect to the Project.
- f) Please see the response to Allan R IR No. 1.01e.
- g) Not confirmed. The National Energy Board will determine if the Project meets its definition of the public interest.
- h) All of the links in (g) are confirmed. However, the list provided only cites economic considerations and does not include all of them. The Project should be found to be in the public interest when viewed from an overall perspective that includes economic, environmental, safety and social considerations.

The following provides a high-level summary of other essential links, while not purporting to cover every aspect of the public interest:

- The NEB is satisfied that the environmental risks associated with the Project are acceptable, the anticipated environmental impacts are acceptable and the environmental impact mitigation measures are acceptable, including:
 - the route selected is the one that results in the fewest possible environmental impacts
 - the Company will employ construction techniques that minimize environmental impacts
 - the Company has in place and will faithfully execute all spill prevention and clean-up measures
- The NEB is satisfied that the Company is committed to constructing and operating the Pipeline in the safest possible manner so that:
 - public safety will be protected to the highest current standards
 - worker safety will be protected to the highest current standards
- The NEB is satisfied that there has been adequate and effective public consultation with affected communities and landowners along the Project's right-of-way such that:
 - community and landowner concerns have been accommodated to the extent reasonably feasible, and
 - the Company is committed to working collaboratively with communities and landowners along the right-of-way
- The NEB is satisfied that there has been adequate consultation with Aboriginal groups that are impacted by the Project and that all reasonable steps have been taken to accommodate their concerns.

In addition, from an economic perspective, there will be personal provincial income taxes paid by employees/contractors for Trans Mountain during both the construction and operation phases. Purchases by the Company and its contractors during both construction and operations will also generate provincial sales taxes. Further, as documented in the evidence submitted by the Conference Board of Canada, there will be considerable supply chain effects that generate additional income, employment and spending in British Columbia and the rest of Canada. This economic activity will generate additional federal and provincial income and other taxes. There will also be increased property taxes along the pipeline route. These are all additional economic considerations that contribute to the public interest.

Trans Mountain agrees with the NEB's definition of the public interest, as cited in response to Allan R IR No. 1.01a, and notes that the public interest refers to a balancing of all considerations.

- i) Confirmed, with the clarification that there is a difference between "new" markets and "highest value end markets". The projects (of which TMEP is just one) facilitate netback gains by providing access to diverse markets (USGC, East, West). The allocation of benefits to TMEP was through a pro-rata calculation of the overall benefits from the projects.

- j) There is some light oil production in BC, but no heavy oil production. Since the analysis completed for the IHS Report made the conservative assumption that there would be no increase in netbacks for light oil as a result of the new pipeline developments, it concluded there were no incremental royalty or provincial corporate taxes calculated for BC. If it is assumed that higher netbacks for light oil can be expected as a result of the new pipeline developments, there would be incremental royalty or provincial corporate taxes calculated for BC.
- k) Confirmed based on the assumptions underlying the IHS and Conference Board analyses. It should be noted that the Conference Board did not include the reinvestment of a portion of higher netbacks in their analysis, because upstream and downstream impacts were not within the NEB's List of Issues for the Trans Mountain Expansion Project. If it was assumed that there will be such reinvestment, this would result in fiscal benefits to British Columbia, to the extent the reinvestment was in British Columbia resource development.
- l) Not confirmed. As explained in Trans Mountain's evidence, a major problem for western Canadian oil producers in recent years is that there is inadequate transportation capacity to carry their production to markets that yield the highest returns. In a well-functioning market free of constraints, producers will normally sell their products into the markets that provide the highest returns. In economic terms, this means that there is an economically efficient allocation of production. This is currently not possible because of transportation constraints that prevent producers from reaching those markets. Trans Mountain is of the view that, given the geographic location of western Canadian oil production and the relative economics of pipeline transport versus rail, pipelines will normally provide the most economical means of reaching the highest value end use markets. However, Trans Mountain recognizes that other modes of transport, including rail and trucking, may provide means of reaching these markets.
- 1) It is not possible to access the highest value end use markets when constraints (or other barriers) prevent producers from selling their products into these markets. The Project provides access to new markets, and thereby facilitates producers seeking to allocate production to their highest value end use market.
 - 2) The highest value end use markets refer to those markets that will yield the highest returns to sellers when there is an absence of transportation constraints.
 - 3) Trans Mountain's expansion will contribute to providing access to the highest value end markets by providing producers with enhanced access to markets in the Pacific Rim, including California and Asian markets.
- m) Confirmed in the sense that producers selling crude oil normally bear the transport costs to the market. In the case of Canadian crude sales to Asia, for example, this would mean that producers would receive the market price in Asia minus the cost of ocean transport, minus the cost of transport from the field to the Westridge terminal if shipping on Trans Mountain. However, in practice, parties are free to make the commercial arrangements that make most sense to them, and it is entirely possible that the buyer

- would elect to purchase the oil at the Westridge terminal and pay for the cost of ocean transport.
- n) Trans Mountain confirms that the “proportionate share” is the share of the increased oil producer revenues that are estimated to be attributable to the market access provided by the Project, in a scenario (the Expansion Scenario described in the IHS report) in which all of the currently planned major projects proceed (that is, Trans Mountain Expansion Project, Northern Gateway and Energy East). If any of these other projects do not proceed or are delayed, a larger proportionate share of the netback benefits would be attributable to the Project, and the estimated amount of the benefits would also change.
 - o) Confirmed.
 - p) Please see the response to Allan R IR No. 1.01a.
 - q) The information request is not relevant to one or more of the issues identified in the National Energy Board’s List of Issues for the Trans Mountain Expansion Project. Please refer to the response to Allan R IR No. 1.01a.
 - r) Please see the response to NEB IR No. 1.38.
 - s) Confirmed. Kinder Morgan Energy Partners, L.P. is a master limited partnership with its common units traded on the New York Securities Exchange under the symbol “KMP”. The head office of KMP is located in Houston, Texas, USA.
 - t) Trans Mountain did not formally communicate a working definition of the “public interest” to staff, consultants, contractors, or experts involved in the preparation of the Application. The Application was developed to meet the National Energy Board’s information requirements in the Filing Manual, the requirements of the *Canadian Environmental Assessment Act, 2012*, as well as to address the NEB’s List of Issues (July 29, 2013) and the NEB’s Filing Requirements Related to the Potential Environmental and Socio-Economic Effects of Increased Marine Shipping Activities for the Trans Mountain Expansion Project (September 10, 2013). With respect to the proposed Project, it is the NEB’s role to determine the scope of its public interest definition, not Trans Mountain’s.
 - u) Please see the response to Allan R IR No. 1.01t.
 - v) Although separate determinations must be made under section 52 of the National Energy Board Act and under the Canadian Environmental Assessment Act, 2012, Trans Mountain does not consider the public interest to be separate from an environmental assessment as the environmental assessment should inform the public interest decision. As explained in the response to Allan R IR No.1.01h, the public interest “refers to a balance of economic, environmental and social considerations” as defined by the NEB. Therefore, the public interest is inclusive of environmental considerations.
 - w) Refer to the response to Allan R IR No. 1.01v.

- x) Trans Mountain does not agree that a quantification of the environmental impacts is needed to evaluate whether the proposed project is in the public interest, nor is a “cost-benefit analysis” required.

In Trans Mountain’s view, the NEB must find that the potential environmental risks of the Project, along with risk mitigation, prevention, spill response plans, and other provisions are acceptable. If not, then the Project would not be in the public interest. There is no need to conduct a quantification of the costs of these potential impacts – if they cannot be managed and mitigated to an acceptable level, then the project should not proceed.

In economic terms, if the Project adequately addresses all of the potential negative environmental and safety concerns (externalities), then the costs of addressing environmental and safety issues are internalized to the Project. Therefore, there is no need to conduct an exercise that attempts to quantify these impacts because the costs associated with these externalities are already internalized to the Project’s costs and borne by Trans Mountain. If the Project is still economic, while successfully addressing these concerns, it will be in the public interest (assuming that other public interest considerations are satisfactory).

Trans Mountain also notes that the NEB has assessed a number of major pipeline proposals without evidence that attempted to quantify environmental costs, although all of these applications involved a careful review of potential environmental impacts and planned prevention and mitigation measures. Thus, the approach suggested here is consistent with NEB past practice.

- y) Refer to the response to Allan R IR No. 1.01v.
- z) Trans Mountain’s view is that the Project will not be in the public interest if the balance of environmental, economic and social considerations described in responses 1(a) and 1(v) suggest that the project is not in the Canadian public interest. Refer to responses 1(a) and (v).
- aa) Refer to the response to Allan R IR No. 1.01a and Allan R IR No. 1.01x.
- bb) Refer to the responses to Allan R IR No. 1.01a, Allan R IR No. 1.01x and Allan R IR No. 1.01z.
- cc) The sentences extracted as reference (ix) do not provide a qualitative cost-benefit assessment of the overall short- and long-term effect of pipeline spills. Regrettably, recent media coverage has caused the reference in the preamble to be taken out of context and some have interpreted it in a way that is not consistent with its original intent. The following clarification is provided to respond to this request and other similar Information Requests. First and foremost, no spill is acceptable to Trans Mountain, nor is it part of the economic justification for the Project.

As noted in introductory paragraphs in Section 6.0 of Volume 7 of the Facilities Application, as well as introductory paragraphs to Section 6.3: Socio-economic Effects, this reference and other information provided in Section 6 of Volume 7 is intended to

contribute to a qualitative evaluation of potential environmental and socio-economic consequences based on evidence from past spills or documented in scientific reports or studies. This discussion considers a wide range of spill volumes (small to large) and locations throughout the proposed pipeline corridor. Economic effects of spill response represent only one of many potential effects of spill, and the information provided in Section 6.3, Volume 7 explicitly references:

- adverse effects on agriculture and forestry;
- adverse effects on tourism and recreation;
- adverse effects on property;
- adverse effects on human health;
- adverse effects on cultural and heritage resources; adverse effects on Aboriginal culture;
- adverse effects on local infrastructure and services; and
- adverse psychological effects in addition to the positive and negative economic effects mentioned in the preamble to this request.

Section 6 of Volume 7 also describes negative effects of a spill on”

- water quality;
- sediment quality;
- invertebrates;
- vegetation;
- fish;
- wildlife; and
- marine resources.

In addition, potential ecological and human health effects of hypothetical pipeline spill scenarios are discussed in Section 7 of Volume 7, and in accompanying technical reports TR 7-1 Qualitative Ecological Risk Assessment of Pipeline Spills Technical Report (Stantec Consulting Ltd. 2013), TR 7-2 Qualitative Ecological Risk Assessment of Westridge Marine Terminal Spills Technical Report (Stantec Consulting Ltd. 2013), and TR 7-3 Qualitative Human Health Risk Assessment of Westridge Marine Terminal Spills Technical Report (Intrinsic Environmental Sciences Inc. 2013).

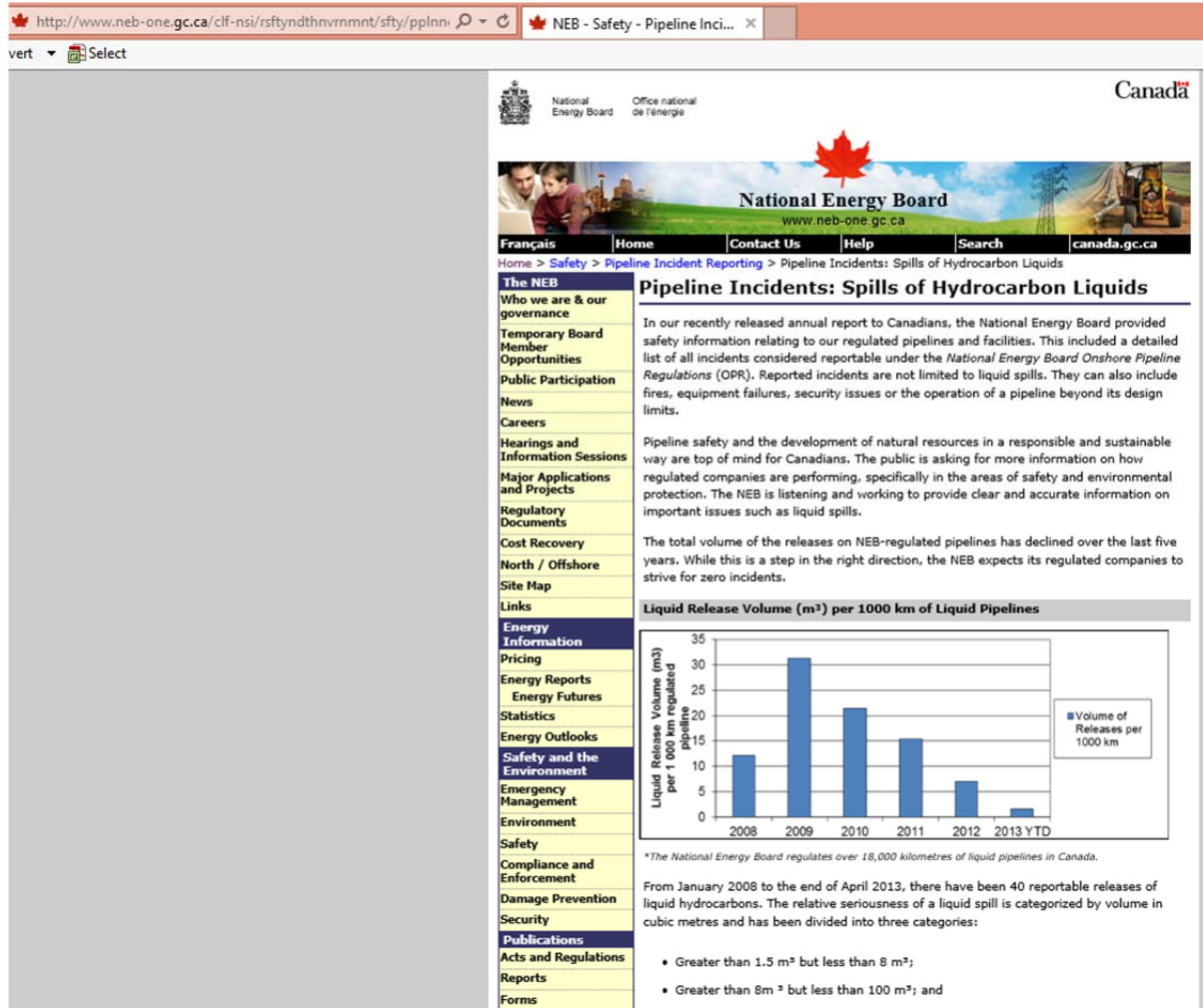
Taken together, the results of these assessments demonstrate that the total effect of a spill is negative and that every effort must be expended to prevent spills from happening.

The reference to a positive net overall effect refers solely to financial considerations, an example being a small spill to land, where the extent of the spill is limited by the volume of the release and spill response actions, and where clean-up, remediation costs paid to a contractor exceed the value of the spilled product and any losses to the landowner or user. This economic outcome obviously does not factor in other social or environmental effects mentioned elsewhere in Section 6, Volume 7 and would not be true for a large spill that is understandably the focus of most intervenors. Spills are not part of the

economic benefits analysis undertaken for the Project and the Facilities Application does not say that money spent on spill response would be justification for the project.

Trans Mountain found that the body of independently assessed and verified literature concerning pipeline spill socio-economic effects was limited, but that this body of work is growing, particularly for effects on community well-being and effects on groups and individuals dependent on renewable resources. Trans Mountain cannot provide a list of pipeline incidents over the last 10 years where the net overall economic effect was positive, but National Energy Board January 2008 to April 2013 spill statistics provided on their website (Figure 1.1cc-1) indicate that almost two-thirds of reported spills were less than 8 m³ in size and 70% were confined to company property. Based on these statistics, it was assumed that small, but positive economic effects would be a common outcome for small spills. To reiterate, this does not reflect the other social and environmental factors that contribute to an overall negative effect of spills, or the negative overall economic and total effects expected for larger spills.

Concerns about spills were frequently raised during consultation for the Project, and the risk-based spill assessment submitted by Trans Mountain in the Facilities Application is systematic and thorough. This information confirms that, although the probability of a credible worst case crude oil spill is low, substantial negative effects can occur if prompt and effective measures are not taken to mitigate the immediate impacts by containment and recovery. This confirms that spill prevention, preparedness, and effective response activities must always be a primary focus to reduce the probability of an oil spill, and to have adequate oil spill response plans and procedures in place that have proven capability to reduce the magnitude and extent of actual effects on people and the environment.

Figure 1.1cc-1 Pipeline Incidents: Spills of Hydrocarbon Liquids


1 of 3

<http://www.neb-one.gc.ca/clf-nsi/rsfyndthnvrnmnt/sfty/plnn>

[NEB - Safety - Pipeline Inci...](#)

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[Reports](#)
[Forms](#)
[Speeches and Presentations](#)
[Completed Access to Information Requests](#)
[Proactive Disclosure](#)

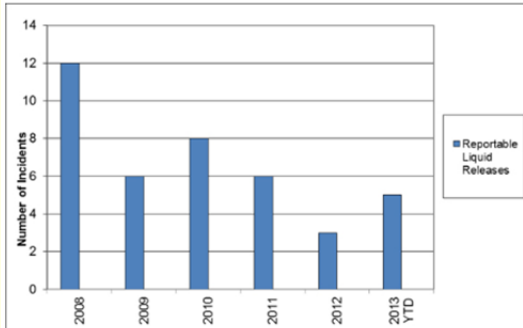
- Greater than 8m³ but less than 100 m³; and
- Greater than 100 m³.

Companies are also required to report on spills that could have a significant adverse effect on the environment regardless of size. An example of this would be any release of hydrocarbons into a water body. Of the reportable incidents shown below, four were liquid releases into waterways.

Year	LIQUID SPILL INCIDENTS BY YEAR & VOLUME		
	Liquid Release <8 m ³	Liquid Release > 8 m ³ , < 100 m ³	Liquid Release >100 m ³
2008	8	3	1
2009	4	0	2
2010	2	5	1
2011	4	1	1
2012	1	2	0
Jan-Apr 2013	5	0	0
Total	24	11	5
5 year Average	3.8	2.4	0.8

*For a detailed year by year account of liquid releases please click [here](#).
 *To view a volume conversion table please click [here](#).

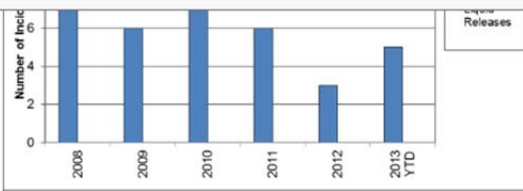
Reportable Liquid Releases by Year



Of these reported liquid releases, almost two-thirds were between 0.00025m³ and 8m³ in size and 70 per cent were contained to company property. In all cases, the NEB conducts a thorough investigation of the spill. This includes determining the cause and contributing factors that led to the incident itself.

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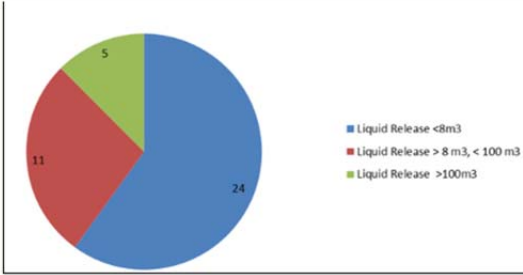
Number of Incidents

Releases

Of these reported liquid releases, almost two-thirds were between 0.00025m³ and 8m³ in size and 70 per cent were contained to company property. In all cases, the NEB conducts a thorough investigation of the spill. This includes determining the cause and contributing factors that led to the incident itself.

The ultimate goal of an NEB investigation is identifying ways to prevent similar occurrences from happening in the future. To this end, incident reports are often accompanied by corrective and enforcement actions if required. Companies may also be subject to additional compliance oversight by the Board.

Number of Liquid Releases by Volume - January 2008 - April 2013



■ Liquid Release <8m³
■ Liquid Release > 8 m³, < 100 m³
■ Liquid Release >100m³

Much of the work the NEB does through its regulatory oversight is aimed at preventing incidents from happening in the first place. However, when something does go wrong, the National Energy Board holds companies fully responsible and accountable for responding in a manner that protects the public, property and the environment. Companies must meet all of the NEB's required environmental remediation criteria regardless of cost.

No matter the size of the incident, the NEB maintains its expectations of regulated-companies and continues to provide a thorough and appropriate response to liquid spills.

The National Energy Board is an independent federal regulator of several parts of Canada's energy industry with the safety of Canadians and protection of the environment as its top priority. Its purpose is to regulate pipelines, energy development and trade in the Canadian public interest. The NEB is committed to providing information on the safety of Canada's energy infrastructure on an ongoing basis.

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- dd) Please see the response to Allan R IR No. 1.01cc.
- ee) Please see the response to Allan R IR No. 1.01cc.
- ff) Confirmed.
- gg) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- hh) The NEB issued a letter dated April 2, 2014 regarding the Factors and Scope of the Factors for the Environmental Assessment pursuant to the Canadian Environmental Assessment Act, 2012 (CEAA 2012) for the Project. It states:

"As the Project would require more than 40 kilometres of new pipeline and would be regulated under the National Energy Board Act (NEB Act), it is a designated project under the Canadian Environmental Assessment Act, 2012 (CEAA 2012) and requires a CEAA 2012 environmental assessment for which the NEB is the Responsible Authority."

The Project is therefore a designated project pursuant to CEAA 2012 and will undergo an environmental assessment.

- ii) On 17 February 2006, Terasen Pipelines (Trans Mountain) Inc. filed an Application under Section 52 of the *National Energy Board Act* for the TMX – Anchor Loop Project.
- jj) Confirmed. The list of parties was made public by the National Energy Board in the Hearing Order OH-001-2014 on April 2, 2014.

1.02 Kinder Morgan Corporate Structure

Reference:

- i) Volume 2, Project Overview, page 2-2, (A3S0Q8)
- ii) Trans Mountain Website Economic Benefits Video in at 2:39 out 2:47
- iii) NEB Information Request No. 1 to Trans Mountain Pipeline, Financial and Economics, 1.7, Corporate Structure, (A3V8V6)
- iv) British Columbia Utilities Commission, Application by Kinder Morgan, Inc. and 0731297 B.C. Inc. for the Acquisition of Common Shares of Terasen Inc., Decision, November 10, 2005, Reasons for Decision
- v) Application, Volume 2, Appendix C, Direct Evidence of John Reed, page 2 and page 6, (A3S0R0)
- vi) Kinder Morgan Inc., Annual Financial Statement, 2013, Part I, page 8 and Exhibit 21.1, Annual Report
- vii) Kinder Morgan Management LLC, Form 10-K, December 31, 2013, page 4, 7 and 8, Annual Report
- viii) Kinder Morgan Analyst Conference, Investor Presentation, Ian Anderson, January 29, 2014, Slide 3, Presentation Slides
- ix) Trans Mountain Pipeline ULC, Responses to Canadian Association of Petroleum Producers, Information Request No. 1, RH-001-2012, page 4 and 5, Revised January 10, 2013, Exhibit B16-6

Preamble:

Reference (i) states: “Trans Mountain Pipeline ULC (Trans Mountain) is a Canadian corporation with its head office located in Calgary, Alberta (AB). Trans Mountain is a general partner of Trans Mountain Pipeline L.P., which is operated by Kinder Morgan Canada Inc. (KMC), and is fully owned by Kinder Morgan Energy Partners, L.P. Trans Mountain is the holder of the National Energy Board (NEB) certificates for the Trans Mountain pipeline system (TMPL system).”

“Kinder Morgan is the largest midstream and the fourth largest energy company (based on combined enterprise value) in North America. Kinder Morgan owns an interest in or operates approximately 130,000 km of pipelines transporting natural gas, refined petroleum products, crude oil, and carbon dioxide (CO₂). The Kinder Morgan family of companies has four publicly traded entities: Kinder Morgan, Inc., Kinder Morgan Energy Partners, L.P. (KMP), Kinder Morgan Management, LLC and El Paso Pipeline Partners. Combined, the Kinder Morgan companies have an enterprise value of approximately \$105 billion.”

“Kinder Morgan, through its operating company KMC, has owned and operated the Trans Mountain pipeline (TMPL) since 2005. Trans Mountain is the holder of the operating certificate from the NEB for the TMPL and is the applicant for the expansion.”

In light of the complex corporate structure and interlocking business relationships outlined in reference (i) it is necessary to seek an understanding of the purpose and impact of these structures. Although complex corporate structures may benefit a business by reducing liability

and protecting shareholder earnings, these complex structures may or may not be in the public interest if the public's reasonable expectation of attribution of liability and fair tax contribution are not met.

Reference (ii) states, "And as Canadians we will have an asset that unlocks access to world markets and continues to support our economy."

Reference (iii) is an Information Request submitted to Trans Mountain by the Panel. Every effort has been made not to duplicate the Panel's questions in reference (iii). Please take efforts to provide direct answers to the questions as posed, as the Panel's questions do not sufficiently cover the scope of answers sought here. For greater clarity, please include the full text, charts, tables, schematics or other relevant materials relied on in support of answers to this Information Request respecting corporate structure.

Reference (iv) is the Decision by the BC Utilities Commission granting approval for Kinder Morgan Inc. to purchase the shares of Terasen Inc. (Terasen). The sale of Terasen shares also included the sale of the Trans Mountain Pipeline system because the Trans Mountain Pipeline system was wholly owned by Terasen. Reference (iv) states, "Terasen also owns all of the outstanding shares of Terasen Pipelines (Trans Mountain) Inc. ("TM"). TM is not regulated by the BCUC, but rather by the National Energy Board." Thus, the purchase of Terasen Inc. triggered a review by the BC Utilities Commission but TM and Terasen Pipeline (Jet Fuels) Inc. were exempt from the review.

Reference (v) explains, "The purpose of my direct evidence is to address two major areas: 1) a review and assessment of whether the Trans Mountain Expansion Project ("TMEP" or the "Project") meets the Board's standards for economic and financial feasibility, which are important criteria for the determination of whether a project is in the public interest;"

Reference (v) cites Section 52 of the *NEB Act* and explains that the public interest test will be met because: "[T]he Board shall have regard to all considerations that appear to it to be relevant, and may have regard to the following:

- (a) the availability of oil, gas or any other commodity to the pipeline;
- (b) the existence of markets, actual or potential;
- (c) the economic feasibility of the pipeline;
- (d) the financial responsibility and financial structure of the applicant, the methods of financing the pipeline and the extent to which Canadians will have an opportunity of participating in the financing, engineering and construction of the pipeline; and
- (e) any public interest that in the Board's opinion may be affected by the granting or the refusing of the application. (Emphasis added)

In practice, the Board's standard for determining if a project is economically feasible—criterion (c) above—has been the presentation of satisfactory evidence that criteria (a), (b) and (d) above have been met."

Reference (vi) explains that “Kinder Morgan, Inc. is the largest midstream and the third largest energy company in North America with a combined enterprise value (including its two publicly traded MLP subsidiaries) of approximately \$110 billion. Our common stock trades on the NYSE under the symbol “KMI”.”

“We own the general partner interests of Kinder Morgan Energy Partners, L.P. (NYSE: KMP) and El Paso Pipeline Partners, L.P. (NYSE: EPB), along with limited partner interests in KMP and EPB and shares in Kinder Morgan Management, LLC (NYSE: KMR).” In Exhibit 21.1 of reference (vi) Kinder Morgan Canada LLC, not cited in reference (i), is listed as a subsidiary of KMI.

Reference (vii) explains that KMGP means Kinder Morgan G.P. Inc., and KMP means Kinder Morgan Energy Partners, L.P. and its majority-owned and controlled subsidiaries. Reference (vii) states that “KMGP remains the sole general partner of KMP and all of its operating partnerships. KMGP retains all of its general partner interests and shares in the profits, losses and distributions from all of these partnerships.” Reference (vii) also explains that, “KMGP as general partner of KMP, delegated to us (Kinder Morgan Management LLC known as KMR), to the fullest extent permitted under Delaware law and the KMP partnership agreement, and we assumed, all of KMGP’s power and authority to manage and control the business and affairs of KMP and KMP’s operating partnerships.”

Reference (viii) provides Trans Mountain’s Distributable Cash Flow (“DCF”) contribution from the system to its owners from 2010 to 2014 including “book tax” and “cash tax”.

Reference (ix) states that the proposed expansion project represents an “investment decision based on a return on investment that is acceptable to Trans Mountain and its owner taking into account the cash flow generated by the negotiated tolls that were agreed to by Trans Mountain and Committed Shippers...The funding for this project will be raised by and provided to Trans Mountain by its owner Kinder Morgan Energy Partners L.P. (KMP). KMP makes investment decisions based on expected internal rate of return over the life of the project...KMP’s actual return have been consistent with a 12-15% threshold.”

Request:

- a) Please provide a detailed current corporate structure schematic for **all** entities in the Kinder Morgan family of companies including their operating or non-operating relationships and ownership, incorporation date and status (ULCs, LPs, MLPs, General Partners, corporations including but not limited to “S” “C”, etc), jurisdiction of incorporation, and ownership links to other Kinder Morgan entities and tax status. For greater clarification, a schematic and explanation of the relationships for **all** entities is requested as reference (vi) and (vii), although not exhaustive, indicate there are a number of entities that may have a right to share in the cash flow generated by Trans Mountain’s assets, if not directly, indirectly.
- b) Please provide the extent to which Canadian investors currently participate in the equity financing of the Trans Mountain asset. Please provide the information in a manner that indicates the number of outstanding shares or units as the case may be, the proportion

that are held by Canadians and the proportion of those that are held by non-Canadians. This evidence to include but not be limited to:

- 1) an identification of the ownership of all the entities that own or control Trans Mountain Pipeline ULC, Trans Mountain Pipeline LP, Kinder Morgan Canada, and any other entities registered in Canada related in any way to the Trans Mountain pipeline system, including the jurisdiction where these owning and controlling entities are registered;
 - 2) the opportunity for shareholding or unit holding in the entities that own or control Trans Mountain and indicate whether these opportunities are through public trading on stock exchanges, and if through public trading, which stock exchange(s), or if the opportunity is through private investment the nature of the private investment opportunity; and
 - 3) what percentage of each of the owning or controlling entities Canadian shareholders or Canadian unit holders form of the owners, voting and non-voting.
- c) Please provide details and explain fully the extent to which individual Canadians or Canadian financial institutions will have an opportunity to participate in the debt financing of the “Project”.
- d) Please confirm that since “funding for this project will be raised by and provided to Trans Mountain by its owner Kinder Morgan Energy Partners L.P.” that this represents sole source debt and equity financing to Trans Mountain determined by its owner KMP at its required rate of return for investment projects. If not confirmed, please provide evidence that indicates Trans Mountain’s ability to seek debt and equity financing for the project including proof that it is unencumbered by KMP and as such, Trans Mountain can source debt and equity financing in Canadian financial markets if it so chooses.
- e) Please confirm:
- 1) that Kinder Morgan Canada Inc. (KMC), Trans Mountain Pipeline ULC, and Trans Mountain Pipeline LP are not publicly traded entities;
 - 2) that Kinder Morgan Canada LLC is not a publicly traded entity;
 - 3) the entities in e)1 are wholly owned by KMP, which is a Master Limited Partnership in the US, publicly traded on the New York Stock Exchange;
 - 4) the entity in e)2 is wholly owned by KMI;
 - 5) if confirmation cannot be provided in e)1 - e)4, please provide the correct information.
- f) Please confirm that Kinder Morgan Canada Inc. would be considered an “operating partnership” of KMP. If not an “operating partnership” of KMP, please explain how KMP considers KMC.
- g) Please identify any and all entities in Canada that would be “operating partnerships” of KMP.
- h) Please provide information that clearly links the ownership of the Trans Mountain asset directly to Canadians because “as Canadians we will have an asset that unlocks access to world markets and continues to support our economy”.

- i) Please clearly indicate:
- 1) which entity in the corporate structure owns the Trans Mountain assets currently;
 - 2) which entities control the ownership of the entity that owns the assets and their corresponding shares or units including voting or non-voting rights associated with those share and/or unit holdings; and
 - 3) the ownership rights that Trans Mountain Pipeline ULC (as holder of the Certificates of Public Necessity and Convenience (CPNC) that allows the Trans Mountain assets to be operated and maintained) has with respect to the entity that directly owns the Trans Mountain assets.
- j) If the TMPL assets are held in an entity other than Trans Mountain Pipeline ULC, which holds the current NEB certificates (CPNCs), please provide the commercial, or other business reason(s), for the corporate separation of the assets from the regulatory right to operate and maintain those assets.
- k) Please confirm that it is the intention for the corporate entity identified in (i)1 to also own the assets of the expanded system, including the new pipeline, storage tanks, marine facilities and any other capital enhancement related to the “Project” should approval of the Application be recommended. If confirmation cannot be provided, please indicate what entity is expected to hold the assets after the project is expanded, if the transfer of the existing assets to that entity is contemplated, and when the transfer of assets related to the existing system is intended to occur.
- l) Please confirm that KMC, as Trans Mountain’s operator, has no authority to make decisions and undertake changes respecting the corporate structure of KMP’s or KMI’s Canadian based business activities. If not confirmed, please explain KMC’s role and authorities with respect to decision making for changes to the corporate structure of Kinder Morgan’s Canadian based activities.
- m) Please confirm that Kinder Morgan Inc., (KMI) purchased the shares of Terasen Inc. in 2005 and the date this transaction took place. If not confirmed, how did Kinder Morgan Inc. undertake the acquisition of Terasen Inc.?
- n) Please confirm that the purchase in (m) required a review under British Columbia Utilities Commission legislation for the Terasen facilities regulated by the BCUC. If not confirmed please explain the nature of the public review that was required.
- o) Please confirm that when Kinder Morgan bought Terasen this transaction included the Trans Mountain Pipeline system and that Terasen Pipelines (Trans Mountain) Inc. (“TM”) held the NEB CPCN granting authority to operate the pipeline and related facilities and that TM also owned and controlled the Trans Mountain assets. If not confirmed, please indicate if the transaction identified in (m) included the Trans Mountain assets, and provide the name of the entity that held the CPCN, the name of the entity that owned the assets and the name of the entity(ies) that controlled the entity that owned the Trans Mountain assets.

- p) Please confirm that TM was an NEB regulated utility. If not, please indicate which authority regulated TM.
- q) Please confirm the NEB undertook no review of the Kinder Morgan and Terasen transaction in 2005. If a review was undertaken please provide the reference. If no review was undertaken please provide the reasons as to why no review was undertaken.
- r) Please provide the history of the transactions, corporate restructuring, including dates, which occurred to result in the Trans Mountain assets being placed into the entity identified in (i)1, beginning in 2005 when Kinder Morgan purchased shares of Terasen that included Terasen Pipelines (Trans Mountain) Inc or TM.
- s) In the history provided in response to (r), please include a discussion of any and all NEB application(s) requesting permission to transfer the CPCN, and identify with references, any other regulatory applications or NEB reviews that have been necessitated because of corporate reorganizations, revisions, asset transfers or other changes which led to the corporate structure related to the Trans Mountain assets, ownership, control and operation which currently exists.
- t) Please confirm that the *Business Corporation Act (Alberta) (BCAA)* was amended on May 17, 2005 to permit the incorporation of unlimited liability corporations in Alberta and indicate whether Trans Mountain Pipeline ULC is incorporated under this Act. If Trans Mountain Pipeline ULC is not incorporated in Alberta, please indicate the jurisdiction where Trans Mountain Pipeline ULC is incorporated. If unable to confirm the date of amendments to the BCAA to permit incorporation of ULC's in Alberta as May 17, 2005, please provide the date when such permitting amendments were made.
- u) Please provide the date Trans Mountain Pipeline ULC was incorporated as a ULC and the business reasons, including tax reasons, for making the change.
- v) Please confirm that ULC partnership-like characteristics create certain advantages under US tax law for US resident corporations who own investments in Canada. If confirmation cannot be provided, what is Trans Mountains's understanding of the US tax law treatment of a US resident corporations and/or partnerships who own ULCs in Canada including a discussion of the treatment of ULCs in the jurisdiction where Trans Mountain Pipeline ULC is registered?
- w) Please indicate the tax benefits achieved or achievable, in Canada and the US, by Kinder Morgan/Trans Mountain with respect to the ULC structure as these benefits pertain to:
- 1) book taxes as defined by Kinder Morgan/Trans Mountain in reference (viii);
 - 2) accounting book taxes (if different than the book tax definition in reference (viii));
 - 3) cash taxes, including but not limited to a discussion that addresses withholding taxes and withholding tax rates.
- x) Please confirm that shareholders of an Alberta ULC are jointly and severally liable for any liability, act or default of the Alberta ULC, but that this liability can be avoided by interposing an appropriate limited liability entity such as a limited partnership, US "C"

Corporation, or US “S” Corporation, between the Alberta ULC and the US resident. If confirmation cannot be provided indicate if Trans Mountain or Kinder Morgan is aware of any methods and explain those methods whereby the shareholders of an Alberta ULC can limit their liability.

- y) Does the Kinder Morgan corporate structure include a limited liability entity between Trans Mountain Pipeline ULC and its US resident owner? Please identify the entity(s) by name and location within Kinder Morgan’s corporate structure on the chart provided in (a).
- z) If Kinder Morgan has a limited liability corporate entity(ies) between Trans Mountain Pipeline ULC and its US resident owner, has Kinder Morgan, or could Kinder Morgan, rely on this structure to limit liability in the case of its investment in Trans Mountain? Please explain fully.

Response:

- a) Please refer to the response to NEB IR No. 1.07a.
- b) Trans Mountain Pipeline L.P., its general partner and its limited partner are wholly owned subsidiaries of Kinder Morgan Energy Partners, L.P. The common units of Kinder Morgan Energy Partners, L.P. are traded on the New York Stock Exchange (NYSE) under the symbol KMP. The demographics of the unit holders changes daily based on the trading activity of the KMP units. See the response to NEB IR No. 1.07a.
- c) Kinder Morgan has not finalized the financing plan for the Project, however, it expects Trans Mountain’s debt financing will include a combination of debt raised in the Canadian capital market and US capital market.

To the extent Canadian financial institutions participate in the Canadian and/or US capital markets they would have an opportunity to participate in the debt financing of the Project.

- d) Kinder Morgan intends to provide the equity financing for this Project to Trans Mountain. With respect to debt financing please refer to the response to Allan R IR No. 1.02c.
- e) 1) Confirmed.
- e) 2) Confirmed.
- e) 3) Confirmed.
- e) 4) Confirmed.
- e) 5) Not applicable.
- f) Not confirmed. Kinder Morgan Canada Inc. has no ownership or partnership interest in Trans Mountain Pipeline L.P. Kinder Morgan Canada Inc. is the Canadian corporate entity that employs the Canadian staff. The employees of Kinder Morgan Canada Inc.

- provide the labour to operate assets Kinder Morgan owns in Canada including the Trans Mountain assets.
- g) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
 - h) Trans Mountain's reference to "as Canadians we will have an asset that unlocks access to world markets and continues to support our economy" refers to the fact that upon completion of the Project, Canadians will achieve a higher net back for its valuable resource and a continuing contribution from the Project to the GDP of Canada.
 - i) 1) Trans Mountain Pipeline L.P. owns the Trans Mountain assets.
 - i) 2) Please see Trans Mountain's response to NEB IR 1.07a.
 - i) 3) As general partner of the partnership, Trans Mountain Pipeline ULC holds the CPCNs and acts on behalf of Trans Mountain Pipeline L.P.
 - j) Through the terms of the partnership agreement, the general partner, Trans Mountain Pipeline ULC, manages the business of the partnership and holds the NEB certificates on behalf of the partnership.
 - k) Confirmed.
 - l) Confirmed.
 - m) Confirmed. The acquisition of Terasen Inc. by Kinder Morgan, Inc., was complete on November 30, 2005.
 - n) Confirmed.
 - o) Confirmed.
 - p) Not confirmed. Terasen Pipelines (Trans Mountain) Inc. was subject to the regulation of the National Energy Board as a Group 1 Oil Pipeline.
 - q) The information request is not relevant to one or more of the issues in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
 - r) The information request is not relevant to one or more of the issues on the National Energy Board's List of Issue for the Trans Mountain Expansion Project.
 - s) The information request is not relevant to one or more of the issues on the National Energy Board's List of Issue for the Trans Mountain Expansion Project.
 - t) The information Request is not relevant to one or more of the issues in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
 - u) The information request is not relevant to one or more of the issues on the National Energy Board's List of Issues for the Trans Mountain Expansion Project.

- v) For Canadian income tax purposes an unlimited liability company is a corporation resident in Canada and as such is both subject to income tax in Canada and liable to withhold tax on cross border payments on the same basis as any other form of Canadian corporation. The treatment under US tax law of US resident corporations or partnerships that own interests in a Canadian unlimited liability company is not relevant to one or more of the issues identified by the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- w) The information request is not relevant to one or more of the issues on the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- x) Not Confirmed. The interposing of a limited liability entity would limit the amount of, as opposed to avoid, liability attributed to it in the event an Alberta ULC is unable to discharge its own liabilities.
- y) Please refer to the response to NEB IR No. 1.07a.
- z) Please see Trans Mountain's response to NEB IR No. 1.07c.

1.03 Trans Mountain Operating Revenue and Tax Liability

Reference:

- i) Application, The Trans Mountain Expansion Projects, Understanding the Economic Benefits for Canada and its Regions, Glen Hodgson, Conference Board of Canada, Volume 2, page 5-7 including Table 1, page 10, page 29-30 and page 58. (A3S0R0)
- ii) Application, Volume 1, page 1-2, (A3S0Q7)
- iii) Application, Trans Mountain Pipeline ULC, For Approval of 2014 Final Tolls Pursuant 2013 to 2015 Incentive Toll Settlement, 2014, Final Toll Calculation Schedules, Attachment 1, A3V8F2, 2014 Schedule
- iv) Kinder Morgan Analyst Conference, Investor Presentation, Ian Anderson, January 29, 2014, Slide 3, Presentation Slides
- v) Kinder Morgan Analyst Conference, Investor Presentation, Ian Anderson, January 30, 2013, Slide 4, Presentation Slides

Preamble:

Reference (i) page 5-6 evaluates “the economic and fiscal impacts associated with the proposed expansion of the Trans Mountain pipeline” by assessing “the impacts associated with operating the pipeline once it is up and running...over its first 20 years of service under two scenarios. The first considers the impact of only the long-term contracts that have been signed and can be considered the minimum impact associated with firm commitments. The second scenario assesses the economic impacts when the spot or non-firm capacity in the pipeline is fully utilized, and can be considered the maximum impact.”

Reference (i) claims the Trans Mountain Expansion project, “(O)nce operational...will also generate positive economic and fiscal impacts on an ongoing basis.”

Reference (i), page 29 -30 estimated the annual revenues associated with the long term contracts “to be \$944 million” net “information provided by Trans Mountain...that the revenues associated with the existing pipeline are approximately \$300 million per year” for annual revenue of “\$644 million.”

Reference (i) page 6 predicts fiscal impacts from pipeline operations are expected to generate “between \$2.5 billion and \$3.3 billion in combined federal and provincial revenues over the first 20 years of operations. A key reason for this is that the oil pipeline industry generates large corporate income tax effects. Corporate profits account for the largest share of the revenues (60.1 per cent)...”

Reference (i) page 10 explains that, “In this report we quantify four economic effects associated with the development and operations of the TMEP, including the following:

- 1) Direct Effect during the operational phase all of the effects occur in the oil pipeline industry.
- 2) Indirect Effects. The indirect or supply chain effects measure the economic effects associated with the use of intermediate inputs or other support services that will be used to maintain it (the pipeline) once it is operational.

- 3) Induced Effects. The induced effects occur when the wages that employees earn from the direct and supply chain effects are spent. As such, the economic impacts associated with induced effects generally occur in consumer oriented industries, such as retail.
- 4) Fiscal Effects. Finally, we measure the fiscal impact associated with the other three economic effects, at both the federal and the provincial level.

In order to conduct this analysis, we use both Statistics Canada's interprovincial Input-Output (I/O) model and the Conference Board of Canada's proprietary forecasting models. The direct, indirect, and induced gross domestic product (GDP) and employment impacts associated with the construction and operation of the TMEP were generated using Statistics Canada's I/O model, which allows for detailed supply chain analysis for nearly 300 different industries by province. The fiscal effects were estimated by the Conference Board of Canada. The revenue estimates associated with the operation of the TMEP used to conduct the analysis were prepared by Trans Mountain Pipeline."

Reference (i) page 58 states that, "I/O models typically assume that all firms within an industry are characterized by a common production process. In practical terms, the model reflects an industry average, thus Trans Mountain's operations and business practices are assumed to be the same as other oil pipeline operators such as Enbridge or TransCanada. If Trans Mountain's production structure is significantly different from the industry average than (sic) the economic impact results may be different from what is characterized here."

Reference (ii) explains that "In June 2012, Trans Mountain filed a toll application with the NEB respecting the contract terms and toll structure that would be implemented for an expansion of the TMPL system. In May 2013, the Board approved these contract terms and toll structure in decision RH-001-2012."

Reference (iii) provides the final toll calculation schedules for Trans Mountain's existing operations. These schedules were filed as Attachment 1 with the NEB on April 10, 2014 as part of Trans Mountains request for 2014 toll approval pursuant to the 2013 - 2015 Incentive Toll Settlement (ITS). ITS-21, line 14 indicates Trans Mountain Income Tax Expense for the twelve months ending December 31, 2013 was negative.

Reference (iv) is a slide from a Kinder Morgan Analysts Conference January 29, 2014 as presented by Kinder Morgan Canada President, Ian Anderson. The slide illustrates a table titled Trans Mountain-DCF in US dollars. The slide includes a row of figures identified as "Trans Mountain System Contribution", a row identified as "add back book tax" and a row of figures identified as "less cash tax". DFC, book tax and cash tax are summed to a row identified as "Trans Mountain System". The time horizon for the table is 2010 - 2014. The cash tax amount in 2013 is negative.

Reference (v) is a slide from a Kinder Morgan Analysts Conference January 30, 2013 as presented by Kinder Morgan Canada President, Ian Anderson. The slide illustrates a table titled Trans Mountain-DCF in US dollars. The slide includes a row of figures identified as "Trans Mountain System Contribution", a row identified as "add back book tax" and a row of figures identified as "less cash tax". DFC, book tax and cash tax are summed to a row identified as

“Trans Mountain System”. The time horizon for the table is 2009 - 2013. The “cash tax” amount in 2009 is negative.

Request:

- a) Please:
- 1) confirm that DCF means Distributable Cash Flow;
 - 2) confirm DCF is remitted to Trans Mountain’s owners and identify which owners;
 - 3) explain if this annual distribution is effected on a monthly, quarterly or annual basis;
 - 4) provide Kinder Morgan’s definition of DCF for Trans Mountain, for KMP, and for any other entity that receives a part or a whole of the distributions from Trans Mountain system.
 - 5) confirm that the cash distributions from Trans Mountain are received in whole by KMP and then redistributed to other Kinder Morgan US registered entities as per the relevant partnership agreements once received by KMP;
 - 6) If not confirmed in a) 1-2 and 5, please provide the meaning of the letters DCF and define fully, including an explanation of the flow of funds from Trans Mountain through to KMP and its owners including a response to a) 3 - 4.
- b) Please confirm that in reference (iv) the line item “Trans Mountain System” figures “Actual” represents distributions to Trans Mountain’s US based owner(s) each year as indicated from 2010 - 2013 and “Budget 2014” represents anticipated distributions to Trans Mountain’s US based owner(s) for 2014. Please provide the names of the entities that received these and will receive these distributions in 2014, on a proportional or absolute basis (if proportions vary from year to year). If not confirmed please explain fully the amounts identified in reference (iv) and where these amounts were distributed (which Kinder Morgan entity(ies) received the amounts), identified by corporate entity name.
- c) Please define the following terms presented in reference (iv):
- 1) Trans Mountain System Contribution;
 - 2) book tax; and
 - 3) cash tax.
- d) Please confirm the definitions provided in c) 1-3 also apply to reference (v). If unable to confirm please provide an indication of where and how the definitions differ and provide the appropriate definitions of these terms as used in reference (v).
- e) Please provide further details underlying the determination of “Trans Mountain System” DCF reference (iv) and please include 2009 actuals in reference (v). The details to include:
- 1) the net income included in the “Trans Mountain System Contribution” for each of the years shown;
 - 2) a detailed explanation of the differences between the “Trans Mountain System Contribution” and the return on equity;

- 3) details of the income tax rates used for calculating the book taxes in each of the 5 years;
 - 4) the primary five items that result in the cash taxes differing from the book taxes; and
 - 5) reconcile the amounts noted above to the amounts shown on Trans Mountain's Incentive Toll filing in reference (iii) ITS-14 and ITS-21 for 2013 and forecast for 2014.
- f) Please reconcile Trans Mountain's "book tax" \$19.3 million US in 2013 in reference (iv) with reference (iii) ITS-14 2013 Line 11 Approved Income Tax Provision \$7,406 million, 2013 Actual \$7,114 and ITS-21 line 14 Income Tax Refund \$524,000.
- g) Please confirm that in developing an operating revenue input figure for use in its I/O analysis as described in reference (i) the Conference Board, and not Trans Mountain, estimated the annual anticipated revenues from long term contracts "to be \$944 million based on the projected capital costs of the Project and the toll structure that would be applied" netting off \$300 million a year for the operations of the existing system to result in a figure of \$644 million for each of 20 years to arrive at an input figure for the I/O model of \$12,888 million. If not confirmed, please explain who developed the operating input figure relied on as input into the I/O model, how the figure was developed, and the amount of the operational revenues relied on as input into the I/O model.
- h) Please confirm that it was Trans Mountain and not the Conference Board that prepared the \$300 million a year revenue figure for the existing Trans Mountain system and clearly indicate whether Trans Mountain informed the Conference Board of an annual requirement or practice Trans Mountain maintains whereby a significant portion of the annual revenues generated by the operation of the existing system are distributed to its US based parent on a regular, and at least annual, basis. If unable to confirm, please identify who prepared the \$300 million per year revenue figure and if the Conference Board accepted the gross revenue figure as being spent in the Canadian economy to operate and maintain the existing pipeline.
- i) Please confirm that it was the Conference Board and not Trans Mountain that prepared the \$644 million a year revenue figure for the net operating revenue projection of the expanded Trans Mountain system and clearly indicate whether Trans Mountain informed the Conference Board of an annual requirement or practice Trans Mountain intends to maintain whereby a significant portion of the annual revenues generated by the operation of the expanded system will be distributed to its US based parent on an annual basis. If unable to confirm, please identify who prepared the \$644 million per year revenue figure and if the Conference Board accepted the gross revenue figure related to the expansion as being spent in the Canadian economy to operate and maintain the expansion portion of the pipeline system.
- j) Please confirm that the Conference Board estimated the GDP effects from the operation of the expansion by relying on a figure of \$644 million annually in operating revenues for scenario 1, which in aggregate would be expected to be \$12,888 million. If unable to confirm, please provide the annual and aggregate figure relied on to shock the I/O model

in order to estimate the GDP and person years of employment impact from the operation of the Trans Mountain expansion.

- k) Please confirm that if it were understood that a significant share of annual operating revenues were to be regularly, and at least annually, distributed to a US based owner that netting off this share from the annual Trans Mountain expansion related operating revenue estimate would be prudent in order to more accurately reflect the GDP impact on the Canadian economy of operating the Trans Mountain expansion. If not confirmed, please explain why significant regular and anticipated distributions by one company in the pipeline industry (Trans Mountain) to its US parent in a static I/O model “that reflects an industry average” would not be required at the input estimation stage of I/O analysis.
- l) Please confirm that the “impacts of only the long term contracts” as described in reference (i) for the first scenario of operating impacts refers to the revenues which are expected to arise from the toll structure approved in RH-001-2012 for committed shippers, and provide these estimated amounts by year from 2018 - 2037 in constant 2012 and current dollars. If not confirmed, please provide a detailed schedule by year from 2018 - 2037 of the revenues expected to arise as a result of committed shipper payments related to the expansion project.
- m) Please confirm that the second scenario described in reference (i) which assumes “the spot or non-firm capacity in the pipeline is fully utilized, and can be considered the maximum impact” refers to the revenues which are expected to arise from the toll structure approved in RH-001-2012 for committed shippers and spot shippers, if the system is operating at full capacity and provide these amounts by year in constant 2012 dollars and current dollars. If not confirmed, please provide a detailed schedule by year from 2018 - 2037 of the revenues expected to arise as a result of committed and spot shipper payments in both constant 2012 and current dollars.
- n) Please confirm that if an analysis on the economic impact of the current Trans Mountain system as defined in reference (i) was to be undertaken for 2013 that a reliable estimate of the impact in 2013 would be the actual revenues in 2013 less the cash flow distributed to the US parent. If not confirmed, please provide an estimate for operating revenue impact in 2013 that could be relied on to establish an input for the I/O model relied on in reference (i).
- o) Please confirm that the actual revenue earned on Trans Mountain’s regulated assets in 2013 is provided in reference (iii) Schedule ITS-21, Line 8 and totals \$278,837,000 CDN. If not confirmed, please provide the total figure for revenue received for operating the Trans Mountain system in 2013 and reconcile the figure to the ITS schedules.
- p) Please confirm that the “approximately \$300 million per year” determined from information provided by Trans Mountain and relied on in reference (i) to determine the “net revenues associated with operating the existing system” are representationally consistent with the ITS-21, line 8, Total Revenue \$278,837,000 as provided in (iii) above. If not confirmed, please explain the relationship between the “approximately \$300

- million per year” and Trans Mountain’s Total Revenues in ITS-21 and explain how the substance behind these figures differs.
- q) Please confirm that the distribution of cash flow to the US based parent in 2013 as represented in reference (iv) is \$185.6 million US. If not confirmed, explain.
 - r) Please provide an exchange rate acceptable by Trans Mountain in order to translate US dollars to Canadian equivalent from 2006 - 2013 and the assumed rate for 2014.
 - s) Did Trans Mountain inform the Conference Board of Trans Mountain’s annual cash flow distributions to US owners? If yes, please provide the details of the actual amounts identified by year, and the projected amounts by year from 2014 to 2037 assuming the expansion is operational under the long term committed shipper scenario 1, and assuming the expansion is operational under the long term shipper and fully utilized spot shipper scenario 2.
 - t) If Trans Mountain did not inform the Conference Board of the annual distributions paid in past years and those anticipated for future years please explain why not.
 - u) Please provide a forecast of anticipated distributions to Trans Mountain’s US owners, prepared by Kinder Morgan/Trans Mountain (not the Conference Board) from 2014 - 2037 assuming the project does not proceed and assuming it does proceed. In the case where the project does proceed please provide an estimate of the distributions to the US owners under the scenario whereby only committed shipper contracts are operational and the scenario whereby the committed and total spot volumes are operational as defined as the “minimum impact” and the “maximum impact” scenarios in reference (i).
 - v) Please confirm that an annual distribution arising from revenues generated in Canada to a US entity is an outflow of revenues from the Canadian economy. If not confirmed please describe how Trans Mountain would characterize the distribution of cash flow generated in Canada and distributed to a US owner.
 - w) Please confirm the I/O model relied on in reference (i) cannot recognize an annual transfer of revenues generated from operations in Canada to the US if “the model reflects an industry average, thus Trans Mountain’s operations and business practices are assumed to be the same as other oil pipeline operators such as Enbridge or TransCanada” if neither Enbridge nor Trans Canada distribute cash flow generated in Canada to US entities in a manner consistent with Trans Mountain’s practice.
 - x) Please confirm that if the Trans Mountain Expansion Project does not proceed that the Trans Mountain system will continue to earn revenues in the future and that these revenues would be based on the ITS settlement until 2015 and then a new toll settlement established thereafter. If not confirmed, please explain how the anticipated revenues for the existing system would be expected to be established absent expansion of the system.
 - y) Please provide the data, by year, to 2037 in 2012 constant dollars and current dollars that the Conference Board relied on to represent the existing revenue stream from Trans

Mountain's operations and the forecast revenue stream that would be likely to occur if the expansion does not take place, as well as the revenue stream from 2018 - 2037 that the Conference Board relied on to develop gross revenues from scenario 1 and scenario 2 as defined in reference (i).

- z) Please confirm that reference (i) estimates the fiscal impact from scenario 1 to be \$2.5 billion and the fiscal impact from scenario 2 to be \$3.3 billion over the first 20 years of operation and that this figure is consistent with the federal and provincial fiscal impact from project operations of \$2,548.6 million (2012\$) using the minimum impact scenario provided in Table 1, reference (i) and consistent with the figures \$2,548.6 million (2012\$) and \$3,305.1 million (2012\$) in Table 5, page 41 of reference (i). If not confirmed please explain how the figure \$2,548.6 in Table 1 relates to the \$2.5 billion in reference (i) and the figures \$2,548.6 and \$3,305.1 in Table 5 relate to the \$2.5 and \$3.3 billion in reference (i) respectively.
- aa) Please confirm that 60.1% of the fiscal revenues the Conference Board predicts from operating the proposed expansion in reference (i) are assumed to arise from the taxation of corporate profits, including the corporate profits of Trans Mountain, at the federal and provincial level. If not confirmed, please explain where in the Conference Board analysis the Canadian corporate taxation of Trans Mountain's operation are assumed to occur.
- bb) Please confirm that the Conference Board predicted corporate profits based on the GDP output from the I/O model and provide a detailed explanation of how the Conference Board predicted corporate profits from the estimate of GDP attributed to the operations of the expansion. If not confirmed, please explain how corporate profits related to operations of the expansion system were determined.
- cc) Please confirm that for the minimum impact case in reference (i) federal and provincial corporate tax revenue for the first 20 years of operations are assumed to be \$1,531.7 million. If unable to confirm please provide the figure relied on for scenario 1 in reference (i) that is assumed to represent the federal and provincial fiscal revenues from operating the project over 20 years under only committed shipper take-or-pay contracts.
- dd) Please confirm that gross fiscal revenues from corporate taxes divided by 20 years could be expected to represent the annual fiscal impact from corporate taxes due to operating the expanded project in the minimum impact scenario 1. If not confirmed, please provide the annual figure from 2018 - 2037 that represents the estimated direct fiscal impact from federal and provincial corporate profits tax.
- ee) Assuming the correct figure for the 20 year corporate profits tax impact is \$1,531.7 million, please confirm the annual expected impact is \$76.59 million. If not confirmed, please provide the annual estimated corporate income tax impact from scenario 1 for each year 2018 - 2037 in 2012 dollars and current dollars.
- ff) Please explain how in reference (i) an estimate of operating revenues from committed shippers becomes an estimate of corporate profits against which federal and provincial tax rates are applied. That is, please explain fully each step in the Conference Board

analysis that goes from an estimate of \$644 million a year, for 20 years, in operating revenues attributed to the expansion project to a corporate income tax effect of 60.1% of \$2.5 billion over 20 years.

- gg) Please provide the corporate tax rates at the federal and provincial level that were relied on to estimate federal and provincial corporate tax revenue in reference (i).
- hh) Please provide the value of the direct GDP impact determined by the I/O model from the operation of the expansion and confirm what proportion of the direct GDP impact figure would be attributable to Trans Mountain (or KMC as the case may be) as operator of the expansion. If not 100% please explain fully.
- ii) What proportion of the direct GDP impact from the I/O model would be considered to be corporate profits and what percentage of those profits would be considered to be directly related to Trans Mountain? If 100% of the corporate profits from the direct GDP impact are not attributable to Trans Mountain please explain.
- jj) Please provide the direct corporate profits estimate prepared by the Conference Board from the direct GDP impact for Trans Mountain (and if not 100%, identify "other" as relevant) and the amount of those corporate profits paid as federal and provincial corporate income tax for each year from 2018 - 2037, including a breakdown of the provincial taxes by province.
- kk) Please provide a table that illustrates, on an annual basis from 2018 - 2037, by direct, indirect and induced impacts:
- 1) estimated GDP;
 - 2) estimated corporate profits;
 - 3) estimated federal corporate taxes;
 - 4) estimated provincial corporate taxes by province; and
 - 5) total fiscal impacts from operation of the expansion project.
- ll) With respect to Kinder Morgan Canada, Trans Mountain Pipeline ULC, Trans Mountain Pipeline LP and any other entities operating or registered in Canada related to the operation of the Trans Mountain pipeline system that may have an obligation related to federal and provincial corporate taxes and/or withholding taxes, please provide for 2005 - 2013 and budget for 2014:
- 1) an identification of each Canadian entity that is subject to corporate taxation or withholding tax;
 - 2) a detailed discussion of the corporate tax treatment of the entity in Canada;
 - 3) a detailed discussion of the tax treatment of interest, dividends, and other forms of trans-border cash flow as it relates to the Canada US Tax Treaty including treaty exemptions and rates as compared to the withholding rates that would be applicable in Canada on similar cash distributions to the US but for the existence of the tax treaty;
 - 4) scheduled federal and provincial corporate tax rates generally applicable to the type of entity identified in (ll) 1 above;

- 5) the effective federal and provincial tax rates as they relate to the entity's net earnings;
 - 6) the amount of federal and provincial book or accounting taxes (if book and accounting are considered the same, but if not, please provide both);
 - 7) the amount of federal corporate cash tax representing the federal corporate income tax actually paid (refunded) each year;
 - 8) the amount of provincial corporate cash tax representing the provincial income tax actually paid (refunded), by province, each year.
- mm) Please confirm that the Statistics Canada I/O model relied on in reference (i) does not predict fiscal revenues such as corporate taxes, personal taxes and indirect taxes and thus "the fiscal effects were estimated by the Conference Board of Canada". If unable to confirm please explain fully how the I/O model relied on by the Conference Board predicts fiscal revenues by type and provide a detailed table that indicates the estimation of fiscal revenues including the gross figures and the various taxes and tax rates assumed to arrive at the fiscal impact from project operations.
- nn) If the Conference Board relied on its own modelling techniques and not Stats Canada's I/O model to estimate fiscal revenues based on output generated from the I/O model, please provide a detailed explanation of the outputs from the I/O model (e.g person years of employment and GDP) and the amount of these estimates, the methodology relied on by the Conference Board to go from I/O outputs to fiscal estimates by category and amount, including a detailed explanation of the tax rates and effective tax rates, by category of taxes, the amount of fiscal revenue predicted by category of fiscal revenue source (such as corporate profits) predicted and the source data or other information supporting the assumptions relied on to predict such items as corporate profits. With respect to corporate profits, please also identify how the Conference Board adjusted tax rates to effective rates to reflect accounting adjustments such as depreciation and amortization, that may be expected to reduce the posted tax rate to a lower effective rate.
- oo) Did the Conference Board request from, or did Trans Mountain offer, an indication of Trans Mountain's actual net income and effective federal and provincial tax rates as a Canadian pipeline operator against which to test the predictive reliability of the Conference Board's model. If so, please provide the information Trans Mountain provided to the Conference Board. If not, please provide Trans Mountain's net income, cash tax paid, and effective tax rates from 2005 - 2013 and budget for 2014.
- pp) If not included as part of the answer to (oo) above, please provide all information, research, analysis and supporting documentation relied on by the Conference Board that supports the Conference Board's conclusion that the "oil pipeline industry generates large corporate income tax effects."
- qq) Please confirm that revenues received by Trans Mountain for the operation of its expansion arise because shippers pay tolls and shippers treat these tolls for accounting purposes as expenses incurred in Canada. If not confirmed please explain how shippers

- would be expected to treat tolls paid to transport crude oil along Trans Mountain for accounting purposes.
- rr) Please confirm that transportation expenses incurred by shippers would reduce shipper profits, and based on the effective tax rate each of these shippers face, corporate taxes paid would fall accordingly. If unable to confirm, please explain how shipper profits would be affected by tolls paid to Trans Mountain when its expansion proceeds and the terms under the take or pay long term commitments, as described in RH-001-2012, take effect.
 - ss) Please confirm that long term contracts obligate shippers to pay the fixed component of the tolls anticipated in RH-001-2012 whether or not the shippers actually utilize their committed capacity to ship crude oil or refined products through the expanded Trans Mountain pipeline system.
 - tt) Please confirm that a scenario could develop whereby a shipper(s) pays tolls for transportation capacity along Trans Mountain, incurs expenses related to that capacity, but does not actually receive revenues related to the use of that capacity because the shipper has elected to not ship product and has been unable to sell the unused capacity in the spot market. If unable to confirm, please explain the impact on shipper toll costs, shipper revenues, and corporate profits of the shipper(s) if the capacity committed to under long term contracts is not used by the committed shipper(s), and is not otherwise sold by the committed shipper for use by third parties.
 - uu) Did the analysis conducted in reference (i) include a recognition of the tax effects related to the impact on profits of shippers who might not be able to make use of their long term committed capacity, and are unable to sell their capacity to a third party because of adverse market conditions? If not, why not?
 - vv) Did the analysis conducted in reference (i) contemplate a scenario whereby market conditions lead to a situation where shippers are not able to use their committed capacity, and are not able to sell their rights to the capacity to other potential shippers and how such a scenario would impact shipper profits, GDP, person years of employment and corporate taxes paid in Canada? If not, why not?
 - ww) Please confirm that none of the Canadian entities related to Trans Mountain have retained earnings because of pass through, or distribution, arrangements between Canadian entities and their US owner(s). If not confirmed, please fully explain and provide the current level of retained earnings in each, and any, of the relevant Canadian corporate entities related to Trans Mountain's assets, including Trans Mountain Pipeline L.P.

Response:

- a) As defined in the Form 10K of Kinder Morgan Energy Partners, L.P. (KMP), DCF means distributable cash flow. DCF is further described in the document as an overall performance metric used by KMP to estimate the ability of its assets to generate cash flow and as a measure of available cash. The distribution of cash from Trans Mountain Pipeline L.P. is subject to the terms of its partnership agreement as further described in

- Trans Mountain's response to NEB IR No. 1.7e). To the extent cash distributions are made by Trans Mountain Pipeline L.P. they are paid to its general partner, Trans Mountain Pipeline ULC and its limited partner Kinder Morgan Cochin ULC in accordance with their corresponding partnership percentages.
- b) Not confirmed. The reference to "Actual" represents the final financial calculation of distributable cash flow, as a measure of cash flow performance, for the Trans Mountain reporting segment for the reporting period. The reference to "Budget 2014" represents the estimated distributable cash flow, as a performance measure, for the Trans Mountain reporting segment for 2014. Although Trans Mountain does not consider this request relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Pipeline, please refer to NEB IR No. 1.07a for a map that explains structure.
 - c) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
 - d) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
 - e) The Trans Mountain System as represented for financial reporting purposes in the Kinder Morgan Energy Partners, L.P. Form 10K and investor material presented by Mr. Ian Anderson includes the consolidated financial results of all of the businesses within the Trans Mountain System of which the NEB regulated Trans Mountain pipeline is one component. The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
 - f) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
 - g) Confirmed. The Conference Board did estimate the revenues based on an average fixed toll rate provided by Trans Mountain.
 - h) Confirmed. The ownership structure of Trans Mountain is not relevant to this analysis. The new revenues would be generated on a pipeline operating in Canada, therefore the economic impacts would occur in Canada. The operating economic impacts do assume that some of the required inputs to operate the pipeline are imported.
 - i) Confirmed. The ownership structure of Trans Mountain is not relevant to this analysis. The new revenues would be generated on a pipeline operating in Canada, therefore the economic impacts would occur in Canada. The operating economic impacts do assume that some of the required inputs to operate the pipeline are imported.
 - j) Confirmed.
 - k) Not confirmed. Please see the response to Allan R IR No. 1.03h.

- l) Confirmed. The revenue over the 2018-2037 period is estimated to be \$944 million per year in 2012 dollars. Once the revenues from the existing pipeline are netted from this, the impact assessed is \$644 million per year in 2012 dollars.
- m) Confirmed. The revenue over the 2018-2037 period is estimated to be \$1,135 million per year in 2012 dollars. Once the revenues from the existing pipeline are netted from this, the impact assessed is \$835 million per year in 2012 dollars.
- n) Not confirmed. Please see the response to Allan R IR No. 1.03h.
- o) Confirmed.
- p) Confirmed.
- q) Not confirmed. See Trans Mountain's response to Allan R IR No. 1.03a. Distributable cash flow is a measure of the cash generated by the asset and not the actual payment of cash distributions. In addition, to the extent Trans Mountain declares the payment of a cash distribution it is not paid directly to the US based parent, it is paid to its Canadian resident general partner and limited partner. Please also refer to the response to NEB IR No. 1.07e.
- r) Trans Mountain would consider the use of exchange rates published by the Bank of Canada as an acceptable reference.
- s) Trans Mountain did not inform the Conference Board of the cash flow distributions to its U.S. parent. However, it would not change the results. Please see the response to Allan R IR No. 1.03h.
- t) Please refer to Trans Mountain's response to Allan R IR No 1.03s.
- u) Please see Trans Mountain's response to Allan R IR No. 1.03s.
- v) Not confirmed. Trans Mountain Pipeline L.P. generates revenue in Canada which is used to pay obligations incurred by the operation of the Trans Mountain pipeline including expenses, interest and the acquisition of capital assets. If, after taking into account the cash obligations there is cash available for distribution then a cash distribution would be declared and paid. However, this cash distribution payment is not paid to its US owner, it is paid to its Canadian resident general partner and limited partner.
- w) Any cash flows between Trans Mountain and its U.S. parent occur after tax from the income generated by its Canadian assets. This is a financial flow, not an economic flow. The I/O model measures economic flows. For example, the direct GDP impacts of the Trans Mountain Expansion would be based on the wages and salaries it pays, the profits that it earns and depreciation on its assets. All of those impacts would occur in Canada.
- x) The 2013-2015 Incentive Toll Settlement provides the framework for establishing the Revenue Requirement and tolls until the end of 2015 and includes provisions to extend the agreement for an additional two years or until such time as the Trans Mountain

Expansion Project is operational. The framework for tolls beyond the existing 2013-2015 Incentive Toll Settlement, if the Trans Mountain Expansion Project does not proceed, would be the subject of negotiations with shippers and approval of the National Energy Board.

- y) The revenues for the existing pipeline are assumed to be \$300 million per year in 2012 dollars over the 2018-2037 period. The revenues for the two scenarios are described in answers Allan R IR No. 1.03l and Allan R IR No. 1.03m.
- z) Confirmed.
- aa) Confirmed.
- bb) See response Allan R IR No. 1.07ww.
- cc) Confirmed.
- dd) Confirmed.
- ee) Confirmed.
- ff) Please see the response to Allan R IR No. 1.07ww.
- gg) Please see the response to Allan R IR No. 1.07ww.
- hh) In Scenario 1 the direct GDP impact would be \$9.4 billion in 2012 dollars over 20 years (or \$469 million per year). See table 5 in reference (i). This would be 100% attributable to Trans Mountain.
- ii) This cannot be determined directly from the I/O model. Corporate profits are not an output of the model.
- jj) We did not estimate taxes for each type of effect, only for the combined direct, indirect and induced effects. This is because of how the outputs of the I/O model are reported.
- kk) Since revenues from operations are expected to be constant in 2012 dollars over the 2018-2037 period the annual values will be the same in each year. The annual GDP impacts of operations (in millions of 2012 dollars) in the minimum scenario follow:

Direct	468.8
Indirect	135.7
Induced	61.7

The fiscal impacts were not calculated separately for the direct, indirect, and induced impacts. The annual profit and tax values of operations in the minimum scenario (in 2012 dollars) for all three impacts combined are as follows:

Corporate profits: \$482 million
 Federal corporate tax revenues: \$72.3 million

	Provincial Corporate Tax Revenues (millions)
Newfoundland and Labrador	0.0
Prince Edward Island	0.0
Nova Scotia	0.0
New Brunswick	0.0
Quebec	0.2
Ontario	0.6
Manitoba	0.1
Saskatchewan	0.1
Alberta	8.7
British Columbia	20.6

Total Fiscal Impact: \$127.4 million

- ii) Under Canadian tax law, partnerships are not themselves taxpayers, but instead are required to file an information return with the Canada Revenue Agency which reports the partnership's income for the year and the proportionate allocation thereof to its partners. Both partners of Trans Mountain Pipeline LP, (being Trans Mountain Pipeline ULC and Kinder Morgan Cochin ULC) are Canadian corporations. As such, they report their proportionate share of the income allocated by Trans Mountain Pipeline LP for Canadian tax purposes, and are subject to Canadian income tax on that income in accordance with the rules generally applicable to Canadian corporations. Canadian resident corporations, Trans Mountain Pipeline ULC and Kinder Morgan Cochin ULC are also liable to withhold tax on cross border payments on the same basis as any other form of Canadian corporation.

The balance of this information request, (including without limitation the request for a treatise on the relief from double taxation provided under Canada's tax treaties), is not relevant to one or more of the issues on the National Energy Board's List of Issues for the Trans Mountain Expansion Project.

- mm) Confirmed.
- nn) Please see the response to Allan R IR No. 1.07ww.
- oo) No, the Conference Board of Canada did not request this information. The tax implications were calculated for the total impact, not the direct impacts specifically.
- pp) The statement the "oil pipeline industry generates large corporate income tax effects," is supported by the sentence following this quote in reference (i). Corporate taxes account for more than half of the total estimated fiscal impacts.
- qq) Confirmed for the first part of the question and not confirmed for the second part of the question. Trans Mountain cannot comment on the accounting practices of shippers.

- rr) Not confirmed. The question posed is ambiguous and overly simplistic, and fails to account for the role transportation plays to allow shippers to increase profits by accessing more profitable markets and thereby maximize netbacks as more fully described in the report prepared by IHS. The long term contracts provide shippers certainty of access to those markets.
- ss) Confirmed.
- tt) Confirmed. In this scenario it can also be expected that shippers will be receiving higher netbacks on the volumes they ship because of the surplus capacity. In addition, Trans Mountain notes that another scenario could also develop where shipper(s) sell contracted capacity at a premium.
- uu) It did not. In none of the production scenarios produced by IHS is this an expected outcome. In addition, the analysis did not include a case where capacity may be sold at a premium.
- vv) It did not. In none of the production scenarios produced by IHS is this an expected outcome. In addition, the analysis did not include a case where capacity may be sold at a premium.
- ww) Not confirmed. As at December 31, 2013 Trans Mountain Pipeline L.P. had over CAD\$550 million in equity on its balance sheet.

1.04 Governance, Decision Making, Accountability and Control

Reference:

- i) Volume 2, Project Overview, page 2-2, (A3S0Q8)
- ii) Application, Volume 7, Risk Assessment and Management of Pipeline and Facility Spills, page 7-186, (A3S4V6)
- iii) Application, Volume 2, Appendix C, Direct Evidence of John Reed, page 2 and page 6, (A3S0R0)
- iv) Kinder Morgan Inc., Governance Guidelines for Board of Directors, Corporate Governance and Board of Directors for KMI.
- v) Kinder Morgan Management LLC, Governance Guidelines for the Board of Directors and Board of Directors for KMR, Corporate Governance
- vi) Kinder Morgan Energy Partners L.P., Governance Guidelines for the Board of Directors and Board of Directors for KMP Corporate Governance
- vii) Kinder Morgan Energy Partners L.P., Annual Report 2013, December 31, 2013, page 33 and page 141, Annual Report

Preamble:

Reference (i) states: “Trans Mountain Pipeline ULC (Trans Mountain) is a Canadian corporation with its head office located in Calgary, Alberta (AB). Trans Mountain is a general partner of Trans Mountain Pipeline L.P., which is operated by Kinder Morgan Canada Inc. (KMC), and is fully owned by Kinder Morgan Energy Partners, L.P. Trans Mountain is the holder of the National Energy Board (NEB) certificates for the Trans Mountain pipeline system (TMPL system).”

“Kinder Morgan is the largest midstream and the fourth largest energy company (based on combined enterprise value) in North America. Kinder Morgan owns an interest in or operates approximately 130,000 km of pipelines transporting natural gas, refined petroleum products, crude oil, and carbon dioxide (CO₂). The Kinder Morgan family of companies has four publicly traded entities: Kinder Morgan, Inc., Kinder Morgan Energy Partners, L.P. (KMP), Kinder Morgan Management, LLC and El Paso Pipeline Partners. Combined, the Kinder Morgan companies have an enterprise value of approximately \$105 billion.”

“Kinder Morgan, through its operating company KMC, has owned and operated the Trans Mountain pipeline (TMPL) since 2005. Trans Mountain is the holder of the operating certificate from the NEB for the TMPL and is the applicant for the expansion.”

Reference (ii) addresses risk and related issues such as financial resources available to respond to, cleanup and remediate a spill including compensation for damages. It states, “Trans Mountain Pipeline ULC (Trans Mountain) is a Canadian corporation with its head office located in Calgary, Alberta. Trans Mountain is a general partner of Trans Mountain Pipeline L.P., which is operated by Kinder Morgan Canada Inc. (KMC), and is fully owned by Kinder Morgan Energy Partners, L.P. The expected capital cost for the TMPL is approximately \$5.4 billion. Upon completion of the TMPL project, TMPL is projected to have \$6.4 billion in assets based on the existing \$1 billion of current rate base plus the increase of \$5.4 billion for TMPL expansion.

Financing will be arranged by Trans Mountain's parent company Kinder Morgan Energy Partners, L.P. (KMP). KMP typically finances growth projects using a mix of 50 per cent debt and 50 per cent equity. Funding sources may include a combination of the issuance of long-term debt securities, bank financing and the issuance of public equity at KMP. Based on KMP debt and equity financing strategy, we expect that TMPL will have approximately \$3.2 billion of equity upon completion of TMEP."

Reference (iii) states that, "In making its recommendation, the Board shall have regard to all considerations that appear to it to be directly related to the pipeline and to be relevant, and may have regard to the following:

- (a) the availability of oil, gas or any other commodity to the pipeline;
- (b) the existence of markets, actual or potential;
- (c) the economic feasibility of the pipeline;
- (d) the financial responsibility and financial structure of the applicant, the methods of financing the pipeline and the extent to which Canadians will have an opportunity to participate in the financing, engineering and construction of the pipeline; and
- (e) any public interest that in the Board's opinion may be affected by the issuance of the certificate or the dismissal of the application.

In practice, the Board's standard for determining if a project is economically feasible—criterion (c) above—has been the presentation of satisfactory evidence that criteria (a), (b) and (d) above have been met."

Reference (iv), Governance Guidelines for Board of Directors of KMI explains the reporting relationships and decision making authority for KMI and indicates that the Functions of the Board of Directors are provided "in the General Corporation Law of the State of Delaware, the business and affairs of the Company shall be managed by or under the direction of the Board, and the Company shall have such officers with such duties as stated in the bylaws or resolutions of the Board. The Board will consider all major decisions of the Company...At its regularly scheduled meetings during each year, the Board will review and discuss reports by management on the performance of the Company, its plans and prospects, as well as immediate and longer- term issues facing the Company. In addition to its general oversight of management and the matters set out in the Company's bylaws, the responsibilities of the Board and its standing committees shall include:

- Selecting, monitoring, evaluating, compensating, and, if necessary, replacing the Chief Executive Officer and other senior executives, and planning management succession;
- Reviewing and approving management's strategic and business plans, including developing a depth of knowledge of the Company's business, understanding and questioning the assumptions upon which such plans are based, and reaching an independent judgment as to the probability that the plans can be realized;
- Reviewing and approving the Company's significant financial objectives, plans, and actions;

- Reviewing and approving material transactions of the Company not in the ordinary course of business, including significant capital allocations and expenditures;”

Reference (v), Governance Guidelines for the Board of Directors of Kinder Morgan Management LLC (KMR) explains that KMR manages and controls the business affairs of Kinder Morgan Energy Partners L.P. (KMP). “Through the operation of the Partnership’s limited partnership agreement and the Delegation of Control Agreement”, the board of directors of KMR performs the functions of and is the equivalent of a board of directors of the partnership KMP. All management powers over the business affairs of KMR are vested exclusively in the Board, and subject to the direction of the Board, the officers of the Company (KMR). The functions of the Board and standing committees of KMR, and thus KMP, include:

- *Selecting, monitoring, evaluating, compensating, and, if necessary, replacing the Chief Executive Officer and other senior executives, and planning management succession;*
- *Reviewing and approving management’s strategic and business plans, including developing a depth of knowledge of the Partnership’s business, understanding and questioning the assumptions upon which such plans are based, and reaching an independent judgment as to the probability that the plans can be realized;*
- *Reviewing and approving the Partnership’s significant financial objectives, plans, and actions;*
- *Reviewing and approving material transactions of the Partnership not in the ordinary course of business, including significant capital allocations and expenditures;”*

Trans Mountain Pipeline ULC has brought forward to the NEB an Application for a recommendation to approve a \$5.4 billion capital expansion project as in the public interest. Reference (v) explains that decisions over “material transactions of the Partnership not in the ordinary course of business, including significant capital allocations and expenditures” must be decided upon by the Board.

Reference (vii) page 141, from KMP’s 2013 Annual Report states that, “KMGP Services Company, Inc., a subsidiary of our (KMP’s) general partner, provides employees and Kinder Morgan Services LLC, a wholly owned subsidiary of KMR, provides centralized payroll and employee benefits services to (i) us; (ii) our operating partnerships and subsidiaries; (iii) our general partner; and (iv) KMR (collectively referred to in this note as the Group). Employees of KMGP Services Company, Inc. are assigned to work for one or more members of the Group. The direct costs of all compensation, benefits expenses, employer taxes and other employer expenses for these employees are allocated and charged by Kinder Morgan Services LLC to the

appropriate members of the Group, and the members of the Group reimburse Kinder Morgan Services LLC for their allocated shares of these direct costs...The administrative support necessary to implement these payroll and benefits services is provided by the human resource department of KMI, and the related administrative costs are allocated to members of the Group in accordance with existing expense allocation procedures.” As well, reference (vii) explains, “The named executive officers of our general partner and KMR and other employees that provide management or services to both KMI and the Group are employed by KMI.”

Reference (vii) on page 33 states, “KMGP Services Company, Inc., KMI, Kinder Morgan Canada Inc. and another affiliate employ all persons necessary for the operation of our business. Generally, we reimburse these entities for the services of their employees.”

Request:

- a) Please confirm that:
- 1) the general partner of KMP is Kinder Morgan G.P. Inc. (KMGP);
 - 2) through a Delegation of Control Agreement, the Board of Directors of Kinder Morgan Management LLC (KMR) manages and controls the business and affairs of KMP;
 - 3) through a Delegation of Control Agreement, the Board of Directors of Kinder Morgan Management LLC (KMR) performs the Board functions for KMP.
 - 4) the Board members of KMR are: Richard Kinder, Chairman and CEO, KMGP, Steven Kean, President and COO, KMGP, Gary Hultquist, Principal NewCap Partners Inc., Ted Gardner, Managing Partner, Solverhawk Capital Partners, LLC, and Perry Waughtal, Limited Partner and Chairman, Songy Partners Limited;
 - 5) KMP does not have officers or directors except through its relationship to KMR;
 - 6) KMC does not have officers or directors except through its relationship to KMR through KMP;
 - 7) Trans Mountain ULC does not have directors or officers except through its relationship to KMR through KMP;
 - 8) Trans Mountain Pipeline LP does not have directors or officers except through its relationship to KMR through KMP.

If unable to confirm any or all of the requests in a) 1-8, please provide an explanation that addresses the Board structure for KMP and the reporting relationship of the Trans Mountain related Canadian entities to the Board of KMP including an identification of any board or executive committees that exist in Canada, the names and domicile of the members of those boards and/or committees, and whether they are a Kinder Morgan employee, member of a Kinder Morgan Board in the US or independent board members.

- b) Please confirm that Kinder Morgan’s management team consists of three general categories, the Office of the Chairman, Corporate Officers and Operating Officers. If not confirmed, please explain the categorization of management positions at Kinder Morgan.
- c) Reference (v) states that “All management powers over the business affairs of the Company (KMR) are vested exclusively in the Board, and subject to the direction of the Board, the officers of the Company.” Please provide a list and job titles of the officers of the “Company” (KMR) and the officers of KMI.
- d) Please confirm that Kinder Morgan Canada President, Ian Anderson is not a member of the Board of Directors of KMI or KMR but is an Operating Officer and identify the entity(ies) for which he is recognized as such. If unable to confirm please explain Mr. Anderson’s position in the reporting structure of Kinder Morgan and his job title(s).

- e) Please confirm Mr. Anderson reports to Mr. Kean, President and COO, KMGP. If unable to confirm please identify who Mr. Anderson reports to including name and job title, and who that individual reports to in the management structure.
- f) Please provide an estimate of capital expenditures or allocations contemplated by the Kinder Morgan “family” from 2014-2018 and the relative role the Trans Mountain Expansion Project plays in this capital expenditure plan.
- g) Please confirm that Kinder Morgan Inc. considers a \$5.4 billion expenditure related to the Trans Mountain Expansion Project to represent a project of “significant capital allocation and expenditure.” If not confirmed, please explain.
- h) Please identify which Kinder Morgan Board of Directors have the authority and responsibility for decision making for Trans Mountain related to:
 - 1) changes to corporate structure;
 - 2) the transfer of assets between entities;
 - 3) the purchase or sale of assets;
 - 4) the investment decision for capital expansions such as contemplated in the Application; and
 - 5) the sourcing of equity and debt required to finance the investment decision such as contemplated in the Application.

Please explain the corporate governance process relied on in each of (h)1-5 and reference the information provided in a) as relevant.

- i) Please identify which Kinder Morgan Board approved the planned Trans Mountain expansion and which Kinder Morgan Board has ultimate responsibility for sourcing debt and equity financing for the project.
- j) Please explain in detail the nature of the decision making authority that the Board (and identify which Board) has in regards to the operation of the Trans Mountain Pipeline System and an Application for a CPCN to construct and operate a pipeline system expansion through Alberta and British Columbia. Please include, but not limit the discussion of its authority over such issues as:
 - 1) the methods of financing (debt and equity) and the extent to which Canadians will have an opportunity to participate in the financing, including a description of KMI's or KMP's (as the case may be) intent to be the sole source of debt and equity financing for the project;
 - 2) the rates and fees charged for project financing including interest charges on debt and required rate of return on equity;
 - 3) the authority over the insurance protection afforded the existing system, “Project” and the entire system once expanded including the claims settlement process that may arise in the event of an oil spill on the pipeline system including loading and unloading procedures at the Westridge terminal;
 - 4) the annual distribution of cash flow from the pipeline system including the cash flow generated by the expansion;

- 5) the nature and extent of sourcing through Kinder Morgan human resources, payroll and benefits, legal, communications, accounting, management, or other head office services;
 - 6) the position of KMC (or TMPULC) on the potential conditions established by the NEB as part of the Hearing process such that the Kinder Morgan Board will need to review the potential conditions and accept them prior to Trans Mountain being in a position to comment on them; and
 - 7) a decision to provide an incontrovertible guarantee for any and all cleanup costs, damage costs, and remediation costs related to a spill event on the pipeline system or at the Westridge terminal.
- k) Please confirm that:
- 1) Kinder Morgan Canada President, Ian Anderson is an employee “provided” by KMG Services Company, Inc.; and
 - 2) KMC’s payroll services are provided by Kinder Morgan Services LLC, a wholly owned subsidiary of KMR, and related administrative costs are allocated to KMC “in accordance with existing expense allocation procedures.”
- If unable to confirm, please indicate which corporate entity is responsible for Mr. Anderson’s employment contract and explain how the payroll services and employee benefits related to KMC human resource activities are provided through Kinder Morgan in the US.
- l) Please provide a detailed employee organization chart for KMC that identifies the number of full-time permanent employees and their job functions. Please include reporting lines and if any of the job functions at KMC require a reporting relationship with KMR or KMI Corporate Officers, or their staff, please identify. For example, please identify if there is a reporting relationship between KMC communications staff and the V.P. of Communications and Public Affairs at KMR or KMI.
- m) Please explain how the management structure for KMC is established to undertake corporate functions and the level of support provided by Corporate Office functions at KMR or KMI for each of the following corporate functions located in the US:
- 1) Treasury
 - 2) Controller
 - 3) Audit
 - 4) Internal Audit
 - 5) Finance
 - 6) Legal Counsel
 - 7) Information Technology
 - 8) Tax
 - 9) Communications and Public Affairs
 - 10) Human Resources

Response:

- a) 1) Confirmed.
- a) 2) Confirmed.
- a) 3) Confirmed.
- a) 4) Confirmed (Note: Ted Gartner, Managing Partner, Silverhawk Capital Partners, LLC).
- a) 5) Not confirmed. In addition to officers and directors through its relationship to KMR, KMP's general partner, KMGP, has officers and directors.
- a) 6) Not confirmed.
- a) 7) Not confirmed.
- a) 8) Not confirmed.

Kinder Morgan Canada Inc. has a Board of Directors and appointed Officers all of whom are Kinder Morgan employees and the majority of which are Canadian residents. Trans Mountain Pipeline ULC has a Board of Directors and appointed Officers all of whom are Kinder Morgan employees and the majority of which are Canadian residents. Trans Mountain Pipeline ULC, as general partner, has the authority to manage and control the business of Trans Mountain Pipeline L.P. and as such the Board of Directors and appointed Officers of Trans Mountain Pipeline ULC act on behalf of Trans Mountain Pipeline L.P. The balance of the information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.

- b) Confirmed.
- c) The information request is not relevant to one or more of the issues on the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- d) Ian Anderson is not a member of the Board of Directors of KMI or KMR. Ian Anderson is a member of the Board of Directors and an appointed Officer (President) of Trans Mountain Pipeline ULC.
- e) Ian Anderson reports to the Office of the Chairman.
- f) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project. However, Kinder Morgan's published project backlog is available on the Company's website.
- g) Confirmed.

- h) The information request is not relevant to one or more of the issues in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- i) As indicated in Application, Volume 2, "Financing will be arranged by Trans Mountain's Parent company KMP." The KMP Board will approve the Project.
- j) Trans Mountain Pipeline ULC is the Applicant and general partner of Trans Mountain Pipeline L.P. Trans Mountain Pipeline ULC has a Board of Directors and appointed Officers who are Kinder Morgan employees and who make decisions in regards to the operation of the Trans Mountain Pipeline System and an Application for CPCN to construct and operate a pipeline expansion. Trans Mountain Pipeline ULC engages Kinder Morgan Canada Inc. to provide the management and operational personnel necessary to manage the operation of Trans Mountain as well as the development of the Trans Mountain Expansion Project. Trans Mountain Pipeline ULC is accountable to its owners to manage the business in compliance with applicable laws, rules and regulations and in accordance with Kinder Morgan codes, policies, practices and procedures. At a cost of \$5.5 billion, the Trans Mountain Expansion Project requires a substantial capital commitment and, in accordance with the financial authority levels established by Kinder Morgan for its businesses, a decision regarding an investment of this magnitude requires the involvement of and authorization by the Office of the Chairman and Board of Directors for Kinder Morgan Energy Partners, L.P.
- k)
 - 1) Not confirmed. Ian Anderson is employed by Kinder Morgan Canada Inc.
 - 2) Not confirmed. The payroll services of Kinder Morgan Canada Inc. are provided in Canada.
- l) Kinder Morgan Canada Inc. employs over 400 Canadians who work in a variety of functions from field operations personnel, shared services such as finance, procurement, information technology and human resources up to and including a Canadian executive team. These employees provide support to the Canadian businesses owned by Kinder Morgan including the Trans Mountain pipeline. The detailed employee organization chart for KMC will not be provided as it is not relevant to one or more of the issues on the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- m) The information request is not relevant to one or more of the issues on the National Energy Board's List of Issues for the Trans Mountain Expansion Project.

1.\$5 Insurance

Reference:

- i) Application, Volume 1, (A3S0Q7), page 1-46
- ii) Kinder Morgan Analyst Conference, January 29, 2014, President Kinder Morgan Canada, Oral Presentation
- iii) Kinder Morgan Inc., Management Team, Website Listing
- iv) RH-01-2012, Trans Mountain Expansion Part IV Toll Application, November 29, 2012, revised January 10, 2013, CAPP IR 1.3, (A3E7F5).
- v) Kinder Morgan Annual Report 2013, 10-K, Exhibit 21.1, Financials

Preamble:

Reference (i) states “Trans Mountain currently has \$750 million of spill liability insurance, the first \$2 million which is covered by self insurance. Trans Mountain intends to maintain this level of spill liability insurance throughout the life of the TMPL asset.”

Reference (ii) states that, “Liability coverages. A big question mark for new pipeline projects particularly in Canada these days. What’s the coverages available for the carriers, the vessels, as well as the pipeline operators to ensure the public is protected.” (As transcribed from oral transcript).

Reference (iii) lists the management team for Kinder Morgan with the President of KMC identified as an operating officer, whereas corporate officers are listed with specific finance, tax and human resources, and communications roles.

Reference (iv) indicates that for 2018, the first year the expansion project is expected to be operational, insurance premiums are estimated at \$15.1million CDN for the Expanded System and the insurance premiums for the Westridge Marine Terminal are estimated at \$1.168 million.

Reference (v) lists as one of its 19 subsidiaries, Kinder Morgan Insurance Ltd. The role and purpose of this entity and any risks it represents as they may relate to Trans Mountain’s insurance and financial capacity is of interest. Kinder Morgan Canada LLC is also listed as a subsidiary.

Request:

- a) Please confirm that when the Project Application refers to “Trans Mountain currently has \$750 million of spill liability insurance” that what is meant is that the general partner as described in reference (i) as Trans Mountain is the entity that holds the insurance policy for the exclusive rights of Trans Mountain Pipeline LP, or whichever entity owns the assets. If not confirmed, please explain which entity holds the insurance policy representing \$750 million of spill liability insurance and what Kinder Morgan companies and assets are protected by the \$750 million policy.
- b) There is insufficient information in the Application to understand how the general partner (Trans Mountain Pipeline ULC) will structure and manage its business affairs to ensure it can financially sustain all potential risks and liabilities that may arise from potential

accidents, malfunctions and failures during construction, operation and abandonment phases of the two pipeline system and related facilities. Please describe the approach Trans Mountain plans to take. The response should include the various kinds and amounts of insurance the general partner intends to secure to cover these potential liabilities as well as a discussion of how third party liabilities for contractors, subcontractors, agents, consultants etc., will be accounted for. If the general partner (TMPULC) does not secure the insurance please advise and explain while addressing the question.

- c) For each kind and the corresponding amount of insurance identified in the response to (b), provide the rationale with supporting data for each insurance component the general partner intends to secure (or other entity as appropriate).
- d) Please confirm that Trans Mountain (or other entity as might be identified in (a)) intends to maintain the same level of insurance coverage for its system once expanded as it currently has for its existing pipeline system.
- e) If confirmed in (d), please explain why the level of insurance coverage for the existing Trans Mountain pipeline would be sufficient coverage for the expanded system.
- f) Please confirm that the liability insurance Trans Mountain (or other Kinder Morgan entity) holds is optional in that Kinder Morgan Inc. has the right to decide whether or not it will self insure the Trans Mountain system at its sole discretion.
- g) Does Kinder Morgan Canada as operator, or Trans Mountain as General Partner, decide directly as to the insurance program for TMPL or are these decisions made at a higher level in the corporate hierarchy? Please explain and describe where in the corporate hierarchy the insurance program for Trans Mountain is determined.
- h) Does the policy described in reference (i) apply to Kinder Morgan family assets or operations in the US? If so, please explain which assets or operations are covered by the policy described in reference (i).
- i) Please provide an annual history of the general liability coverage limits and related deductibles Kinder Morgan has maintained for the Trans Mountain Pipeline system since 2005, including a description of the insurance program in place, including a discussion of the pollution liability limits and deductibles in place when KMI purchased the shares of Teresen Inc.
- j) Please explain the extent of the coverage for each of the years provided in (i) above, including an identification as to whether the insurance program was solely for the purpose of the Trans Mountain assets, the assets operated by KMC which covered all Canadian assets, or the entire Kinder Morgan family, which would include US assets. With respect to the program in place when KMI purchased Teresen, please answer according to the corporate structure in place when just prior to the purchase.
- k) If Kinder Morgan is required by third parties to hold private sector, arms length insurance for TMPL, please explain which parties require insurance protection, (e.g., lenders,

shippers), the nature of that protection, and how much is required as part of any commercial terms.

- l) Please explain whether any entities, whether within the Kinder Morgan family, or due to business agreements, have right of first access to revenues, assets, liability coverage or other financial resources, prior to claims settlement for third parties directly harmed by a spill event. That is, please clearly identify if any agreements would enable the payment or distribution of cash flow within a given year, or over a period of years, to take priority over the settlement of claims and the assessment of damages.
- m) Please confirm that Kinder Morgan's pollution liability coverage covers all pollution events regardless of the rate at which a contaminated product may be released into the environment.
- n) Please confirm that although TMPL intends to maintain \$750 million in liability coverage through the life of the asset that it is the insurance industry, and not Trans Mountain, that will determine whether this coverage is available.
- o) Please confirm that TMPL may not be able to maintain liability coverage if third party insurers and/or re-insurers raise the premium beyond a certain price or refuse to offer insurance protection..
- p) Please explain the premium level (the annual cost of insurance) as a ratio to coverage that would cause TMPL to elect to self-insure its risk.
- q) Please identify any agreements TMPL currently has with its shippers, and may have with its shippers under the proposed toll principles for the expansion, whereby insurance premium costs would be passed on in toll rates. Please summarize the terms of these agreements and provide relevant references to the agreements.
- r) If the assets of Trans Mountain are impaired because of a pollution spill event, how does Trans Mountain plan to protect its revenue stream?
- s) Will Kinder Morgan provide a parental guarantee for any and all pollution related losses incurred by Trans Mountain if the financial resources available to the Trans Mountain system are insufficient to cover claims?
- t) Does Kinder Morgan currently provide any form of parental guarantee for any or all pollution related losses incurred by Trans Mountain if the financial resources available to the system are insufficient to cover claims? If so, which Kinder Morgan entity provides the guarantee?
- u) Does Kinder Morgan currently provide any form of parental guarantee for any or all pollution related losses incurred by any of its pipelines, pipeline systems, Jones Act tankers, or other assets in the US? If so, please provide details including the entity that provides the guarantee.
- v) Please confirm the accuracy of reference (ii). If not confirmed please provide corrected text.

- w) Please explain why Kinder Morgan Canada President, Ian Anderson would raise the concern over the “big question mark for new pipeline projects” for the benefit of its US parents’ shareholders and US industry analysts, but not address this concern in the Application.
- x) Please fully explain Mr. Anderson’s comment as to how the market for liability coverages, particularly in Canada, are uncertain as to the coverages available for carriers such as Trans Mountain’s committed and spot shippers, the vessels calling at the Westridge marine facilities, and pipeline operators such as Kinder Morgan Canada.
- y) Please confirm that Trans Mountain believes that one of the purposes of insurance is to facilitate the transfer of large losses to the insurance industry.
- z) Please confirm that the level of insurance liability coverage for spill events of \$750 million reflects Kinder Morgan’s commercial decision regarding the level of exposure the company wishes to share because the company has concluded that the potential loss related to a large spill on Trans Mountain’s existing system could exceed this limit. If not confirmed, then please explain why Kinder Morgan would hold insurance in excess of what the company believes it may require for a large spill event from its existing operations.
- aa) Please confirm which party (or parties) in reference (iii) are responsible for designing, negotiating, and securing the insurance program identified in reference (i). If there are staff members in KMC that have a role in the development of the insurance program for the existing Trans Mountain pipeline system and the proposed expansion please advise and explain their level of involvement and decision making authority within the organizational structure of Kinder Morgan.
- bb) Does the KMI or KMR Board have decision making authority over the insurance program applicable to the Trans Mountain?
- cc) Please confirm that reference (iv) insurance costs refers to all insurance costs related to the total system once expanded, including but not limited to pollution liability coverage. If not confirmed please explain what other insurance premiums may apply to the expanded system.
- dd) Please explain how the Westridge Marine Terminal insurance costs in reference (iv) relate to the insurance available and liabilities that may be incurred specifically at Westridge, such as while loading crude oil or petroleum products and unloading ballast.
- ee) Please confirm the insurance cost in reference (iv) is a pro-rata charge applied by an owner, parent, or other entity resident in the US and include a discussion of the role of Kinder Morgan Insurance, Ltd. in determining the amount of insurance premium Trans Mountain pays, or will pay when the expansion is complete.
- ff) Please confirm that Kinder Morgan Insurance Ltd. can be described as KM Insurance Ltd., a wholly owned subsidiary that was formed during the second quarter of 2005 for

- the purpose of providing insurance services to Kinder Morgan, Inc. and Kinder Morgan Energy Partners. If not confirmed, please explain what Kinder Morgan Insurance Ltd. is.
- gg) Please confirm that KM Insurance Ltd. was formed as a Class 2 Bermuda insurance company, the sole business of which is to issue policies for Kinder Morgan, Inc. and Kinder Morgan Energy Partners to secure the deductible portion of the companies' workers' compensation, automobile liability and general liability policies placed in the commercial insurance market. If not an accurate description, please explain and augment as necessary to clearly explain the role and purpose of KM Insurance Ltd.
 - hh) Please provide Trans Mountain's definition of a captive insurer.
 - ii) Please confirm that KM Insurance Ltd. would fall within the definition of a captive insurer. If not confirmed, please explain why KM Insurance Ltd. would fall outside the definition of a captive insurer.
 - jj) Please outline clearly the advantages or benefits generally considered to exist with a captive insurance arm from a corporate perspective, as well as a clear identification of the benefits assumed to arise by establishing a captive insurance company offshore, such as in Bermuda. Include in the response, but not limited to, the tax benefits, reduced capital or equity requirements in relation to US or Canadian equity requirements pertaining to insurance companies, reduced regulatory scrutiny, treatment of premiums paid from Trans Mountain to KMI insurance subsidiary for purposes of taxation including confirmation that expenses incurred reduce Trans Mountain's Canadian operation's gross profits, but premiums received by KM Insurance are not subject to withholding tax. If any of these benefits are not deemed to exist for Kinder Morgan, please identify and explain why they do not.
 - kk) Does KM Insurance Ltd. provide deductible portion insurance services of the deductible mentioned in reference (i) and thus this is what is meant by "self insurance"?
 - ll) If confirmed in (kk), was the party responsible for drafting reference (i) aware of the relationship between Trans Mountain's insurance program and KM Insurance Ltd.?
 - mm) If confirmed in (kk) why was no mention made of the relationship between deductible limits for Trans Mountain and KMI's insurance subsidiary as being the nature of the self insurance?
 - nn) Kinder Morgan Canada LLC is listed as a subsidiary of KMI, but Kinder Morgan Canada Inc. (KMC) is the operator of Trans Mountain Pipeline ULC, the general partner of Trans Mountain Pipeline LP. Please explain the relationship of KMC LLC to KMC Inc. or any other Kinder Morgan entity registered in Canada.
 - oo) Reference (i) states that Trans Mountain currently has \$750 million of spill liability insurance. Please confirm the policy is a general insurance policy, and that spill liability is one of the insurable events. Please confirm that the total limit of the policy in any one year is for \$750 million. If not confirmed, please explain the terms of coverage and limits of liability in the policy cited.

- pp) Please indicate who at Kinder Morgan is responsible for drafting the responses to these questions regarding Insurance and Financial Capacity.
- qq) Please confirm that insurance premiums for Trans Mountain's current insurance coverage are paid to Trans Mountain's US parent as part of a Kinder Morgan insurance program. If not confirmed, please explain where, and who to, the insurance premiums are paid.
- rr) If confirmed in (qq) are insurance premiums part of the distributable cash flow amount or do they form a separate payment.
- ss) Does any Kinder Morgan entity receive payment, such as fees, for services rendered in the preparation and provision of an insurance program, from any Canadian based entity affiliated indirectly or directly with Trans Mountain? If so please explain the nature and amount of these inter-company transfers.

Response:

- a) Please see the response to NEB IR No. 1.08b.
- b) Please see the response to NEB IR No. 1.08a and NEB IR No. 1.08b. Third party contractors are required to maintain their own separate insurance coverage. The amount and type of coverage required depends on the scope of work to be provided by the third party and an assessment by Kinder Morgan of the risk associated with the scope of work.
- c) Please see the response to NEB IR No. 1.08b. The general partner, Trans Mountain Pipeline ULC, is included on the list of insured entities for the \$750 million General Liability insurance program.
- d) Confirmed. Please refer to Trans Mountain's response to NEB IR No. 1.08f.
- e) Please refer to Trans Mountain's response to NEB IR No. 1.08f.
- f) Not confirmed. Trans Mountain is part of a portfolio of Kinder Morgan assets that are covered by the Kinder Morgan insurance program and the decision to self insure one of the assets within the portfolio would not be made in isolation and without due consideration for the impact this decision may have on Kinder Morgan as a whole.
- g) Please refer to Trans Mountain's response to NEB IR No. 1.08b. Trans Mountain Pipeline ULC and Kinder Morgan Canada Inc. are insured entities along with all other Kinder Morgan entities covered by the Kinder Morgan insurance program. Kinder Morgan has an insurance team that is responsible for the management of the Kinder Morgan insurance program as a whole.
- h) Please refer to Trans Mountain's response to NEB IR 1.08b.
- i) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.

- j) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- k) The information request is not relevant to one or more of the issues on the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- l) As described in NEB IR No. 1.07e, cash distributions from Trans Mountain Pipeline L.P. (the Partnership) to its partners would only occur to the extent cash is available after taking into account all of the liabilities of the Partnership. To the extent a legitimate third party claim has been identified as a result of a spill event it would be deducted from cash available for distribution.

Please also refer to Trans Mountain's response to NEB IR 1.08g.
- m) Not confirmed. The General Liability program covers liabilities resulting from sudden and accidental pollution events. It does not provide coverage for pollution that is a result of gradual seepage. Please also refer to Trans Mountain's response to NEB IR No.1.08d.
- n) Confirmed.
- o) Trans Mountain cannot confirm the statement without any specific information. There is a long history of pipeline development and operation in North America and the risks are well understood and unlikely to result in a failure to obtain insurance at a reasonable cost.
- p) Kinder Morgan does not evaluate its insurance program on this basis.
- q) Pursuant to the terms of the 2013 – 2015 Incentive Toll Settlement, the cost of insurance is identified as an item in the flow through category of operating costs and is passed on to shippers in tolls. The toll principles for the Expanded System do not include a similar flow through concept for the cost of insurance.
- r) The impact to Trans Mountain's revenue stream would depend on the extent of the impairment to Trans Mountain's assets. The proposed Rules and Regulations for the expansion include provision for the declaration of Force Majeure by Trans Mountain which may be appropriate depending on the circumstances surrounding the spill event. Pursuant to the terms of the Transportation Service Agreements, in the event Carrier Force Majeure is declared contract shippers would continue to pay the fixed component of the toll allowing for an inflow of cash to continue while Trans Mountain works to resolve the disruption to service and resume full operations. If the Carrier Force Majeure event exceeds twelve months then the contract shippers obligation to pay is reduced in accordance with Article 2.3 (d) of the Transportation Service Agreements.
- s) Please refer to Trans Mountain's response to NEB IR No. 1.08e.
- t) Please refer to Trans Mountain's response to NEB IR 1.07c.
- u) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.

- v) Confirmed.
- w) The comment by Ian Anderson regarding the “big question mark” related to a lack of clarity regarding “Liability coverage” requirements for new pipeline projects. The comment was made prior to the May 13, 2014 Government of Canada announcement regarding changes to the Marine Oil Spill Preparedness and Response Regime and the May 14, 2014 Government of Canada announcement regarding enhancements to Canada’s world class pipeline safety system. Please see Trans Mountain’s response to Allan R IR No. 1.21j for further details regarding the announcements.

While Trans Mountain had knowledge that changes were forthcoming regarding liability and financial capacity, at the time the comment was made, there was uncertainty as to the specifics of the changes and how they would impact the Trans Mountain Expansion Project. This lack of clarity is the point Ian Anderson was raising with investors and this point was addressed in Volume 7, Section 9.0 of the Application and Volume 8, Section 1.4.1.6.

- x) Please refer to Trans Mountain’s response to Allan R IR No. 1.05w, Allan R IR No. 1.21j and NEB IR No. 1.08f.
- y) Trans Mountain understands that one of the purposes of insurance is the transfer of risk from the insured to the insurer.
- z) Please refer to Trans Mountain’s response to NEB IR No. 1.08b. The \$750 million General Liability limit is not exclusive to Trans Mountain, Trans Mountain is one of many Kinder Morgan entities insured by the Kinder Morgan insurance program. Please also refer to Trans Mountain’s response to NEB IR No. 1.08f and NEB IR No. 1.08g.3.
- aa) As described in Allan R IR No. 1.05g, KMP has a team responsible for the management of the Kinder Morgan insurance program. While each entity provides information specific to their business to assist the insurance team in the placement of insurance it would not be efficient for each entity that participates in the program to have a dedicated insurance professional. Information required of Trans Mountain to support the placement of the insurance program may be provided by a number of Kinder Morgan Canada sources including but not limited to engineering, integrity, operations, finance and legal.
- bb) Please see Trans Mountain’s response to Allan R IR No. 1.05aa. The Board delegates authority to Kinder Morgan management to carry out the day-to-day business decisions for the Kinder Morgan insurance program.
- cc) Confirmed.
- dd) The insurance costs in reference (iv) do not represent the cost of a discreet insurance program for the Westridge Marine Terminal they are an allocation. The operations and facilities of Trans Mountain at the Westridge Marine Terminal are covered by the same Kinder Morgan insurance program as the rest of the Trans Mountain pipeline. Please also refer to Trans Mountain’s response to Allan R IR No. 1.21j.

- ee) Not confirmed. The insurance cost for Trans Mountain is not paid to or by a US entity they are paid directly to the insurance provider by a Canadian entity. Kinder Morgan Insurance Ltd. does not play a role in the Kinder Morgan insurance program that Trans Mountain has access to.
- ff) Confirmed, however, Kinder Morgan Insurance Ltd. does not play a role in the Kinder Morgan insurance program that Trans Mountain has access to.
- gg) The information requested is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- hh) The definition requested is not relevant as Trans Mountain is not party to a captive insurance policy.
- ii) KM Insurance Ltd. does not play a role in the insurance program that Trans Mountain has access to. The information request is not relevant to one or more of the issues listed in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- jj) Trans Mountain is not proposing the use of captive insurance. For information regarding Trans Mountain's insurance program and coverage in the event of a spill, please refer to Trans Mountain's response to NEB IR No. 1.08.
- kk) No. The self insurance reference in (i) is with respect to the deductible amount that Trans Mountain would be required to pay out of its own funds before the General Liability insurance program would start paying out. There is no relationship between the \$2 million self insurance amount in reference (i) and KM Insurance Ltd.
- ll) Not applicable.
- mm) Not applicable.
- nn) There is no relationship between Kinder Morgan Canada LLC and Kinder Morgan Canada Inc. The information request is not relevant to one or more of the issues on the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- oo) Please see Trans Mountain's response to NEB IR No. 1.08b and NEB IR No. 1.08h.
- pp) The Facilities Application for the Trans Mountain Expansion Project is the evidence of Trans Mountain Pipeline ULC and was collectively drafted and reviewed by several authors.
- qq) Not confirmed. The insurance premiums for Trans Mountain are paid by a Canadian entity directly to the insurance provider.
- rr) The reimbursement by Trans Mountain of its share of the premiums for the Kinder Morgan insurance program is a separate payment.
- ss) Kinder Morgan allocates 100% of the cost of insurance among its insured companies.

1.06 Financial Capacity

Reference:

- i) Volume 2, Project Overview, Economics and General Information, page 2-40, (A3S0Q8)
- ii) RH-01-2012, Trans Mountain Expansion Part IV Toll Application, January 10, 2013, Hearing
- iii) Alberta Rejects Request to help Fund Trans Mountain Project, Globe and Mail, March 7, 2014, Article
- iv) Volume 1, Summary, page 1-25, (A3S0Q7)
- v) Volume 1, Summary, page 1-32, (A3S0Q7)
- vi) Kinder Morgan website, Overview
- vii) Kinder Morgan website, System Map
- viii) Volume 2, Project Overview, Economics and General Information, page 2-40.
- ix) Alberta Credit Rating, Provincial Borrowing, Schedule
- x) Kinder Morgan Management LLC, Annual Report, Form 10-K, December 31, 2013, page 19, Report

Preamble:

Reference (i) explains that, "Taking into account the financial capacity and credit quality of KMP, the value proposition that the Project brings to the market and the term, size and quality of the long term shipper commitments, Trans Mountain does not anticipate that KMP will face any significant challenges in securing the funds required to finance the project."

Reference (ii) provides the evidentiary record related to the toll hearings which provides details regarding the project's rate of return, financial viability and commercial terms.

Reference (iii) states that Kinder Morgan Inc. requested financial support for the Trans Mountain Expansion Project from the Alberta government. "We are not moving forward with any financial arrangements with Kinder Morgan," Ms. McQueen's spokesman, Mike Feenstra, said in an e-mail, confirming "ideas were shared with the Alberta Government by Kinder Morgan about project financing options" in talks last year."

Reference (iv) explains that, "The expected capital cost for the Project is approximately \$5.5 billion. Financing will be arranged by Trans Mountain's parent company KMP."

Reference (v) outlines that from "October 2012 to January 2013, the following engagement activities were held with government representatives:

- 45 meetings with municipal governments representatives;
- 25 meetings with federal government representatives;
- 34 meetings with provincial government representatives; and
- 165 meetings with other organizations including local interest groups, chambers of commerce, and ENGOS.

Reference (vi) explains that, "Kinder Morgan, Inc. (NYSE: KMI) owns the general partner interest of Kinder Morgan Energy Partners, L.P. (NYSE: KMP) and El Paso Pipeline Partners,

L.P. (NYSE: EPB), along with limited partner interests in KMP, Kinder Morgan Management, LLC (NYSE: KMR) and EPB.”

Reference (vi) explains that, “KMI owns the general partner and limited partner interests in both KMP and EPB. KMP is one of the largest publicly traded pipeline master limited partnerships in America. KMR is a limited liability company and its only significant assets are the partnership units it owns in KMP. EPB is a publicly traded pipeline master limited partnership.”

Reference (vii) provides a map of the Kinder Morgan family of assets and identifies the company’s headquarters in Houston, Texas. The facilities that operate in Canada are the Cochin pipeline (blue line identified as product pipeline) and the Trans Mountain Pipeline (purple line as petroleum pipeline) with feeder lines to Washington state. Cochin’s reversal in Canada was recently approved by the National Energy Board. The pipeline will cease exporting propane and begin importing condensate for use primarily as diluent for bitumen blending purposes.

Reference (viii) states that, “Kinder Morgan Energy Partners, L.P.’s long-term corporate debt credit rating is BBB (stable) at Standard & Poor’s Ratings Services, Baa2 (stable) at Moody’s Investors Service, Inc. and BBB (stable) at Fitch, Inc.”

Reference (ix) provides the credit rating for the Alberta and BC governments and shows their credit rating to be higher than the credit rating for KMP.

Reference (x) states that, “KMP’s partnership agreement requires that it distribute 100% of “Available Cash,” as defined in the partnership agreement, to its partners within 45 days following the end of each calendar quarter. Available Cash consists generally of all of KMP’s cash receipts, including cash received by its operating partnerships and net reductions in reserves, less cash disbursements and net additions to reserves and amounts payable to non-controlling interests.”

Request:

- a) Please confirm it was KMI and not KMP that approached the Alberta government to discuss financing arrangements related to the Trans Mountain Expansion Project. If not confirmed, please explain which Kinder Morgan related company(s) approached the Alberta government regarding financing arrangement for the Trans Mountain Expansion Project.
- b) Please explain the relationship between Kinder Morgan Inc., a US company traded on the New York Stock Exchange and Trans Mountain Pipeline ULC and why, if KMI approached the Alberta government to discuss financing for the expansion project, it was KMI and not KMP as identified in reference (i).
- c) Please confirm the dates when talks were held between Kinder Morgan representatives and the Alberta government to discuss Trans Mountain expansion project financing arrangements.
- d) Please confirm the dates of the Part IV Toll Hearings for the Trans Mountain Expansion Project.

- e) Did Trans Mountain advise the Panel during the Part IV Toll Hearings that KMI (or any Kinder Morgan affiliate) intended to, was in talks with, or had discussed, the possibility of Alberta government support of, or involvement in, financing for the project? If not, why not?
- f) Did KMI or any entity of the Kinder Morgan family, including KMC approach the British Columbia government for financial support, assistance, investment, participation of any kind, or any form of subsidies or preferential treatment, within the past five years or has plans to do so within the next five years. Please include crown corporations in the definition of government.
- g) If yes to (f) above, please provide the dates of the meetings, the substance of the discussions, amount of support sought, and what agreements, if any, were reached, including plans or understandings to reach agreements in the future.
- h) Did KMI or any entity of the Kinder Morgan family, including KMC approach the Federal Government for financial support, assistance, investment, participation of any kind, or any form of subsidies or preferential treatment, within the past five years or has plans to do so within the next five years. Please include crown corporations in the definition of government.
- i) If yes to (h) above, please provide the dates of the meetings, the substance of the discussions, amount of support sought, and what agreements, if any, were reached, including plans or understandings to reach agreements in the future.
- j) Is the Trans Mountain Expansion Project viable without government support or government assistance with project financing options?
- k) If yes to (j) above, why was government support or assistance with project financing options sought?
- l) Please explain in Trans Mountain's words what is meant by project financing options. If Trans Mountain was not party to the discussions the government of Alberta has confirmed took place, please obtain the answer from the appropriate Kinder Morgan executive and disclose which party in the Kinder Morgan family is responsible for the response provided.
- m) Please confirm that the US Master Limited Partnership's (KMP) average rate of return on investment (ROI) related to Kinder Morgan Canada, for the years 2007 – 2013 was 13.5% and provide the annual rate of return from 2005 - 2013. If not confirmed, please provide the average rate of return on investment over the period and source for the information.
- n) Please confirm that debt costs, or borrowing costs, are reflected in part in the credit ratings given by credit rating services and explain Kinder Morgan's understanding of how its debt rating affects its access to capital. If KMP or KMI has the responsibility for sourcing debt on behalf of Trans Mountain, please have the appropriate Kinder Morgan US based executive field the question and identify who is responsible for the answer.

- o) If Kinder Morgan does not confirm that debt ratings impact the cost of debt, please explain the role and purpose of credit rating agencies as they relate to the pricing of debt instruments, particularly the debt sourcing contemplated by KMP or KMI for Trans Mountain's expansion.
- p) Please confirm that, should the Alberta government, or any party with a higher credit rating, borrow on behalf of the Trans Mountain Expansion Project, Kinder Morgan would have the reasonable expectation that its cost of debt would be lower than if Kinder Morgan raised debt financing directly.
- q) Please confirm that if Kinder Morgan raised debt through the Alberta government this would effectively lower its overall cost of debt for its family of companies and increase its cash flow, all other factors constant.
- r) Please confirm that any reduced interest charges for the Trans Mountain Expansion Project due to Kinder Morgan accessing debt financing through the strength of the Alberta government's credit rating, given Kinder Morgan's predominantly US activities, could mean the indirect support of Kinder Morgan's US based activities by the government of Alberta. If not confirmed, please explain.
- s) What were the nature of financing arrangements discussed with the Government of Alberta and how much financial support was KMI (or any of the Kinder Morgan family of companies) interested in obtaining for the Trans Mountain Expansion Project from the Alberta government? Please identify which company was represented in any and all discussions and which Kinder Morgan employee has addressed this question.
- t) If financing for the Trans Mountain Expansion Project is to be arranged by KMP as stated in reference (iv), and KMI is confirmed as having approached the Alberta government, why was KMI seeking financing for the project from the Alberta government?
- u) Please confirm that representations in Canada, undertaken by KMI and/or KMP on behalf of Trans Mountain Pipelines ULC, Kinder Morgan Canada, and/or Trans Mountain Pipeline LP are deemed to be expenses incurred by the US company(s) on behalf of the expansion project. If not, please explain how KMI or KMP recover costs related to sourcing debt or equity financing.
- v) Please confirm that financing activities undertaken by KMI or KMP on behalf of Trans Mountain become costs charged to the Trans Mountain expansion project, thereby increasing development expenses of the project.
- w) Please confirm that as much as \$139 million of tolls paid in advance by shippers in the "Firm 50" toll agreement are available to finance the development phase of the project.
- x) Please confirm that as part of the partnership agreements between Kinder Morgan entities operating in Canada and its (their) US parent(s), that cash distributions for fees such as financing services are required on a quarterly basis. If not confirmed, please

explain when cash distributions are remitted as they are related fees incurred on behalf of Trans Mountain, by KMI or KMP for services such as arranging financing.

- y) Please explain in detail the flow of revenues and expenses related to the operation of the Trans Mountain Pipeline System. For greater clarity, confirm:
- i) the sources of revenues;
 - ii) which corporate entity(s) books the revenues;
 - iii) the sources of expenses;
 - iv) which corporate entity(s) books those expenses;
 - v) the sources of expenses related to inter-company transactions for services provided; and
 - vi) which corporate entities operating in Canada are required to file federal and provincial corporate income tax returns, including the percentage of operating activities subject to provincial corporate taxes and the provincial jurisdiction where that percentage is payable.
- z) Does KMI have an agreement, or does it in practice, charge fees, basis points, or other forms of remuneration for the successful completion of financing capital projects such as the Trans Mountain Expansion Project. Please explain the compensation arrangements KMI or KMP would generally expect to have for arranging debt or providing equity to the Trans Mountain Expansion Project. That is, please fully explain the fees related to providing financial services to Trans Mountain as distinct from the interest charges on debt or the required return on equity.
- aa) Were any of the 34 meetings with Provincial governments as identified in reference (v) meetings where KMI, KMC or KMP or Trans Mountain had discussions with the Alberta government? If so, please identify dates, the parties involved and the substance of the discussions.
- bb) Please provide details on the 34 meetings held with provincial governments including dates, the provincial jurisdiction, department official or minister, subject discussed and correspondence related to same. In particular, please identify the meetings where discussions took place regarding British Columbia's five conditions.
- cc) During meetings with the Province of British Columbia was BC's fifth condition, the fair sharing of benefits, discussed at any time.
- dd) Please provide the substance of any and all agreements Kinder Morgan or Trans Mountain Canadian registered (federally or provincially) corporate entities have with parent US companies, in particular, KMP, whereby partnership or other agreements require the distribution of "Available Cash," or distributable cash flow (DCF), as defined in the partnership or other agreement, to its partners or otherwise related US companies, and whether these distributions must be made within a specific number of days following the end of each calendar quarter.
- ee) Please clearly define "Available Cash", distributable cash flow (DCF) or other references to distributions as expressed in these agreements discussed in (dd) above.

- ff) Please confirm that for tax purposes, distributions from Canadian entities operating or otherwise related to Trans Mountain's assets, shares or units are not exposed to federal and provincial tax rates as if they were corporations, but subject to withholding rates as applicable under Canadian US tax treaties. If not confirmed, please clearly and fully explain the tax treatment of Trans Mountain related corporate entities in Canada and the repatriation of earnings to US parents under the Canada US tax treaty.
- gg) Please provide as evidence the most recent bond rating reports on KMI, KMP and KMR from the three bond rating services identified in reference (viii). If any of the entities cited above are not rated by the agencies please identify.
- hh) Please identify the full name of the corporate entity in Canada that pays or is expected to pay the expenses related to the debt financing for the project including interest and the name of the corporate entity that receives expenses including ongoing interest related to the debt financing of the project.
- ii) Does Trans Mountain confirm that the evidentiary record of the Part IV Toll Hearing forms part of the evidentiary record of the current hearing? If unable to confirm, please submit all documents related to the Part IV Hearings as evidence to the current Hearing including the Reasons For Decision.

Response:

- a) Trans Mountain and an Aboriginal organization met with and shared ideas with Alberta about how Aboriginal participation in the Project might be achieved for the benefit of Aboriginal interests through the provision of a financing guarantee. Those discussions were lead by the Aboriginal organization and not by Trans Mountain.
- b) Successful financing for the Project is not dependent on participation by Alberta or any other government. No arrangements with Alberta or any governments relevant to financing of the Project are being advanced by Trans Mountain or form any part of the Project. The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- c) Please refer to Allan R IR No. 1.06b.
- d) 13 Feb 2013 to 21 Feb 2013.
- e) Please refer to Allan R IR No. 1.06b.
- f) Please refer to Allan R IR No. 1.06b.
- g) Please refer to Allan R IR No. 1.06b.
- h) Please refer to Allan R IR No. 1.06b.
- i) Please refer to Allan R IR No. 1.06b.
- j) Please refer to Allan R IR No. 1.06b.

- k) Please refer to Allan R IR No. 1.06b.
- l) Please refer to Allan R IR No. 1.06b.
- m) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- n) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- o) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- p) Please refer to Allan R IR No. 1.06b.
- q) Please refer to Allan R IR No. 1.06b.
- r) Please refer to Allan R IR No. 1.06b.
- s) Please refer to Allan R IR No. 1.06a and Allan R IR No. 1.06b.
- t) Please refer to Allan R IR No. 1.06a and Allan R IR No. 1.06b.
- u) Not confirmed and the information request is not relevant to one or more of the issues on the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- v) Not confirmed. The development costs for the Trans Mountain Expansion Project are charged an allowance for funds use during construction (AFUDC) based on parameters consistent with the 2013 – 2015 Incentive Toll Settlement.
- w) Not confirmed because the Firm 50 funds are collected on a monthly basis and not "in advance". The \$139 million of Firm 50 funds represents the estimated aggregate monthly collection of Firm 50 funds that will be applied against the development cost of the Trans Mountain Expansion Project assuming service commences at the end of 2017. To the extent this timing is earlier or later the funds applied will be lower or higher.
- x) Not confirmed. The distribution of cash from Trans Mountain Pipeline L.P. is described in Trans Mountain's response to NEB IR No. 1.07e.
- y) Trans Mountain Pipeline L.P. records revenue earned through the provision of transportation service to its shippers on the Trans Mountain pipeline. The tariff in place at the time the transportation service is provided determines the price a shipper pays for the transportation service. Trans Mountain Pipeline L.P. incurs a variety of costs in carrying out the transportation service including but not limited to the following:
 - 1) labour (provided by Kinder Morgan Canada Inc. or third parties)
 - 2) insurance
 - 3) property tax
 - 4) power
 - 5) safety and security

- 6) maintenance (capital and operating)
- 7) integrity management
- 8) land and right of way management
- 9) environmental management
- 10) NEB Cost Recovery
- 11) general and administration (ex. bank fees, legal costs)
- 12) interest (currently paid to Kinder Morgan affiliates)

With respect to the tax status please refer to Trans Mountain's response to Allan IR No. 1.03ii.

- z) The information request is not relevant to one or more of the issues identified on the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- aa) Yes. Please refer to Allan R IR No. 1.06bb.
- bb) See the table below for the requested information. With respect to Reference (v) in the preamble above please also refer to Volume 1 Summary page 1-30 and Volume 3A, section 1.5.1.2, page 3A-55 for references to meetings held with stakeholders and interest groups. For clarity, meetings were held with 34 provincial government representatives during 21 meetings. None of these meetings included discussions regarding the five conditions.

Date	Province	Government Attendee	Subject Discussed
May 10, 2012	BC	Richard Lee, Harry Bains, Shane Simpson, Rob Fleming	General project discussions and interaction with MLA attendees at Port Metro Vancouver sponsored event.
May 22, 2012	BC	John Les	Met with MLA to introduce the project and provide general information.
May 23, 2013	BC	Mary Polak	Met with Minister to discuss project in general
June 5, 2012	BC	John Les	Spoke with MLA's constituency assistant who asked for all details of upcoming proposed project field studies to be sent by email. Email was sent with Project field studies information, contact information and a schedule of consultation.
June 6, 2012	BC	Steve Carr	Met with Deputy Minister to discuss project in general.
June 6, 2012	BC	John Van Dongen	Met with MLA at Abbotsford Chamber Meeting. MLA asked to provide map for the Agricultural Committee meeting and arrange meeting at later date.
June 6, 2012	BC	Randy Hawes	Spoke with MLA's Constituency Assistant and sent information relating to Project field studies, contact information and consultation schedule.
June 7, 2012	BC	Mike de Jong, Joe Trasolini, Bruce Ralston, Rich Coleman, Harry Bloy	Phoned in regard to the start of fieldwork.
June 8, 2012	AB	Bhardwaj Naresh	Introduced the Project and indicated that land agents would be visiting landowners. Committed to send follow-up email with Project materials and invited to call with any questions.

Date	Province	Government Attendee	Subject Discussed
June 8, 2012	AB	Matt Jeneroux	Introduced the Project and indicated that land agents would be visiting landowners in their area. Committed to send follow-up email with Project materials and invited them to call with any questions.
June 8, 2012	AB	Dave Hancock	Called and introduced the Project and indicated that land agents would be visiting landowners in their area. Committed to send follow-up email with project materials and invited them to call with questions.
June 8, 2012	AB	Doug Horner	Called and introduced the Project and indicated that land agents would be meeting with landowners in their area soon. Committed to sending follow-up email with project materials and invited them to call with questions.
June 12, 2012	AB	Matthew Townley	Met with Government of Alberta staff to provide a Project overview.
June 12, 2012	BC	Naomi Yamamoto	Met with the MLA to discuss general project information. MLA noted constituent concerns primarily related to marine transport.
June 12, 2012	AB	John Donner, Chris Hunt, Alex Gierus, Horatio Cuevas, Brian Nicholson, Paul Tsounis	Met to provide general project information.
July 26, 2012	AB	Jennifer Steber	Met to provide general project information.
August 7, 2012	BC	Jane Thornthwaite	Met with MLA to provide general information. MLA had general project interest as well as an interest on marine elements of the project.
August 14, 2012	BC	Adrian Dix	Met to discuss of general project information.
August 14, 2012	BC	John Dyble	Met to discuss of general project information.
Sept 10, 2012	BC	Terry Lake	Spoke with MLA's Constituency Assistant to arrange a meeting opportunity between Project team and MLA.
Sept. 11, 2012	BC	Graeme McLaren, Linda Beltrano, Michelle Schwabe	Met to discuss Tran Mountain expansion and commercial application

- cc) Please refer to Eliesen M IR No. 1.16e for a summary of discussions about the Project in general where all BC's five conditions may have been discussed and not necessarily only condition 5.
- dd) Please refer to the response to NEB IR No. 1.07e.
- ee) Please refer to the response to NEB IR No. 1.07e.
- ff) Please see the response to Allan IR No. 1.02v.
- gg) The bond ratings for KMP are indicated in reference (viii) and are publicly available. The bond ratings of KMI and KMR are also publicly available, however, they are not relevant to one or more of the issues on the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- hh) Kinder Morgan has not finalized the financing plan for the Project, however, it expects Trans Mountain's debt financing will include a combination of debt raised in the

Canadian capital market and US capital market. Trans Mountain Pipeline L.P. will pay the expenses related to the debt financing for the Trans Mountain Expansion Project.

- ii) Not confirmed. The hearing record for RH-001-2012 does not form part of the hearing record for OH-001-2014. The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.

1.07 Input-Output Analysis

Reference:

- i) The Trans Mountain Expansion Project: Understanding the Economic Benefit for Canada and Its Regions, Appendix B, and Appendix C to the report, Input/Output Models (A3S0R1)
- ii) Kinder Morgan Website, Cochin Pipeline
- iii) Requirements for British Columbia to Consider Support for Heavy Oil Pipelines, page 48. Technical Analysis Five Conditions
- iv) Volume 1, Summary, page 1-78, (A3S0Q7)
- v) Province Boosts Costs of Alberta Flood to \$6 billion, Calgary Herald, September, September 24, 2013. Article
- vi) Western Canadian Propane, Heavy Oil and Diluent Supply and Demand, Prepared for Kinder Morgan Cochin ULC, S. Kelly and G. Goobie, IHS, August 2012, Report
- vii) Volume 2 – Project Overview, Economics and General Information Appendix A - 1 Appendix A Direct Written Evidence of Steven J. Kelly, IHS Global Canada Limited, (A3S0R1)
- viii) Application for Approval of the Transportation Service and Toll Methodology for the Expanded Trans Mountain Pipeline System (RH-001-2012), January 10, 2013, Revised CAPP Response

Preamble:

Reference (i) relies on an Input-Output model, which purports to calculate the economic impacts associated with different types of economic activity. The model attempts to show how supply chains work and relies on “shocks” which are inputs into the model.

Reference (i) page 57 states, “the effects of TMEP’s operations in this report are measured using a “gross outputs” or revenue shock. Essentially we increase the revenues of the oil pipeline industry by a certain amount and observe the results. The shock associated with the development of the TMEP was implemented in a different way. We increased the demand for different types of commodities that will be used in the project, such as pipe, tanks and construction labour.”

Reference (i) page 57 also states, “The tables that underlay the I/O model are based on the supply chain relationship in the Canadian economy at a fixed point in time; in this case 2009. As such, the model results do not factor in how things like changes in relative prices for different inputs, productivity, and technology can impact supply chains over time. As well, trade flows do not take into account external factors, such as changes in exchange rates, the emergence of new trading partners, or changes in trade policy.”

Reference (ii) states that, “Kinder Morgan Energy Partners has completed a successful binding open season for its Cochin Reversal project which will allow the company to offer a new service to move light condensate from Kankakee County, Ill., to existing terminal facilities near Fort Saskatchewan, Alberta, Canada. The project involves Kinder Morgan modifying the western leg of its Cochin Pipeline to connect to Explorer Pipeline Company’s pipeline in Kankakee County

and to reverse the product flow to move the condensate northwest to Fort Saskatchewan. During the open season, Kinder Morgan received more than 100,000 barrels per day of board-approved binding commitments for a minimum 10-year term.”

Reference (i) page 57 states that, “To compile the I/O accounts, Statistics Canada obtains source data from all relevant surveys as well as administrative sources such as tax records...”

Reference (i) Table 1, Summary of the Economic and Fiscal Impacts of the TMEP, cumulative effects 2012 – 2037 estimates that project development will result in \$4851.7 million (\$2012) in GDP and operating will result in \$13.322.5 in GDP. Table 1 also states project development will result in \$1,214.1 million in fiscal revenues over seven years and project operation will result in \$2,548.6 million in fiscal revenues over 20 years. Table 1 also provides an estimate of the fiscal impact from higher netbacks, but does not include employment or GDP impacts from higher netbacks.

Reference (iii), in reference to an Input-Output analysis conducted on behalf of the Northern Gateway pipeline, explains that, “Of the total government revenue, \$36 billion (44 per cent) is accrued by the Federal government. The \$36 billion is anticipated to be distributed across the country on a per capita basis because the revenues are considered general, not dedicated revenues. However, there is no guarantee any of these revenues would be distributed in that manner, as equalization often alters per capita transfers or expenditures.” Reference (iii) excluded the per capita sharing of federal revenues for purposes of evaluating the benefits received by British Columbia.

Reference (iv) states, “The framework is meant to address concerns that BC raised in July 2012. At that time BC announced five requirements (generally referred to as the BC Five Conditions) that must be established for BC to consider support for heavy oil pipelines (Government of British Columbia 2012). In the preparation of this application, Trans Mountain has taken into consideration the interests and concerns expressed by both provinces, in particular the BC Five Conditions enunciated by the Province of British Columbia. Trans Mountain has endeavoured to address these conditions in this application through a comprehensive analysis of the potential benefits, effects, and risk mitigation for the expansion.”

Reference (v) provides an estimate of the cost related to the 2013 Alberta flood of \$6 billion.

Reference (vi) is a report prepared by IHS and identifies one of the two authors as Steven Kelly. The report was prepared in support of the Kinder Morgan Cochin ULC application to the NEB for reversal of the pipeline. The report explains the need for condensate imports to support heavy oil export. There is a direct relationship between the need for expanded condensate import capacity into Western Canada to blend with bitumen to facilitate diluted bitumen export from Western Canada along the Trans Mountain expanded pipeline system.

Reference (viii) provides toll rates for heavy oil (diluted bitumen) delivery from Edmonton to Westridge at a rate of \$4.85 CDN per barrel.

Request:

- a) Please confirm that heavy oil producers intending to export diluted bitumen along Trans Mountain's expansion over the forecast period will be sourcing their diluent as participants in a market with a growing demand for diluent because of expanded bitumen production. If not, please explain.
- b) Please confirm that condensate is a sought after and preferred source of diluent for bitumen blending purposes. If not confirmed, please explain and reconcile with reference (vi).
- c) Please confirm that reference (i) did not consider the economic cost to the Canadian economy related to importing condensate for the sole purpose of diluting bitumen for export. If not confirmed, please identify where in reference (i) the economic impact of imports to support exports was considered.
- d) Please provide the names of the companies who have committed to TSA's to import condensate into Canada on the Cochin pipeline once reversed.
- e) Please confirm that the capital cost of the Cochin reversal is \$260 million. If not confirmed, please provide the current capital cost for the project, identify the currency, as well as indicate the proportion of the capital cost estimated to be incurred in Canada.
- f) Please confirm that imports are a leakage from the Canadian economy in terms of trade and considered a cost (or negative) in terms of the balance of payments. If not confirmed, please explain.
- g) Please confirm the toll rates paid to import condensate for diluent blending purposes are an expense borne by heavy oil producers either directly when the purchase is made in the US market or indirectly in the price paid is determined in the Edmonton market. If not confirmed, please provide Trans Mountain's understanding of the impact of tolls related to condensate imports on oil producers earnings.
- h) Please confirm the per barrel cost for committed shippers on the Cochin condensate pipeline is currently \$4.95 per barrel. If confirmed, please specify if this is in US or Canadian dollars and provide forecast toll rates on Cochin for 2015 - 2037. If not confirmed, please provide, and identify the currency the toll rates are quoted in for both the US and Canadian portion of the Cochin line, the price per barrel a heavy oil producer could expect to pay to import condensate along Cochin in 2014 and provide Kinder Morgan's forecast of Cochin toll rates from 2015 - 2037.
- i) Please confirm that the rough ratio of condensate to bitumen is 30 - 70. If not confirmed, please explain and provide a ratio.
- j) Please confirm that in 2018, for a heavy oil producer at the Westridge dock, who is also committed to ship along Trans Mountain if expanded, and who imports condensate for diluent blending purposes, that the total transportation cost for a barrel of dilbit are the condensate import charges, times the ratio of condensate to bitumen in a barrel of dilbit,

- plus the Trans Mountain toll rate. If not confirmed please explain and provide an estimate of the all-in toll costs for a heavy oil producer importing condensate for diluent blending purposes for export from Edmonton to Westridge.
- k) Please confirm that reference (i) has not incorporated the cost to heavy oil producers of the toll rate implications related to sourcing condensate from foreign markets, but assumes the transport costs related to diluent sourcing are zero. If not confirmed, please explain how the toll rate costs related to imported condensate are accommodated in reference (i).
 - l) If the answer to (k) assumes that heavy oil producers committed to Trans Mountain's expansion rely solely on domestic condensate or SCO for blending purposes, please confirm there is sufficient domestic supply for them to do so. If not confirmed, please explain the underlying assumption in reference (i) regarding the input charges related to imported condensate and producer netbacks.
 - m) Please provide forecast tables that identify by year the supply of domestic condensate, domestic condensate demand, and import volumes required from 2014 - 2037.
 - n) Please confirm that with respect to the Canadian economy, if Trans Mountain shippers rely on domestic diluent supply, other oil producers must import condensate to support the unconstrained supply forecast in reference (vii) and thus the Canadian economy bears the cost of transportation costs related to condensate imports irrespective of where producers source their supply.
 - o) Please confirm that the I/O tables relied on for reference (i) do not enable a dynamic adjustment of the impact on the pipeline industry of a growing dependency on condensate imports over the forecast horizon, nor does it accommodate the impact of a growing condensate import dependency on the upstream and downstream energy sector, and explain why this could significantly limit the model's reliability.
 - p) Please confirm that the negative impacts related to the growing dependency on condensate imports, and its impact on the Canadian economy, cannot be explored or accommodated in the methodology chosen for the analysis undertaken in reference (i). If not confirmed, please explain how Trans Mountain plans to adjust its analysis to incorporate the impact on the Canadian economy of a growing condensate import dependency to support diluted bitumen export.
 - q) Please confirm that with a change in the balance of trade, such as that related to condensate imports, the I/O tables will overestimate the results predicted because the I/O model assumes the same relative proportion of domestic condensate to imported condensate that existed in 2009 will continue until 2037. If not confirmed, please explain.
 - r) Please confirm that the multiplier effect in an economy with a lower import dependency on condensate and a higher ratio of upgrading to diluted bitumen export will be greater and the benefits higher than in an economy with a higher import dependency and a lower ratio of upgrading to diluted bitumen export, *ceteris paribus*.

- s) Please identify and explain fully any adjustments to the netback predictions in reference (vii) that are required in order to accommodate a negative impact on the Canadian economy from a growing reliance on imported condensate and declining ratio of bitumen production to upgrading as identified in the production versus supply projections provided in reference (vii).
- t) Please confirm there are significant risks to the reliability of I/O analysis and that one of the major considerations is that they are “based on the supply chain relationship in the Canadian economy at a fixed point in time, in this particular case 2009” and therefore “do not factor in how things like changes in relative prices for different inputs, productivity and technology can impact supply chains over time. As well, trade flows do not take into account external factors, such as changes in exchange rates, the emergence of new trading partners or changes in trade policy.”
- u) Please confirm that the analysis in reference (i) assumes the relative price of transport on Trans Mountain remains constant over the 20 year time horizon because the annual revenues remain constant in 2012 dollars. If not confirmed, please provide the annual revenue amount assumed from 2018 - 2037.
- v) Please confirm that if the relative price of transport along Trans Mountain were to increase more rapidly than the general rate of inflation that the impact from the operations as predicted by the I/O model would be overstated. If not confirmed, please explain.
- w) Please confirm that the “farther you look forward in time using an I/O model the less likely it is that the model accurately describes future economic activity.” If not confirmed, please provide Trans Mountain’s view of the reliability of I/O analysis over a 29 year time horizon (2009 tables to predict results to 2037).
- x) Please provide a ratio for condensate imports versus domestic condensate production in 2009.
- y) Please provide a ratio for bitumen production to SCO production for 2009.
- z) Please provide a ratio, based on the evidence provided in reference (vi) for condensate imports versus domestic production in 2018 and 2037.
- aa) Please provide a ratio based on reference (vi) for bitumen production to SCO for 2018 and 2037.
- bb) Please confirm that based on the two considerations of the model’s inability to capture dynamic and important structural changes in the industry over time (growing condensate import dependency and declining SCO production as a proportion of bitumen production) and a failure to recognize toll rate costs paid to import condensate to facilitate diluted bitumen export along Trans Mountain, that Trans Mountain confirms the I/O analysis in reference (i) to be unreliable and not reflective of the likely impact on the Canadian economy from operating the expanded Trans Mountain system. If not confirmed, please explain.

- cc) Please confirm that the impact of structural changes in the economy, relative prices, and trade balances require a dynamic feedback mechanism within the model that cannot be accommodated in a model with fixed coefficients. If not confirmed, please explain.
- dd) Please confirm that “one of the benefits of using an I/O model is that its results are scalable” so that if revenues are overstated, lowering the revenues will result in a proportionate decrease in “the supply chain and induced affects, while the mix of regions and industries will be unaffected.”
- ee) Please provide on an annual basis, the volume of condensate demand in barrels per day from 2010 - 2013 and forecast to 2037, the proportion produced domestically and the proportion imported.
- ff) Please confirm that the Cochin reversal was predicated on a growing demand for condensate for diluent blending purposes for heavy oil pipeline export and thus the financial success of the Cochin reversal rests in part on the approval of the Expansion project. If not, please fully explain.
- gg) Please assume that a general ratio of the amount of condensate to diluted bitumen intended for pipeline export is 30 - 70. Also please assume that rail transport has filled the transportation gap prior to Trans Mountain coming on stream as stated in reference (vii) (and that with respect to bitumen transport, the benefits of shipping bitumen without diluent, or with less diluent (as railbit) as opposed to dilbit have been captured and greatly reduced the demand for imported condensate into Western Canada). Now assume that rail is displaced by pipeline. Please confirm that the demand for condensate would go up and likely increase its price for all users, even the condensate price facing diluted bitumen shippers that were shipping by pipeline prior to rail being displaced. If not confirmed, please explain.
- hh) Please confirm that an economic impact analysis of the Alberta Flood could be undertaken utilizing an I/O framework because it represents an increase in demand for materials, goods and services to repair the damage caused by the flood and an estimate of the revenues required for flood response and clean up could be used to shock the model.
- ii) Please confirm that if the \$6 billion flood response figure were run through the Statistics Canada 2009 I/O model relied on in reference (i) that estimates of GDP, person years of employment, and Conference Board calculated fiscal contributions could be developed and presented as “economic benefits” much like those presented for project development in Table 1, reference (i).
- jj) Please confirm that no estimate of lost days of work, business interruption, or other costs related to the flood would be included in the I/O estimate, including lost fiscal revenues from lost business due to the flood, and the I/O model would treat all spending as if it contributed new capital rather than replacement of capital damaged by the flood. If not confirmed, please explain.

- kk) Please confirm that conclusions regarding the economic impact from the Alberta flood would be construed as economic benefits when in fact the flood event imposed significant economic, social and environmental costs to the residents of Alberta. If not confirmed, please explain.
- ll) Please confirm that I/O models are incapable of addressing opportunity costs or opportunity losses.
- mm) Please confirm that I/O analysis takes as given an economic “shock” and assumes that the entire shock occurs at one time. That is please confirm an aggregate figure is used as input to run the model, say capital spending, as if the “shock” occurred as a snapshot at a point in time without any consideration of the time value of money. If not confirmed, please explain.
- nn) Please confirm that the output from the I/O model is a gross figure and that if an annual estimate of impact is desired, the gross figure is then distributed over the time horizon assumed to develop the input values, to achieve an annualized impact. For example, if a capital spending amount is injected into the I/O model of \$4.6 million (\$2012) and the construction process is assumed to run from 2012 – 2018, please confirm that the gross output from the model would then be divided by 7 to arrive at an annual average impact. If not confirmed, please explain how annual averages of the impact would be calculated.
- oo) Please explain why in reference (i) Table 2 the expenditure assumptions associated with the development of the TMEP include expenditures that have already occurred and thus the impacts will have been experienced whether or not the project is approved.
- pp) Please confirm that it is appropriate to remove expenditures already incurred from the analysis up to July 2015 since these will occur even if the project is rejected. If not confirmed, please provide an estimate of the costs incurred to June 2014 and confirm that the figure can be deducted from the \$4.6 billion capital budget.
- qq) Please confirm that it is generally accepted that when a business evaluates the desirability or benefits of a capital investment the expected capital cost is compared to a stream of future expected revenues and that the net benefit is expressed in discounted net present value terms. If not confirmed, please explain how large capital budget decisions are generally addressed by business.
- rr) Please explain why a capital cost figure in 2012 dollars would be injected into an I/O model based on 2009 economic relationships that represent 2009 dollars.
- ss) Were any adjustments made to deflate 2012 dollars to 2009 dollars? If so, please explain. If not, why not?
- tt) Please provide average prices for condensate in Edmonton for 2009 – 2013.
- uu) Please provide average prices from 2009 – 2013 for a selection of bitumen products intended for export along Trans Mountain, Keystone XL, Alberta Clipper, Northern

- Gateway, or other heavy oil pipeline assumed to exist over the time period under review (20 years).
- vv) Please calculate the relative price of a barrel of condensate versus the selected bitumen barrel prices as provided in (tt) and (uu) above.
 - ww) Please provide a more detailed breakdown as to the assumptions made and the corresponding tables relied on in reference (i) to develop fiscal impacts for project development and operation as summarized in Table 1 in reference (i). Please include with the information on the federal and provincial rates assumed, sales tax rates assumed, and the personal income rates assumed, supporting documentation regarding the “large corporate income tax effects” from the oil pipeline industry.
 - xx) Please confirm that reference (i) allocated federal tax revenues across the provinces on a per capita basis.
 - yy) Please explain why Trans Mountain would claim to consider the interests and concerns of the Province of BC in reference (iii), but then fail to accommodate the province’s concern that the allocation of federal revenues on a per capita basis was inappropriate and unlikely.
 - zz) Please recalculate the interprovincial distribution of fiscal impacts as per the assumptions contained in reference (iii), the Five Conditions report, where federal revenues are not allocated on a per capita basis.
 - aaa) Please confirm that if the federal government chose to allocate fiscal revenues to pay off the deficit, for example, that there would be no benefit allocated to provincial jurisdictions.
 - bbb) Please confirm that Trans Mountain is in agreement with the Province of British Columbia’s Five Conditions Report with respect to the appropriate allocation of fiscal benefits projected in reference (i). If not confirmed, why not.
 - ccc) As Kinder Morgan has relied heavily on the Province of BC’s Five Conditions Report, claimed to have met extensively on the report with representatives of the provincial government, and told analysts in the US that the Application goes a long way in meeting the requirements of the report, please file reference (iii) as evidence to the Hearing.
 - ddd) Since the province’s five conditions relate to the transport of heavy oil, and Trans Mountain currently transports heavy oil while the terrestrial and marine spill response regimes for heavy oil are well below “world class”, and Trans Mountain claims to want to meet the Province’s conditions, why does Trans Mountain continue to transport heavy oil?
 - eee) Please provide reference (vi) as evidence to this Hearing.
 - fff) Please provide an update to Table VI-1 Canada Demand for Heavy Crude Diluent (thousand Barrels Per Day) on page 36 of reference (vi) consistent with the assumptions, production and supply tables provided in reference (vii).

- ggg) Please explain why in reference (vi) page 29 IHS (P&G) claims, “Enbridge estimates an in-service date of 2017 (for Northern Gateway). PGI does not expect the line to be available until after 2020.” Whereas in reference (vii), page 41, IHS relies on an assumption in its netback analysis that “The pipeline is proposed to start up in 2018.”
- hhh) Please confirm that netback analysis undertaken in reference (vii) requires excess pipeline capacity for the assumption that price differentials will narrow, and that once pipeline capacity is full differentials will widen. If not confirmed, please explain why reference (vii), Table 2 assumes a disappearance of the netback enhancement in 2034 when pipelines are deemed to be full.
- iii) Please confirm that reference (vii) assumes the same production and supply of heavy oil with or without Trans Mountain’s expansion. If not confirmed please explain fully.
- jjj) Please confirm that if the production and supply of heavy oil would be assumed to be the same with or without Trans Mountain’s expansion that toll rates would be paid to transport the product to market. If not confirmed, then explain how the heavy crude would make its way to market without costs of transport.
- kkk) Please confirm that the economic impact analysis in reference (i) assumes the oil transported along Trans Mountain’s expansion has not been redirected from another form of transport because no adjustment for declining tolls on other systems has been incorporated. If not confirmed, please show where the “lost” operating revenues have been incorporated into the operations I/O model.

Response:

- a) Confirmed.
- b) Condensate is generally preferred as a bitumen diluent.
- c) In the I/O framework, diluent is an input into the upstream oil producing industry not the oil pipeline industry, and is not related to the Trans Mountain Expansion. The cost of diluent, but not its source, was a consideration when determining the fiscal impacts of higher netbacks.
- Further, IHS has assumed that the level of oil production will be the same with or without the Expansion Project. Therefore, the level of diluent use and the level of imports of diluent will be the same with or without the Project. In other words, there would be no additional imports of diluent attributable to the Project.
- d) The information requested is not relevant to one or more of the issues identified in the National Energy Board’s List of Issues for the Trans Mountain Expansion Project.
- e) The information requested is not relevant to one or more of the issues identified in the National Energy Board’s List of Issues for the Trans Mountain Expansion Project.
- f) Imports by themselves are a “leakage” from the Canadian economy and do reduce the balance of payments, but they are not necessarily a “negative” in all situations. Many

industries import inputs to facilitate exports, the aerospace and auto industries are two prominent examples where the import share of exports is high. However, the net effect on Canadian trade and the balance of payments is positive in these cases.

- g) The information requested is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- h) The information requested is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- i) IHS confirms that the ratio of condensate to bitumen in the request is reasonable as a rough approximation. However, IHS notes that the blending ratio of condensate to bitumen is a function of many variables, including pipeline specifications, ambient conditions, the specific qualities of the bitumen, and the quality of the condensate.
- j) Confirmed, for the case proposed.
- k) Please see the response to Allan R IR No. 1.07c.
- l) Not confirmed. Heavy oil producers are expected to use one of the following sources of diluent: condensate produced in Alberta, SCO produced in Alberta, or diluent that is imported/recycled in the Enbridge Southern Lights Pipeline and/or the reversed Cochin line. IHS forecasts that some portion of heavy crude/bitumen diluent will be supplied from outside Alberta. The price for condensate in Alberta will reflect the marginal cost of supply at any time.
- m) The information requested is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- n) Please see the response to Allan R IR No. 1.07c.
- o) The I/O model would not account for a growing share of inputs (such as condensates) coming from imports over time. That share would be fixed. However, the issue of rising reliance on imported condensates would not impact the results, for the reasons provided in the response to Allan R IR No. 1.07c.
- p) Please see the response to Allan R IR No. 1.07c.
- q) Please see the response to Allan R IR No. 1.07c.
- r) The Conference Board expects that a lower dependency on imported diluents and/or more upgrading activity would increase the economic multipliers for the oil sands industry, although we have not done the analysis to confirm this. It would not have any impact on the multipliers for the oil pipeline industry.
- s) As per the response to Allan R IR No. 1.07c, the analysis assumed the same level of production and use of diluent with or without the Expansion Project. Therefore, there is no "growing reliance on imported condensate" in either IHS's analysis or CBoC's analysis.

- t) The Conference Board acknowledges the assumptions embedded in an I/O analysis in reference (i). Despite these limitations, I/O analysis is the commonly accepted method to conduct an economic impact analysis. The structure of an economy will change over time, but the changes tend to be gradual.
- u) Confirmed.
- v) Not confirmed. The real GDP and employment impacts would not be impacted by inflation.
- w) Confirmed.
- x) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- y) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- z) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- aa) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- bb) Not confirmed. The I/O model is an effective and commonly used tool for measuring economic impacts. Rising imports of diluents has no impact on the oil pipeline industry, which is what is measured in this analysis.
- cc) General equilibrium models that contain "dynamic feedback mechanisms" also have their limitations. In particular, their results are dependent on your assumptions about how relative prices change over time. They are also generally much less detailed than the I/O model used to conduct this analysis. The lack of detail leads to other criticisms about how shocks are implemented and how the results can be interpreted. In the view of the Conference Board, an I/O model is a preferable tool for assessing the economic impacts of the Expansion Project.
- dd) Confirmed.
- ee) The information requested is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- ff) The information requested is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- gg) Not confirmed, as it is not possible without more information to assess the extent of demand and price changes for condensate. This is outside the scope of the current analysis. As discussed in more detail in response to NEB IR No. 1.01 and Allan R IR No. 1.10a, there may be circumstances where rail transportation continues after pipeline takeaway capacity is available.

- hh) Confirmed. However, it should be noted that the oil pipeline industry is a well-established economic sector for which Statistics Canada has a well-developed data base of inputs and outputs. Floods are not part of Statistics Canada's I/O model. Further, a flood is not a positive economic event and should not be likened to building new infrastructure. As such, using an I/O model to estimate the "benefits" from flood damage would be inappropriate.
- ii) As noted in response to Allan R IR No. 1.07hh, it would not be appropriate to characterize the repairs following a flood as an "economic benefit."
- jj) As noted in response to Allan R IR No. 1.07hh, it would not be appropriate to use the I/O model in this way.
- kk) As noted in response to Allan R IR No. 1.07hh, it would not be appropriate to use the I/O model in this way.
- ll) Confirmed.
- mm) It is confirmed that the shock was implemented as the sum of the values over a period of time. The figures were calculated in 2012 dollars so they were discounted at the inflation rate. Since the purpose of the exercise is to assess the real economic impacts of pipeline operations it would be inappropriate to discount the cash flows using a different rate. A job 10 years from now is equivalent to a job today.
- nn) It would be accurate to calculate the effects of operations in this way, but since the spending in the development phase of the Project is concentrated in 2016-2017 an average impact calculated in this way would not be very representative.
- oo) The purpose of the economic impact analysis is to discuss the impacts of the Project. The expenditures that have already occurred are part of the project's impacts.
- pp) Not confirmed. Please see the response to question Allan R IR No. 1.07oo.
- qq) Confirmed.
- rr) The 2009 model was the most recent version of the model available at the time the analysis was conducted.
- ss) No adjustments were made because this is unnecessary.
- tt) The information requested is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- uu) The question as written is unclear, and in any case pertains to data for which there is no public information source.
- vv) Please see the response to Allan R IR No. 1.07uu.

ww) The Conference Board has a detailed proprietary fiscal model that incorporates all of the current tax rates (corporate, personal, and sales) published by the Canada Revenue Agency. Personal income taxes are calculated at the tax bracket level based on the labour income outcomes produced by the I/O model. However, the model effectively produces a result where a 1% increase in income generates a 1.2% increase in personal income tax collections.

Sales tax impacts are also determined based on the labour income effects. Essentially, an increase in labour income can be expected to translate into a consumption pattern that is specific to each region. The sales tax rates are then applied to the appropriate detailed consumption categories to determine the sales tax impacts.

The corporate income tax impacts are based primarily on the operating surplus and GDP by industry impacts that are generated by the I/O model. Operating surplus contains both depreciation and profits. The Conference Board model splits operating surplus into these components based on the GDP by industry impacts. GDP by industry is translated into investment by industry, which in turn can be used to estimate depreciation. Once an estimate of profits is created, profit taxes are estimated as a share using the effective corporate income tax rates (rather than the simple corporate tax rate).

xx) Confirmed.

yy) The Province's concern about the allocation of federal revenues is not a matter for Trans Mountain to accommodate. In the Application Trans Mountain has endeavoured to address the 5 conditions by providing a comprehensive analysis of the potential benefits, effects, and risk mitigation for the expansion. The Conference Board of Canada report provides information that can assist the Province in evaluating the economic benefits of the Project in a manner that it deems appropriate.

zz) Reference (iii) discusses the economic impacts of the Northern Gateway project, which are different than those of the Trans Mountain Expansion Project. It would not be appropriate to simply apply those shares to the Trans Mountain Expansion Project.

aaa) Not confirmed. There will be a general increase in federal government revenues as a result of the Trans Mountain Expansion Project. These revenues will benefit the provinces. In the example provided, a reduction in the deficit would reduce interest payments and reduce the need to restrain spending, potentially freeing up resources that could lead to increased provincial transfers. It is most appropriate to assume that an increase in federal revenues will benefit all provinces.

bbb) The Five Conditions Report reference (iii), includes economic research and an assessment of the economic benefits of the Northern Gateway Pipeline Project. The Northern Gateway Pipeline Project is not the Trans Mountain Pipeline Expansion Project. Trans Mountain is not aware of any similar assessment having been completed by the Province for the Project to date. As indicated in the Application, Trans Mountain is supportive of the progress toward addressing the BC Five Conditions and of the framework agreement reached between the governments of BC and Alberta on moving

energy resources to new markets. Trans Mountain believes that the information provided in this application will help continue and advance further dialogue between and with governments, Aboriginal communities and other stakeholders and industry. Trans Mountain is confident that the interests and concerns of both Alberta and BC can be addressed through the review process and ongoing dialogue.

- ccc) Trans Mountain declines the request to file reference (iii) as evidence to the Hearing. Trans Mountain disagrees with the assertions made in the question. While Trans Mountain has acknowledged the five conditions and is supportive of the progress toward addressing them, the phrases ‘relied heavily’ and ‘met extensively’ do not represent Trans Mountains view nor do they form part of the Application. Please refer to Eliesen M IR No. 1.16e for clarification of the phrase ‘a long way’ which is also misrepresented in this question.
- ddd) Trans Mountain disagrees with the premise of the question and notes that the title on page 2 of reference (iii) is: “Government of British Columbia Statement of Minimum Requirements: Expansion of Heavy Oil Export Activity” [Emphasis added]. The information request is not relevant to one or more of the issues identified in the National Energy Board’s List of Issues for the Trans Mountain Expansion Project.
- eee) The information request is not relevant to one or more of the issues identified in the National Energy Board’s List of Issues for the Trans Mountain Expansion Project. The request is declined.
- fff) Reference (vi) does not form part of Trans Mountain’s evidence in this proceeding.
- ggg) The Cochin report incorporated the then-current outlook for pipeline development prepared by PGI (now IHS), in which the in-service date for the Northern Gateway project was post-2020. The premises of the Expansion Scenario in reference (vii) include all takeaway capacity projects proceeding on the schedule proposed by their proponents. The Enbridge Gateway project is proposed by Enbridge to have an in-service date in 2018.
- hhh) Confirmed.
- iii) Confirmed. Within the premises of each case, the production and supply of heavy oil are the same.
- jjj) The question cannot be confirmed, as it is not clear.
- kkk) Confirmed.

1.08 Fiscal Impacts

Reference:

- i) Volume 2, Project Overview, Economics and General Information, page 2-41, (A3S0R0)
- ii) The Trans Mountain Expansion Project: Understanding the Economic Benefit for Canada and Its Regions, Appendix B, (A3S0R1)
- iii) NEB Information Request No. 1 to Trans Mountain, Question 1.9 (a), (A3V8V6)
- iv) Kinder Morgan Analyst Conference, January 29, 2014, Slides in support of Presentation by Ian Anderson, President of Kinder Morgan Canada, Slide 3, Distributable Cash Flow, 2010 – 2014 Oral Presentation

Preamble:

Reference (i) states that, “The construction and operation of the Project will provide substantial economic and fiscal benefits to Canada and its regions. There will be significant benefits to the parties directly involved, to all Western Canadian oil producers, and to all Canadians and their governments.

Reference (i) also states that, “To estimate the economic and fiscal benefits that can be expected from the construction and operation of the Project, Trans Mountain commissioned an independent study by the Conference Board of Canada, which was conducted under the direction of Mr. Glenn Hodgson. Mr. Hodgson’s evidence is provided in Appendix B. Specifically, Mr. Hodgson assesses the impacts associated with: the capital investments required to build the pipeline and related infrastructure; the operation of the pipeline; and the higher netbacks to oil producers that are expected to result from the Project. Trans Mountain relies upon and adopts the evidence of Mr. Hodgson.”

Reference (ii), page 5, of the Conference Board report states that with respect to the development phase, “The largest fiscal impacts are found in personal income taxes (\$559 million), indirect taxes such as sales taxes (\$335 million), and corporate income taxes (\$184 million).”

Reference (ii) assumes that the federal tax revenues will be distributed across the provinces on a per capita basis. On page 6, reference (ii) states that “A key reason for this (\$2.5 and \$3.3 billion in fiscal revenues from pipeline operations) is that the oil pipeline industry generates large corporate income tax effects.”

Reference (ii) assessed the operational impacts of the pipeline over its first 20 years of service under two scenarios. The first scenario is based on signed long-term contracts while the second scenario relies on predicted revenues from both long-term contracts and spot payments assuming full utilization of the pipeline. Reference (ii) explains that between \$2.5 and \$3.3 billion in fiscal revenues are anticipated over the first 20 years of operation.

Reference (iii) question 1.9 (a) states, “Please provide the following for Trans Mountain Pipeline L.P. for the first full year and the fifth full year following Project commissioning:

- a.1) operating cash flow projections that identify net income and other components of cash flow; and
- a.2) the estimated total asset and liability values and their main components.
- b) Please describe the following aspects of Trans Mountain’s cash management as anticipated at this time:
 - b.1) the estimated per cent of total cash flow from Trans Mountain L.P.’s operations that would be distributed to the partners of the limited partnership over the first five years of operation following Project commissioning; and
 - b.2) the estimated cash or near cash that Trans Mountain plans to retain on its balance sheet by the end of the fifth full year of operation after Project commissioning.”

Reference (iv) provides a Distributable Cash Flow statement for Trans Mountain from 2010 – 2014 including book tax and cash tax. In 2013 the amounts provided are DCF Trans Mountain Contribution \$162US million, add book tax \$19.3US million and add back cash tax \$US4.1 million.

Request:

- a) As described in The Conference Board study, fiscal benefits will flow from three distinct sources: 1) the capital investments made in the Expansion Project; 2) the operations of the Expansion Project (calculated over the Project’s first 20 years of operation); and 3) the increased revenues that are expected to flow to western Canadian oil producers as a result of the enhanced market access the Project will provide.
- b) Please confirm that “the capital investments required to build the pipeline and related infrastructure” means the debt and equity provided to Trans Mountain by its US parent to construct the “Project” as defined in the Application and currently estimated to be \$5.5 billion, but for purposes of Mr. Hodgson’s analysis excludes financing costs. The exclusion of financing costs results in \$4.6 billion of expenditures (2012 dollars) relied on as an input to Mr. Hodgson’s model. If not, please explain.
- c) Did Trans Mountain provide Mr. Hodgson with an estimate of the fiscal contributions in the form of corporate income tax Trans Mountain estimates it will make to the Canadian economy over the 20 year operating time horizon assumed in the analysis? If not, why not?
- d) In addition to the request in NEB IR no 1, reference (iii) please provide the following for Trans Mountain Pipeline L.P., or for the entity that records revenue and expenses, and files income taxes based on earnings or profits, as the case may be, for **each** of the first five years following project commissioning including:
 - 1) operating cash flow projections that identify net income and other components of cash flow, dividends paid, taxes booked, and taxes paid (refunded); and

- 2) estimated total asset and liability values and their main components.
- e) Please provide a table consistent to that provided in reference (iv) for all years that Kinder Morgan or any of its affiliates have operated the Trans Mountain Pipeline (assumed to be briefly in 2005 onwards) and for 2004, and predict those figures for all years from 2015 to 2037. If the budget provided in reference (iv) has been adjusted since Mr. Anderson's presentation, please include that adjustment. That is, please provide a table equivalent to (and including) reference (iv) that extends from 2005 – 2037 (assuming the first full year of operation of the expansion is 2018).
 - f) Please reconcile the cash flow amounts in the table provided in (d) above to the information in (e) if not readily apparent from the data provided.
 - g) Please confirm that "cash tax" in reference (iv) means tax actually paid, or refunded if negative, and confirm that booked tax means taxes recorded for accounting purposes, but which may never actually be paid and hence provides free cash flow that can be distributed to Trans Mountain's owners.
 - h) Please provide a percentage breakdown of the cash tax amounts requested in (e) above for the years 2004 - 2014 (budget) that were paid to (or refunded from) the federal government, and provincial governments broken down further by province.
 - i) Please provide a copy of the Canadian/US tax treaty, which applies to the distribution of Trans Mountain's cash flow to its parent companies in the US and indicate the relevant sections for determining withholding rates applicable to Trans Mountain or related affiliates as appropriate.
 - j) Please confirm that Kinder Morgan has a history of annual conferences held for the benefit of analysts similar to the January 29, 2014 conference (reference (iv)).
 - k) Please provide copies of the slides presented by Mr. Anderson for each of the annual analyst conferences since Mr. Anderson began making presentations on KMC's or Trans Mountain's behalf.
 - l) Please provide written copies of each of the transcripts of Mr. Anderson's oral presentations to investor analysts for each of the years (including dates of the sessions) where Mr. Anderson attended.
 - m) If Mr. Anderson did not make a presentation to analysts for any of the years subsequent to the purchase of Terasen Inc. shares by KMI in 2005, please indicate which year(s) Mr. Anderson was not present.
 - n) Please provide relevant transcripts and slides prepared and presented on behalf of KMC or Trans Mountain for the years Mr. Anderson was not in attendance at the analysts conference particularly as they relate to the distributable cash flow from Trans Mountain and taxation or refunds arising from the operation of the system.
 - o) Please confirm that bitumen producers in Alberta who utilize bitumen in upgrading facilities connected to their mining projects pay royalties as if they purchased

condensate, even if they do not. If not confirmed, please explain the relationship between the cost of condensate and Alberta's royalties paid.

- p) Please confirm that an increase in the relative price of condensate reduces Alberta royalties.
- q) Please identify where in the Application the sensitivity of royalties received to condensate prices has been evaluated and included in the analysis.

Response:

- a) Trans Mountain does not understand the first part of the question about Trans Mountain being a "directly involved party as described in reference (i)".

As described in The Conference Board study, fiscal benefits will flow from three distinct sources: 1) the capital investments made in the Expansion Project; 2) the operations of the Expansion Project (calculated over the Project's first 20 years of operation); and 3) the increased revenues that are expected to flow to western Canadian oil producers as a result of the enhanced market access the Project will provide.

- b) Confirmed, but with a clarification. The \$4.6 billion was used as an input into Statistics Canada's I/O model, the outcome from that model was used by the Conference Board in its models to estimate the fiscal impacts.
- c) No, Trans Mountain did not provide this to the Conference Board. It was not a required input into the modeling process.
- d) Please see Trans Mountain's response to NEB IR No. 1.09a.
- e) For information regarding Trans Mountain's financial capacity, please see the response to NEB IR No. 1.09.
- f) The information request is not relevant to one or more of the issues on the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- g) See the response to Allan R IR No. 1.08e.
- h) See the response to Allan R IR No. 1.08e.
- i) See the response to Allan R IR No. 1.08e.
- j) Confirmed.
- k) Mr. Anderson has presented at the Kinder Morgan annual conferences in 2006, 2010-2014. The presentations for these years are publicly available on Kinder Morgan's web site. Kinder Morgan does not historically retain transcripts or webcast links; however the most recent year is available on the web site.
Reference: <http://www.kindermorgan.com/investor/presentations/presentations.cfm>

- l) Please refer to Allan R IR No. 1.8k.
- m) Please refer to Allan R IR No. 1.8k.
- n) Please refer to Allan R IR No. 1.8k.
- o) The Conference Board royalty model is based on data provided by the Government of Alberta, which includes a figure for diluents costs. For an explanation of how the diluents cost figure is calculated please contact the Government of Alberta. Trans Mountain can confirm that diluent costs are deducted from revenues when estimating the net revenues against which the royalty rate will be applied.
- p) If condensate prices rise relative to oil prices, all else being equal that will reduce royalties.
- q) Rather than conducting a sensitivity analysis around the different assumptions used to calculate royalties, instead the Conference Board elected to use conservative assumptions that likely led to the royalty impacts being understated.

1.09 Crude Oil by Rail

Reference:

- i) Volume 2 – Project Overview, Economics and General Information Appendix A - 1 Appendix A Direct Written Evidence of Steven J. Kelly, IHS Global Canada Limited, page 9-10 including Figure 1, (A3S0R1)
- ii) Kinder Morgan Canada Presentation by KMC President Ian Anderson, Morgan Stanley, Calgary Energy Summit, March 12, 2014, Presentation
- iii) The Trans Mountain Expansion Project: Understanding the Economic Benefit for Canada and Its Regions, Appendix B, (A3S0R1) including Appendix C to the report.

Preamble:

Reference (i) explains that, “The Expansion Scenario indicates that rail deliveries will be required until 2016, at which time Enbridge expansions and Keystone XL absorb the growth in marketable crude supply. TMEP, Energy East and Northern Gateway are assumed to come on in 2017 and 2018, and thereby reduce the need for rail.”

Reference (i) further explains that, “IHS believes that development of export pipelines would contribute to a reduction in the use of rail transportation for Western Canadian crude oil. Pipeline capacity additions over the next several years are expected to reduce the dependence on rail transportation for light and heavy crude oil, until such time as crude production once again exceeds pipeline takeaway capacity. The use of pipeline capacity instead of rail transportation is conservatively estimated to provide an increase in producer netbacks of \$5-6 per barrel (constant 2012 US) during the forecast period.”

Reference (i) includes Figure 1, which depicts graphically the supply of crude oil and the demand for transportation capacity. Figure 1 illustrates a gap, which is assumed to be filled by an expansion of crude-by-rail.

Reference (ii) provides information on Trans Mountain’s throughput history by destination, tanker volumes at the Westridge terminal, and KMC’s investments in crude-by-rail transport.

Reference (iii) relies on the an increase in netbacks to producers predicted to occur when crude oil-by-rail is displaced beginning in 2017 - 2018. Reference (iii) further relies on the increased netbacks to determine fiscal revenue benefits from the project.

Request:

- a) Please confirm that reference (i) assumes the supply of crude oil destined for markets in excess of available pipeline capacity will be transported instead by rail as needed. If not, please explain.
- b) Please confirm that reference (i) also relies on expanded crude-oil-by rail being displaced as pipeline capacity becomes operational. If unable to confirm, please explain.
- c) Please provide all data supporting Figure 1, including figures related to assumed rail transport capacity in bbl/d, what amount will be displaced when pipeline capacity comes

on stream, as well as how much rail transport capacity in bbl/d is assumed to exist post pipeline expansion.

- d) Please confirm that in order to meet a growing demand for crude-by-rail prior to the completion of enhanced pipeline capacity as mentioned in reference (i) that companies who provide rail transport will have made capital investments, and allocated operating resources, to meet this demand. If not confirmed, please explain how rail has expanded capacity to meet demand.
- e) Please confirm that rail companies that have expanded crude-by-rail capacity to fill the gap identified in reference (i) will have been receiving revenues related to rail transport and that if their transportation services are displaced, they will suffer the loss of these revenues.
- f) Please confirm that these same rail companies may also have invested in capital to meet the increased demand for crude oil transport and if displaced may suffer write offs because of stranded assets.
- g) Please confirm that to the extent Trans Mountain and/or other pipeline capacity displaces rail transport the revenues Trans Mountain receives would have been paid to Canadian railway companies but for the construction of Trans Mountain. If unable to confirm, please explain.
- h) Please confirm that reference (i) has predicted an increase in gross netback revenues, that gross netback revenues can also be characterized as gross profits, and that gross profits can be characterized as net profits because it is assumed there were no increased costs to producers for realizing enhanced netbacks. If not confirmed, please explain.
- i) Please confirm that reference (i), although assuming rail transportation displacement, has not assumed any revenue displacement related to the transportation capacity. If not confirmed, please explain.
- j) Please confirm that if Trans Mountain's toll rates are lower than CN or CP's (or other rail operators) then the net difference is represented by reduced transportation costs to oil producers, but for any barrels that were being transported by rail, but are now transported by pipeline, rail operators will suffer a loss of those revenues. If not confirmed, please explain.
- k) Please confirm that the I/O impact of the lost revenues to rail transport capacity suppliers needs to be deducted from Trans Mountain's I/O impact from increased operating revenues. If not confirmed, please explain.
- l) Please confirm that in 2018, for the barrels transported by pipeline that were transported by rail, there is a transfer of revenues received by rail companies to revenues received by Trans Mountain. If Trans Mountain's tolls are less than rail, then the difference is represented by a reduction in costs to producers. For I/O modelling, the appropriate step in this case, since each industry has different coefficients and the impacts on GDP and

person years of employment are different, would be to run an I/O model on the decline in revenues to the rail industry, an I/O model on the positive impact of a decline in transportation rates to oil producers, and an I/O model on the increase to Trans Mountain (which has been done). If not confirmed, please explain.

- m) Please confirm that for a given \$10 million shock in the rail transportation sector the impact on person years of employment is greater than a \$10 million shock in the oil pipeline sector. If not confirmed, please explain.
- n) Please confirm that the negative impact on the rail sector and the positive impact on the pipeline sector can be explained as a shift in demand for transportation services from the rail sector to the pipeline sector. The shift away from rail is a “cost” and the shift to pipeline is a “benefit”.
- o) If not confirmed in (n), please clearly show with examples how oil producers paying to ship their product by rail, and that product getting to market as assumed in reference (i), does not result in a loss of revenue to companies supplying the rail transportation capacity when Trans Mountain’s (Northern Gateway and Energy East) capacity comes on stream and displaces it.
- p) For greater clarity, please assume that it costs \$10 per barrel to ship light oil from Alberta to the Chevron refinery in Burnaby by rail. Assume a producer in Alberta pays the toll rate. Assume Trans Mountain comes on stream and charges a spot rate of \$6 per barrel light oil from Alberta to the Chevron refinery. Assume the producer shifts from transporting crude on CP facilities and moves to Trans Mountain’s system. CP receives \$10 less, Trans Mountain receives \$6 more, and the producer pockets the \$4 saving, but there is no “new” benefit to the Canadian economy. The relative impacts will depend on the input-output coefficients imbedded in the I/O tables, but requires three runs of the model—the negative impact on rail compared with the positive impact on producers and pipeline operations. Reference (iii) has only examined the positive impact on pipeline operations. Please confirm or explain why not.
- q) Please confirm that a Kinder Morgan entity is in a 50/50 joint venture with Imperial Oil to create a unit train facility served directly by CN and CP with between 100,000 to 250,000 bbls/day with an expected in service date of Q4, 2014. Please specify which Kinder Morgan entity is in the JV with Imperial.
- r) Please confirm that Imperial is a shipper on the Trans Mountain system and has signed a long-term TSA for the expansion project.
- s) Please explain why Kinder Morgan would invest in crude-by-rail capacity, as explained in reference (ii) if crude-by-rail will be displaced by new pipeline projects.
- t) Please provide a detailed listing of the rail related projects Kinder Morgan is affiliated with in Canada and the US, including year of construction, capacity, as well as a detailed listing of the crude-by-rail capacity expansion projects any of the existing and potential shippers on Trans Mountain are directly or indirectly affiliated with.

- u) Please provide the data that supports the two graphs on page 7 of reference (ii) (Trans Mountain History and Tanker Volumes).
- v) In reference to the graph on page 7, reference (ii) and for the years where throughput exceeds 300,000 bbl/d, is this because only light oil was transported through the system? If no, please explain.

Response:

- a) Confirmed, to the extent rail represents the marginal transportation mode at that time.
- b) Confirmed.
- c) Refer to Table 1.2A-1 (in NEB IR No. 1.02a) for Figure 1 data, and Table A-12 in reference (i) for the outlook for rail loading capacity. Additional capacity announcements for rail loading since the completion of the IHS report have increased the estimated total capacity at the end of 2014 to approximately 1 million B/D. These announcements include the Kinder Morgan/Imperial Oil project.¹

The amount of rail capacity displaced when pipeline capacity comes on stream, and the capacity for rail transportation post pipeline expansion is not known with certainty, as rail loading projects tend to be short term projects. In any case, the rail capacity displaced when pipeline capacity becomes available was not estimated as part of the IHS analysis.

- d) Confirmed, with the clarification that it is not typically the rail companies themselves that have made these investments. A review of Table A-12 in reference (i) indicates that many of the companies undertaking rail loading projects (TORQ, Altex, Canexus to name several) are separate entities from the companies who provide rail transport (i.e. the railroads).
- e) Confirmed, with the caveat noted in response to Allan R IR No. 1.09d.
- f) Confirmed as a possibility, with the caveat noted in response to Allan R IR No. 1.09d. However, it is noted that the return on investment in rail loading facilities for crude oil would be expected to occur over a relatively short period of time compared to pipeline investments. Also, a more likely outcome than write-offs, which are an extreme market circumstance, is that the companies making these investments would have options to redeploy the assets (tanks, loading facilities, interconnecting piping and the like) for other services.
- g) Confirmed, with the caveat noted in response to Allan R IR No. 1.09d.
- h) Confirmed.

¹ "New crude oil rail terminal planned for Strathcona County", <http://www.cbc.ca/news/canada/edmonton/new-crude-oil-rail-terminal-planned-for-strathcona-county-1.2473174>, accessed on 20 May 2014.

- i) The request is not relevant because the revenue to the rail industry was not part of the analysis completed for the IHS report.
- j) Confirmed.
- k) This question assumes that there is sufficient rail capacity to accommodate the expected increases in heavy oil production over the forecast period. It also assumes that rail can provide the improved market access that the Trans Mountain Expansion Project would provide. It is not at all clear that these are sound assumptions. As such, it is not necessarily an either/or situation between rail and pipelines.
- l) Not confirmed. It is quite possible that the Trans Mountain pipeline will lead to some reallocation of oil shipments away from rail towards pipelines. However, given capacity constraints on rail and the access to new markets that the Trans Mountain pipeline provides it is not clear how much this might be. Rail and pipeline capacity are likely to compliment and provide competition for each other in the coming years. This question assumes an either/or situation between rail and pipelines.
- m) Confirmed.
- n) Please see the responses to Allan R IR No. 1.09k and Allan R IR No. 1.09l.
- o) Please see the responses to Allan R IR No. 1.09k and Allan R IR No. 1.09l.
- p) In general, please see the responses to Allan R IR No. 1.09k and Allan R IR No. 1.09l. More specifically, in the case of the fiscal impacts of higher netbacks this is false. Higher transportation costs reduce profits at upstream oil companies, which in turn lead to lower royalty and corporate income tax collections from those businesses. Thus, there is a negative fiscal impact from using a more expensive transportation option.
- q) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- r) Trans Mountain confirms that Imperial Oil Limited has signed a long-term contract for the Project.
- s) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- t) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- u) Please refer to Eliesen M IR No. 1.09b for annual information for the period 2006-2013.
- v) No. Light oil was transported in those years however throughput levels depend on i) the type of petroleum being shipped, ii) the configuration of the pipeline including the pipe size and flow path through loops, iii) operating horsepower, iv) tankage and v) scheduling.

1.10 Crude Oil By Rail—Evidence Comparisons

Reference:

- i) Volume 2 – Project Overview, Economics and General Information Appendix A and Appendix A-1 Direct Written Evidence of Steven J. Kelly, IHS Global Canada Limited, (A3S0R1)
- ii) IHS CERA Insight Keystone XL Pipeline: No Material Impact on US GHG Emissions, Jackie Forrest and Aaron Brady, August, 5, 2013
- iii) Trans Mountain Expansion Project Application NEB, RH-001-2012, Direct Evidence of George R. Schink, Revised January 10, 2013, Tab D-1
- iv) Analysis of Potential Future Rail Competition to Trans Mountain and Other Pipelines, Appendix A, George R. Schink, Appendix A
- v) Kinder Morgan billionaire sees big fortunes in oil by train and tanker, Vancouver Observer, January, 20, 2014, Article and Press Release
- vi) Canadian Association of Petroleum Producers, IHS CERA Slide Presentation Jackie Forrest, December 10, 2013, Slides

Preamble:

Reference (i) is an examination of a potential increase in producer netbacks hypothesized to arise when pipeline capacity displaces rail transport because reference (i) postulates rail is a more expensive mode of transport.

Reference (i) explains that, “IHS believes that development of export pipelines would contribute to a reduction in the use of rail transportation for Western Canadian crude oil. Pipeline capacity additions over the next several years are expected to reduce the dependence on rail transportation for light and heavy crude oil, until such time as crude production once again exceeds pipeline takeaway capacity. The use of pipeline capacity instead of rail transportation is conservatively estimated to provide an increase in producer netbacks of \$5-6 per barrel (constant 2012 US) during the forecast period.”

Reference (i) also states, “The netback price benefit (\$5 - \$6 per barrel constant 2012 U.S.) is attributed to the lower cost of pipeline transportation to heavy crude to the assumed clearing market location (the U.S. Gulf Coast), compared to the cost of rail transportation.”

Reference (ii) is an IHS CERA senior staff report which explains how oil sands bitumen represents a unique case for rail economics and concludes in direct contrast to Mr. Kelly’s evidence that:

“Even if pipeline capacity lags oil sands growth, we expect that rail will be an ongoing and economic part of the transportation puzzle. For heavy oil sands crude specifically, in a scenario in which pipeline access was severely restricted, we would expect greater investments to make rail economics even more efficient, approaching those of pipelines.”

Although moving crude oil by rail is generally more expensive than by pipeline, oil sands heavy oil could be an exception. What makes oil sands unique is the need for diluent. In its natural form, bitumen is the consistency of peanut butter—too thick for pipelines. Prior

to pipelining, the bitumen is thinned by adding light hydrocarbons (typically natural gas condensates). The resulting mixture (called diluted bitumen, or dilbit) is about 70% bitumen and 30% diluents. This is how bitumen is transported today, whether by pipeline or rail.

However, unlike pipelines, rail cars do not necessarily require diluent for moving oil sands. With the appropriate investment, they can transport pure bitumen, using heat to thin the bitumen during railcar loading and unloading.

By railing pure bitumen (instead of dilbit in a pipeline or rail car) oil sands producers can avoid some expense—specifically cost for the diluent—plus there would be fewer barrels to transport (compared with dilbit, shipping pure bitumen decreases the total volume moved by 30%). These savings offset some of the extra costs associated with rail transport. Assuming sufficient scale and investment, our view is that producer netbacks from the USGC for transporting pure bitumen by rail would be comparable to about \$6 lower than for moving with pipeline (for each bitumen barrel produced).”

Reference (iii) was filed by Trans Mountain in support of its Part IV Application for approval of the toll methodology that would be applied should Trans Mountain’s expansion be approved. Reference (iii) is expert testimony prepared by Dr. George Schink that analyzes rail transport and concludes it is a cost effective and viable alternative, not only to oil pipelines, but also to Trans Mountain’s expanded pipeline system. Trans Mountain’s expert witness explains that:

“My detailed evaluation of rail as a cost-effective competitor to pipelines exiting Western Canada, which is presented in Appendix A, is based on a detailed analysis of estimates of the relative costs of using rail versus pipeline for specific movements from Western Canada for crude oil and bitumen. My analysis considers unique economic advantages of rail movements that can deliver condensate back to Western Canada (instead of returning empty cars). In addition, I consider the economic benefits of shipping pure bitumen by rail cars, which avoids the cost to pipelines of delivering and mixing condensate with the bitumen, and enables additional volumes of bitumen to be shipped. As Appendix A details, rail is somewhat more expensive for deliveries of bitumen blends originating in Western Canada but generally less expensive for undiluted bitumen movements, and the railroads’ ability to backhaul condensate to the origin market provides additional benefits.”

Reference (iv) is further evidence filed by Trans Mountain and prepared by Dr. Schink. It represents a detailed evaluation of rail as a cost-effective competitor to pipelines exiting Western Canada. It is in direct contrast to the key assumption underlying reference (i) filed as evidence at this hearing.

Reference (iv), Table A-1, page 18, provides rail transport costs under various scenarios and illustrates that under certain assumptions, bitumen transport by rail is cheaper than pipeline transport to the Gulf Coast.

Reference (v) includes a discussion of, and the press release about, the expansion of Kinder Morgan rail facilities in Edmonton to enable the transport of up to 250,000 barrels a day of crude to North American markets:

“The facility will be built on heavy industrial-zoned land approximately one-half kilometer southwest of Kinder Morgan's Edmonton storage terminal, on land adjacent to Imperial's Strathcona Refinery. The Edmonton Rail Terminal is currently being designed as a crude oil loading terminal capable of loading one to three unit trains per day totalling 100,000 barrels per day at startup, with the potential to expand to approximately 210,000 barrels per day, and ultimately to 250,000 barrels per day. The new rail terminal will be connected via pipeline to Kinder Morgan's tank facility and will be capable of sourcing all crude streams handled by Kinder Morgan for delivery by rail to North American markets and refineries. The rail terminal will be constructed and operated by Kinder Morgan and will connect to both Canadian National and Canadian Pacific mainlines.”

Reference (vi) is a slide presentation presented by IHS CERA including a graph on slide 7 that appears to be exactly the same as Figure 1 in reference (i) except for the three supply scenarios. The slide presentation provides an estimate of the capital capacity to facilitate rail through 2016 with two possible scenarios of future reliance.

Request:

- a) Please provide the detailed evaluation of rail as a non-competitive, or more expensive, alternative to pipeline transport exiting Western Canada as prepared in support of the conclusions reached in reference (i). Please include worksheets, calculations, assumptions and analysis.
- b) Please confirm references (i), (iii) and (iv) were commissioned by Trans Mountain in support of a Trans Mountain Expansion Project Application to the NEB for Part III in reference (i) and Part IV in reference (iii) and (iv).
- c) Please confirm that reference (i) presents evidence suggesting rail is more expensive for shipping heavy oil in all circumstances, whereas reference (iii) and (iv) presents evidence concluding that under some conditions rail is less expensive than pipeline and provides a competitive and realistic alternative to pipelines. If not confirmed, please explain.
- d) Please explain why Trans Mountain would submit expert evidence claiming rail transport is a viable and cost effective alternative to pipeline transport in its toll application and submit expert evidence claiming rail is unequivocally more expensive by \$5 - \$6 more per barrel (US 2012) as compared to pipeline transport, in its public interest Application.
- e) Please confirm that reference (i) does not consider railroads' ability to backhaul condensate to the origin market. If not confirmed, please identify where in reference (i) such a consideration is discussed.
- f) Please submit as evidence reference (iii) and (iv).

- g) Was Mr. Kelly aware of the evidence provided by Dr. Schink in reference (iii) and (iv)?
- h) Please confirm that IHS and IHS CERA are the same, or at least directly affiliated corporate entities and thus Ms. Forrest, Mr. Brady and Mr. Kelly are all employed by the same corporate or related entities.
- i) Is there a reporting relationship between Mr. Kelly and Ms. Forrest or Mr. Brady? If so please explain.
- j) Was Mr. Kelly aware of the report prepared by Jackie Forrest and Aaron Brady for HIS CERA in reference (ii) or the slide presentation presented by Ms. Forrest to CAPP?
- k) Please provide the underlying calculations and detailed assumptions concluding that “rail would be comparable to about \$6 lower than for moving with pipeline for each bitumen barrel produced.”
- l) Did Trans Mountain discuss the discrepancy between the conclusions reached by Mr. Kelly and those reached in reference (ii), (iii) and/or (iv) with Mr. Kelly. Please explain the nature of those discussions and decisions reached.
- m) Did Trans Mountain consider contracting Dr. Schink to undertake the netback and pricing analysis provided in reference (i)? If not, why not.
- n) Please confirm that if heavy oil by rail is a viable and cost competitive alternative to pipelines that there is no “potential industry benefits of export pipeline capacity” as estimated in reference (i). If not confirmed, please explain fully.
- o) Please confirm that if rail transport of bitumen (by bitumen barrel) is cheaper than transporting diluted bitumen, by barrel, by pipeline, based on the assumptions in reference (i), the introduction of Trans Mountain’s expansion could lower producer netbacks on every barrel produced. If not confirmed, please explain.
- p) Please explain why Kinder Morgan would invest in a rail terminal facility capable of exporting up to 250,000 barrels per day throughout North America and then not utilize the facilities or capability subsequent to the expansion of the Trans Mountain Pipeline system as concluded in reference (i).
- q) Please confirm the slides in reference (vi) are IHS slides and that the information in them as well as the uncertainty around the role of rail in the future is supported by Trans Mountain. If not, please explain. Please submit the slides as evidence along with the supporting data for the illustrations.

Response:

- a) Please refer to Table 1.10(a), which summarizes the IHS evaluation of rail as a more expensive alternative to pipeline transportation from Western Canada, within the context of the evidence presented in reference (i). Several cases are presented, all for the year 2018, based on IHS’ current forecast of benchmark crude prices, refining value differentials, and comparative transportation costs. Table 1.10(a) provides the requested evaluation, and IHS declines to provide other worksheets, calculations and analysis as

it's not clear how it is relevant. Please also refer to NEB IR No. 1.01, which addresses the question of rail and pipeline competition, and notes several instances where the use of rail may be competitive with pipelines. The analysis and conclusions presented in this response are consistent with the situations identified in NEB IR No. 1.01.

The options presented in Table 1.10(a) are labelled as DilBit (bitumen/condensate at 70/30 blend ratio), RailBit (bitumen/condensate at 75/25 blend ratio) and NeatBit (pure bitumen). DilBit has been transported both by pipeline and by rail. The analysis is based on IHS' latest research in respect of rail transportation costs, and relies on the estimated refining value of the various marketed products in the US Gulf Coast. Any introductory market discounts or unique quality discounts have been excluded from the analysis. Netback comparisons are for bitumen and bitumen blend at Edmonton, after transportation and deblending of condensate. Condensate is priced in Edmonton. No condensate backhaul is assumed, given our view that this is likely to be a very limited opportunity.

In order to capitalize on the NeatBit option, producers will require dedicated diluent recovery facilities in Alberta. MEG Energy and Cenovus have indicated their intention to build such facilities. The analysis summarized here includes a capital recovery charge and operating costs for the diluent recovery unit. At the receiving refinery, dedicated facilities will likely be needed to receive and blend the raw bitumen prior to the crude distillation unit. No capital or operating charges have been assigned to the crudes for this analysis, which is considered conservative. However, the value of NeatBit and RailBit crudes have been discounted to DilBit by \$4/bbl and \$2/bbl, respectively, to reflect their lower inherent value based on higher residue content.

The results in Table 1.10(a) indicate that the highest bitumen netback would be achieved by shipping DilBit by pipeline, so this option has been treated as the base case for presentation purposes. The lowest netback is achieved by shipping RailBit. The economics of railing NeatBit are slightly better than railing DilBit, per barrel of bitumen. The netback for bitumen based on railed DilBit is \$9.23/bbl lower than by pipeline. This is equivalent to a differential of \$6.46/bbl on a blend basis, which is similar to the \$5-6/bbl differential determined by IHS in reference (i). The value of bitumen from railed NeatBit is \$8.59/bbl lower than by pipeline. This discount is wider than was estimated in reference (ii), due to our latest research which has confirmed the costs of the required diluent recovery unit and loading facilities. Finally, the netback for RailBit is \$11.70/bbl lower than by pipeline.

The above analysis is sensitive to input premises, particularly diluent costs and rail costs. Higher railcar lease rates or the use of manifest trains instead of unit trains would reduce the netback price estimates for any of the rail cases.

In summary, IHS reiterates its conclusion that pipelines will be the preferred transportation mode for heavy crude blends. Its analysis, as presented in reference (i), is consistent with other analysis prepared and reported by IHS, including reference (ii). Further, the analysis presented in reference (i) is conservative in regard to the economic case developed for diluted bitumen transportation.

TABLE 1.10(a)
BITUMEN NETBACK COMPARISON - 2018 (1)

	Diluted Bitumen		RailBit	NeatBit
	Pipeline	Rail		
Common Premises:				
Bitumen Production Volume (barrels/day)		30,000		
Blend Ratio: Bitumen		70%		
Condensate		30%		
Distance, miles (Edmonton - US Gulf Coast)		2,485		
Maya, US Gulf Coast (\$/barrel)		84.16		
Condensate, Edmonton (\$/barrel)		93.14		
Case Specific Premises:				
Marketed Supply (barrels/day)	42,857	42,857	40,000	30,000
Refinery valuation (\$/barrel) (2)	85.23	85.23	83.23	81.23
Rail cycle time (days) (2)	n/a	15.0	15.0	15.5
Rail car loading (barrels/car) (2)	n/a	597	548	526
Rail car lease cost (\$/month)	n/a	1,500	1,500	1,500
Rail transportation cost (\$/barrel) (2)	n/a	17.08	18.36	18.98
Pipeline toll (\$/barrel)	11.19	n/a	n/a	n/a
Capital investment - Alberta (Million \$)	n/a	n/a	n/a	75
Netback Calculation (Million \$):				
Gross Revenue	3.65	3.65	3.33	2.44
Less: Diluent cost	1.20	1.20	0.93	0.00
Less: Capital charge and operating cost	0.00	0.00	0.00	0.11
Less: Gathering cost	0.06	0.06	0.05	0.04
Less: Transportation cost	0.48	0.73	0.73	0.57
Net Producer Revenue	1.92	1.66	1.61	1.72
Bitumen Netback (\$/barrel bitumen)	63.90	55.48	53.61	57.35
Premium/(Discount) to Pipeline	n/a	-8.41	-10.28	-6.55
Bitumen Netback (\$/barrel blend)	72.67	66.78	63.50	57.35
Premium/(Discount) to Pipeline	n/a	-5.89	-9.17	-15.32

Notes: (1) All prices are in constant 2012 US dollars per barrel unless noted.

(2) Source: IHS analysis.

(3) Rail Costs include freight, lease costs, 3rd party terminal costs, heating costs and switching fees, but exclude other costs to deliver crude to local refineries. Source: IHS analysis.

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- b) Confirmed.
- c) Not confirmed. Reference (i) does not exclude the possibility that rail could be competitive with pipelines in some circumstances. References (iii) and (iv) make clear that the competitiveness of rail economics for crude transportation (specifically bitumen) with pipelines only exist “under some conditions”; that is, not in all circumstances.
- d) The evidence included in the facilities application does not make the unequivocal claim alleged in the request, but instead calculates the netback benefits associated with pipelines as the pricing basis for the bulk of heavy crude takeaway volumes from Western Canada, which is forecast to be the outcome in the Expansion Scenario once pipeline capacity is available.

The competitive position of rail compared to pipelines depends upon meeting certain conditions, which are likely to be of limited application when substantial volumes of crude oil transportation are required. This is the situation facing large bitumen producers, who will consider pipelines as the most efficient and most cost effective transportation alternative. Please refer to NEB IR No. 1.01 for further discussion of the situations that may give rise to a preference for rail transportation.

- e) Confirmed. The backhaul of condensate is not likely to be an option with widespread application. For the large volumes of bitumen export under consideration in the forecast, the backhaul of condensate may actually increase overall rail costs. The economic case for a condensate backhaul is especially dependent on efficient unloading/loading arrangements, given that the backhaul will require an additional stop at both ends of the delivery (to pick up condensate in the destination market and drop it off in Western Canada).
- f) The information request is not relevant to one or more of the issues identified in the National Energy Board’s List of Issues for the Trans Mountain Expansion Project.
- g) Yes.
- h) Confirmed, with the exception that Ms. Forrest is no longer employed by IHS.
- i) Mr. Kelly and Mr. Brady are, and Ms. Forrest was, part of the Energy Insight organizational unit of IHS, and all three individuals report (or reported) through the same line management.
- j) Yes to both. Mr. Kelly notes that the primary objective of the report prepared by Ms. Forrest and Mr. Brady was to assess the impact of the Keystone XL Pipeline on US greenhouse gas (GHG) emissions, not to assess the economics of bitumen transportation by pipeline or rail.
- k) Reference (ii) does not form part of Trans Mountain’s evidence in this proceeding. However, in an effort to be helpful to Ms. Allan and to the Board, IHS refers to the detailed analysis of bitumen transportation options, which is summarized in the response to Allan R IR No. 1.10a, and Table 1.10(a) attached thereto. The cases assessed in the

response to Allan R IR No. 1.10a include neat bitumen (“NeatBit”), underdiluted bitumen (“RailBit”) and DilBit by rail and pipeline.

IHS notes that the preamble to Allan R IR No. 1.10 identified what is characterized as a “direct contrast to Mr. Kelly’s evidence” in reference (ii). This characterization misinterprets the quote that is reproduced in this request, and neglects to include relevant portions of reference (ii) which more completely put that work in context. The full quote from reference (ii) is as follows:

“Assuming sufficient scale and investment, our view is that producer netbacks from the USGC for transporting pure bitumen by rail would be comparable to about \$6 lower than for moving with pipeline (for each bitumen barrel produced). This compares favorably with netbacks for raiiling dilbit to the USGC, which would be in the range of \$10 to \$15 lower than pipeline for each barrel of bitumen produced. Assuming the comparative economics between pipeline and rail were in this range (\$6 per barrel or less), over the longer term, we would expect oil sands growth would not be affected, even if rail is an ongoing component of the transportation options for oil sands.” (emphasis added)

As the above quote makes clear, there is a requirement of sufficient scale and investment to narrow the netback gap for pure bitumen by rail to a level \$6/bbl below the pipeline netback. In this context, “sufficient scale and investment” refers to the exclusive use of unit trains and heated railcars, which must be loaded and unloaded in dedicated facilities. As noted in the response and analysis in Allan R IR No. 1.10a, the netback gap for pure bitumen is wider than \$6/bbl when the required capital and operating costs are taken into account. Some producers may choose to make the necessary investments in order to reach this level, and those who do not (or cannot) will experience lower netback prices.

- I) There is no discrepancy. Premises for rail transportation and loading/unloading charges, blending ratios and other inputs to the analysis were developed within each company for their evidence.

The evidence prepared by Mr. Schink in references (iii) and (iv) was prepared independently by him and his firm. To Mr. Kelly’s knowledge, Mr. Schink’s evidence considered the cost of bitumen transportation, between pipeline and rail modes, but not the refining valuation of different bitumen blends.

The evidence prepared by Mr. Kelly and his colleagues (reference (i)) and the report prepared by Ms. Forrest/Mr. Brady (reference (ii)) were prepared independently by IHS. We note that the IHS analysis considers the refining valuation of various bitumen blends, which is an important consideration in the marketing of any potential crude stream.

The transportation of bitumen by rail is subject to significant uncertainty, particularly as related to delivery cost estimates. Most analysts would agree that there are significant uncertainties about the current situation and future outlook.

Mr. Kelly discussed this situation with Trans Mountain during the development of the application and supporting evidence. Specifically, Mr. Kelly noted that work was being undertaken by Ms. Forrest at IHS (and ultimately reflected in reference (ii) prepared by her and Mr. Brady), and that cost estimates for rail transportation were being updated as part of that work. This is consistent with the normal course of business in energy consulting. Mr. Kelly and Trans Mountain agreed that for the purposes of this evidence, and within the context of the scenarios already defined for this evidence (namely the Reference Scenario and the Expansion Scenario), that the appropriate basis for comparison was diluted bitumen by pipeline versus diluted bitumen by rail, rather than diluted bitumen by pipeline versus raw bitumen by rail. This was considered appropriate given IHS' view that pipeline transport is more efficient and that in the long run shippers will generally opt for pipeline transport once it is available.

- m) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- n) Not confirmed. IHS believes that pipeline transportation of heavy crude will be more efficient and less costly than transportation by rail, particularly at the takeaway volumes required over the forecast period. The potential for rail to transport crude volumes equivalent to the takeaway capacity in the Expansion Scenario of reference (i) is considered extremely remote.

IHS notes that the preference of most oil sands producers is to transport crude oil by pipeline.

IHS does consider rail to have a potential role in the future transportation picture for North American crude oil, but notes that producers have supported pipeline capacity expansions as the more efficient and cost-effective solution. The circumstances under which rail may have the potential to co-exist with pipelines in the future are identified in NEB IR No. 1.01. Refer also to the discussion in the response to Allan R IR No. 1.10a.

For the reasons noted above, the premise of the question is not accepted.

- o) Not confirmed, since IHS does not agree with the premise that rail transport of bitumen is cheaper than transporting diluted bitumen by pipeline. Please refer to the responses to Allan R IR No. 1.10a and Allan R IR No. 1.10n.
- p) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- q) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.

1.11 Netback Benefits Calculation

Reference:

- i) Application Volume 1, Summary, page1-5, paragraph 24, (A3S0Q7) Application Volume 2, Project Overview, Economics and General Information, Appendix A – Direct Written Evidence of Steven J. Kelly, IHS Global Canada Limited, page 15 lines 24 - 30 and page 16 lines 19-25, (A3S0R1)
- ii) Information Request No. 1 From NEB Panel to Trans Mountain, April 15, 2014, page 5 of 95, Question 1.6 Benefits Calculation, (A3V8V6).
- iii) Application Volume 2, Direct Written Evidence of Steven J. Kelly, page 16 and footnote 7.
- iv) Northern Gateway, Information Request IR. No 3, JRP to Northern Gateway, Design Capacity, Question 3.2 Hydrolic Design

Preamble:

Reference ii) states “Reference (i) states that oil producer revenues in Western Canada are forecast to rise by \$US45.4 billion over the first 20 years of the Project’s operation, as a result of higher netbacks that can be attributed to producers having access to new markets through the Project.”

Reference ii) states that “\$US37.4 billion of the \$US45.4 billion in Reference i) is the Project’s share of the total industry benefits over the 2018 to 2037 time period. Reference ii) also states that the Project’s share, as part of an aggregate expansion of capacity, is 26.6 per cent of the assumed capacity additions.”

Reference (ii) requests:

- a) Please provide the Project’s share of total industry benefits, in dollars, for the High Production Case and Low Production Case, as is stated for the Base Production Case in Reference ii).
- b) Please provide the Project’s share of the aggregate expansion of capacity, in per cent, for the High Production Case and Low Production Case, as is stated for the Base Production Case in Reference ii).
- c) Please provide how much oil producers’ revenues in Western Canada are expected to rise as a result of higher netbacks that can be attributed to producers having access to new markets through the Project, for the High Production Case and Low Production Case, as is provided for the Base Production Case in Reference i).

Reference (i) also states that “In aggregate, higher netback prices for heavy crude equate to about \$140 billion US of producer benefits in the Base Case (on a constant 2012 US, undiscounted basis) over the 2017 - 2037 time period.”

Reference (iii) explicitly identifies TMEP as 590,000 B/D, Energy east as 1.1 million B/D and Northern Gateway as 525,000 B/D.

Reference (iv) explains that Northern Gateway is designed to efficiently carry 850,000 barrels a day of crude.

Request:

- a) Please confirm that the estimated total industry benefits for Western Canadian oil producers predicted by Reference (i) in the Base Case is \$140 billion US over the 2017 - 2037 time period. If not confirmed, please explain.
- b) Please confirm that the \$140 billion is an estimate of the higher netback received for all Western Canadian crude supplied regardless of which market it is sold into. If not confirmed, please explain.
- c) Please confirm that the estimated portion allocated to Trans Mountain's expansion is calculated as $\$140 \text{ billion} \times 26.6\% = \37.34 billion which has been grossed up to \$37.4 billion in reference (i) page 16 line 21.
- d) Please confirm that as illustrated in Table 2 in Mr. Kelly's evidence Volume 2, page 14, TMEP heavy crude to Asia along Trans Mountain, that half the pipeline committed volume of 707,000 bbl/d is assumed to flow to Asia at higher prices than received in North America and as a result, an additional \$8 billion is added to the \$37.4 billion.
- e) Please confirm that this addition \$8 billion in benefits is explained on page 16, line 22-24 as "TMEP would produce benefits of about \$8 billion U.S. due to the realization of higher netback prices for crude priced in Asia rather than the US Gulf Coast. Total benefits attributable to TMEP are therefore about \$45 billion U.S. over the forecast period"
- f) Please confirm that the comment made in reference (ii) mischaracterizes the benefit when it states: "Reference ii) states that "\$US37.4 billion of the \$US45.4 billion in Reference i) is the Project's share of the total industry benefits over the 2018 to 2037 time period." That is, please confirm that \$US37.4 billion is not the "Project's" share of the benefit, but that \$US45.4 is the estimated share of the Project's benefit if \$140 billion is achieved through higher netback's because all the pipelines assumed in footnote 7 of page 16 come on stream.
- g) Please confirm that the benefit is calculated on the basis of a higher netback for all heavy oil supplied from Western Canada and not just the oil that flows along the new pipeline capacity.
- h) Please confirm that no information regarding the exchange rates assumed in the analysis has been provided. If confirmed, please provide all exchange rate assumptions and how they have been relied on in reference (i). If not confirmed, please provide references in (i) regarding exchange rate assumptions.
- i) Please provide the answers as requested in the NEB Question 1.6 (reference (ii) (corrected for the misunderstanding of total benefits and project's assumed share of those benefits) to include the Base Case, High Production Case and Low Production Case, on a Canadian dollar basis, a Canadian dollar and US dollar discounted basis

- using the Trans Mountain Hurdle rate, a 3% discount rate, a 5% discount rate and an 8% discount rate.
- j) If Northern Gateway were to expand capacity to 850,000 barrels per day prior to construction as explained in reference (iv) please confirm that Trans Mountain would reduce its share of the benefits to 23.2% of \$US140 billion from 26.6%. If not, please explain.
 - k) Please explain why TransCanada's Keystone XL and Alberta Clipper's expansion capacity are not part of the pro-rata share calculation for the distribution of predicted netback benefits in Volume 2.
 - l) Please confirm that Keystone XL and Alberta Clipper (as part of Enbridge Mainline) are included in Figure 1 and Figure A-9.
 - m) Does Trans Mountain believe neither Keystone XL or Alberta Clipper will enhance producer netbacks when these capacity expansions take place? Please fully explain Trans Mountain's view on this issue. If Trans Mountain believes that differentials will be reduced when Keystone XL or Alberta Clipper come on stream, please clearly show using pricing data how differentials are not currently reflective of quality and transportation costs to market and thus provide an opportunity for narrowed differentials from capacity expansion.

Response:

- a) Confirmed, with the clarification that the aggregate benefits are \$140.5 billion US over the period 2017-2037.
- b) Not confirmed, as the benefits calculation is an estimate of the higher netback received for Western Canadian heavy crude supplied, not all Western Canadian crude supplied.
- c) The \$37.4 billion figure is correct, but is arrived at as follows: the estimated benefits are \$140.5 billion, multiplied by 26.6 percent to arrive at the Trans Mountain allocated benefits of \$37.36 billion, which has been rounded to \$37.4 billion.
- d) The volume of deliveries to China assumed in Table 2 is half of 707,500 B/D, or 353,750 B/D. The additional benefits attributed to these deliveries between 2018 and 2037 are \$8.1 billion, which has been rounded down to \$8 billion.
- e) Confirmed.
- f) Not confirmed.
- g) Confirmed.
- h) Confirmed. The IHS analysis was completed in US dollars.
- i) Not applicable, there is no such misunderstanding.

- j) Confirmed, with the qualification that the amount of the benefits would also change using this assumption. In addition, if one or other of the other projects included in the Expansion Scenario were to be delayed or not to proceed, then Trans Mountain's share of the total benefits would increase for the period of time that the other projects were not included in the benefits calculation, and again the amount of the benefits would also change.
- k) Keystone XL and Alberta Clipper are included in the Reference Scenario. The benefits calculation applies specifically to the projects included in the Expansion Scenario.
- l) Confirmed.
- m) Trans Mountain's view on the benefits of Keystone XL or Alberta Clipper is not relevant to this proceeding. IHS notes that its forecast of heavy crude price differentials is premised on (inclusive of) Keystone XL and Alberta Clipper going ahead in the Reference Scenario. Further, IHS notes that its forecast of heavy crude price differentials (as presented in its report in this proceeding) is based on having efficient access to the US Gulf Coast market by 2016, a situation that would be facilitated by the completion of Keystone XL to provide such access. Based on its ongoing independent assessments of heavy crude netback prices, prices have been and remain subject to extraordinary discounts. At such time as Keystone XL is implemented, IHS forecasts that prices will strengthen to the level of price parity at the US Gulf Coast, consistent with the elimination of the extraordinary discounts.

1.12 Project Capital Cost, AFUDC and Toll Rates

Reference:

- i) Volume 2, Project Overview, (A3S0R0), page 2-34, Project Cost Estimate.
- ii) RH-01-2012 Final Form FSA and TSA Schedules, Trans Mountain Expansion Part IV Toll Application, January 10, 2013, (A3E7D5), Exhibit B15-25, page B1, B2 and B3, (A3E7D5)
- iii) Volume 2, Project Overview, Section 7, Appendix A, page 52-53 and Table A-14 and Table A-15 (A3S0R1)
- iv) RH-01-2012, Trans Mountain Expansion Part IV, Toll Application, Tab D, Evidence of George Schink, page 57, footnote 147, (A3E7E7)
- v) Volume 2, Appendix A-1, Direct Written Evidence of Stephen J, Kelly, (A3S0R1)

Preamble:

Reference (i) states that the capital cost for the expansion project (net of the Allowance for Funds

Used During Construction—AFUDC of \$322.3 million) is \$5,184 million, and reference (ii) filed prior to the Application states the capital cost for the project is \$5,506.3 million with no identification of an AFUDC amount.

Reference (ii) provides firm service toll estimates for committed shippers for volumes <75,000 barrels a day and firm service toll estimates for volumes >75,000 barrels per day.

Reference (iii) states, “Netback values depend on refinery gate prices and transportation costs from Alberta. The forecast netback values at Edmonton are presented in Table A-14, in current and constant 2012 dollars. The analysis summarized here is based on the IHS supply/demand balance, and our current estimate of pipeline tolls and tanker costs.” Table A-15 provides transportation costs from Edmonton to Pacific—2017 in US dollars per barrel.

Reference (iv) provides a table illustrating existing Trans Mountain tariffs and Trans Mountain Expansion tariffs for various grades and transportation distances as follows.

Location	Crude	Existing Tariff \$/cu.m	Existing Tariff \$/bbl	Trans Mountain Expansion 20yr \$/ bbl	Change
ED-KAM	Light	11.8079	1.88	3.02	61%
ED-SUMAS	Light	16.2792	2.59	4.04	56%
ED-BBY	Light	17.0716	2.71	4.24	56%
ED-WEST	Light	18.1974	2.89	4.73	64%
ED-WEST	Heavy	21.113	3.36	4.80	43%

Reference (v) defines the netback price as “set by the market price, less applicable transportation costs from the point of production. The clearing market sets the price for the marginal barrel.”

Reference (iii) Table A-14 provides Oil Sands Netback Values at Edmonton for SCO and Cold Lake Dilbit. There is no supporting data as to how the forecasts were achieved or how the figures in Table A-14 relate to Table 2 in reference (iii).

Request:

- a) Please confirm that the AFUDC amount identified in reference (i) is included in line item amounts identified in reference (ii) and as such an AFUDC amount equivalent to \$322.3 million has been assumed in the determination of firm service toll rates as detailed by destination and product grade in reference (ii). If not confirmed, please explain how AFUDC amounts are factored into the toll rates paid by shippers whether committed or spot.
- b) Please confirm that as the AFUDC account increases, this cost will be passed onto shippers in the form of higher toll rates. If not confirmed, please explain clearly the relationship between AFUDC and toll rates as approved in the recent Part IV toll hearings.
- c) Please confirm that Trans Mountain adopted reference (iv) during the Part IV Hearings and continues to support the accuracy and reliability of the evidence. If not, please explain and make adjustments as necessary to reflect updated information. For example, it may be that the ED-WEST heavy rate on 20 year committed terms is \$4.85 as per CAPP IR 1.3 filed on January 10, 2013, rather than \$4.80.
- d) Please provide a table for reference (iv) that is the most current information respecting proposed toll rates, and correct any errors on existing toll rates.
- e) Assuming for discussion purposes that reference (iv) is accurate, please confirm that the Trans Mountain Pipeline Expansion will increase the toll rates applied to a given barrel of heavy oil transported from Edmonton to the Westridge terminal by 43% or \$1.44 per barrel.
- f) Please confirm, all other things constant, that an increase in toll rates for shippers on the current system represents a reduction in netbacks by the amount of the increase in toll rates for an equivalent volume shipped by them on the expanded system according to the assumptions in reference (i) respecting netbacks and toll rates. If not confirmed please explain how a shipper who experiences a \$5 per barrel increase in netbacks when Trans Mountain's expansion is operational, but also experiences a \$1.44 increase in toll rates, does not realize a \$3.66 netback enhancement, rather than a \$5 enhancement as predicted in reference (i).
- g) Please confirm that the Edmonton to Sumas transportation cost is the Canadian cost borne from Edmonton to the US border and that toll charges apply as a separate charge to transport crude from the border to refineries in Washington state.
- h) Please confirm that since netback values are negatively impacted by higher transportation costs, that the Trans Mountain Pipeline Expansion will increase the toll rates applied to a barrel of light oil transported from Edmonton to the US border at

Sumas by 56% or \$1.45 per barrel and thus reduce producer netbacks on that barrel accordingly, all other things constant.

- i) Please provide existing tariff rates for crude oil shipped from Sumas to destinations in Washington state according to location and confirm that there is no contemplated increase in these tariff rates when the Trans Mountain expansion toll rates take effect. If not confirmed, please explain including any contemplated expansion or addition to the pipeline throughput capacity to Washington state and any contemplated or assumed increase in toll rates.
- j) Please confirm that for the Chevron refinery in Burnaby that the transportation cost per barrel of light oil will increase by an estimated 56%, or \$1.53 per barrel, if the Trans Mountain Expansion is approved according to the information provided in reference (iv). If not confirmed, please provide an estimate of the increase in toll rates for crude shipped along Trans Mountain to the Chevron refinery after the Expansion is operational or identify on the table provided in reference (iv) if it has been incorrectly interpreted.
- k) Please confirm that the transportation costs per barrel of refined products supplied to the lower mainland of British Columbia, and or the interior of British Columbia, will rise if the Trans Mountain Expansion Project is approved. Please provide a breakdown by destination of the increase in toll rates for petroleum products such as gasoline, jet fuel and diesel, if the Trans Mountain Pipeline Expansion is approved.
- l) Please explain how reference (iii) incorporated the negative impact of increased toll rates into its calculation of improved oil sands netbacks at Edmonton in Table A-14. That is, since the Trans Mountain pipeline system currently ships 300,000 barrels a day of crude oil and refined products at a rate 40 – 60% less than the rate projected for all barrels post-expansion, how did reference (iii) incorporate the net cost of higher toll rates on western Canadian oil producers who currently utilize the system to ship 300,000 barrels per day. Please provide an estimate of the “cost” of higher toll rates on the existing 300,000 barrels per day shipped on the TMPL once expansion is complete.
- m) Please confirm that higher toll rates on crude oil and petroleum products delivered in BC for refining or end user use in BC represents a cost that will be passed onto the BC economy. If not confirmed please explain, if confirmed please explain why this cost was not considered as a public interest cost.
- n) Please confirm that the netback price per barrel is the price received by the producer less transportation costs of getting the barrel to market and thus the netback price for a barrel of Cold Lake Blend sold to Asia is the price in Asia minus tanker and pipeline tolls. If not, please define netback price and relate netback price to a barrel of Cold Lake Blend sold into the Asian market.
- o) Please confirm that producer profit can generally be thought of as netback price minus transportation costs minus all other expenses. If not confirmed, please define producer profit.

- p) Please confirm that when the “clearing market sets the price for the marginal barrel” that what is meant is that the price for a barrel of crude oil on all barrels is the price obtained for the last barrel sold. If not confirmed, please explain clearly the importance of the price of the marginal barrel on all other barrels of similar quality sold into the market.
- q) Please confirm that for a refinery such as Chevron, that when Trans Mountain is expanded, and assuming the price lift forecast of \$5 is achieved as projected in reference (v) that the cost at the Chevron refinery gate will be the net increase in toll rates, plus the higher netback. If not confirmed, please explain and identify how much per barrel including transportation costs would be assumed to be borne by Chevron when the expansion is complete and operating.
- r) Reference (iii) Table A-14 does not provide sufficient detail to review and analyze the oil sands netback values at Edmonton. These values are expressed in US\$. No transportation rates have been expressed. Please provide all the data, including the actual historical data relied on to predict the netbacks in Table A-14, along with projections for 2014 - 2037 annually inclusive. Please also include the exchange rates assumed, quoted prices in Edmonton in Canadian dollars, toll rates for pipeline and tankers for each of the markets assumed and source of the data.
- s) Please confirm that reference (iii) assumes no change in light oil netbacks over the time horizon of the analysis. If unable to confirm please provide all references in Mr. Kelly’s evidence that explains the impact on light oil netbacks of the expansion of Trans Mountain’s system, the introduction of Northern Gateway and Energy East.
- t) Reference (iii) Table A-15 does not provide a source for the costs. Please provide sources, actuals historical rates, and estimates for 2009 - 2037 along with rates for Aframax tankers, and although not intended to call at Westridge terminal as part of this Application, tanker rates that would be applicable for Suezmax tankers. For Aframax, please provide tanker toll rates on the basis of tanker transport when at capacity and the effective toll rates at the 90% capacity restriction required at the Westridge terminal, on a per barrel basis.
- u) Please explain whether tanker toll rates paid for crude oil transport by tanker from the Westridge terminal are quoted to shippers in in US or Canada dollars. If expressed as US dollars, please confirm that netbacks for heavy oil shipped by tanker are subject to an exchange rate risk.
- v) If tanker toll rates are quoted to shippers in US dollars, did Trans Mountain conduct any sensitivity analysis with respect to netbacks and the potential impact of exchange rates on tanker transport costs? If not, why not?
- w) Please confirm the current volume of crude oil transported to Asia (with specific reference to China as a subset) on Panamax and Aframax tankers. If Asia does not currently receive deliveries of crude by any appreciable amount on Panamax or Aframax tankers, please explain why Westridge would be seen to be a desirable port exit for Western Canadian crude.

Response:

- a) Confirmed.
- b) Confirmed.
- c) Confirmed.
- d) The information in reference (iv) is correct.
- e) Confirmed.
- f) Not confirmed. The 'all other things constant' is a false premise and doesn't reflect the market or transportation realities on the Trans Mountain pipeline. The existing constrained Trans Mountain pipeline is contributing to reduced netbacks for Canadian crude producers shipping to pipeline connected refiners on the Trans Mountain pipeline. Crude shippers accessing the Westridge Marine terminal are paying Firm 50 or monthly bid premiums in excess of the pipeline toll, which erode netbacks for those shippers. In addition, the netback benefits in the IHS report are inclusive of the impact of higher tolls on Trans Mountain associated with the Project.
- g) Confirmed.
- h) Please refer to Allan R IR No. 1.12f.
- i) The current tariff for petroleum moved from Sumas to destinations in Washington state is US\$0.3642 per barrel as per FERC Tariff No 4.4.0. Any plans that Trans Mountain may have with respect to the segment of pipeline in Washington state are not relevant to one or more of the issues in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- j) Not confirmed. Reference (iv) shows the indicative 20 Year contract toll for volumes less than 75,000 bpd moving from Edmonton to Burnaby. The toll structure for the expanded system is such that the 20 year contract rates are 10% lower than the 15 year contract rates and the uncommitted rates are 10% higher than the 15 year contract rates. Chevron is not a committed shipper and therefore Trans Mountain expects the uncommitted rate, which is 10% higher than the 15 year rate, would apply.
- k) Confirmed.

There are only two categories of petroleum in the toll design for the expanded system either light or heavy. Refined products would be categorized as light for the purpose of applying tolls for the expanded system.
- l) The netback calculations for deliveries in the Trans Mountain Pipeline, post expansion, incorporate the tolls indicated in Table A-15, in a manner appropriate to this analysis. As noted in the response to Allan R IR No. 1.11f, the clearing price for heavy crude oil post-expansion is forecast to be set in the US Gulf Coast. The netback price thus established becomes the basis for deliveries to all other markets. In other words, the

methodology implicitly captures the impact of any toll increases on Trans Mountain on producers' netbacks. The requested estimate is not applicable.

- m) Not confirmed. The costs of higher toll rates for crude oil and petroleum products delivered to British Columbia, if any, will be absorbed by the shippers in the Trans Mountain system. For crude oil shipments, the shippers are either refiners or producers. For refined products, the shippers are the Edmonton refiners that serve markets in British Columbia. Product prices in British Columbia would not be affected by the toll rates in Trans Mountain.
- n) Confirmed.
- o) Confirmed.
- p) Confirmed.
- q) Not confirmed, in the particular case cited in the request (Chevron). The Chevron refinery is understood to be predominantly a light crude refinery, so the change in netback prices for heavy crude would not impact the refinery gate costs. However, any increase in toll rates associated with the Trans Mountain expansion could potentially affect Chevron's costs.
- r) Please refer to Table 1.12(t).
- s) Confirmed. The potential for increasing light oil netbacks has not been included. Therefore, the results of the IHS analysis are considered conservative, in respect of the amount of the benefits attributable to export pipeline capacity expansion in general, and to the Trans Mountain Expansion project specifically.
- t) Please refer to Table 1.12(t), which is structured similarly to Table A-15 in reference (iii), but provides more detail for the Panamax rate calculations to the destinations noted. The requested additional detail, including tanker rates for Suezmax and Aframax tankers, is not considered directly relevant in this proceeding and is not provided. As noted in the IHS report, use of Panamax tankers for deliveries from Westridge is considered conservative with respect to netback price forecasts. Historical rates are not relevant to this proceeding, and are not provided. The tanker rate calculations are based on Worldscale base rates ("WS100") rates provided by the Worldscale Association for 2013, which are also provided in the table.

IHS notes corrections to the tanker rates reported in Table A-15 in reference (iii), which affected the results presented for Cold Lake Blend deliveries to California and Asia. Table 1.12(t) includes corrected tanker rates for these deliveries.

TABLE 1.12(t)
PANAMAX TANKER TRANSPORTATION COST DETAIL (VANCOUVER TO PACIFIC) - 2017
 (Units as Noted)

Crude/Market	Crude Type	Crude Density		Distance (1) (miles)	WS100 (1) (\$/metric ton)	Annual Rate (2) (% of WS100)	Rate (3) (4)
		(kg/m3)	(BPT)				
Column			A		B	C	
Light Crude							
Japan (Yokohama)	SCO	871	7.22	8,604	20.72	108.85	3.12
Singapore	SCO	871	7.22	14,254	30.83	108.85	4.65
Heavy Crude							
California (Los Angeles)	Cold Lake Blend	931	6.76	2,527	8.09	108.85	1.30
China (Shanghai)	Cold Lake Blend	931	6.76	10,252	23.37	108.85	3.76
India (Jamnagar)	Cold Lake Blend	931	6.76	19,837	42.19	108.85	6.80

Notes: (1) Source: Worldscale Association, 2013

(2) Source: IHS forecast for 2017 Panamax tanker rates in the Pacific region.

(3) Calculated as $[WS100 \times (Annual\ Rate/100) / BPT]$, or $[B \times (C/100) / A]$. Includes corrections to Table A-15.

(4) Tanker freight costs only. Excludes losses & insurance, credit and any port charges.

- u) Tanker rates are expressed in US dollars. Netback prices for Canadian producers would be subject to exchange rate risk on that portion of the crude transportation costs.
- v) No sensitivity analysis was conducted with respect to netback prices, specifically related to the impact of exchange rates on tanker transportation costs because shippers would be expected to evaluate and manage their exchange rate risk in this segment of the market.
- w) The request would require an onerous effort, which is not required within the context of this proceeding. Furthermore, the information is not a matter of public record.

There is no reason to assume or suggest that Asia does not currently receive delivery of crude by Panamax or Aframax tankers, or could not do so in the future. Panamax or Aframax tankers loaded at Westridge would not be inherently less desirable to Asian refiners than deliveries on any other size tanker. The specific operational aspects of any crude delivery, including size of tanker, are optimized for the delivery in question.

1.13 Heavy Crude Netback Prices

Reference:

- i) Volume 2, Appendix A-1, Direct Written Evidence of Stephen J, Kelly, page 14 Table 2, (A3S0R1)
- ii) Volume 2, Appendix A-1, Direct Written Evidence of Stephen J, Kelly, page 16, Q.12, (A3S0R1)
- iii) Volume 2, Appendix A-1, Direct Written Evidence of Stephen J, Kelly, page 53, (A3S0R1)
- iv) Volume 2, Appendix A-1, Direct Written Evidence of Stephen J, Kelly, page 41-42, (A3S0R1)

Preamble:

Reference (i), page 15, states that, “TMEP, as one of the pipeline capacity expansion projects included in the Expansion Scenario, is expected to contribute to significantly higher heavy crude netback prices for Canadian oil producers. As shown in Table 2, below (sic), netback prices for heavy crude are estimated to be \$5 to \$6 per barrel (constant 2012 U.S.) higher as a general consequence of the development of new pipeline capacity. The netback price benefit is attributed to the lower cost of pipeline transportation for heavy crude to the assumed clearing market location (the U.S. Gulf Coast), compared to the cost of rail transportation.”

Table 2 in reference (i) summarizes the projections of heavy crude **supply** from Western Canada from 2018 - 2037 and heavy crude supply is a function of heavy crude **production** from Western Canada, domestic condensate, domestic SCO and imported condensate.

Reference (ii) explains that “the price of Canadian heavy crude has been discounted below price parity against comparable crudes (such as Mexican Maya at the US Gulf Coast) for much of the last decade. This has been the case, even though these crudes are similar in quality and have nearly equivalent values in coking refineries.” Reference (ii) does not discuss the relationship between producer netbacks and the relative cost of condensate, nor does it identify any other factors that may affect a differential between western Canadian crudes and crudes of “similar” quality prior to Western Canadian crudes being sold into those markets.

Reference (iv) states that the Northern Gateway pipeline is proposed to start up in 2018.

Reference (i) illustrates the supply of crude and expected netback lifts, but makes no mention of the heavy supply intended for export on Northern Gateway to Asia.

Request:

- a) Please explain why the heavy oil supply in reference (i) has made no accommodations for the volumes assumed to flow along Northern Gateway for export to Asia even though the analysis assumes the project is operational.
- b) Did the netback analysis fail to incorporate the impact of supply volumes destined for Asia along Northern Gateway? If no, please indicate how the Northern Gateway volumes were incorporated into the Asia premium netback analysis.

- c) Please confirm the general economic principle that when supply to a market increases, *ceteris paribus*, the price is expected to fall.
- d) Please comment on why the Asia premium of \$2 per barrel would be expected to exist if both Trans Mountain and Northern Gateway are supplying into the Asian market in volumes reaching almost 900,000 bbl/d by 2019.
- e) Please confirm that the Heavy Crude **Supply** assumed in reference (i) includes condensate as diluent, much of which may have been imported to create diluted bitumen. If not, please explain.
- f) Please confirm that the Heavy Crude **Supply** assumed in reference (i) includes domestically produced SCO from heavy oil as diluent. If not, please explain.
- g) Please confirm that the Heavy Crude **Supply** assumed in reference (i) includes conventional and oil sands heavy. If not, please explain.
- h) Please provide actual annual figures from 2004 - 2013 and IHS forecast from 2014 - 2037 that illustrates the bitumen supply, heavy conventional crude, condensate domestic, condensate imported and SCO that makes up the total supply figures relied on for Table 2 (recognizing Table 2 only provides figures from 2018 - 2037).
- i) Please provide an annual table from 2004 - 2037 that illustrates the actual and IHS forecast volume in Western Canada in bbl/d that clearly illustrates what takes place from crude oil **production** to crude oil **supply** conventional and non-conventional, light and heavy. The goal of this request is to identify the difference between oil production and supply and the reliance on imported condensate to generate supply available for export, as well as identify the use of SCO for petroleum product processing in Canada versus SCO export as synbit or light oil. For greater clarity, please identify:
- 1) heavy crude oil sands **produced**;
 - 2) heavy oil conventional **produced**;
 - 3) conventional light oil **produced**;
 - 4) the heavy oil **produced** that is upgraded to become part of the light non-conventional **supply** of crude as SCO (ie take 1 above and net off the heavy allocated to upgraders and then indicate how much SCO is supplied);
 - 5) Take the volume of SCO supply in 4, and indicate how much bitumen produced in 1 becomes synbit **supply**;
 - 6) condensate **produced** domestically;
 - 7) heavy oil from 1 diluted with domestic condensate to become dilbit **supply** including assumed ratio;
 - 8) imported condensate to create dilbit **supply**;
 - 9) heavy oil diluted with imported condensate to create dilbit **supply**;
 - 10) conventional heavy **supply** diluted or not, please specify and identify condensate requirement as appropriate or confirm heavy conventional **produced** is the same as heavy conventional **supply**;
 - 11) the total volume of heavy oil produced that will be diluted with domestic and imported condensate to eventually become heavy oil **supply**;

- 12) the total volume of heavy **supply** which should be 5,7, 9 and 10 added together and correspond to Table 2 in reference (i) (if not please clarify);
 - 13) heavy crude utilized in Canadian refineries;
 - 14) light oil utilized in Canadian refineries disaggregated to conventional and SCO;
 - 15) heavy crude exported to the US by PADD;
 - 16) light oil exported to the US by PADD disaggregated to conventional and SCO.
- j) The figures supplied in Items i) 1, 2 and 3 above, aggregated, should be consistent with the figures underlying Figure 2, page 12 and Figure A-1 page 22 for the years presented in those graphs. Please confirm. If not, please explain.
- k) The figures supplied in Item i) 1 should be consistent with the figures underlying Figure A-2 page 23. If not confirmed, please explain.
- l) The figures supplied in Item i) 2 and 3 should be consistent with Table A-3 page 24. If not confirmed, please explain.
- m) The figures supplied in Item i) 13, 14, 15 and 16 should be consistent with some of the figures relied on in Figure A-4 page 24. Please provide a reconciliation of the figures in Figure A-4 with the figures provided above.
- n) The figures supplied in Item i) 7,8 and 10 should be consistent with the IHS forecast in Table A-2 for Heavy Crude Supply, if not please explain.
- o) The figures supplied in Item i) 7,8 and 10 should be consistent with the IHS forecast in Table A-2 for Heavy Crude Supply, if not please explain.
- p) The figures supplied in Item i) 3 and 4 should be consistent with the IHS forecast in Table A-2 for Heavy Crude Supply, if not please explain.
- q) Please confirm that the price the producer receives in the market is dependent on the value of the blended crude to the market and not the cost to the producer of condensate or SCO required for diluent blending purposes.
- r) Please confirm that if the value of the blended crude in the market does not change but the relative price of condensate goes up, producer netbacks fall, and producer gross profits fall. If not confirmed, please explain.
- s) Please confirm that a barrel of bitumen (such as Cold Lake bitumen) and a barrel of Cold Lake Blend are two different “products” and would have a different value in the market. If not confirmed please provide empirical evidence with an explanation.
- t) Please clearly explain how the value of a barrel of bitumen and a barrel of diluted bitumen would have a different value in the market if that market were the Gulf Coast.
- u) Please provide all the assumptions related to condensate pricing in Mr. Kelly’s evidence to achieve the netback in (i) and (ii).

- v) Please provide empirical evidence supporting the assumptions made with respect to condensate pricing in reference (i) and (ii).
- w) Please provide annual historical and forecast prices bitumen producers in Edmonton pay for condensate as compared to the price in foreign markets and identify which foreign markets prices are being provided for.
- x) Please identify the key factors Trans Mountain expects will affect the availability and price of condensate supply to bitumen producers.
- y) Please provide an analysis of the cost of condensate sourced via imports, assuming the price of condensate at various differentials to bitumen, and its impact on the netback to bitumen producers who use the condensate for blending. That is, please provide a sensitivity analysis of the relationship between producer netbacks and condensate prices.
- z) Please confirm that to calculate a netback to the bitumen producer, it is necessary to know all transportation costs for condensate to the field, not just to Edmonton. Please ensure the netback sensitivity analysis includes all transportation costs for condensate.
- aa) Please confirm that the producer netback using a condensate price of \$110.00 per barrel and a dilbit price of \$80.00 per barrel is not the same as when, at the same condensate price, dilbit is valued at \$65.00 per barrel.
- bb) Please ensure that the analysis provided on the sensitivity of diluted bitumen (heavy oil) netbacks to condensate prices accommodates the features of (aa) above.
- cc) Please confirm that an increase in the demand for condensate from 2013 - 2037, *ceteris paribus*, would be expected to increase the relative price of condensate. If not confirmed please explain the market conditions whereby the relative price of condensate would be expected to rise.
- dd) Please confirm producer netbacks are sensitive to the Canadian US dollar exchange rate.
- ee) Please provide a sensitivity analysis that explains the impact on netbacks when the Canadian dollar trades at an increasing discount to US dollars and when Canadian dollars trade at an increasing premium to US dollars.
- ff) Please confirm that condensate import demand for blending purposes has increased the relative price of condensate facing bitumen producers in recent years and provide data supporting this confirmation. If not confirmed, please explain why and provide condensate price data supporting the explanation.
- gg) Please explain how Table A-14 in reference (iii) has accommodated the impact of relative condensate prices on netbacks. If the relative price of condensate is assumed to remain constant throughout the forecast period, please indicate which relative price (ie the level or ratio to the bitumen price) and at what time in the time horizon it was assumed fixed.

- hh) Please confirm that an increase in the relative price of imported condensate could negatively impact the financial viability of diluted bitumen for export purposes. If not confirmed please explain.
- ii) Please confirm that the scenario described in (hh) above has not been contemplated in reference (iii) or in the production volumes assumed over the period to 2037.

Response:

- a) It is not the case that the heavy oil supply in reference (i) has made no accommodation for volumes assumed to flow along Northern Gateway for export to Asia. The Expansion Scenario includes the Northern Gateway project.
- b) No. Volumes delivered on competing pipelines would be subject to the same pricing fundamentals as volumes delivered on the Trans Mountain Expansion Project.
- c) Confirmed.
- d) A general economic principle that is relevant to this request is the concept of a price taker. When a market is very large and a supplier accounts for a relatively small share of the market, the supplier is considered a price taker because its supply is too small to have a significant effect on the market price.

For illustrative purposes, IHS notes that its estimate of the total market size for crude oil in Asia in 2020 is about 28.3 million barrels per day, and that net imports to the region will be about 21.5 million barrels per day. The volume of crude proposed in the question would represent 3.2 percent of the total Asian market demand in 2020, and 4.2 percent of imports to the region. This volume is sufficiently small relative to total imports that it would be unlikely to have a significant impact on world benchmark prices. IHS also notes that the Asian market is expected to grow rapidly, so the volumes of exports from Canada as a percentage of the overall market would account for a relatively smaller share of the market.

The so-called “Asia Premium” is a result of IHS’ price forecasting methodology, which takes account of regional trade patterns between North America, the Middle East and Asia. Some crude suppliers into Asia price their crudes differently depending on the destination market. It is this price environment that establishes the basis for Canadian heavy crude prices in the region. Regardless of the volume supplied from Canada by the pipelines cited in the request, it is likely that the marginal supply would be from the Middle East, and that the pricing strategies in use by these suppliers would not appreciably change after Canadian imports are available.

- e) Some of the heavy crude supply assumed in reference (i) would require diluent for pipeline transportation. The amount that has been imported is not relevant to this proceeding.

- f) Some of the heavy crude supply assumed in reference (i) would require diluent for pipeline transportation. The amount that is diluted with SCO is not relevant to this proceeding.
- g) The heavy crude supply assumed in reference (i) may include a range of heavy crude streams, both conventional heavy crude blends and bitumen blends.
- h) Refer to the response to Allan R IR No. 1.13i, which requests much of the same information.
- i) Please refer to Table 1.13(i), which provides the complete response to the request, within the context of the IHS report. Certain details have not been provided, or have been provided in a different format than requested. This is because presenting the information in the format requested would: (1) would require an onerous amount of work; (2) would require provision of commercially sensitive material prepared by IHS; or (3) is not seen as relevant to this proceeding. For example, requests 13 through 16 are inconsistent with the stated rationale of the request “to identify the difference between oil production and supply and the reliance on imported condensate to generate supply available for export, as well as identify the use of SCO for petroleum product processing in Canada versus SCO export as synbit or light oil”. Since the relevance of the request for historical figures is not justified, Table 1.13(i) provides figures for the period 2013 to 2037.

TABLE 1.13(i)
WESTERN CANADA CRUDE PRODUCTION AND SUPPLY
 (Thousand Barrels per Day)

	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>
Crude Production																									
Conventional Light Crude	719	755	781	793	800	804	806	805	804	800	791	783	776	769	762	757	757	754	784	779	809	802	795	788	784
Conventional Heavy Crude	438	424	410	397	404	392	400	421	423	413	403	394	385	376	368	360	352	345	338	331	324	318	311	311	311
Pentanes Plus/Condensate	<u>147</u>	<u>155</u>	<u>169</u>	<u>187</u>	<u>208</u>	<u>231</u>	<u>256</u>	<u>282</u>	<u>308</u>	<u>333</u>	<u>357</u>	<u>379</u>	<u>401</u>	<u>422</u>	<u>443</u>	<u>457</u>	<u>469</u>	<u>479</u>	<u>487</u>	<u>493</u>	<u>498</u>	<u>502</u>	<u>505</u>	<u>505</u>	<u>505</u>
Total Conventional Crude/Condensate	1,304	1,335	1,360	1,377	1,412	1,427	1,461	1,508	1,535	1,546	1,551	1,556	1,562	1,567	1,573	1,574	1,579	1,578	1,609	1,604	1,632	1,622	1,612	1,605	1,601
Oil Sands - In-Situ	905	919	942	973	1,035	1,067	1,076	1,095	1,109	1,113	1,116	1,120	1,124	1,129	1,133	1,137	1,141	1,146	1,150	1,154	1,158	1,162	1,166	1,170	1,174
Oil Sands - Mining	<u>1,040</u>	<u>1,202</u>	<u>1,361</u>	<u>1,574</u>	<u>1,736</u>	<u>1,882</u>	<u>2,000</u>	<u>2,055</u>	<u>2,165</u>	<u>2,282</u>	<u>2,397</u>	<u>2,511</u>	<u>2,627</u>	<u>2,743</u>	<u>2,859</u>	<u>2,975</u>	<u>3,091</u>	<u>3,207</u>	<u>3,320</u>	<u>3,433</u>	<u>3,546</u>	<u>3,659</u>	<u>3,772</u>	<u>3,886</u>	<u>3,999</u>
Total Oil Sands	1,945	2,120	2,304	2,547	2,771	2,949	3,076	3,150	3,275	3,395	3,513	3,631	3,751	3,871	3,992	4,112	4,232	4,353	4,470	4,587	4,704	4,821	4,938	5,055	5,172
Total Western Canada Production	3,249	3,455	3,663	3,924	4,183	4,376	4,537	4,659	4,810	4,941	5,064	5,187	5,313	5,438	5,564	5,686	5,811	5,931	6,079	6,190	6,336	6,443	6,550	6,660	6,773
Supply Adjustments																									
Total Diluent	400	468	535	620	687	751	801	827	892	952	1,009	1,066	1,122	1,176	1,233	1,285	1,338	1,395	1,449	1,506	1,565	1,626	1,685	1,736	1,886
Crude Supply																									
Conventional Light Crude	690	718	736	740	740	739	739	736	733	729	719	710	701	691	681	672	668	660	689	681	711	704	697	690	686
Synthetic Crude Oil	898	899	913	939	995	1,018	1,021	1,036	1,022	1,011	1,006	999	994	990	979	976	969	960	952	944	934	919	909	913	917
Conventional Heavy Blends	397	381	366	351	359	345	355	380	382	371	360	350	339	330	320	311	303	294	286	279	271	264	257	257	257
Diluted Bitumen Blends	<u>1,477</u>	<u>1,715</u>	<u>1,949</u>	<u>2,254</u>	<u>2,487</u>	<u>2,700</u>	<u>2,869</u>	<u>2,953</u>	<u>3,128</u>	<u>3,306</u>	<u>3,479</u>	<u>3,652</u>	<u>3,826</u>	<u>4,000</u>	<u>4,177</u>	<u>4,349</u>	<u>4,523</u>	<u>4,697</u>	<u>4,868</u>	<u>5,037</u>	<u>5,209</u>	<u>5,383</u>	<u>5,556</u>	<u>5,720</u>	<u>5,885</u>
Total Heavy Blends	1,874	2,096	2,314	2,605	2,846	3,045	3,224	3,333	3,510	3,677	3,839	4,002	4,166	4,330	4,497	4,660	4,825	4,991	5,154	5,316	5,480	5,647	5,812	5,977	6,142
Total Western Crude Supply	3,462	3,713	3,964	4,285	4,581	4,803	4,985	5,105	5,266	5,417	5,563	5,711	5,862	6,011	6,157	6,308	6,462	6,611	6,795	6,941	7,125	7,271	7,418	7,580	7,745
Memo:																									
DilBit Blends	1,337	1,549	1,765	2,060	2,279	2,476	2,633	2,708	2,827	2,976	3,131	3,283	3,440	3,596	3,743	3,901	4,051	4,199	4,346	4,491	4,635	4,773	4,916	5,080	5,245
SynBit Blends	<u>140</u>	<u>166</u>	<u>184</u>	<u>194</u>	<u>208</u>	<u>224</u>	<u>236</u>	<u>245</u>	<u>301</u>	<u>331</u>	<u>348</u>	<u>369</u>	<u>386</u>	<u>404</u>	<u>434</u>	<u>448</u>	<u>472</u>	<u>498</u>	<u>522</u>	<u>546</u>	<u>574</u>	<u>611</u>	<u>640</u>	<u>640</u>	<u>640</u>
Total Diluted Bitumen Blends	1,477	1,715	1,949	2,254	2,487	2,700	2,869	2,953	3,128	3,306	3,479	3,652	3,826	4,000	4,177	4,349	4,523	4,697	4,868	5,037	5,209	5,383	5,556	5,720	5,885

SJK 25 May 2014

- j) Confirmed, with the caveats noted in the response to Allan R IR No. 1.13i.
- k) Confirmed, with the caveats noted in the response to Allan R IR No. 1.13i.
- l) Confirmed, with the caveats noted in the response to Allan R IR No. 1.13i.
- m) The request as written is vague, and would require an onerous amount of work. Further, the disaggregation of heavy and light crudes is not necessary to this proceeding, which considers the supply of crude to markets accessible from the West Coast via the Trans Mountain Pipeline.

Please also see the response to Allan R IR No. 1.13i

- n) Confirmed, with the caveats noted in the response to Allan R IR No. 1.13i.
- o) This is a duplicate of Allan R IR No. 1.13n.
- p) Confirmed, with the caveats noted in the response to Allan R IR No. 1.13i.
- q) Confirmed.
- r) Confirmed.
- s) Confirmed.
- t) The value of a barrel of bitumen, a barrel of diluted bitumen or any other crude oil would be derived from the aggregate value of products derived in the refining process from the processing of a barrel of crude oil, less the variable costs associated with the processing steps involved. The same principle applies whether the market is the US Gulf Coast or another market.

A practical example of the principle described above is found in the response to Allan R IR No. 1.10a, which addresses the valuation of several bitumen blends in the US Gulf Coast, for the purpose of illustrating the higher netback prices available by transporting crudes to market by pipeline rather than by rail.

- u) The request is not directly relevant, since the netback pricing reported in references (i) and (ii) is based on bitumen blend values. However, the response to Allan R IR No. 1.10a illustrates the importance of condensate pricing on bitumen netback prices at Edmonton.
- v) The request is not directly relevant, since the netback pricing reported in references (i) and (ii) is based on bitumen blend values. Condensate pricing is a result of supply and demand pressures for condensate.
- w) The request would involve an onerous effort, given the wide range of potential condensate sources in foreign markets. Moreover, the netback pricing reported in references (i) and (ii) is based on bitumen blend values, so the relevance of the request is not clear.
- x) The request is not relevant, since the netback pricing reported in references (i) and (ii) is based on bitumen blend values.

- y) Please see the response to Allan R IR No. 1.13w.
- z) It is confirmed that to calculate a field netback for the bitumen producer, it is necessary to know all transportation costs for condensate to the field, not just to Edmonton. However, the analysis requested is not relevant, for the reasons provided in the responses to Allan R IR No. 1.13u through Allan R IR No. 1.13y. Further, the costs for field transportation are not a matter of public record.
- aa) Confirmed.
- bb) The analysis requested is not relevant, for the reasons provided in the responses to Allan R IR No. 1.13u through Allan R IR No. 1.13y.
- cc) Confirmed.
- dd) The context of the question is not adequately defined, but it is confirmed that for a Canadian producer, netback prices are sensitive to the Canadian-US dollar exchange rate.
- ee) All else being equal, if the Canadian dollar trades at a greater discount to US dollars (that is, a weaker Canadian/US exchange rate), the netback price in Canadian dollars would increase. On the other hand, if the Canadian dollar trades at an increasing premium to US dollars (that is, a stronger Canadian/US exchange rate), the netback price in Canadian dollars would decrease.
- ff) The request is unclear, and includes an unsupported premise. However, it is noted that condensate imports would be expected to help moderate the price of condensate for bitumen producers, because imports increase the available supply. As for any commodity, an increase in supply, other things equal, will result in a fall in price. If the request is to assess what condensate prices might have been in the absence of imports, this would be a difficult and speculative exercise, and one which goes well beyond the scope of our evidence.
- gg) The netback prices shown in Table A-14 are for Cold Lake Blend (dilbit), not Cold Lake bitumen, and are inclusive of diluent. Netback prices are based on market valuations for the marketed crude streams, less applicable transportation costs. The questions related to relative condensate prices are not applicable.
- hh) Confirmed.
- ii) Confirmed, with the caveat that reference (iii) compares netback prices based on marketing diluted bitumen blends, rather than undiluted bitumen streams. We note that no analysis was done of a scenario in which the prices of imported condensate fall, which would have the opposite effect to that postulated in Allan R IR No. 1.13hh. Given the rapid increase in North American shale gas production and associated condensate, it is entirely possible that supply could increase rapidly and prices could fall. In any case, such an analysis is beyond the scope of the IHS evidence.

1.14 Netback Pricing and Benefits Analysis

Reference:

- i) Application Volume 2, Appendix A-1, Direct Written Evidence of Stephen J. Kelly, IHS Global Canada Limited (A3S0R1) !
- ii) Kinder Morgan Canada Investor Presentation, Slide 10, January 28, 2010, Ian Anderson, Presentation

Preamble:

In reference (i), page 6, it is stated that the purpose of the analysis is to address:

1. *If the TMEP is constructed as planned, is it reasonable to expect that the facilities will be highly utilized?*
2. *If the TMEP is built as planned, is it reasonable to expect that it will produce a benefit for Canadian producers in the form of higher netback prices for their crude oil production? What is the expected aggregate amount of economic gain to producers from the Project's development?*
3. *Would the TMEP provide access to new markets, and is access to these new markets a benefit to producers?*

In order to answer these questions it is necessary to develop crude oil production forecasts, and since oil sands bitumen requires imported diluent to flow through pipelines it is necessary to develop condensate import forecasts. Relying on these estimates, an oil supply forecast can be developed. As well, crude oil demand forecasts, by geographic area, and quality of crude, must be produced along with estimates of market price by crude quality or grade.

Specifically, reference (i), page 11 states that the Base Case supply/demand outlook takes into account the following key premises:

- *IHS crude price and light/heavy differential forecasts*
- *IHS North American regional crude production forecasts (Q3 2013)*
- *IHS outlook for crude market demand (type and volume) and interregional trade*
- *Rail infrastructure development for crude export is based on existing in-service capacity and proposed expansions*

In order to evaluate the reliability and relative accuracy of such significant projections, it is necessary to have access to these forecast values, underlying assumptions relied on in the analysis such as predicted oil price levels, exchange rates, domestic refinery demand, production, condensate imports, results of any sensitivity analysis undertaken, and an identification as to whether IHS and other data sources have been relied upon.

There is insufficient information provided in support of the summary findings and conclusions in reference (i).

There is insufficient explanation of the methodology relied upon by Mr. Kelly to determine if the methodology is reasonable and acceptable under the circumstances.

Reference (i) page, 7 states, “Producers with capacity on TMEP would have the opportunity to realize higher netback prices on production that is priced in the Asia/Pacific region rather than the U.S. Gulf Coast region. As compared to exports to the U.S. Gulf Coast, exports to California are expected to provide a \$3 to \$4 per barrel (constant 2012 US) netback premium to Canadian producers, and exports to Asia/Pacific markets are expected to provide a \$2 per barrel netback premium. These benefits would apply from 2018 through the end of the forecast period. The benefits associated with higher netbacks from markets in Asia are estimated at \$8 billion over the forecast period. Total benefits attributable to TMEP are \$45 billion, including both general industry benefits and higher netback prices on deliveries to Asia.”

Reference (i) on page 10 states, “The use of pipeline capacity instead of rail transportation is conservatively estimated to provide an increase in producer netbacks of \$5-6 per barrel (constant 2012 US) during the forecast period.”

Reference (i) Table 2 applies \$5 per barrel to all heavy oil supplied from Western Canada and adds an additional \$2 per barrel for heavy oil transported to Asia. It is unclear how the \$5 per barrel relates to the \$3 to \$4 per barrel and why reference (i) applied \$5 to all barrels if some is transported to California at a lesser netback.

Reference (ii), page 10 provides estimated tanker rates to Asia for 2010, whereas reference (i) page 53 provides tanker rates to Asia in 2017 that are significantly lower.

Request:

- a) Please provide all supporting data in table format (and identify sources of such data) by year, and other breakdown as appropriate to understand the figures and tables relied on to produce IHS forecasts throughout reference (i):
- 01) Figure 1, Appendix A, page 9 including the assumptions on volume shipped by rail and markets where these volumes are assumed to be shipped by rail. (Please confirm Figure 1 and Figure A-9 are the same figures. If not confirmed please provide supporting data as requested above for Figure A-9);
 - 02) Figure 2, Appendix A, page 12 and updated figures to include the NEB 2013 forecast including appendices published November 21, 2013. (Please confirm Figure 2 and Figure A-1 are the same figures. If not confirmed please provide supporting data as requested above for A-1). Please also include the complete CAPP forecast reports for 2013, 2012, 2011, 2010, 2009, 2008, 2007, 2006 and 2005;
 - 03) Table 1, Appendix A, page 12 including confirmation that “total runs” in Table 1 means “US refinery demand”. If not, please explain what total runs means. (Please confirm Table 1 and Table A-1 are the same tables. If not confirmed please provide supporting data as requested above for Table A-1);
 - 04) Table 2, page 14, including an identification of the exchange rate assumed (are the figures in Table 2 in Canadian or US dollars?), exchange rate assumptions applied if Canadian dollar prices are adjusted to reflect US dollars during the analysis and

- how and when these exchange rates are applied as part of the supporting documentation;
- 05) Figure A-2, Appendix A, page 23, including an identification of how the data in this Figure relates to Table 2 on page 14. Please incorporate NEB 2013 forecast into the background data table;
 - 06) Figure A-3, page 24, including NEB 2013;
 - 07) Table A-4, page 23, including a breakdown of refinery crude demand in Canada (by refinery) and the US (by refinery). Please also disaggregate Canadian bitumen/synthetic numbers in the green shaded area of Figure A-4;
 - 08) Table A-2, page 27, Table A-3, page 28, Table A-4 page 29, Table A-5 page 30, Table A-7, , including an identification of the IHS estimates as compared with the Oil and Gas Journal estimates;
 - 09) Figure A-7, page 33, with forecasts for crude supply sources, by source including Western Canada to 2037;
 - 10) Figure A-10 Crude Oil Pricing Dated Brent forecast, Figure A-11 Light Crude Oil Forecast, A-12, Figure A-12 Heavy Crude Oil Price Forecast;
 - 11) Table A-14 and Table A-15; and
 - 12) Figure A-13 and Figure A-14.
- b) Please explain why it is expected that in PADD V, Middle East supply sources would be displaced by Western Canadian crude, particularly if Middle East exports to the Gulf Coast are being replaced by domestic and Canadian supply, thus making available more Middle East supply for sale in the California market.
- c) Please confirm that the imports to California from Alaska arrive on tankers subject to the Jones Act and explain the significance of the Jones Act respecting transport of crude by tanker.
- d) Please explain whether or not crude oil transport by tanker between non-Alaskan ports in the US are subject to the Jones Act and if so, please confirm that transport is more expensive on a per barrel basis than transport on non-Jones Act tankers would be over the same distance.
- e) Please explain the difference in tanker transport costs related to an Aframax tanker carrying diluted bitumen from Westridge to California versus an Aframax tanker carrying diluted bitumen from a Washing state port, when the tanker from Washington state is subject to the Jones Act and the tanker from Westridge is not.
- f) Please comment on whether the Westridge dock as a waterborne access point becomes uneconomic or commercially challenged if the Jones Act is repealed or amended to remove the transport restrictions.
- g) Please confirm BP is the owner of the Cherry Point facility in Washington including marine facilities, rail facilities, refinery and storage facilities. If not confirmed, please clarify.

- h) Please provide a summary of the facilities and storage capacities at Cherry Point, the size of the tankers able to load and offload, and a description of the other marine facilities in Washington that could provide waterborne access for crude oil transported along the Trans Mountain system through Sumas to Washington state.
- i) The 2012 Worldwide Refining Survey is relied heavily upon for Appendix A and A-1. Please confirm that the 2013 Worldwide Refining Survey was released December 19, 2013.
- j) Please confirm that the 2013 Worldwide Refining Survey concludes that crude oil refining capacity worldwide fell in 2013 and that this is a drop from the highs reached in 2012 signalling a levelling off of capacity growth observed over the past three years.
- k) Please provide the 2012 Worldwide Refining Survey and the 2013 Worldwide Refining Survey.
- l) Please explain how the results in the 2013 Worldwide Refining Survey impact conclusions reached in Appendix A and Appendix A-1 and comment as to whether any of the data, discussion, tables or other evidence is to be revised based on the 2013 survey.
- m) Please confirm the condensate-blending ratio for Cold Lake Blend (Dilbit) of 30% diluent versus 70% Cold Lake Bitumen. If not confirmed please provide the blending ratio assumed in the analysis.
- n) Please explain why tanker toll rates for 2010 on Panamax would be significantly higher in 2010 in reference (ii) than they are projected to be in 2017 in reference (i). Please also confirm whether the toll rates in reference (ii) are in US or Canadian dollars and provide the actual figures and source supporting the data in the slide.
- o) Please confirm that if the pipeline cost to transport to the Gulf Coast is higher than predicted, the netback benefit to producers falls accordingly.
- p) Please confirm that the analysis assumes the US Gulf Coast sets the price for heavy crude as represented by Mexican Maya.
- q) Please confirm that the analysis assumes Western Canadian heavy oil is at parity with Maya as long as sufficient pipeline capacity exists.
- r) Please explain where Brent FOB, Cold Lake Blend FOB, and Maya FOB prices are assumed to be located (quoted) in Figure A-12.
- s) Please confirm that Cold Lake Blend FOB is quoted in Canadian dollars and provide the Canadian dollar values along with the exchange rate relied upon in price forecasts.
- t) Please confirm that if Maya and Cold Lake Blend were considered to be equivalent grades —ie close substitutes—that the price of Maya FOB and Cold Lake Blend FOB would be expected to be the same but for the cost of transport between the two FOB locations.

- u) Please describe the physical properties of Maya as compared to dilbit and whether Maya requires diluent in order to ship it by tanker from the Gulf of Mexico to the US Gulf Coast. If any diluent is required, please provide a rough ratio.
- v) Please confirm that when diluted bitumen reaches US refineries, these refineries have bought diluted bitumen, but effectively demand bitumen and the diluent needs to be removed from the bitumen before processing. That is, please confirm that US refineries demand bitumen, not condensate, and thus if blending is 30% condensate – 70% bitumen, refineries are effectively purchasing 70 percent barrels. If not confirmed, please explain.
- w) Assuming (u) above confirms that Maya does not represent a diluent blended heavy oil, please confirm that when a refinery purchases a barrel of Maya, they utilize a barrel of Maya.
- x) Please explain how the transport cost and pipeline capacity needs of imported condensate have been factored into the relative transportation costs of diluted bitumen by pipeline.

That is, has any accommodation in the analysis been made to include the transportation costs of importing diluent for blending purposes and the transportation costs related to the diluent component of the dilbit export, that effectively does not get utilized by the Gulf Coast refinery. Please explain.

- y) Please provide detailed explanation and supporting data spreadsheets relied upon to predict rail transport costs to the US Gulf Coast versus pipeline transportation costs to the US Gulf Coast.
- z) Please explain why a pipeline versus rail netback benefit to producers for heavy oil used as feedstock in Western Canadian refineries would exist.
- aa) Please explain why the \$5 - \$6 per barrel benefit from pipeline transport would exist on barrels sold into the US Midwest, California and Washington.
- bb) Please confirm that higher prices for feedstock are anticipated on volumes shipped to Washington and California. If unable to confirm, please separate the two markets and explain.
- cc) Please fully explain the development of the estimates to arrive at the \$5 per barrel netback assumed in Table 2, the \$3-\$4 mentioned on page 7 and reconcile the apparent contradiction between the use of the \$5 figure for the benefits calculation. For greater clarity, please confirm that the \$3-\$4 more per barrel is in addition to the \$5 in the Gulf. If not, please explain.
- dd) Please explain why, if producers can achieve a netback \$2 higher per barrel in Asia than in California, any oil would be shipped from Westridge to California.

Response:

- a) 01) Refer to Table 1.2A-1 (in NEB IR No. 1.02a) for the supporting data for Figure 1. The request for volumes shipped by rail and the markets where these volumes are assumed to be shipped is not relevant to Figure 1.
- a) 02) Refer to Table 1.14(a)-1 for the supporting data for Figure 2. The NEB 2013 forecast (published in November 2013) has been provided for comparison purposes. It is confirmed that Figure 2 and Figure A-1 are the same figure. The request to provide historical CAPP forecast reports for the period 2005 to 2013 is neither relevant to Figure 2 (A-1), nor to this assignment generally.
- a) 03) Refer to Table 1.14(a)-2, which provides the requested annual data for Table 1. The term “total runs” of crude oil is correctly interpreted as “US refinery demand”. It is confirmed that Table 1 and Table A-1 are the same table.
- a) 04) Table 2, as presented in the IHS report, is complete, as it provides the requested annual data. The table is denominated in US dollars.
- a) 05) Refer to Table 1.14(a)-3 for the supporting data for Figure A-2. The NEB 2013 forecast (published in November 2013) has been provided for comparison purposes. The data in Table 1.14(a)-3 (for Figure A-2) is not directly related to Table 2 on page 14, as Table 1.14(a)-3 (for Figure A-2) refers to oil sands production and Table 2 refers to heavy crude supply to the market.
- a) 06) Refer to Table 1.14(a)-4 for the supporting data for Figure A-3. The NEB 2013 forecast (published in November 2013) has been provided for comparison purposes.
- a) 07) It is assumed that the reference to “Table A-4” should read “Figure A-4”, and that the page reference should be 25, not 23. Refer to Table 1.14(a)-5 for the supporting data for Figure A-4, page 25. The requested disaggregation of Canadian bitumen and synthetic crude oil is not provided, as it is commercially sensitive material prepared by IHS, and is not directly relevant to the current proceeding. The requested breakdown by refinery in Canada and the US is an extremely onerous task that is not relevant to one or more of the List of Issues for the Project. The NEB confirmed in Hearing Order OH-001-2014 that it does not intend to consider the environmental and socio-economic effects associated with the downstream use of the oil transported by the pipeline.
- a) 08) The request confounds tables that pertain to Western Canada Crude Supply (Table A-2) and several tables of refining capacity. Refer to Table 1.14(a)-6 for the supporting data for Table A-2, on an annual basis for 2012-2037. The request for data supporting Tables A-3, A-4, A-5 and A-7 is not clear, as the tables are in fact self supporting. In any case, requests for identification or reconciliation of IHS estimates with Oil & Gas Journal data, or for disaggregation of refineries (either individually or on a regional basis) are not relevant to one or more of the List of

Issues for this proceeding and would require the disclosure of commercially sensitive data prepared by IHS.

- a) 09) Refer to Table 1.14(a)-7 for the supporting data for Figure A-7. The source of historical data is the California Energy Commission, as noted on the figure. The requested forecast of crude sources for California by source is not available and is not provided. Please refer to the responses to NEB IR No. 1.04 and 1.05 for a discussion of California as a potential market for Canadian crude.
- a) 10) Refer to Table 1.14(a)-8 for the supporting data for pricing Figures A-10, A-11 and A-12. The source of historical data is from a number of price reporting agencies. The forecasts are prepared by IHS, and are the result of an ongoing and proprietary analytical process.
- a) 11) Refer to Table 1.14(a)-9A and Table 1.14(a)-9B. The supporting data for Table A-14 (including intervening years between 2018 and 2037) is presented in Table 1.14(a)-9A and an illustrative example of each netback calculation has been provided in Table 1.14(a)-9B. The source of the netback values shown is IHS proprietary analysis relating the valuation of the individual crude oils (sweet SCO and Cold Lake Blend (dilbit)) in the markets of interest. Freight cost estimates have been provided in Table 1.14(a)-9B. Please note that modifications have been made related to the original Table A-14, as follows: (1) the analysis for SCO parity in Washington state has been revised to correct the pipeline tolls used in the original table; and (2) an additional netback mechanism has been included for Cold Lake Blend from China. The analysis now presents netback pricing based on both Arab Heavy parity and Dubai parity in China. It is noted that the lower valuation mechanism (Dubai parity) was assumed for determination of project benefits, which yields a conservative estimate of benefits.
- a) 12) Refer to Table 1.14(a)-10 for the supporting data for Figures A-13 and A-14 on an annual basis between 2015 and 2037. The source of the netback values shown is IHS proprietary analysis relating the valuation of the individual crude oils (sweet SCO and Cold Lake Blend (dilbit)) in the markets of interest.

TABLE 1.14(a)-1
WESTERN CANADA TOTAL CRUDE PRODUCTION FORECAST (FIGURE 2 DATA)
 (Thousand Barrels per Day)

	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	
IHS Q3 2013	2,509	2,692	3,004	3,249	3,455	3,663	3,924	4,183	4,376	4,537	4,659	4,810	4,941	5,064	5,187	5,313	5,438	5,564	5,686	5,811	5,930	6,038	6,143	6,247	6,351	6,454	6,564	6,678	
CAPP 2013	2,556	2,748	3,042	3,255	3,501	3,653	3,804	3,958	4,141	4,328	4,606	4,877	5,182	5,459	5,654	5,850	6,066	6,253	6,401	6,521	6,653								
NEB 2011	2,690	2,848	3,156	3,356	3,537	3,642	3,721	3,826	3,990	4,140	4,291	4,407	4,546	4,682	4,813	4,936	5,063	5,174	5,279	5,380	5,486	5,588	5,685	5,767	5,842	5,922			
NEB 2013	2,694	2,878	3,177	3,416	3,621	3,788	4,009	4,191	4,321	4,412	4,571	4,798	4,942	5,035	5,105	5,160	5,211	5,287	5,376	5,440	5,492	5,540	5,586	5,634	5,678	5,723			

Notes: (1) Table provides data points for Figure 2 in IHS report, and adds NEB 2013 forecast.

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TABLE 1.14(a)-2
TOTAL U.S. CRUDE OIL SUPPLY / DEMAND
 (Thousand Barrels per Day)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
Total Runs	15,020	15,264	15,548	15,715	15,848	15,896	15,929	15,935	15,860	15,756	15,652	15,547	15,443	15,338	15,262	15,185	15,109	15,033	14,956	14,880	14,803	14,727	14,651	14,574	
Total Capacity	17,776	17,689	17,714	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743	17,743
% Capacity Utilization	84	86	88	89	89	90	90	90	89	89	88	88	87	86	86	86	85	85	84	84	83	83	83	83	82
Production	6,521	7,336	7,549	7,768	7,962	8,121	8,235	8,249	8,359	8,367	8,326	8,234	8,133	8,079	7,925	7,834	7,728	7,653	7,593	7,539	7,518	7,514	7,503	7,513	
Canadian Imports	2,279	2,522	2,690	2,909	3,215	3,502	3,220	3,391	3,571	3,741	3,889	4,024	4,146	4,270	4,403	4,548	4,683	4,837	4,550	4,654	4,790	4,903	4,995	5,092	
Other Imports	6,133	5,522	5,457	5,263	4,911	4,512	4,740	4,532	4,221	3,982	3,770	3,634	3,510	3,336	3,266	3,123	3,007	2,844	3,109	2,976	2,781	2,593	2,435	2,248	
Total Imports	8,412	8,043	8,147	8,172	8,126	8,015	7,960	7,923	7,793	7,722	7,659	7,658	7,656	7,606	7,670	7,671	7,690	7,681	7,658	7,630	7,571	7,497	7,430	7,340	
Total Supply	14,879	15,264	15,548	15,715	15,849	15,896	15,929	15,931	15,840	15,756	15,652	15,547	15,443	15,338	15,262	15,185	15,109	15,033	14,956	14,880	14,803	14,727	14,651	14,574	

Notes: (1) Table provides intervening years for Table 1 in IHS report. Sources: Energy Information Administration statistics and IHS analysis

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TABLE 1.14(a)-3: FIGURE A-2 DATA
WESTERN CANADA OIL SANDS PRODUCTION FORECAST
 (Thousand Barrels per Day)

	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	
IHS Q3 2013	1,450	1,590	1,773	1,945	2,120	2,304	2,547	2,771	2,949	3,076	3,150	3,275	3,395	3,513	3,631	3,751	3,871	3,992	4,112	4,232	4,353	4,470	4,587	4,704	4,821	4,938	5,055	5,172	
CAPP 2013	1,470	1,619	1,797	1,985	2,158	2,280	2,443	2,590	2,766	2,946	3,223	3,497	3,801	4,074	4,262	4,454	4,666	4,845	4,983	5,090	5,208								
ERCB 2013	1,476	1,625	1,795	2,052	2,199	2,350	2,539	2,750	3,005	3,209	3,378	3,525	3,625																
NEB 2011	1,612	1,737	1,965	2,148	2,347	2,476	2,581	2,714	2,909	3,094	3,263	3,404	3,562	3,715	3,865	4,006	4,148	4,272	4,390	4,503	4,620	4,731	4,837	4,927	5,012	5,098			
NEB 2013	1,612	1,744	1,922	2,082	2,271	2,426	2,674	2,881	3,054	3,206	3,417	3,685	3,862	3,985	4,090	4,185	4,273	4,388	4,509	4,603	4,682	4,754	4,822	4,888	4,949	5,007			

Notes: (1) Table provides intervening years for Table A-2 in IHS report, and adds NEB 2013 forecast.

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TABLE 1.14(a)-4
WESTERN CANADA CONVENTIONAL CRUDE PRODUCTION FORECAST (1)
 (Thousand Barrels per Day)

	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>	
IHS Q3 2013	912	957	1,085	1,157	1,179	1,191	1,190	1,204	1,196	1,205	1,226	1,227	1,213	1,194	1,177	1,161	1,145	1,130	1,117	1,109	1,098	1,088	1,077	1,064	1,050	1,037	1,030	1,026	
CAPP 2013	949	992	1,110	1,137	1,213	1,247	1,237	1,247	1,257	1,266	1,270	1,269	1,272	1,279	1,288	1,293	1,299	1,308	1,321	1,335	1,350								
NEB 2013	940	990	1,110	1,210	1,220	1,230	1,220	1,200	1,150	1,100	1,050	1,020	970	950	910	880	830	800	770	750	710	680	660	620	610	600			

Notes: (1) Table provides data points for Figure A-3, Appendix A, page 24 in IHS report, and adds NEB 2013 forecast. Sources are as indicated.

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TABLE ALLAN 1.14(a)-5
U.S. AND CANADIAN MARKETS FOR CRUDE OIL
 (Million Barrels per Day)

	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>
U.S. Crude Production	5.5	5.7	6.5	7.3	7.5	7.8	8.0	8.1	8.2	8.2	8.4	8.4	8.3	8.2	8.1	8.1	7.9	7.8	7.7	7.7	7.6	7.5	7.5	7.5	7.5	7.5
Canadian Conventional Crude Production	1.3	1.4	1.4	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.3
Canadian Bitumen / Synthetic	1.5	1.6	1.8	2.0	2.2	2.3	2.6	2.8	3.0	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.6
Crude Imports	8.2	7.5	6.8	6.1	6.0	5.8	5.5	5.1	4.8	4.6	4.3	4.1	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.7	3.7	3.6	3.4	3.3	3.2	3.0
Total Supply (Refinery Crude Demand)	16.5	16.2	16.6	17.0	17.2	17.5	17.6	17.7	17.7	17.7	17.6	17.6	17.5	17.4	17.3	17.2	17.1	17.0	17.0	16.9	16.8	16.7	16.7	16.6	16.5	16.5

Notes: (1) Table provides data points for Figure A-4 in IHS report.

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TABLE ALLAN 1.14(a)-6
WESTERN CANADA CRUDE SUPPLY FORECAST COMPARISON
 (Thousand Barrels per Day)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	
Total Crude Supply																											
IHS Q3 2013	3,193	3,462	3,713	3,964	4,285	4,581	4,803	4,985	5,105	5,266	5,417	5,563	5,711	5,862	6,011	6,157	6,308	6,462	6,610	6,762	6,907	7,055	7,201	7,348	7,510	7,675	
CAPP 2013	3,199	3,438	3,738	3,935	4,130	4,333	4,564	4,804	5,165	5,513	5,918	6,276	6,529	6,773	7,051	7,303	7,501	7,662	7,846								
Heavy Crude Supply																											
IHS Q3 2013	1,791	2,004	2,230	2,453	2,746	2,991	3,193	3,372	3,485	3,665	3,833	3,995	4,159	4,323	4,488	4,656	4,820	4,986	5,152	5,315	5,477	5,642	5,809	5,975	6,140	6,306	
CAPP 2013	1,747	1,872	2,100	2,267	2,498	2,722	2,965	3,205	3,561	3,904	4,296	4,644	4,887	5,120	5,383	5,618	5,797	5,937	6,093								
Light Crude Supply																											
IHS Q3 2013	1,402	1,458	1,482	1,511	1,539	1,590	1,610	1,612	1,620	1,600	1,584	1,568	1,552	1,538	1,522	1,501	1,489	1,476	1,458	1,446	1,430	1,413	1,391	1,373	1,369	1,369	
CAPP 2013	1,452	1,566	1,637	1,668	1,632	1,610	1,600	1,598	1,604	1,610	1,622	1,631	1,642	1,653	1,667	1,685	1,704	1,726	1,752								

Notes: (1) Table provides data for Table A-2 in IHS report, and shows intervening years.

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TABLE ALLAN 1.14(a)-7
CALIFORNIA CRUDE SUPPLY SOURCES
 (Thousand Barrels per Day)

	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>
California	921	922	906	939	875	879	880	883	871	841	892	887	869	793	750	729	697	689	683	655	634	629	625
Alaska	879	866	819	782	814	725	731	670	608	517	446	383	394	439	388	372	290	276	240	250	237	195	211
Foreign	108	84	90	119	135	156	212	214	287	385	462	526	548	637	652	746	809	786	868	753	793	822	859

Notes: (1) Table provides data for Figure A-7 in IHS report. Source: California Energy Commission

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TABLE ALLAN 1.14(a)-8
(Current US Dollars per Barrel, unless noted)

FIGURE A-10 DATA (DATED BRENT PRICE FORECAST)
DATED BRENT PRICE FORECAST

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037		
Dated Brent, Spot FOB	28.50	24.44	25.02	28.83	38.27	54.52	65.14	72.39	97.26	61.67	79.50	111.26	111.67	105.62	94.86	93.80	96.30	99.41	102.69	106.07	109.03	111.50	113.50	115.55	117.62	119.73	121.88	124.06	126.27	128.56	130.90	133.33	135.80	138.30	140.86	143.43	146.01	148.73		
Constant Dollar Dated Brent, Spot FOB												111.26	109.73	102.41	90.36	88.00	89.00	90.50	92.00	93.50	94.50	95.00	95.00	95.00	95.00	95.00	95.00	95.00	95.00	95.00	95.00	95.00	95.00	95.00	95.00	95.00	95.00	95.00	94.97	94.98

FIGURE A-11 DATA (LIGHT CRUDE OIL PRICE FORECAST)
CRUDE OIL PRICE FORECAST

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Dated Brent, FOB	28.50	24.44	25.02	28.83	38.27	54.52	65.14	72.39	97.26	61.67	79.50	111.26	111.67	105.62	94.86	93.80	96.30	99.41	102.69	106.07	109.03	111.50	113.50	115.55	117.62	119.73	121.88	124.06	126.27	128.56	130.90	133.33	135.80	138.30	140.86	143.43	146.01	148.73
WTI, Spot Cushing	30.37	25.93	26.16	31.06	41.49	56.59	66.04	72.20	100.06	61.92	79.45	95.04	94.13	97.20	90.13	90.40	93.07	96.42	99.88	103.28	106.22	108.65	110.59	112.56	114.56	116.77	119.14	121.57	124.20	126.76	129.06	131.43	133.84	136.27	138.76	141.26	143.76	146.41
Bonny Light, FOB	28.51	24.52	25.14	28.77	38.30	55.76	67.05	74.88	101.20	63.73	81.30	113.11	112.84	107.62	97.19	97.56	100.37	103.51	106.96	110.44	113.48	116.06	118.15	120.28	122.43	124.65	126.87	129.14	131.44	133.82	136.25	138.76	141.31	143.89	146.53	149.18	151.85	154.64
MSW, Edmonton	29.79	25.25	25.48	30.68	40.43	56.52	63.60	71.53	97.42	58.09	75.18	96.41	86.20	90.70	80.38	83.70	86.32	89.61	95.06	98.45	101.41	103.77	105.60	107.46	109.36	111.46	113.73	116.05	118.56	121.01	123.16	125.40	127.67	129.96	132.30	134.65	137.00	139.48
Maya, FOB	23.07	17.16	20.97	24.22	30.02	41.00	51.25	59.81	84.39	56.69	70.24	98.73	99.58	96.27	86.34	83.64	86.00	88.84	91.11	93.66	95.90	98.16	100.09	102.04	103.98	105.96	107.86	109.79	111.72	113.76	115.94	118.16	120.42	122.71	125.05	127.41	129.77	132.26

FIGURE A-12 DATA (HEAVY CRUDE OIL PRICE FORECAST)
CRUDE OIL PRICE FORECAST

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Dated Brent, FOB	28.50	24.44	25.02	28.83	38.27	54.52	65.14	72.39	97.26	61.67	79.50	111.26	111.67	105.62	94.86	93.80	96.30	99.41	102.69	106.07	109.03	111.50	113.50	115.55	117.62	119.73	121.88	124.06	126.27	128.56	130.90	133.33	135.80	138.30	140.86	143.43	146.01	148.73
Cold Lake Blend, FOB	22.27	15.40	18.96	22.03	27.71	34.41	44.06	47.43	77.40	51.17	63.77	75.61	70.85	72.31	67.20	73.91	76.20	79.01	81.21	83.65	85.76	87.90	89.70	91.53	93.34	95.16	96.91	98.70	100.50	102.40	104.45	106.53	108.64	110.78	112.97	115.18	117.38	119.71
Maya, FOB	23.07	17.16	20.97	24.22	30.02	41.00	51.25	59.81	84.39	56.69	70.24	98.73	99.58	96.27	86.34	83.64	86.00	88.84	91.11	93.66	95.90	98.16	100.09	102.04	103.98	105.96	107.86	109.79	111.72	113.76	115.94	118.16	120.42	122.71	125.05	127.41	129.77	132.26

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**TABLE 1.14(a)-9A
OIL SANDS NETBACK VALUES AT EDMONTON (1)(2)**

Crude/Netback	Pricing Basis (Location/Crude)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Inflation Factor (2012 = 1.00)		1.10	1.11	1.13	1.15	1.17	1.20	1.22	1.24	1.26	1.28	1.31	1.33	1.35	1.38	1.40	1.43	1.46	1.48	1.51	1.54
Current U.S. Dollars per Barrel																					
Sweet SCO																					
From Midwest / USGC ⁽³⁾		103.05	106.60	109.71	112.23	114.26	116.32	118.42	120.72	123.20	125.73	128.48	131.16	133.56	136.04	138.55	141.10	143.70	146.32	148.94	151.70
From Washington	Puget Sound, MELS Parity	109.95	113.61	116.82	119.65	121.92	124.21	126.57	128.86	131.25	133.68	136.13	138.71	141.29	144.13	147.01	149.93	152.91	155.94	158.97	162.16
From Japan	Yokohama, Bonny Light Parity	104.68	108.27	111.42	114.04	116.18	118.38	120.60	122.87	125.14	127.47	129.84	132.28	134.77	137.33	139.93	142.55	145.24	147.94	150.65	153.50
Cold Lake Blend (DilBit)																					
From Midwest / USGC ⁽³⁾		81.21	83.65	85.76	87.90	89.70	91.53	93.34	95.16	96.91	98.70	100.50	102.40	104.45	106.53	108.64	110.78	104.49	106.48	108.46	110.56
From California	Los Angeles, ANS Parity	85.04	88.00	90.57	92.80	94.47	96.29	98.09	99.81	101.63	103.49	105.37	107.36	109.34	111.51	113.71	115.92	118.19	120.48	122.76	125.18
From China	Shanghai, Arab Heavy Parity	86.12	89.12	91.66	93.89	95.60	97.41	99.21	100.97	102.81	104.68	106.57	108.56	110.56	112.74	114.95	117.19	119.49	121.80	124.12	126.56
From China	Shanghai, Dubai Parity	83.14	86.09	88.59	90.77	92.42	94.18	95.92	97.63	99.41	101.22	103.05	104.98	106.91	109.03	111.18	113.35	115.58	117.83	120.07	122.44
Forecast in Constant 2012 US Dollars per Barrel																					
Sweet SCO																					
From Midwest / USGC ⁽³⁾		93.95	95.63	96.77	97.31	97.32	97.32	97.34	97.48	97.73	97.99	98.37	98.63	98.64	98.64	98.63	98.63	98.63	98.62	98.58	98.59
From Washington	Puget Sound, MELS Parity	100.25	101.91	103.04	103.74	103.85	103.93	104.03	104.04	104.11	104.18	104.23	104.31	104.35	104.50	104.66	104.80	104.95	105.11	105.22	105.38
From Japan	Yokohama, Bonny Light Parity	95.44	97.12	98.28	98.88	98.96	99.04	99.13	99.21	99.27	99.34	99.41	99.47	99.53	99.57	99.61	99.65	99.68	99.72	99.71	99.75
Cold Lake Blend (DilBit)																					
From Midwest / USGC ⁽³⁾		74.04	75.04	75.65	76.21	76.40	76.58	76.72	76.83	76.88	76.91	76.95	77.01	77.14	77.24	77.34	77.44	71.71	71.77	71.79	71.85
From California	Los Angeles, ANS Parity	77.53	78.93	79.89	80.46	80.47	80.57	80.62	80.59	80.62	80.65	80.68	80.73	80.75	80.85	80.95	81.04	81.12	81.20	81.25	81.35
From China	Shanghai, Arab Heavy Parity	78.52	79.94	80.85	81.40	81.43	81.50	81.54	81.53	81.55	81.58	81.60	81.64	81.65	81.75	81.83	81.92	82.01	82.10	82.15	82.25
From China	Shanghai, Dubai Parity	75.80	77.23	78.14	78.70	78.72	78.80	78.84	78.83	78.85	78.88	78.90	78.94	78.96	79.05	79.15	79.23	79.33	79.42	79.47	79.57

Notes: (1) Table provides data for Table A-14, Appendix A, page 53 in IHS report, with intervening years and additional information and corrections. Source is IHS analysis.
 (2) Netback values assuming price parity at each market location; not a forecast price unless noted.
 (3) Indicates IHS forecast price.

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**TABLE 1.14(a)-9B
OIL SANDS NETBACK VALUES AT EDMONTON - 2018 (1)**

Western Canadian Crude	Synthetic Crude Oil	Synthetic Crude Oil	Cold Lake Blend	Cold Lake Blend	Cold Lake Blend
Benchmark Crude	Middle East Light Sour (2)	Bonny Light	Alaskan North Slope	Arab Heavy	Dubai
Origin	Ras Tanura, KSA	Bonny Terminal, Nigeria	Valdez, AK	Ras Tanura, KSA	Fateh, UAE
FOB Price	97.41	106.93	n/a	96.73	99.15
Add: Transportation					
Destination	Puget Sound, WA	Yokohama, Japan	Los Angeles, CA	Shanghai, China	Shanghai, China
Tanker class	VLCC/Panamax	VLCC	n/a	VLCC	VLCC
Freight Cost	4.91	4.11	n/a	2.37	2.23
Credit / Other Fees	<u>0.77</u>	<u>0.41</u>	n/a	<u>0.14</u>	<u>0.15</u>
Total Transportation	5.68	4.52	n/a	2.51	2.38
Landed Cost	103.10	111.45	102.72	99.25	101.53
Add: Refining Differential	10.96	0.97	-11.91	-4.61	-9.88
Parity Price of Western Canadian Crude	114.06	112.42	90.81	94.64	91.65
Less: Transportation from Vancouver					
Tanker class	n/a	Panamax	Panamax	Panamax	Panamax
Freight Cost	n/a	3.28	1.37	3.96	3.96
Credit / Other Fees	n/a	<u>0.08</u>	<u>-0.05</u>	<u>0.12</u>	<u>0.12</u>
Total Transportation	n/a	3.36	1.32	4.07	4.07
Less: Trans Mountain Toll					
Destination	Sumas	Westridge	Westridge	Westridge	Westridge
Pipeline	4.10	4.38	4.45	4.45	4.45
Netback Price, Edmonton	109.95	104.68	85.04	86.12	83.14

Notes: (1) Supporting analysis for Table Allan 1.14(a)-9A, providing detail for netback price calculations.
(2) Crude quality assumed to be equivalent to Arab Light.

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TABLE ALLAN 1.14(a)-10
NETBACK PRICE COMPARISONS
 (Constant 2012 US Dollars per Barrel)

	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>	<u>2031</u>	<u>2032</u>	<u>2033</u>	<u>2034</u>	<u>2035</u>	<u>2036</u>	<u>2037</u>
SCO, EDMONTON - LLS, ST. JAMES																							
SCO Price Forecast	-2.28	-2.34	-2.32	-2.23	-2.15	-2.07	-2.03	-1.99	-1.95	-1.90	-1.87	-1.83	-1.79	-1.76	-1.72	-1.69	-1.66	-1.62	-1.59	-1.56	-1.53	-1.50	-1.46
SCO Parity, WA	4.47	4.50	4.79	4.55	4.66	4.70	4.89	4.97	5.10	5.22	5.13	4.98	4.82	4.49	4.32	4.37	4.54	4.70	4.86	5.02	5.19	5.35	5.51
SCO Parity, Chicago	-0.82	-0.88	-0.86	-0.77	-0.69	-0.61	-0.58	-0.55	-0.52	-0.48	-0.45	-0.42	-0.39	-0.36	-0.33	-0.31	-0.28	-0.25	-0.23	-0.20	-0.18	-0.15	-0.13
SCO Parity, Patoka	-2.28	-2.34	-2.32	-2.23	-2.15	-2.07	-2.03	-1.99	-1.95	-1.90	-1.87	-1.83	-1.79	-1.76	-1.72	-1.69	-1.66	-1.62	-1.59	-1.56	-1.53	-1.50	-1.46
SCO Parity, Cushing	-7.86	-7.99	-8.01	-7.94	-7.85	-7.75	-7.68	-7.61	-7.55	-7.47	-7.40	-7.34	-7.27	-7.22	-7.16	-7.10	-7.04	-6.98	-6.92	-6.86	-6.80	-6.74	-6.68
SCO Parity, Japan (TMPL)	-0.46	-0.37	-0.75	-0.74	-0.65	-0.56	-0.46	-0.35	-0.23	-0.11	-0.13	-0.29	-0.44	-0.72	-0.88	-0.80	-0.72	-0.65	-0.57	-0.50	-0.44	-0.37	-0.30
COLD LAKE BLEND, EDMONTON - MAYA, FOB																							
DilBit Price Forecast (Expansion Scenario)	-9.29	-9.34	-9.23	-9.03	-8.98	-8.94	-8.90	-8.85	-8.79	-8.75	-8.72	-8.68	-8.64	-8.59	-8.54	-8.49	-8.43	-8.38	-8.34	-14.11	-14.11	-14.10	-14.10
DilBit Price Forecast (Reference Scenario)	-9.29	-9.34	-9.23	-14.02	-14.05	-14.08	-14.10	-14.10	-14.10	-14.11	-14.12	-14.13	-14.13	-14.13	-14.13	-14.12	-14.12	-14.11	-14.11	-14.11	-14.11	-14.10	-14.10
DilBit Parity (Maya Coking, Chicago)	1.21	1.11	1.19	1.23	1.25	1.25	1.24	1.23	1.22	1.20	1.18	1.16	1.16	1.17	1.19	1.20	1.20	1.21	1.21	1.21	1.21	1.20	1.20
DilBit Parity (MELS, California)	0.00	0.00	-6.72	-5.81	-5.35	-4.97	-4.93	-5.07	-5.11	-5.17	-5.29	-5.27	-5.24	-5.19	-5.13	-5.18	-5.13	-5.08	-5.03	-4.99	-4.96	-4.92	-4.89
DilBit Parity (Maya Coking, Wood River)	-0.62	-0.73	-0.65	-0.60	-0.58	-0.57	-0.57	-0.58	-0.58	-0.60	-0.62	-0.62	-0.61	-0.59	-0.57	-0.55	-0.53	-0.51	-0.50	-0.49	-0.48	-0.48	-0.48
DilBit Parity (Maya Coking, USGC by Pipeline)	-9.29	-9.34	-9.23	-9.14	-9.10	-9.06	-9.05	-9.02	-9.00	-9.00	-8.97	-8.92	-8.85	-8.78	-8.71	-8.64	-8.58	-8.53	-8.48	-8.43	-8.39	-8.35	-8.35
DilBit Parity (Dubai Cracking, China by TMEP (Te			-7.94	-7.27	-6.79	-6.45	-6.41	-6.53	-6.58	-6.62	-6.73	-6.71	-6.68	-6.64	-6.60	-6.67	-6.62	-6.58	-6.54	-6.50	-6.46	-6.42	-6.38
DilBit Parity (Maya Coking, USGC by Rail)	-14.08	-14.06	-14.02	-14.02	-14.05	-14.08	-14.10	-14.10	-14.10	-14.11	-14.12	-14.13	-14.13	-14.13	-14.13	-14.12	-14.12	-14.11	-14.11	-14.11	-14.10	-14.10	-14.10

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- b) The two sources of crude (specifically Middle East and Western Canadian) are not mutually exclusive in the PADD V market. Please refer to the responses to NEB IR No. 1.04 and NEB IR No. 1.05, which also address the California market.
- c) This information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Project.
- d) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Project.
- e) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Project.
- f) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Project.
- g) Confirmed.
- h) Please refer to the response to Allan R IR No. 1.14g regarding the BP facilities at Cherry Point. The request for information about other marine facilities in Washington state that could provide waterborne access for crude oil transported along the Trans Mountain system through Sumas to Washington state is not a matter of public record.
- i) Not confirmed. The 2014 Worldwide Refining Survey (the latest available) was released on December 2, 2013.
- j) It is not possible to confirm the request, which appears to be inaccurately paraphrased from the 2014 Worldwide Refining Survey. It is not clear how the high level (that is, global) conclusions drawn from the 2014 Worldwide Refining Survey are directly relevant to this proceeding.
- k) The Oil & Gas Journal Worldwide Refining Surveys for 2013 and 2014 (not 2012 and 2013) are subject to copyright restrictions and do not form part of the Trans Mountain evidence in this proceeding.
- l) IHS has not undertaken the analysis described in the request, and cannot comment on how the availability of the 2014 (not 2013) Worldwide Refining Survey from the Oil & Gas Journal might impact conclusions in its report. IHS has not been requested to revise its evidence on this basis. However, IHS notes that the refining capacity in China is unchanged between the surveys, which suggests that no change would be necessary based on this statistic.
- m) Please refer to the response to Allan R IR No. 1.07i.
- n) The Trans Mountain generated chart from 2010 shown on page 10 in reference (ii) was used for the primary purpose of illustrating the 'relative' cost for tanker shipments of various sizes as noted in the footnote. For the Application Trans Mountain relies on the evidence of Mr. Kelly in reference (i). IHS notes that tanker rates are subject to free

market forces, so the actual rates in any given year are determined by the forces of supply and demand for tanker capacity.

- o) Confirmed.
- p) Confirmed.
- q) The IHS analysis assumes Western Canadian heavy oil will price at Maya parity once it reaches the US Gulf Coast in sufficient quantities to compete and clear in that location. Prices could be discounted below Maya parity if pipeline capacity is not adequate.
- r) Brent is priced at Sullom Voe, in the North Sea. Cold Lake Blend is priced at Edmonton. Maya is priced at the Gulf of Mexico loading port, Coatzacoalcos.
- s) Cold Lake Blend may be quoted in Canadian or US dollars. The price forecast is made in US dollars.
- t) This is confirmed only for the situation where the two crudes are priced in parity at a given location.
- u) The properties of Maya are available elsewhere. Please also refer to the response to Eliesen M IR No. 1.03ccc. Maya is a full range crude as received at the US Gulf Coast, so the request for diluent blending requirements is not applicable.

Reference:

P.M.I. Comercio Internacional S.A de C.V. 2013. Types of crude oil. 14 August 2013. https://www.pmi.com.mx/Public/Paginas/Tipoproducto_En.aspx?IdSec=27&IdPag=128, Acquired: 5 May 2014.

- v) Not confirmed. Refineries purchase and value crudes based on their aggregate characteristics. Refiners purchasing diluted bitumen do not do so with the intention of removing diluent before processing. Diluted bitumen is a full range crude, and the refiner processing it does so with the intention of utilizing it in their facilities to produce finished products. This is the basis for valuing diluted bitumen, just as it is the basis for valuing any other crude. To suggest otherwise, in IHS' view, demonstrates an incorrect understanding of refinery processing fundamentals and refining economics. Refer to the response to Eliesen M IR No. 1.05f, which also addresses this misconception about the refining process for diluted bitumen.
- w) Maya is a full range crude. IHS confirms that the refinery processing it does so with the intention of processing it through their facilities to produce finished products. Please also refer to the response to Eliesen M IR No. 1.05g.
- x) The costs of diluted bitumen transportation by pipeline are expressed per barrel of crude shipped. No allowance has been made in the transportation costs of diluted bitumen by pipeline for the costs of importing diluent, nor should any such allowance be made. Please refer to the responses to Allan R IR No. 1.14v and Eliesen M IR No. 1.05f for

IHS' view on diluent use in a US Gulf Coast refinery, as it appears that there is an incorrect understanding of refinery processing fundamentals.

- y) Rail and pipeline transportation costs are determined using public sources to the extent possible. Regarding rail transportation, cost estimates are determined from the rail system operators, if available. Given that the use of railroads to transport crude is growing, reliable cost estimates are difficult to obtain. For this reason, we have relied on investor presentations provided by the railroads and by crude producers, as well as other publicly available sources, to estimate rail transportation costs.

For pipeline transportation costs, IHS relies primarily on current toll information as approved by the National Energy Board in Canada and by the Federal Energy Regulatory Commission (FERC) in the United States. Where multiple routings are possible between the origin and destination, the lowest available spot toll for the route in question is utilized.

- z) Western Canadian refineries would pay the same price as other refineries for their feedstock, based on the fact that there is only one price for the heavy crude commodities that they process. Any increase in the netback price arising from a pipeline (as opposed to rail) netback would affect their feedstock costs in a similar manner.
- aa) Please refer to the response to Allan R IR No. 1.14z. The same logic would apply for refineries in other regions.
- bb) Confirmed.
- cc) There is no contradiction in the netback estimates or in the use of the figures. For greater clarity, the \$5-6 per barrel netback benefit is attributed to the differential between pipeline and rail transportation. It is forecast to come about in the Expansion Scenario as additional takeaway pipeline capacity is made available. This benefit would apply to all Western Canadian heavy crude supply to the market, on the premise that different grades compete against each other. The increase in netback prices resulting from the realization of pipeline transportation economics would apply to all heavy crude grades.

As suggested in the latter part of the question, the \$3-4 per barrel increase in crude prices attributed to deliveries to California is confirmed to be additive to the \$5 per barrel netback increase applicable to all heavy crude. This netback would apply only to crude delivered to the California market. The rationale for the incremental \$3-4 per barrel increase in crude prices for California deliveries (and for the incremental \$2 per barrel increase for China deliveries) is that the value of heavy crude in these markets is higher than the US Gulf Coast netback price by these amounts, based on the IHS spot market parity price estimated in relation to the value of alternative imported crudes into that market. In other words, at the US Gulf Coast clearing price, these markets should find Canadian heavy crude attractively priced against their imported crude alternatives, and could pay as much as \$3-4 per barrel more (in California) or \$2 per barrel more (in China).

The IHS report notes that California and China (as well as other Asian countries) are expected to have greater reliance on imported crude over the forecast period. In regard to the China and California netback forecasts, the IHS analysis is conservative for several reasons. First, no benefits have been assumed to result from the higher netbacks that potentially would be available from California. IHS made this conservative assumption because of the uncertainty associated with the California market, as explained in NEB IR No. 1.04 and 1.05. Second, it assumes deliveries to Asia/Pacific markets would be made using term tolls for deliveries less than 75,000 B/D on Trans Mountain. This assumption assigns higher costs to these deliveries. Third, for exports to China, IHS assumed that only 50 percent of the crude shipped in the expanded Trans Mountain Pipeline would realize the uplift associated with the China spot market netback price. IHS noted in NEB proceeding RH-001-2012 that “limitations will apply to any comparison of netback prices from different markets. Such a comparison may be useful, but will not necessarily capture the economic incentives for all shippers, particularly if the comparison includes those making crude deliveries on both term and spot basis.” Consistent with this expressed concern, IHS prepared the netback analysis in this proceeding based on the conservative assumption that no incremental benefits would be claimed for higher Asia/Pacific netback prices on 50 percent of the crude deliveries in the expanded Trans Mountain system.

- dd) The premise of the question is incorrect. For clarity, IHS notes that the netback prices shown in Figure A-14 do not point to a \$2 per barrel higher price in Asia than in California. Rather, Figure A-14 and the response to Allan R IR No. 1.14cc confirm that the California spot market parity price is \$3-4 per barrel higher than the US Gulf Coast price. The China spot market parity price is approximately \$2 per barrel higher than the US Gulf Coast price. Therefore, the California spot market price is approximately \$2 per barrel higher than the China spot market price.

Despite the erroneous premise posed in the question, the idea that oil might be shipped to markets offering a lower netback price is consistent with the market diversification sought by the shippers in the expanded Trans Mountain Pipeline. The ability to serve different customers in different locations is a feature of a well-functioning market. In the face of volatile and uncertain markets, the industry has sought diversification as a way to spread their risk across several markets. For their part, individual producers will seek the highest valued market outlets for their production, consistent with their corporate strategies and capabilities.

1.15 Economic Benefits Presentation Materials

Reference:

- i) Trans Mountain Pipeline ULC - Consultation Update No. 1 Errata (A59343), Appendix C, including A3V3R2 to A3V3S8.
- ii) \$50 Million A Day, Canadian Chamber of Commerce, September 17, 2013, Brochure
- iii) Top 10 Barriers to Competitiveness 2013, Canadian Chamber of Commerce, February 12, 2013 Brochure available as pdf to link.
- iv) Kinder Morgan Analyst Conference, January 29, 2014, Comments by Kinder Morgan Canada President, Ian Anderson, Presentation
- v) Application, Volume 2, Appendix A-1, page 14, Table 2, (A3S0R1)
- vi) RH-2-2011, Reasons for Decision, page 5.
- vii) Application, Volume 2, Appendix B, page 28,

Preamble:

Trans Mountain has made a number of public representations about the vast benefits and minimal risk from its project in support of its Application. The forums include open houses, workshops, one-on-one meetings, presentations, website, online feedback forms, printed materials and digital media including social media. These representations have also included 16 Economic Benefits Presentations along the route from Edmonton to Burnaby with an overall attendance of 1,300 stakeholders.

Reference (i) page 2-12 includes a screen shot of the Economic Benefits for Trans Mountain Expansion Project. There is no transcript of the video available.

Reference (i), Appendix C, provides a list of the 16 communities, organizations and groups that Kinder Morgan Canada representatives made presentations to over the period October 21, 2013 to November 28, 2013. Trans Mountain also provided the audience with a handout of a brochure titled "\$50 Million A Day" produced by the Canadian Chamber of Commerce.

Reference (i) slide 1 states that "the US needs less, Asia needs more (oil)." It also states that "lack of market access has cost Canada as much as \$50 million a day." Slide 4 in reference (i) claims, "Canada can no longer rely on the US as the destination for virtually all its oil exports.

Reference (v) and elsewhere in the Application there are numerous references to the importance of California and other west coast states as "new" markets for Trans Mountain's intended throughput.

Reference (iv) as transcribed from the audio states, "As a result of pipe capacity, limited access to global markets...we continue to see discounts between Brent, WTI and Canadian Mixed Sweet blends. In the bottom left you see what that spread has meant over the last several years anywhere from \$5 to \$10 dollars a barrel up to north of \$25 a barrel. (The) Canadian Chamber of Commerce came out with a report late last year that said that spread, that limited access to markets, the differential that Canadian producers see adds up to about \$50 million a day in lost revenues and profits to the Canadian economy. So that's the spread, the royalties, the taxes, it's all related. So it's a significant challenge, a significant issue."

Reference (vi) explains that, “Trans Mountain stated that the volumes shipped off the Westridge dock and the number of tankers required to move those volumes are affected by several factors, including market demand and customers’ requirements for specific lot sizes. In addition to the limitations caused by the need to ship in lots, a physical limitation exists due to the amount of tank storage available at the Dock. Based on existing physical limitations, Trans Mountain advised that the Westridge dock could currently ship upwards of 23 900 to 31 800 m³/day (150,000 to 200,000 bpd). In March 2009, shipments off the Westridge dock peaked at 22 700 m³/day (143,000 bpd).”

Reference (ii) states that, “What’s at stake for Canada is millions of jobs, tax revenues and other economic benefits. Several reputable businesses and research organizations have attempted to quantify exactly what’s at stake for the Canadian economy:

- A 2012 CIBC report argued that transportation bottlenecks are causing Canadian oil to be sold well below world prices, resulting in a *\$50 million dollar a day loss* to Canadian oil producers at that time.
- A 2012 Canadian Energy Research Institute report claims that failing to realize currently planned pipeline projects could cause Canada to forego *\$1.3 trillion in GDP and \$276 billion in taxes* between 2011 and 2035.
- A 2013 Canada West Foundation report stated each stalled pipeline project that would open up access to world markets costs the country *\$30 to \$70 million in forgone economic benefits every day.*”

Reference (i) makes numerous references to an approximate 4,500 jobs at peak construction and provides a graph with estimated project workforce from February 2016 - November 2017 with July 2017 peaking at ~4,500. There is no indication that the estimate is workers by month.

Reference (vii) provides an estimate of 28,202 person years of employment figures attributable to the development of the project.

Request:

- a) Please confirm that the brochure made available to attendees at the presentations outlined in reference (i) is reference (ii). If not confirmed please provide a copy of the brochure that was handed out and relied on at the presentations. If reference (ii) was provided as a handout, please table it as evidence.
- b) Reference (iv) mentions Canadian mixed sweet blends. Please identify where in the Canadian Chamber of Commerce brochure, or the third party references the Canadian Chamber of Commerce sites, where Canadian mixed sweet blends are mentioned.
- c) Please provide price data for Canadian mixed sweet blends and relate that commodity to the product intended for export along the Project.
- d) Did Kinder Morgan Canada, or any company in the Kinder Morgan family, contribute in whole or in part to the preparation of the document produced by the Canadian Chamber of Commerce in reference (ii)? If so, please explain the nature of the contribution and the amount the funding.

- e) Did any representatives of the Kinder Morgan family discuss the preparation of the brochure prior to its publication? If so, who spoke to the Canadian Chamber of Commerce and what was the substance of those conversations?
- f) When Trans Mountain elected to rely on reference (ii) were there any discussions held with the author(s) of the report to determine the accuracy or reliability of the \$50 million a day figure. If so, what was the substance of those conversations and what material or information did Trans Mountain provide to support the figure?
- g) Did Trans Mountain contact any of the organizations mentioned in reference (ii) as sources for estimates that \$50 million a day is lost because of lack of market access? If so, please provide details of which parties were contacted and what information, data, documentation, or other proof they provided to support the loss claim.
- h) Was Trans Mountain (KMC) aware of reference (iii) prior to it being referenced in this Information Request? If yes, when did Trans Mountain become aware of reference (iii)
- i) If yes to (h), please confirm that Trans Mountain understands that the figures in reference (ii) were originally published in reference (iii) seven months earlier. If Trans Mountain (or Kinder Morgan) provided funding for reference (ii), was Kinder Morgan aware of reference (iii) at the time the funding was provided.
- j) Please provide Trans Mountain's understanding of how the Canadian Chamber of Commerce derived the \$50 million per day estimate.
- k) Please provide a copy of the 2012 CIBC report mentioned in reference (ii) and indicate where in that report it argues "that transportation bottlenecks are causing Canadian oil to be sold well below world prices, resulting in a \$50 million dollar a day loss to Canadian oil producers at that time".
- l) Please indicate where in the CIBC report filed in response to (k) above data is provided, or analysis offered to explain how the \$50 million a day figure was developed and over what time horizon that \$50 million a day was thought to be "lost"
- m) Did Trans Mountain draw the attention of the Government of BC to the Chamber of Commerce's brochure (either before or after it was published) during any of its meetings with provincial officials or elected representatives? If so, please provide dates and the names of the officials at the meeting where the \$50 million a day figure was discussed.
- n) If Trans Mountain undertook any analysis to confirm the Canadian Chamber of Commerce's claims prior to relying on the Chamber's brochure prior to making its presentations to the public, please provide Trans Mountain's calculations and all supporting documentation relied upon prior to presentations made to the public.
- o) Please confirm that Mr. Anderson's reference to a \$25 per barrel increase in the price of crude oil in reference (iv) translates to roughly 15 cents a litre at the pumps if the crude oil price increase is passed on by the refinery to the end user. If not confirmed, please provide a clear and fulsome discussion of the impact at the pumps if the price of crude

- oil for Western Canadian production increased by an average of \$25 per barrel, on all barrels, because of increased pipeline throughput capacity.
- p) Please explain the apparent contradiction between the public communication materials whereby it says in reference (i) Canada can no longer rely on the US as the destination for virtually all its oil exports and reference (v) clearly illustrates how dependent the Trans Mountain Expansion Application is on US markets. Reference (v) assumes only 354,000 barrels a day of crude oil will flow to Asia over the twenty year time horizon.
 - q) Please explain why, if the Westridge dock could ship up to 200,000 barrels a day, and if as claimed in reference (iv) producers are suffering as much as \$25 per barrel loss because of lack of waterborne access, shipments off the Westridge dock peaked at 143,000 barrels per day in 2009.
 - r) Reference (i) page 2-12 includes a screen shot of the Economic Benefits for Trans Mountain Expansion Project. There is no transcript of the video available. Please provide a transcript of the video narrative.
 - s) Please confirm the video relies on the \$50 million a day loss as a reason for building Trans Mountain pipeline. If not confirmed, please explain.
 - t) Please confirm that the video on Trans Mountain's website at 20 seconds claims, "Right now Canada is losing out on more than \$50 million a day....more than \$15 million for federal and provincial services every day." If not confirmed, please provide a transcript for this section.
 - u) Please provide all research, tables, data and materials relied on to conclude that the federal and provincial tax rate on \$50 million a day in lost revenues is 30% to achieve the claim that \$15 million a day in lost public services is a result of the Trans Mountain expansion project not having been already built.
 - v) Please explain what the claim that there are "~4,500 jobs at peak construction" means.
 - w) Please confirm that the graph provided by Trans Mountain means ~4,500 person months of employment in about July of 2017. Please provide all the data supporting the graph with monthly person years of employment.
 - x) Please define a "job", a "worker", and a "person year of employment".
 - y) Please confirm that it is typically understood that a job is a job, and that if a person is a pipefitter for a company, and works for that company for five years, that is not "five jobs", that is understood to be five person years of employment.
 - z) Please reconfirm that the underlying assumption in Trans Mountain's economic case is the same level of oil supply will exist with or without the project proceeding, and that if Trans Mountain does not expand some other transportation facility will such that many of the positions available for the expansion project could easily be provided by the alternative transportation systems developed to support the predicted oil supply. If not

confirmed, please explain how the alternative transport service capacity could be provided without employing workers.

- aa) Please confirm that KMC does not build pipelines but will let contracts to tender to qualified engineering and construction firms that are in the business of building pipelines.
- bb) Please provide a list of possible companies that could take the lead on the construction and engineering development for the “Project”.
- cc) Please confirm that these firms have their own core workforce that would be expected to be employed during the construction phase of Trans Mountain’s expansion just as they would be expected to be employed without it on some other alternative activity.
- dd) Please provide details as to how Trans Mountain calculated its project workforce figures and include a discussion as to the proportion of the workforce that would be expected to consist of experienced workers already employed in established construction/engineering firms.
- ee) Please indicate how the figures in Project Workforce as provided as a graph in the public consultation presentations from reference (i) relate to the direct person years of employment (28,202) estimate developed through project development I/O modelling undertaken by the Conference Board. Please reconcile the two sets of figures.

Response:

- a) Confirmed. Trans Mountain declines to submit the brochure as evidence to this proceeding. Trans Mountain relies on the evidence in the IHS report in Volume 2 Appendix A which reaches a similar \$50 million conclusion. IHS states on page 7, footnote 3: “IHS estimates that Western Canadian producers would have received between \$15-19 billion in incremental revenue in 2012, had they been able to bring their crude oil to other markets”. This range equals \$41 billion to \$52 billion annually.
- b) Mixed sweet blends (MSW) are not mentioned in the Canadian Chamber of Commerce brochure.
- c) Refer to Volume 2 Appendix A Figure A-11, Light Crude Oil Price Forecast for mixed sweet blend (MSW) pricing. Crude oil pricing and price relationships for crudes including SCO and Cold Lake can be found throughout pages 47-57 in the IHS report.
- d) Trans Mountain’s contribution was in the form of financial support totalling \$5,250 in sponsorship funding to the Canadian Chamber of Commerce’s Market Access Research Project. Funding support is acknowledged at the end of the report.
- e) Yes Trans Mountain provided general pipeline background information including the nature and purpose of Project.
- f) Trans Mountain is not relying on reference (ii) as evidence in this proceeding. Trans Mountain relies on the IHS report addressing supply and markets and The Conference Board of Canada report for economic benefits. Trans Mountain has made reference to

the Canadian Chamber of Commerce report to and other related info graphic material to assist with communication efforts.

- g) No.
- h) Yes. Trans Mountain was aware of reference (iii) in February of 2013.
- i) Confirmed. Trans Mountain understood that the estimate referenced in the Canadian Chamber of Commerce report was derived from the sources as cited, including the CIBC report.
- j) Trans Mountain understands that the estimate in the Canadian Chamber of Commerce report was derived from the sources as cited.
- k) Trans Mountain does not have a copy of the CIBC report. The quote from CIBC report author Andrew Potter, was reported by Nathan Vanderklippe of the Globe and Mail on March 12, 2012.
- l) Refer to Allan R IR No. 1.15k.
- m) Trans Mountain did not draw the attention of British Columbia to the report before it was published. After its publication the report became widely available from a variety of public sources. Trans Mountain has no record of any specific discussion with British Columbia about the report.
- n) No analysis was undertaken by Trans Mountain.
- o) Not confirmed. Mr. Anderson was referring to a \$25 per barrel increase in Canadian crude prices and not the world price of crude as may be being suggested in the question. The 15 cent reference was not made by Mr. Anderson. The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- p) There is no contradiction as claimed in this Information Request. Reference (i) is information prepared by the Canadian Chamber of Commerce and provided by Trans Mountain as part of its communication efforts. The Project is supported by well-capitalized and sophisticated parties that have executed long term contracts for capacity. Markets for imported crude in regions accessible from the Westridge facilities are large and growing, as demonstrated in the IHS report. Please refer to Trans Mountain response to NEB IR No. 1.04 and Eliesen M IR No. 1.04h for additional discussion about the California market.
- q) Allocation of capacity on the existing Trans Mountain pipeline system including in 2009, is subject to an allocation formula that distributes available capacity between land and dock shippers. 143,000 bpd was the volume delivered off the Westridge dock after accounting for land deliveries.

- r) The following is the transcript of the Economic Benefits video for Trans Mountain Expansion Project as referenced above. The video is available on the project website.

The Trans Mountain Pipeline has a long and successful history in Canada, from the first discovery of oil in Leduc, Alberta, to the remarkable engineering feat of building the pipeline across the Rockies from Northern Alberta to Burnaby, BC in 1953.

60 years later, the Trans Mountain Pipeline is planning to expand to keep up with growing demand.

Right now, Canada is losing out on more than \$50 million dollars a day in oil revenues. That means a lot of jobs and tax revenues – more than \$15 million for federal and provincial government services every day.

Trans Mountain is proposing to twin the existing 1,150-kilometre pipeline to expand capacity from 300,000 barrels a day up to 890,000.

This will provide improved access to world markets and assist in recovering these lost revenues.

Now is the time to seize this global opportunity.

Trans Mountain is already investing in engineering designs and environmental studies, with an estimated project cost of \$5.4 billion. Operating costs over the first 20 years will be another \$3.0 billion. That means lots of benefits for Canadians.

It means \$2.1 billion in additional federal taxes and \$1.7 billion in additional provincial taxes. Over 20 years, Kinder Morgan will pay \$500 million in additional municipal taxes, funding services in our communities. These are real financial benefits that will support families and communities into the future.

In Burnaby, in one year alone, tax revenues could be used to hire 132 extra firefighters or more than cover the annual garbage collections costs. BC could add more than 5,600 nursing hours or pay for 345 MRI tests.

Every time a tanker docks at Westridge Marine Terminal in Burnaby, it brings \$310,000 in value to the local economy.

4,500 jobs will be created at the peak of construction, with an emphasis on local hiring.

Workforce spending will add more than \$400 million in spending on accommodation, food and recreation.

Businesses supplying construction materials, equipment, and labour for the Greater Vancouver area will benefit from an estimated \$800 million in purchases and contracts.

These are all lasting benefits. Over the economic life of the proposed project, Trans Mountain will add billions of dollars to Canada and to local communities.

Taxes will support services, jobs will support families, and as Canadians we will have an asset that unlocks access to world markets and continues to support our economy.

The proposed Trans Mountain Expansion Project will provide a lasting legacy.

Visit transmountain.com to explore local opportunities and see the benefits of our proposed expansion.

- s) Not confirmed. The reference to \$50 million is intended to illustrate the magnitude of incremental revenue for Canadian producers had they been able to bring their crude oil to other markets. A similar estimate was reached by IHS in their report. Trans Mountain relies on the IHS report addressing supply and markets and The Conference Board of Canada report for economic benefits. Volume 1 of the Application pages 1-4 through 1-5 describe the Purpose, Economics and Benefits of the Project.
- t) Confirmed.
- u) Trans Mountain is not claiming as stated in the Information Request that “\$15 million a day in lost public services is a result of the Trans Mountain expansion project not having been already built.” Trans Mountain notes that The Conference Board of Canada report calculated that the increase in producer revenues of \$45.4 billion estimated in the IHS report over the first 20 years of operation, which is attributable to the market access provided by the project, will result in a total of \$14.7 billion in additional revenue to federal and provincial governments from corporate income taxes and royalties. Therefore, approximately 32% of the higher producer revenues will be captured by the federal and provincial governments, and will presumably increase their ability to finance public services.
- v) During peak construction Trans Mountain estimates it will require a workforce of approximately 4,500 full time equivalent workers. These workers will be spread across different areas of construction including: tanks, pump stations, pipeline, docks, and environmental work. Various different functions will be required, from land clearing to equip operations to welding to reclamation and restoration.

- w) Trans Mountain can confirm that the graph does depict an estimate of 4,475 full time worker months of employment in the period of July of 2017. The data supporting the graph is shown here:

	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
Tanks	0	39	47	64	76	146	249	328	426	499	528	542
Pump Stns	0	0	0	9	41	142	322	570	806	890	924	851
Pipeline	0	0	0	0	634	1,492	2,250	2,354	2,469	2,295	2,343	1,064
Docks	0	18	36	55	82	95	95	95	95	95	95	95
Environmental	0	0	0	0	51	65	65	78	111	144	155	111
Total	0	57	84	128	884	1,941	2,981	3,426	3,907	3,924	4,044	2,663
	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17
Tanks	565	565	565	565	565	565	565	542	478	362	223	0
Pump Stns	678	413	194	64	14	0	0	0	0	0	0	0
Pipeline	1,924	3,003	2,652	624	1,073	2,803	3,685	3,344	3,233	2,650	2,046	0
Docks	95	95	95	95	95	95	95	95	95	50	36	14
Environmental	111	111	111	64	112	159	130	95	95	109	109	0
Total	3,373	4,188	3,617	1,412	1,858	3,622	4,475	4,076	3,901	3,171	2,414	14

- x) Depending on the context and the use of vernacular or technical terms, a job is an activity that occupies a person's time; the state of being employed; an act or instance of employing a person. In this instance, a job is used to refer to a person being in a state of employment.

A worker is a person who works in an activity or occupation, or a person in a state of employment. Depending on the use of vernacular or technical terms, a "worker" could refer to an individual who works, or it could be used as shorthand for one FTE (full time equivalent) worth of employment, which could be spread across several different individuals. In the context of this analysis, the latter definition is applicable.

A person year of employment is a measure of the amount of work that would employ an FTE worth of work. For example, this could mean that four people were each employed 25% of the time for a year.

Trans Mountain defines a job as the condition of a person being in a state of employment.

Trans Mountain defines a worker as a person in a state of employment; in this context it is synonymous with one full time equivalent (FTE) worth of employment.

Trans Mountain defines a person year of employment as employment sufficient to occupy an FTE for year. For example, this could mean a single person employed full time for a year, four people each occupied 25% of the time for a year, or 12 people each employed full time for a month.

- y) Trans Mountain confirms that if a single person is continuously employed for five years that is the equivalent of five person years of employment.

- z) Trans Mountain confirms that in the IHS analysis the volume of supply is independent of the number of pipelines built. Trans Mountain has not evaluated the jobs impact of other transportation alternatives but agrees that employment would likely be created.
- aa) Confirmed.
- bb) Engineering design for the Trans Mountain Expansion Project (the Project) is a coordinated effort of engineering consulting companies, with the large majority based in Alberta and British Columbia:

Engineering Companies:

- UPI, AB
- HMM-Pipeline Engineering Services, BC
- OPUS Stewart Weir, AB
- BGC Engineer, BC
- OEC Industrial Project Services, AB
- Dynamic Risk Assessment Systems, AB
- Willbros, USA
- APPLIED SCIENCE ASSOCIATES INC, USA
- SI Consulting, AB
- HJ Ruitenbeek Resources Consulting, BC
- McElhanny Consulting Services, BC
- Ausenco Sandwell, BC
- Worley Parsons, AB
- Stantec, AB
- Fransen (Tetra Tech), BC
- CH2M Hill, BC
- Moffatt and Nichol, BC
- EBA Engineering, AB,
- Golder Associates, BC
- EML Environmental, BC
- EBA Engineering (TetraTech), AB
- LANTEC MARINE INC, NS
- Witt: O'Brien's, USA

Trans Mountain cannot speculate on who will be capable of constructing the Project. In parallel with the Project engineering and detailed design, a construction execution plan and a list of qualified contractors will be identified. These strategic documents will be confidential.

As included in the Application, Volume 5B, Section 7.0: Socio-Economic Effects Assessment, page 191 the Project is committed to maximize the use of local, regional, Aboriginal, provincial and Canadian businesses during the construction and operation of the Project.

- cc) Trans Mountain cannot speculate on the workforce makeup of any firm(s). Trans Mountain also cannot speculate on any firm's workforce employed on any other alternative activity.
- dd) Estimation of direct construction workforce for the Trans Mountain Expansion Project (the Project) was based on development of a preliminary construction schedule and estimation of contract crews along the pipeline for both pipeline and facilities. The estimation was based on past experience and knowledge of pipeline and facilities construction, and historical crew sizes utilized during construction of these projects. The direct construction workforce estimates will be revised during the detailed design and construction planning phase.

Trans Mountain is unable to speculate on the proportion of the workforce make-up consisting of employees of engineering and construction firms. As noted in Appendix B of Volume 2 of the Application, The Trans Mountain Expansion Project: Understanding the Economic Benefits for Canada and its Regions, The Conference Board of Canada, the economic impacts assume that there is sufficient capacity in the economy to conduct the work. The report also notes on page 11 that project spending "is equivalent to 8.7 per cent and 1.9 per cent respectively of total construction expenditures in British Columbia and Alberta in 2011." This spending will also be spread out over several years, thus the effect of pipeline construction "crowding out" other types of investment is expected to be limited. As well, it is likely that any investment that is crowded out will be pushed forward or backward in time, thus the net impact would be minimal.

- ee) The Project workforce figures are a subset of and are consistent with the overall provincial estimates prepared by the Conference Board. Inputs to the Input-Output (I/O) model (known as shocks) include not only construction but also cost items such as pipe, pumps, and other equipment and materials. Each direct expenditure will generate estimates of gross domestic product and employment (including direct, indirect and induced). The direct employment full-time equivalents (FTEs) estimated by the I/O model will thus reflect far more than just those that are directly involved in project construction, and so it is to be expected that direct FTEs as estimated by the model will be greater than the direct construction workforce estimates.

1.16 Fate and Behaviour of Diluted Bitumen in a Fresh Water Environment

Reference:

- i) Application Volume 7, Risk Assessment and Management of Pipeline and Facility Spills, Qualitative Ecological Risk Assessment of Pipeline Spills, Stantec Consulting, Technical Report 7-1, page i Executive Summary, page 6-30 and page 6-31, (A3S4W9)
- ii) Robyn Allan, Why NEB's Gateway Report is Vulnerable to Legal Assault, Tye, January 20, 2014, Article
- iii) UP-Epifluorescence Microscopy Analysis of Sediments Recovered from the Kalamazoo River, Kenneth Lee, Jay Bugden, Susan Cobanli, Tom King, Claire McIntyre, Brian Robinson, Scott Ryan and Gary Wohlgeschaffen, Centre for Offshore Oil, Gas and Energy Research (COOGER) Fisheries and Oceans Canada, Report
- iv) US Environmental Protection Agency Response to Comments Regarding Proposed Work Order to Enbridge Energy Partners, March 14, 2013, Report
- v) Kalamazoo River Spill Responders "Writing the Book on Submerged Oil Clean-up", Article
- vi) US EPA Volume Estimate for Submerged Line 6B Oil in the Kalamazoo River, Appendix 2, May 1, 2013, Thomas P. Graan, Ph.D., Weston Solutions, Inc. (WESTON) Ronald B. Zelt, Professional Hydrologist (Water Quality), U.S. Geological Survey (USGS), Report
- vii) United States Environmental Protection Agency, Dr. Kerri-Ann Jones to US Department of State, regarding Keystone XL and diluted bitumen, April 22, 2013, Letter
- viii) Enbridge Energy, Limited Partnership Line 6B Incident, Marshall, Michigan Conceptual Site Model – 2013 Report

Preamble:

Reference (i) states that, "A literature review was conducted to identify and acquire information on actual and modelled spills of heavy crude oils in the freshwater environment, and case studies were selected to inform predictions about the potential fate and transport and ecological effects of a diluted bitumen spill resulting from the Project. Actual spill case studies included the Kalamazoo River spill, East Walker River spill, Pine River spill, Wabamun Lake spill, Yellowstone River spill, OSSA II Pipeline spill, and the DM 932 barge spill, with crude oil types ranging from light crude oil to diluted bitumen and bunker type products."

Reference (i) page 6-30 and 6-31 states that, "On July 25, 2010, Enbridge's Line 6 pipeline ruptured in a wetland near Marshall, Michigan. Approximately 3,200 m³ (843,444 US gallons) of heavy crude oil containing diluted bitumen was released over a period of about 17 hours. The pipeline contained two different batches of crude oil at the time of the spill, and it is estimated that the spilled oil comprised approximately 77% Cold Lake Winter Blend diluted bitumen and 23% Western Canadian Select crude oil (National Transportation Safety Board [NTSB] 2012).

Of this, approximately 1,300 m³ (337,386 US gallons) reached Talmadge Creek and the Kalamazoo River (Enbridge 2013a).

Reference (i) footnote (Enbridge 2013a) links to a website that has not been updated since 2011.

Reference (i) also states that, "At the spill site, crude oil was released below grade level. The crude oil was forced from the pipeline under pressure into the surrounding soils and emerged to the ground surface. The released oil flowed overland through forested scrub-shrub wetland, following local topography, to Talmadge Creek (Enbridge 2013b). Despite the proximity of the oil spill location to Talmadge Creek, only about 40% of the spilled oil entered the aquatic environment, the remainder being recovered at the spill site, or in the wetland between the spill site and Talmadge Creek."

Reference (i) also states that, "as part of the response to the spill, Enbridge prepared a Conceptual Site Model (CSM, Enbridge 2011, 2013b) that was reviewed and approved by the Michigan Department of Environmental Quality. The CSM provides the best available description of the conditions at the time of the spill, and the behaviour and fate of the spilled crude oil in the environment. Much of the information presented below originates from the CSM."

Reference (ii) explains that Enbridge misled the NEB Joint Review Panel in its reporting of the amount of oil that reached Talmadge Creek and the Kalamazoo River and the amount that sank or submerged. Reference (ii) details the history of events and references a series of research reports that provides a very different assessment of the risk and consequences of a diluted bitumen spill in a fresh water environment than Enbridge's accounting relied on in reference (i).

In August 2012 Fisheries and Oceans Canada's Centre for Offshore Oil, Gas and Energy Research offered its in-kind services to the U.S. Environmental Protection Agency (EPA). Canadian scientists received sediment samples from the EPA and analyzed the effectiveness of a submerged oil identification technique known as UV fluorescence.

Fisheries and Oceans Canada findings were released Oct. 24, 2012 and are referenced in (iii) above. The research concluded, "in the initial stages of the cleanup operations, UV-fluorescence was able to highlight the presence of bulk oil.... However, as cleanup operations proceeded ... oil within the sediments was reduced to low concentrations ... this, coupled with quenching of dispersed oil droplets, resulted in our subsequent inability to detect traces of the residual oil by ... UV illumination."

References (ii) - (vii) are publicly available references that contradict the narrative provided in reference (i).

Reference (viii) is the Enbridge Michigan Conceptual Site Model that was over-ruled by reference (vi).

Request:

- a) Were the authors of reference (i) aware of reference (ii) - (vii) in the preparation of the risk assessment for the Project application?
- b) If yes to (a), why is no reference made in reference (i) to examples of third party evidence contradicting Enbridge's claims regarding the fate, transport, behavior and ecological impact of diluted bitumen spilled into Talmadge Creek and the Kalamazoo River?

- c) If the authors were not aware of reference (ii) - (vii) how is the statement in reference (i) claiming that a literature review was undertaken, an adequate representation?
- d) Please explain how Technical Report 7-1 would be altered or amended if case study materials relied on to determine, fate, transport and ecological effect of a diluted bitumen spill for the Kalamazoo River, were found to severely underestimate the amount of oil that made its way to fresh water, the amount that sank, the amount not yet recovered and the severity of the damage to the biosphere.
- e) Please explain how Technical Report 7-1 would be altered or amended if the case study materials referenced as emanating from Enbridge Inc. and its affiliates, and relied on to determine the ecological effect of a diluted bitumen spill overestimate the rate and likelihood of ecological recovery.
- f) Please provide a detailed discussion and analysis of reference (ii) – (vii) and how the results, directives, or conclusions regarding the fate and behaviour of diluted bitumen and potential environmental effects contained in these references affect Trans Mountain’s Project application. Please include in this response:
 - 1) whether references (ii) – (vii) supports or contradicts any findings or conclusions in Trans Mountain’s application;
 - 2) whether the discussion and analysis in (ii) – (vii) necessitates any changes to conclusions in the Project application regarding oil fate and behaviour, potential environmental effects, and emergency preparedness and response planning.
- g) References cited in reference (i) for Enbridge 2013b is written as: “Enbridge. 2013b. Conceptual Site Model-2013 Enbridge Energy, Limited Partnership, Line 6B Incident, Marshall, Michigan. Originally submitted April 1, 2013. Approved April 25, 2011.” Please confirm that the reference should read, “Approved April 25, 2013.”
- h) Please confirm that the Conceptual Site Model relied on for much of the information relating to the Kalamazoo spill in the Application predates reference (vi) and thus reference (vi) would serve to direct Enbridge in its development of estimates for submerged oil.
- i) Did Reference (i) indicate that the Kalamazoo spill was from a 30” diameter pipe? If so, please provide the reference in (i). If not, how did the smaller size of the Enbridge pipeline inform the conclusions reached in the assessment of Line 6B as a case study when the proposed project is a 36” diameter pipe?
- j) Was any factoring of the implications of a 36” diameter pipe taken into account in the assessment in reference (i). If so, please explain, if not, please explain.
- k) Please file reference (iii) - (iv) (vi) and (vii) as evidence.

Response:

- a) The authors were aware of some, but not all, of references (ii) – (vii).
- b) Reference (i), pages 6-30 to 6-33 provides a summary of the fate of crude oil that was spilled into the Kalamazoo River as a result of the Enbridge Line 6B accident during

2010, current to the summer of 2013. Reference (i) was finalized in November, 2013. The information summarized was obtained primarily from sources that were considered to be reliable, including but not limited to the U.S. National Transportation Safety Board (NTSB), the U.S. Environmental Protection Agency (USEPA), and documents prepared by Enbridge for review and approval by the Michigan Department of Environmental Quality (MDEQ) and/or USEPA. In addition to Enbridge, which has legal and financial responsibility for the accident, these are the entities responsible for investigating the accident, and for managing the clean-up and environmental remediation of the accident.

Reference (ii) is an opinion piece authored by the intervener and published in an online news magazine on January 20, 2014. By virtue of the publication date, reference (ii) was not available to the authors when reference (i) was being prepared. Reference (iii) is a report from Fisheries and Oceans Canada concerning a test of a UV-epifluorescence technique to detect crude oil residues in sediments. The method was not found to be particularly reliable in this application. The report does not quantify crude oil residual in the Kalamazoo River, nor does it support inferences regarding the potential toxicity or environmental effects of such residues, and as such is not directly relevant to the qualitative ecological risk assessment that is the focus of reference (i). Reference (iv) dated 14 March 2013 is a USEPA document that consolidates discussion between USEPA and Enbridge regarding the distribution, delineation and future actions to be taken with respect to crude oil remaining in the Kalamazoo River. While presenting divergent views, reference (iv) does not present a consensus or conclusions. Many of the USEPA positions in this discussion are summarized in the USEPA (2013) document cited in reference (i). Reference (v) is a newspaper article dated July 24, 2011. Journalistic pieces are not usually used as references in scientific or technical documents, particularly when primary documents, such as those cited in reference (i), are available. Reference (vi) dated May 1, 2013 is a technical appendix detailing the USEPA calculation of the quantity of oil residual in the Kalamazoo River at that time. The document and estimated volume (180,000 gallons) are the basis for the volume reported by USEPA (2013) as cited in reference (i), and this volume estimate can be found on page 6-32 of reference (i). Reference (vii) is a letter from USEPA to officials at the U.S. Department of State. The letter is stamped April 22, 2013, although it is unclear whether it was released to the public on that date. The letter provides comment regarding several aspects of the proposed TransCanada Keystone XL Project, but is not a primary source of information regarding the fate and environmental effects of crude oil spilled into the Kalamazoo River.

Reference (i) states clearly that as a result of the Enbridge Line 6B accident, oil was entrained with sediment and debris, incorporated into river bedload, and transported towards geomorphological traps in the river bed, and that as of June 2013, the USEPA estimated that approximately 180,000 gallons of oil remained in the river bottom sediment. As illustrated by reference (iv), back-and-forth between Enbridge and regulatory agencies such as USEPA is a normal and expected part of the process leading to consensus about the nature and scope of environmental liabilities, and helps to focus the process of remediation. Where the authors of reference (i) relied on information prepared by Enbridge (*i.e.*, Enbridge 2013 /reference (viii)), it was in a format

that had been reviewed and approved by MDEQ and therefore represents a consensus between Enbridge and a regulator. The findings of the NTSB investigation were also relied upon, as was information from the USEPA and other investigators.

- c) See response to Allan R IR No. 1.16b.
- d) This is a hypothetical question. Technical Report 7-1 was based upon information that was current at the time of writing.
- e) This is a hypothetical question. The Enbridge Conceptual Site Model (reference (viii)) and the USEPA estimate of the volume of crude oil remaining in the Kalamazoo River have not to our knowledge been updated. Several studies of ecological effects within the Kalamazoo River are also referenced in Technical Report TR 7-1 in Volume 7, Qualitative Ecological Risk Assessment of Pipeline Spills Technical Report (Stantec December 2013). The findings of these studies are independent of uncertainty regarding the estimated volume of crude oil remaining in the river. Further, Technical Report TR 7-1 was not based solely upon information from the Enbridge Line 6B accident, but reflects the findings of a variety of studies evaluating the environmental effects of crude oil spills to rivers.
- f) See responses to Allen R IR No. 1.16b and Allen R IR No. 1.16e.
- g) Confirmed. The date on which MDEQ granted approval to the 2013 Conceptual Site Model prepared by Enbridge was April 25, 2013, not 2011.
- h) As noted in the response to Allan R IR No. 1.16b, and illustrated by reference (iv) introduced by the intervenor, a considerable amount of back-and-forth between Enbridge and regulators such as USEPA and MDEQ is to be expected. However, reference (i) does not include any estimate of the volume of crude oil residual in the Kalamazoo River that was prepared by Enbridge, nor does Enbridge (2013)/reference (viii) contain any such estimate. Only the USEPA (2013) estimate of 180,000 gallons was given on page 6-32 of reference (i). Therefore there is no conflict or contradiction between information from references (viii) and (vi) that was used in reference (i).
- i) Reference (i) did not explicitly state the 30" diameter of the Enbridge Line 6B pipeline. The pipe diameter, however, is less important than the volume of oil spilled, which is provided in Section 6.2.2.1 of the Qualitative Ecological Risk Assessment of Pipeline Spills Technical Report (Application Volume 7, TR 7-1).
- j) The hypothetical oil spill scenarios developed for the qualitative analysis in reference (i) were site-specific, based upon technical analysis carried out by Trans Mountain (see Section 3 and Appendix A of Application Volume 7), considering the most current pipeline routing, and used as their base case a 36" diameter pipe. This analysis provided a realistic credible worst case oil spill volume at each of the selected hypothetical spill locations.
- k) Trans Mountain Pipeline ULC does not adopt the references cited by Allan, R as its evidence.

1.17 Spill Risks

Reference:

- i) Volume 7, Risk Assessment and Management of Pipeline and Facility Spills, (A3S4V7), Appendix A-1, Threat Assessment Report.
- ii) Volume 7, Environmental Risk Assessment, Westridge, (A3S4X1)
- iii) ESA, Volume 5B, Project Overview page 4-2 Alberta and BC including insert new corridor, lower mainland, page 2, (A3S1R6)
- iv) Consequence of Risk Aggregation: A Lesson From the Fukushima Disaster, Dr. Praveen Malhotra, Strongmotions, October, 1, 2013, Report

Preamble:

Reference (i) “documents the results of threat (sic) identification process that was undertaken in support of a risk assessment on the Trans Mountain Expansion Project.” The report provides a formula for identifying the product failure likelihood, and the consequences of failure: $R = FF \times C$ where:

R = Risk
FF = Failure Frequency
C = Consequences

In order to characterize risk, estimates of failure likelihood are required. Reference (i) further explains that “The pipeline route is provided in Figure 2, this assessment covers the new pipeline segments only (coloured in blue in Figure 2).”

Reference (i) states that, “The primary objective of a threat assessment is to review the attributes for all potential threats to a pipeline system in consideration of the status of the materials, design, construction and operational variables that are associated with the pipeline system of interest.

Through this review, the relevance and severity of each threat can be assessed in the context of the operating environment for the pipeline being reviewed.”

Reference (i) states that, “The threat assessment documented in this report was conducted on the NPS 30/36 Trans Mountain Expansion pipeline segments, approximately 987 km in length that will transport heavy crude oil from Edmonton, Alberta to Westridge, British Columbia.”

Reference (ii) examines the ecological risk assessment of a spill from the tanker loading activities at the Westridge marine terminal. “The primary focus of this PQERA is the evaluation of the potential negative environmental effects to marine ecological receptors resulting from hypothetical accidental crude oil spills of Cold Lake Winter Blend (CLWB, a representative diluted bitumen) during marine vessel loading at the WMT. This included the evaluation of a range of hypothetical spill scenarios including a credible worse case (CWC) spill of 160 m³ or a smaller spill that could occur at the WMT during product loading and consideration of a range of weather and marine conditions that could prevail during the spill event, including season-specific behaviour, trajectories, and fate.”

Reference (ii) concluded that, “As a result of federal regulations regarding fish habitat and migratory bird habitat, it is considered that any release of crude oil to the marine environment would justify an effect magnitude rating of High.”

Reference (ii) defines the Regional Study Area for its assessment, “Selection of the RSA boundaries considered the confined nature of this system of inlets and the fact that effects associated with spills originating at the Westridge Marine Terminal are not expected to extend westward beyond the mouth of English Bay. The Regional Study Area for the PQERA is shown in Figure 4.1.”

Figure 4.1 clearly identifies that the RSA boundary excludes areas of impact from the spill assessed in Scenario 1 of reference (ii).

Reference (iii) provides an insert map of the existing and alternative corridor proposed through the north part of Surrey, BC and into Burnaby. This illustration of the land and air exposed to spill risk reveals a much larger footprint than if the corridor was the same footprint as that related to the existing pipeline right of way.

Reference (iv) explains that risk cumulates when facilities are in close proximity. For example, a twin pipeline poses more risk to human health and the environment than a single pipeline.

Substantially more tanks in a storage tank farm, increases the need for mitigation and insurance, but if the risk assessment is undertaken as if the aggregate of the facilities are not in close proximity, the need for mitigation and insurance can be underestimated.

Request:

- a) For purposes of the Application, did Trans Mountain undertake a threat identification process in support of a risk assessment on the existing Trans Mountain pipeline system? If yes, please provide the threat identification and related risk assessment along with any other relevant reports that provide an analysis corresponding to that undertaken in reference (i). If not undertaken, please explain why not.
- b) If no in (a) please confirm that a threat identification and risk assessment of the threats to the existing pipeline system have never been undertaken. If not confirmed, please provide the report(s).
- c) If confirmed that a Threat Assessment Report similar to reference (i) has not been undertaken for the existing Trans Mountain pipeline system, please confirm that the threats identified in the Application only represent the proponent’s estimates of threats for the marginal expansion to the pipeline system as identified in the Application and not the pipeline system as a whole.
- d) Please confirm that Trans Mountain agrees the public interest concern in this public hearing required under section 52 of the NEB Act relates to the threats facing the entire Trans Mountain system if the project proceeds including the existing system, not simply the threats from the marginal changes to the system as contemplated in the expansion application.

- e) If confirmed in (d) please explain why Trans Mountain would exclude the existing pipeline system in the identification of threats and risk assessment in a public interest hearing.
- f) If not confirmed in (d) how does Trans Mountain plan to undertake an assessment of cumulative effects if the risk related to the existing pipeline system is not considered in the environmental assessment?
- g) For greater clarity, please clearly define which portions of the pipeline expansion system are excluded from the scope of reference (i) as well as a listing of the portions of the existing system which are excluded from the scope of reference (i). In particular please clarify that the scope of reference (i) includes only the new pipeline segments and thus excludes portions of the original pipeline intended for reactivation, and/or does not include the “loop” constructed and operated under CPCN OC-49 issued for the TMXAnchor Loop Expansion.
- h) If (d) is confirmed, please indicate whether Trans Mountain would be willing to revisit its various risk assessment analyses undertaken and incorporate the threats and risks related to the existing Trans Mountain pipeline system, along with the portions of the proposed expansion now excluded from the analysis, in order to facilitate an understanding of the threats to, and risk of, the entire pipeline system once capacity is expanded on both the current and proposed pipelines.
- i) If not, confirmed in (d) please explain in detail Trans Mountain’s understanding of how it can meet the public interest concern regarding “all potential threats to a pipeline system in consideration of the status of the materials, design...and operational variables that are associated with the pipeline system...” when the existing Trans Mountain system materials, design, and operational variables are explicitly excluded from consideration.
- j) Please confirm that the assessment undertaken in reference (ii) does not include potential biophysical impacts outside the RSA. If not confirmed, please explain how the assessment included impacts outside the RSA.
- k) Reference (i) indicates that a, “ Threat Assessment Workshop was conducted on the Trans Mountain Expansion Pipeline (TMEP) at the Kinder Morgan office in Calgary, AB.” A list of 29 participants from KMC and its associates is presented. If the existing Trans Mountain Pipeline is excluded from the Threat Assessment, please provide information as to whether any of the participants in the Threats Assessment Workshop:
 - i) raised the issue of the impact the exclusion of the threats to the existing pipeline would have on the threat assessments process related to the expanded pipeline. If so, please provide an explanation of the nature of their comments and concerns;
 - ii) suggested the failure likelihood estimation on the existing pipeline system would be greater than the failure likelihood estimation on the expansion to the existing system (or conversely that the failure frequency would be lower on the expansion as compared to the existing pipeline and related facilities), along with the details of the comments made.

- l) Has Trans Mountain considered aggregate risk as defined in reference (iv) in any of its risk assessment studies. If not, please explain why not.
- m) Is Trans Mountain aware of the aggregate risk posed by its project, particularly as it pertains to the location of the new pipeline and proximity of new storage tanks to existing storage tanks? Please explain fully Trans Mountain's understanding of aggregate risk and how this understanding would affect the risk assessment conducted to date.
- n) Please confirm Kinder Morgan's understanding of the role aggregate risk plays in determining insurance premiums related to spill liability and identify which Kinder Morgan employee is responsible for the answer.
- o) Please explain fully Kinder Morgan's view of the combined likelihood and consequence of the spill risk posed by the proposed corridor submitted as illustrated in reference (iii) as compared with the combined spill risk of a corridor that parallels the existing right of way.
- p) Please identify where in the Application a discussion of the spill risk related to a twinned pipeline right-of-way versus new corridor right-of-way is discussed or addressed.
- q) Does Trans Mountain believe that the threat of a spill from its existing 60 year old pipeline is greater than the threat of a spill from its proposed pipeline. Please provide both a qualitative and quantitative response.
- r) Does Trans Mountain believe that the aggregated spill risk from its existing pipeline and its proposed expansion presents a greater risk to human health and the environment than the sum of the individual risk evaluation of the two pipelines conducted separately. Please include in the answer a discussion regarding the analysis provided in reference (iv).
- s) Please indicate where in the Application an assessment of the spill risk at the storage tank farms has been provided, specifically with respect to the Burnaby Mountain tank farm.

Response:

- a) As indicated in response to NEB IR No. 1.87c, the two existing active pipe segments in the Trans Mountain Pipeline system (TMPL) that will be incorporated into Line 2 are the only segments within scope of the Project, and they are currently being managed under Kinder Morgan Canada Inc.'s (KMC's) Integrity Management Program and are subject to regular risk assessment under KMC's Risk Management Program for operating pipelines. This regular re-evaluation of risk is currently in progress on these segments, and the results will be filed with the NEB when completed in Q3 2014.
- b) Please see response to Allan R IR No. 1.17a.
- c) Please see the response to Allan R IR No. 1.17a.
- d) Refer to the response to Allan R IR No. 1.01a.

e) Please refer to the response to Allan R IR No. 1.17d.

It is important to note that Trans Mountain has committed to the following pipeline integrity management actions for existing pipeline segments in addition to the proposed Line 2:

- For the Reactivation Segments, as committed to in the response to NEB IR No. 1.86:
 - Trans Mountain will submit to the NEB final engineering assessment by the end of Q3 2014.
 - Trans Mountain will file a Threat-Based Assessment for the reactivation segments in Q3 2014.
 - Trans Mountain will submit an updated engineering assessment incorporating the results of the hydrostatic testing and the in-line inspection and repair program prior to the reactivation of the pipeline segments.
- For the currently active segments of Line 1 that will form part of Line 2, as committed to in the response to NEB IR No. 1.87:
 - Submit the risk results for the two existing active pipe segments that will be incorporated into Line 2 using KMC's risk model for operating pipelines in a supplemental filing in Q3 2014.
- For the sections of Line 1 that will remain in their current operation as part of that pipeline:
 - Trans Mountain's pipelines are managed through a Pipeline Integrity Management Program that utilizes regular re-evaluations of risk as the basis for identifying and prioritizing assessment and risk mitigation actions.
 - The risk assessment is updated on an annual basis to reflect mitigation efforts such as repairs or capital upgrades associated with our Natural Hazards Management Program.
 - In this regular re-evaluation of risk, High Consequence Areas receive an enhanced weighting in the risk assessment, and a higher priority for any consideration of assessment and mitigation.

f) Please refer to the responses to Allan R IR No. 1.01a and 1.01v.

g) The risk assessment referred to in reference (i) pertains to newly-constructed portions of Line 2. As described in response to Allan R IR No. 1.17l, this risk assessment is being performed in support of a risk-based design. As described in responses to NEB IR No. 1.86c and 1.87c, separate assessments are being performed for the re-activation segments and the existing segments of Line 1 which will become part of Line 2, respectively.

h) Please see the response to Allan R IR No. 1.01a. Trans Mountain will incorporate data collected over the last 60 years on the existing Trans Mountain Pipeline system as input to the hazards and threats in the risk assessment on the Trans Mountain Expansion Project.

- i) Please see response to Allan R IR No. 1.01a.
- j) The Ecological Risk Assessment of Westridge Marine Terminal Spills (reference ii) provides an assessment of potential effects to various ecological receptor groups and habitats which could result from hypothetical loading accidents. The Regional Study Area (RSA) for this assessment includes all of Burrard Inlet to the mouth of English Bay.

Potential effects resulting from hypothetical spills at other locations along the marine transportation route (outside the RSA for the Westridge Marine Terminal Spills report) are provided in Volume 8B technical report TR8B-7, Ecological Risk Assessment for Marine Transportation Spills (Stantec Consulting Ltd. 2013).
- k) The existing pipeline segments were not discussed at the noted Trans Mountain Expansion Project threat assessment because they were not part of the scope of the planned workshop.
- l) Aggregate risk, as defined in reference (iv) was not determined in the Line 2 risk assessment. A broad variety of potential terms of reference and scope exist when conducting any risk assessment. In order to select the most appropriate terms of reference and scope, it is important to ensure that the results of the risk assessment will adequately answer the questions and address the need that prompted the undertaking of the risk assessment in the first place. In this case, because the risk assessment is being undertaken in support of a risk-based design of Line 2, the risk assessment focused on that pipeline. Risk-based design is an iterative approach that evaluates and prioritizes risks, and their associated risk drivers, and then establishes mitigation measures to be incorporated into the design to address the principal risks. Because risk-based design is a process that focuses on identifying and pre-empting risk, it is a more rigorous approach than more traditional design approaches that don't incorporate the findings of specific risk assessments to identify and pre-empt risks.
- m) Please refer to the response to Allan R IR No. 1.17I.
- n) Aggregation of risk is one of the components that an underwriter would assess when making a decision whether or not to underwrite a business in a particular geographic region. The Kinder Morgan insurance program that Trans Mountain has access to covers a number of assets that are geographically dispersed across North America. Kinder Morgan has kept the insurance providers informed of the Project as it progresses and will continue to do so. As detailed in Trans Mountain's response to NEB IR No. 1.08f, if the Project is approved and given similar market conditions Kinder Morgan does not expect the \$750 million coverage limit will change even after taking into account the expanded system.
- o) As committed to in the response to NEB IR No. 1.81a, Trans Mountain will submit the completed risk assessment for Line 2 in Q3 2014. The completed risk assessment will provide detailed information regarding failure likelihood and spill consequence. In support of a risk-based design as defined in the response to Allan R IR No. 1.17I, this risk assessment will address the currently proposed corridor. It is important to note that a

variety of risk-mitigation measures, including threat avoidance are considered in the iterative risk-based design process.

- p) As committed to in the response to NEB IR No. 1.81a, Trans Mountain will submit the completed risk assessment for Line 2 in Q32014. As discussed in the response to Allan R IR No. 1.17l, this risk assessment is being completed in support of a risk-based design of Line 2, and as such, the risk assessment focuses on that pipeline in order to establish mitigation measures to be incorporated into the design of that pipeline. As noted in the response to Allan R IR No. 1.17o, this risk assessment will address the currently proposed corridor and establish whether mitigation measures are required.
- q) Trans Mountain employs a risk-based integrity management program to maintain safety on existing pipelines and to minimize the potential for spills. Within this program, existing pipelines are subject to the same (or similar) risk assessment methodologies that are being used for the proposed pipeline, with the risk assessment updated on an annual basis to reflect mitigation efforts such as repairs or capital upgrades associated with the Natural Hazards Management Program.

Within the context of risk-based integrity management, age is only one of many factors that are evaluated to identify areas for assessment and risk mitigation. Age is a factor in the evaluation of time-dependent threats, such as corrosion, which can be effectively managed by ensuring that in-line inspection intervals occur at a frequency that mitigates the threat of a corrosion related pipeline failure. The same risk-based integrity management techniques will also be applied to the reactivated pipeline segments that are included in the Project. As indicated in the response to NEB IR No. 1.86, the results of these assessments will be filed as a Technical Supplemental to the NEB in Q3 2014.

Technological development over the course of 60 years has advanced pipeline metallurgical quality, engineering standards and practices, and driven construction improvements. The risk of a failure on a new pipeline is extremely low. Similarly, technological advancement has been incorporated into today's integrity management programs, including risk management, and these programs are designed and regulated to reduce the risk of a spill on existing pipelines, such as TMPL, to a similarly low probability.

The Application, Volume 4C, Section 8.0 provides information on System Integrity Management including Risk Assessment. Please refer to the response to Allan R IR No. 1.17e for integrity management actions specific to Line 1 segments on the Project.

- r) See response to Allan R IR No. 1.01a on why the existing pipeline is not included in the review of this Project. See response to Allan R IR No. 1.17a on risk assessment status of existing pipeline undertaken by Trans Mountain Pipeline ULC.
- s) Spill risk assessments at the storage (tank) terminals, specifically Burnaby Terminal, are not provided in the Facilities Application. Information on the planned methodology is included in Section 3.2, Volume 7. Preliminary risk assessments have been provided in the response to NEB IR No. 1.98a.

Reference:

Trans Mountain Expansion Project Application, Volume 7 – Risk Assessment & Management of Pipeline & Facility Spills, section 3.2.

1.18 Spill Costs

Reference:

- i) Volume 7, Risk Assessment and Management of Pipeline and Facility Spills, (A3S4V5), page 7-186 – 7-188
- ii) Volume 7, Appendix G, Potential Cleanup and Damage Costs of a Hypothetical Oil Spill: Assessment of Trans Mountain Expansion Project, (A3S4W8)
- iii) Trans Mountain Website, Video, Economic Benefits at 1:45
- iv) Report of the Joint Review Panel for the Northern Gateway: Considerations Volume 2, (A3S7C6) page 362-363
- v) Northern Gateway Public Interest Benefit Evaluation Update and Reply Evidence, Attachment 2, Page 139, (A2V1R8)
- vi) Enbridge, Overview of Marshall Spill, Case Study
- vii) Enbridge Energy Partners, 10-K-2013, page 181, Investor Kit

Preamble:

In reference (i) Trans Mountain adopts HJ Ruitenbeek evidence and provides a summary of the methods, results and conclusions. Reference (i) also refers to \$750 million in pollution liability Trans Mountain currently holds for potential losses related to the existing Trans Mountain system. Trans Mountain claims the spill cleanup costs reflected in the report in Appendix G, reference (ii), are regarded as credible upper bound estimates relating to hypothetical pipeline spills experienced in Canada.

Reference (v) states, “The resultant costs on a per barrel basis remain conservative. Large DilBit spills have a total cost (inclusive of cleanup and damages) of approximately \$14,000/bbl.” Ruitenbeek is identified in reference (v) as a party to the evidence.

Reference (iv) argues that the cost on a per barrel basis provided in reference (v) and closely aligned in magnitude with reference (ii) are not conservative but in fact fall below levels that would be considered prudent in a Canadian context. Reference (iv) raises the total cost amount to \$22,000 per barrel including cleanup and damages.

Whereas reference (ii) claims that the maximum likely cost from a spill event in a High Cost Area (HCA) would be \$110 million including an upper bound damage cost, reference (iv) provides a recalculation of potential costs reaching at least \$700 million after consideration of an analysis similar to that provided in reference (ii). This is a significant adjustment to estimates provided in reference (v). As well, due to the uncertainty involved in costs, and the tendency for their increase in recent claims experience, an additional financial assurances are required in reference (iv) to provide additional protection of the public interest.

Reference (ii) states that the approach “provides a basis for extrapolating historical information to hypothetical situations.” Reference is made to “various publications, Etkin has provided a wealth of costing information relating to oilspill cleanup and damage costs in North America.”

The analysis and tables provided in reference (ii) do not enable a reconciliation of the claims made by Trans Mountain’s expert with the information provided. That is, reference (ii)

consistently refers to cost data prepared by Etkin but does not enable a mapping of the costs provided in Table B.1 or B.2 with the Etkin data.

Reference (ii) explicitly states that passive use values are excluded from the cost estimates as a category of values associated with ecosystem goods and services. However, it is not clear what other categories of ecosystem goods and services may be included in the analysis.

Reference (ii) also explains that “higher costs in the US (can be attributed) to a number of institutional factors” and to a large extent on the requirements stipulated in the Oil Pollution Act of 1990.

Reference (iii) claims that tax revenues received due to the Trans Mountain expansion project means “BC could add” 5400 nursing hours a year or 345 MRI tests.

Reference (iv) indicates a recent example of upper bounds in excess of the Kinder Morgan’s expert report and Kinder Morgan’s endorsement of the estimates provided in that report. The National Energy Board Joint Review Panel reviewed evidence on Northern Gateway provided by Kinder Morgan’s expert HJ Ruitenbeek, and Ruitenbeek’s source for Ecological goods and services—Anielski M., (2012). The JRP decided cost and volume figures provided in evidence in part prepared by Ruitenbeek were much too low and increased the estimated cost of a spill event to \$22,000 per barrels compared to Ruitenbeek et. al.’s figure of \$14,000 per barrel.

Reference (v) provides a table very similar to the material provided in reference (ii) Table B.1 and B.2. However there appear to be figures attributable to 2012 in reference (v) that are the same as figures for 2013 for reference (ii).

Request:

- a) In light of the findings of reference (iv), which were publicly released three days after Trans Mountain filed its Application with the NEB, and given that this public information provides estimates in excess of reference (ii) please comment as to whether Trans Mountain plans to reconsider and revise its evidence filed in Appendix G.
- b) Please provide a detailed explanation of the requirements of the US Oil Pollution Act 1990 and how those requirements differ from the regulatory and legislative requirements in Canada that would account for the huge difference in cleanup and damage costs for an hypothetical “same” spill but for its occurrence on the US versus the Canadian side of the border. Please differentiate between the impact on cleanup and damage costs in the explanation.
- c) Please provide all tables, data, schedules, assumptions, calculations and discussion material relied upon by Ruitenbeek to enable a reconciliation of Annex B, Tables B.1 and B.2 to Etkin’s studies referenced by Ruitenbeek, including but not limited to reference figures drawn from Etkin, by source along with copies of those source documents (links are acceptable) and how those reference figures were then increased, augmented, or enhanced, to be utilized in Table B.1 and B.2. For example, Table B.2 claims that North American Average Cleanup Costs per barrel Canadian dollars were \$3,686 in 2013. The

request in (b) should result in sufficient information to track this (and any other figures provided by Ruitenbeek) back to Etkin's report(s).

- d) Reference (ii) states that Annex B of reference (ii) "summarizes the resultant ranges from combining assumptions, and the algorithm provides a transparent means for estimating costs." Please explain in sufficient detail which assumptions were "combined" and what the algorithm is. There is insufficient material provided in reference (ii) to confirm the claim that the cost conclusions are transparent. In particular, it is not clear whether Ruitenbeek has relied on Etkin's data, or other sources to arrive at the cost figures. If additional sources are relied upon these should be provided in a format enabling a reconciliation throughout the analysis in order to determine if the assumptions, algorithm, and resulting costs are reasonable and reliable.

For example, a clear explanation of how the figure for North American Average Cleanup Costs of \$3,686 is necessary. If this explanation is not forthcoming in the answer to (c) above because average cleanup and damage costs are not derived solely from Etkin, please ensure that all the sources of information and manipulations to that information are provided with all relevant spreadsheets, data, assumptions and modifications, as well as any exclusions from the data.

- e) Please confirm that Tables B.1 and B.2 in reference (ii) were prepared by Ruitenbeek as they are included in his evidence as his material without reference to any other sources aside from Etkin (2004).
- f) Please confirm that Table B.3 – Typical Cleanup Costs in reference (v) were prepared by Ruitenbeek since they are very similar in format and absolute numbers but have been included as Wright Mansell Reply Evidence with Ruitenbeek identified as a co-author only at the beginning of reference (v).
- g) If Ruitenbeek did not author the tables in (d) and/or (e) above, please identify the author of the tables and confirm whether that author will be available to question data in the tables in reference (ii) as an expert witness to the Trans Mountain hearings.
- h) Please explain why the figures in Reference (ii) Table B.1 and B.2 and (v) Table B.3 for 2012 and 2013 are the same? For example, North American Average Cleanup Costs in reference (v) for 2012 are \$3,686 Canadian and in reference (ii) Cleanup costs are \$3,686 Canadian in 2013. However, reference (ii) claims that appropriate inflation factors were applied to the analysis. (See also footnote on B.2 reference (ii)).
- i) Please confirm that cost data provided by Etkin and relied upon by Ruitenbeek to develop Tables B.1 and B.2 in reference (ii) does not include cost statistics beyond 1999, and hence does not include spill statistics beyond 1999. If not confirmed, please indicate the time horizon relied upon for the cost data including the source reference material where this time horizon is confirmed. Since cost data would be expected to result in claims incurred during prior years (since it takes time to settle claims and determine the cost of a spill event), please confirm that the spill statistics relied upon for the costing data predates the costing data time horizon.

- j) If Trans Mountain causes a spill that results in health costs, the medical services plan provides public insurance protection. Costs related to such services are not currently subrogated by the medical service plan (the right of the BC health insurance plan, for example, to pursue Kinder Morgan because failure of its pipeline system, tank farm or marine terminal operations cause health claims borne by taxpayers). Should a major spill occur in a highly densely populated region, such as Burnaby, and respiratory or other health related claims arise, the public health insurance system, not the private insurance held by Trans Mountain covers the costs. Please provide an estimate of health related costs of the various spill scenarios assumed in reference (ii), which by virtue of the Canadian health care system (as distinct from the US private insurance system) would be excluded from the cost estimates, but never-the-less would be a cost borne by Canadian taxpayers.
- k) Please provide the detailed cost per nursing hour estimate used to derive the Trans Mountain claim in reference (iii) that BC could add 5400 nursing hours or alternatively 345 additional MRI tests because the Trans Mountain Pipeline expansion is approved. Please aggregate these costs to illustrate how they relate to, or correspond to, the fiscal revenues identified in reference (iii) as being a result of the expansion of Trans Mountain.
- l) Please confirm that the passive use estimates excluded from reference (ii) can generally be thought of as the value someone places on the knowledge that something exists, even if they will never use it or see it. For example, a person might be willing to pay to protect the current environmental quality of the Salish Sea, or pay to restrict the volume of oil tankers transiting English Bay, simply because that person may value the fact that it is able to continue to exist in its current condition, regardless of whether or not they ever plan to physically visit the location or see the harbour. If not confirmed, please provide a definition of passive use.
- m) Please confirm that passive use value as confirmed in (l) above or by definition in answer to (l) is representative of a public interest value since many Canadians may never see or use the terrestrial and marine environment required by the Trans Mountain Expansion Project, but concern over harm to it, whether or not there is a spill event, is not only real, but valid.
- n) Please confirm that Etkin excluded the Exxon Valdez in Alaska and the Hebei Spirit 2007 oil spill in South Korea from her analysis and by extension, Appendix G, excludes any and all spill costs related to Exxon Valdez and Hebei Spirit. If not any and all, please explain what portion of the spill related costs from these spills are excluded from the determination of spill cost valuations relied upon in Appendix G reference (ii).
- o) Please confirm that Enbridge's Marshall Michigan spill of July 2010, and Enbridge's Romeoville spill in September the same year are excluded from the statistics relied upon for estimation of spill costs.

- p) Please confirm that the Lake Wabamun spill and the TMPL Burrard Inlet spill in 2007 are also excluded from the statistics relied upon to develop the cost estimates in reference (ii).
- q) Please provide Kinder Morgan's estimate of the per barrel spill cost for the spills events identified in (n), (o), and (p) above, including a disaggregation between cleanup and damage if available. Also please identify where costs related to cleanup and/or damage may not be available because of confidentiality agreements among parties, or limits of liability coverage.
- r) Please explain TMLP's view on standards of practice of spill cleanup and damage estimation over the past three decades. Does TMPL believe that the public interest concerns over terrestrial (including fresh water) and marine terminal pollution events has created a standard of performance that is more expensive (in real terms) than perhaps the data base relied on by Etkin would reflect?
- s) Please confirm that the EPA does not now, nor has it ever, relied on the Etkin model to predict spill costs, notwithstanding the model was prepared for the EPA. If not confirmed please provide evidence of when and how the model has been used other than the claim provided in Etkin's papers.
- t) Please confirm a model is only as valuable as its predictive capability and ability to accurately inform decision makers. If not confirmed please explain Kinder Morgan's view of the value of modelling.
- u) Please comment on the fact that the model provided in Table B.2 reference (ii) would predict the total cost of the Marshall Michigan spill (20,000 barrels x \$8,830) = \$177 million whereas Enbridge originally estimated the aggregate gross cost of \$430 million and recently reported in reference (vii) that the spill related costs have reached \$1,122 million. Include in the discussion whether the inability of the analysis to project costs even remotely close to a non-hypothetical event affects Trans Mountain's decision to adopt the evidence. Since Ruitenbeek has provided expert evidence for both Kinder Morgan and Enbridge on the question of spill cost estimation and exposure to financial risk, it should be possible to address this question in a fulsome and informed manner.
- v) Reference (ii) states that, "a smaller 2007 spill of about 1,500 bbl into Burrard Inlet experienced cleanup costs estimated to be \$11,000/bbl." Please confirm that this is a spill Trans Mountain was deemed to be responsible for and that the costs have not included damage claims as they are largely subject to confidentiality agreements in place with claimants. Please also confirm that those costs do not include health care costs such as those related to potential human harm caused by diluent when air borne.
- w) Please confirm that the weather conditions, height of tide, and other factors that contribute to damage and cleanup costs, were relatively positive when the Burrard spill occurred leading to relatively lower cleanup costs than what might have occurred in adverse weather and tide conditions.

- x) Please provide an estimate of cleanup costs, including the line items as indicated in Table B.2, which would be predicted by Table B.2 in reference (ii) for the Burrard spill of 1,500 barrels. The data provided in B.2. does not enable this analysis. A rough estimation based on the data provided in B.2 would place the cost at $1,500 \times 6,358 = \$9.5$ million, however, adjustments may be required for relative remoteness or other factors.
- y) Please confirm the cleanup costs incurred for the Burrard spill are \$16.5 million. If not, please provide the cost estimate and identify if there are any costs (including amounts) related to cleanup, not included in that figure, that were borne by municipalities, the province of BC, the federal government, or port authority, or any other party that responded to the spill event.
- z) Did Trans Mountain confirm the reliability of Etkin's model before adopting Ruitenbeek's evidence? If yes, please explain fully.

Response:

- a) Trans Mountain does not intend to reconsider its evidence. Its evidence in Appendix G is that the financial resources available to cover a spill are adequate to cover the range of spill costs considered to be credible should a spill occur during the operation of this project. Appendix G outlines the analysis supporting this, and the reply to NEB IR No. 1.10b reiterates Trans Mountain's position that these results are robust.

Trans Mountain disagrees with parts of the preamble to this question, which state that the Joint Review Panel (JRP) for the Enbridge Northern Gateway Project decided cost and volume figures were "much too low" and that "cost on a per barrel basis ... falls below that which would be **prudent**...[emphasis added]" This language is that of the questioner and not of the JRP.

Trans Mountain considers that the facts of the Northern Gateway Application are different than the facts in our Project, which would lead to a different credible worst case scenario, including:

- Trans Mountain Expansion does not include a condensate line;
- The Wabamun spill costs were exacerbated by inclusion of unusual oil products and slower response by rail companies than would be expected with pipeline responses.

Also, evidence (Appendix G) shows that larger spills are less expensive to remediate and compensate on a unit cost basis; this arises, for example, because many fixed costs in response, remediation, reporting and management are independent of spill size and thus contribute to lower unit costs for larger spills.

However, Trans Mountain notes that even if one assumes the \$22,000/bbl based on the Enbridge decision, and Trans Mountain assumptions, this yields \$373 million of total remediation and compensation costs, which is well within the financial capacity of Trans Mountain as indicated in NEB IR No. 1.08e.

- b) Trans Mountain did not create a detailed comparison of the US Oil Pollution Act (OPA) 1990 to all of the regulatory and legislative requirements in Canada, in developing its evidence. Such comparison is not necessary. The data shows that spills costs in the US are higher than other countries. The evidence contained in reference (i) is that such differences exist and have been documented.

Etkin (1999) is cited as opining that these differences can be partially attributed to response requirements in OPA 1990. In Etkin (1999) she elaborates with the observation that “Especially in the United States, fear of future litigation often impels spillers to mount massive response operations—at considerable expense—to dispel any notions of ‘irresponsibility.’ In some cases, public and government pressure for the responsible party to undertake radical—and expensive—cleanup procedures may not always be in the best interest of environmental protection, even if it is well intentioned.” Her last point is very important. More expensive response does not imply better response. She continues: “While a beach might look clean after aggressive cleanup efforts, the procedures employed may actually result in more environmental damage than the spilled oil itself.”

There are many variables in cleanup costs with key aspects being spill location, oil type, and initial containment and removal. Response is focused on spill source control and mitigation, preventing or minimizing any oil from entering into a waterbody, and prompt removal. Trans Mountain is committed to responding to any spill in a manner that respects Canadian regulations and reflects best available practice for environmental remediation.

- c) Please see the responses to NEB IR No. 1.10 and 1.11. These responses address selected topics relating to Etkin (1999, 2000, and 2004) references, and provide copies of these source documents. These responses also provide direct references to the source of the North American Average Cleanup Costs and the relevant conversions to describe these costs as they appear in reference (ii). The following clarifications relate to the algorithm and the use of the Etkin values.

The model as described in Etkin (2004) is a relatively complex structure. The work conducted in reference (i) does not use this entire model: it uses specific input parameters related to cleanup costs, and adopts the approach (or algorithm) consisting of multiplicative factors for cleanup costs. Damage costs do not use those in the Etkin structure; they are estimated using a multiplier of 1.5 and rely on a variety of sources, as described in reference (ii).

Input parameters that are used include factors for the following (Etkin 2000, Table 10):

- Oil Type;
- Spill Size Multiplier for each spill range (described as Larger, Average, Modest, and Small in Table B.1);
- Location Type (described as Nearshore Water Exposure);
- Primary Cleanup Method; and,
- Shoreline Oiling.

In Table B.1, the Primary Cleanup Method corresponds to the Manual Cleanup Multiplier because manual cleanup is the most expensive method. Other methods (such as dispersants) have lower multipliers, hence the range is taken as having a maximum of 1.89 to corresponds to that for manual cleanup.

Table B.1 also includes an additional multiplicative factor to accommodate remoteness, which is identified as potentially relevant in Etkin (1999). For conservative estimation, we treat this as an additional contingency factor of up to 20%.

The algorithm, consistent with the Etkin structure is a simple multiplication of factors. For example, if extensive (100 km) of shoreline oiling occurred in a scenario, the multiplicative factor would be 1.06 corresponding to a 6% increase over the base value. Factors are combined through multiplication. An example of the application of this algorithm is provided in Trans Mountain Response to Allan R IR No. 1.18x below. It should be noted that Etkin's multipliers contemplate conditions that may also result in multipliers that are less than unity, but for the purpose of conservative estimation we constrain the lower bound to unity; the exception to this is spill size, which captures economies of scale.

- d) Please see response to Allan R IR No. 1.18c. The derivation of the North American Average Cleanup Costs of \$3,686/bbl is provided also in NEB IR No. 1.10e.1.
- e) Tables B.1 and B.2 form part of the Application, Volume 7, Appendix G and were prepared by Dr. Ruitenbeek. The Tables were based on Etkin (2004), which also contains work reflected in Etkin (1999) and Etkin (2000). For full references and copies please see Trans Mountain Response to NEB IR No. 1.10 and 1.11.
- f) Appendix B in reference (v) was prepared by Dr. Ruitenbeek and reviewed by the co-authors. Table B.3 forms part of Appendix B.
- g) Trans Mountain assumes this request intends to refer to (e) and (f) above. Please see responses to those requests.
- h) In-house information for deflators maintained by the author showed that the BC economy was in a minor net deflationary period from 2012 to 2013. Specifically, the All Items Statistics Canada CPI Index recorded BC for June 2013 was 117.6, and for June 2012 was 118.2, resulting in a multiplier of 0.9949 from 2012 to 2013. Instead of using this multiplier it was judgmentally decided to assume no net inflation over this period. Therefore the 2012 and 2013 figures are the same. Had this small adjustment been made, it can be shown that the C\$ figure would be negligibly (0.5%) lower for 2013: \$3,667 instead of \$3,686.
- i) The request is somewhat unclear as it contains some incorrect suppositions. Trans Mountain confirms that spill data in the Etkin (1999, 2000, and 2004) analyses are generally based on information available at the time of the earliest of these studies (i.e., 1999) and refer to incidents that occurred before this date. To be clear, spill incidents included in the study were not later than 1999. However, costs recorded for any given spill may have included expenditures or advances in anticipation of future costs. It is not

uncommon in post-spill response to provide monetary advances quickly to allow responders and those impacted to have access to financial resources.

Please refer to the response to NEB IR No. 1.10 and 1.11 for Etkin articles.

- j) Trans Mountain does not have a study that specifically calculates the incremental costs impacts to the Canadian Health Care system. The estimated spill response costs, provided by Ruitenbeek included data from countries where health care cost was paid by taxes and those where it was not.

Please refer to Surrey Teachers IR No. 1.5a which provides a Human Health Risk Assessment (HHRA) conducted to evaluate the potential health effects that might be experienced by people under a set of simulated pipeline oil spill scenarios. The effects were assessed to be mild and vary by individual, and the potential for exposure of the general public for a potential spill is also variable based on location and ambient conditions. Trans Mountain is thus unable to estimate the numbers of individuals that would utilize the Canadian Health Care system in the event of a spill, or the incremental costs associated with such usage.

- k) The request contains an inaccuracy. The Trans Mountain statement in reference (iii) is that BC could add more than 5600 nursing hours. The record should also show that, on the video, a banner was displayed at the time of the statement reading “Based on provincial taxes from Burnaby operations only”.

Trans Mountain estimates the total direct (excluding per capita share of federal) personal and corporate taxes to BC to be \$687 million over the development and operations phases, or about \$26 million annually. For illustrative purposes in the video, the analysis considered only a subset of this to illustrate the impact of these fiscal inflows. Based on provincial taxes from Burnaby operations only, an estimated \$207,000 of taxes would accrue to BC. For illustrative purposes, the analysis gives examples of what could be done with that amount of incremental tax revenue:

- 1) if devoted to nursing capacity, the incremental tax revenue could pay for 5,645 additional hours of nursing (at an estimated nursing wage of \$36.67/hour);
- 2) if devoted to MRI testing, the incremental tax revenue could pay for 345 more tests performed per year (at an estimated MRI cost of \$600/test).

These potential uses of incremental tax revenues cannot be aggregated because each illustrative scenario (expanded nursing capacity, or increased MRI tests) exhausts the full amount of the increment.

- l) Not confirmed.

The reference to passive use in the Preamble is incomplete. It is shown in reference (ii) as follow:

“Passive use values are explicitly excluded from the cost estimates. These represent a category of values associated with ecosystem goods and services

(EGS) that are experienced by some parts of the population even though they do not directly use the EGS. Loss of such values is not explicitly separated and compensated in any jurisdiction; methodological issues do not permit their credible measurement and attribution.” (Volume 7, Appendix G p.2)

Passive use can thus more generally be considered as an ecosystem good or service (EGS) experienced by some parts of the population, even though they do not directly use the EGS.

Trans Mountain notes that the Northern Gateway Joint Review Panel reached a similar conclusion relating to EGS in general: “Based on the hearing record, the Panel finds that the estimated costs for damages to ecosystem goods and services are neither well developed nor currently broadly accepted.” (Government of Canada, 2013, p.362).

Reference:

Government of Canada. 2013. Considerations. Report of the Joint Review Panel for the Northern Gateway Project. Volume 2. December 2013.

m) Not confirmed.

Concern over the environment is a legitimate concern. Trans Mountain will restore the terrestrial or marine environment to deal with such concern.

Passive use values cannot be used to represent public interest. Public interest is a more comprehensive concept. Please see Trans Mountain Response to Allan R IR No. 1.1a.

n) Not confirmed.

Etkin (1999) shows US average spill costs both including and excluding the Exxon Valdez incident. In Etkin (2000, p. 4) she elaborates further that: “Cleanup costs for spills with an average of 1,000 km of oiled shoreline were not analyzed due to the small sample size involved. These incidents are rare and generally represent highly complex situations. For example, the total cleanup costs associated with the 1989 Exxon Valdez spill which oiled over 1,200 km of shoreline in Prince William Sound, Alaska, USA, resulted in cleanup costs of over \$93,568.74/tonne (\$84.08/liter). This spill had extremely high unit costs associated with it due to the complexity of the cleanup operations, which were greatly influenced by the highly political nature of the entire incident.” Her North American summaries in Etkin (1999) and elsewhere, therefore, generally exclude the Exxon Valdez incident.

Etkin’s analyses predated the Hebei Spirit incident in South Korea in 2007 and therefore excluded it from the global analyses. It would not have entered into her information summaries for North America in any event.

For the portions of reference (ii) that report Etkin’s summaries of North American spill costs, both of these events are thus excluded.

Copies of Etkin (1999, 2000, 2004) are provided at Trans Mountain Responses to NEB IR No. 1.10 and 1.11.

o) Not confirmed.

The full analysis of spill costs in reference (ii) was informed by Dr. Ruitenbeek's professional experience on the subject. This professional experience includes knowledge of the cited spills. For example, the text in reference (ii) also draws attention to other literature (including IOPCF, Transport Canada, and State of Washington), and provides specific examples of information on selected spills (including the rail spill in Lake Wabamun in 2005 and the spill in Burrard Inlet in 2007). It is acknowledged that the Enbridge spills (Marshall 2010, Romeoville 2010) and the two Canadian spills noted here are not referred to in the Etkin (1999, 2000, and 2004) articles because these articles predated these four events.

p) Not confirmed. Please see above response to Allan R IR No. 1.18o.

q) Trans Mountain has not performed studies of the spills as indicated and only has first-hand knowledge of its own spills; costs associated for other spills noted here are based on public information and expert Ruitenbeek analyses.

Available cost information on the Burrard Inlet Spill is provided in Trans Mountain Response to Eliesen M IR No. 1.10a; the spill table in that response indicates a total unit cost of \$16,996/bbl.

Application Volume 7, Appendix G documents a unit cost for the 4,400 barrel Wabamun Lake spill associated with a spill of "approximately \$33,000/bbl, of which about \$10,000/bbl were third party damages."

Spill costs associated with Exxon Valdez are estimated to be US\$17,000/bbl. This is based on an estimated spill size of 257,000 barrels and estimated total costs of US\$4.4 billion (of which approximately \$1 billion in punitive charges, interest, and plaintiff court costs).

Assessed spill costs associated with the Hebei Spirit are documented by IOPCF as at 1 March 2013 to be GBP111 million (approximately Canadian\$200 million), with 99.6% of claims assessed by IOPC Funds. The spill is documented as a collision on 7 December 2007 at Taean, Republic of Korea, causing a release of 10 900 tonnes of crude oil (approximately 76,000 barrels). The resultant unit cost, as documented here, is \$2,630/bbl; of this 51.7% was for direct cleanup and preventative expenditures.

Total spill costs associated with the Enbridge incidents in 2010 are estimated to be approximately US\$56,000/bbl for the Marshall spill (approximately US\$1.122 billion for a 20,000 barrel release) and US\$5,300/bbl for the Romeoville spill (approximately US\$48 million for a 9,000 barrel release).

References:

Enbridge Inc. 2013 Annual Report. <http://www.enbridge.com/investorfilings>. Acquired May 17, 2014 [pages 90-92], see Allan R IR No. 1.18q – Attachment 1.

International Oil Pollution Compensation Funds. 2013. Incidents Involving the IOPC Funds – 1992 Fund, Hebei Spirit. Note by the Secretariat.

- r) Trans Mountain relies on the advice and supports the evidence of its expert.
- s) Not confirmed. As noted in the request, Etkin’s work was supported by the EPA. Trans Mountain is not, however, privy to the manner in which staff or others associated with the EPA may have used her work or the conclusions therefrom and cannot speculate on such uses. Trans Mountain is aware that the model has been used for the Transport Canada (2007) work on estimating costs of hypothetical East Coast Canada oil spill costs; this work is cited in Volume 7, Appendix G.

Reference:

Transport Canada. 2007. Synopsis Report – Environmental Oil Spill Risk Assessment for the South Coast of Newfoundland, Edition 1 September 2007, Revised 11/2007. Report TP14740E. (p. 28).

- t) Not confirmed. This statement is too general to be confirmed.

In addition to the referenced possible uses in the question, a model can have other purposes, including being a valuable tool to identify that more study is required or to test theories or to rank relative risks.

- u) As described in the study in reference (ii), costs of an actual spill will depend on local conditions and can differ from spill to spill according to the circumstances of that spill. The analysis provides a methodology for determining a credible range of potential costs to determine if financial assurances are adequate. The analysis also selects spill sizes in a conservative manner to generate a representative range of spill scenarios of relevance to the Trans Mountain Application (see Trans Mountain Response to NEB IR No. 1.10b). Moreover, the evidence suggests that spills in the United States generally have among the highest unit costs in the world (see Trans Mountain Response to Allan R IR No. 1.18b).

In the case of the Enbridge Line 6B (“Kalamazoo” or “Marshall”) release, spill volumes and higher costs were related to extenuating circumstances associated with the spill. Regulators recognize that these circumstances make it an untypical spill. For example:

- The National Transportation Safety Board observed the following: “The rupture and prolonged release were made possible by ... failures ... that included ... Inadequate training of control center personnel, which allowed the rupture to remain undetected for 17 hours and through two startups of the pipeline.”

- The NEB Joint Review Panel for the Northern Gateway Project – after examining the evidence – concluded with the view that: “The Panel accepts that the cleanup costs for the Marshall, Michigan spill were orders of magnitude higher because of the extended response time. ... For this reason the Panel did not use the Marshall spill costs in its calculations.”

Trans Mountain did not rely on the Marshall spill costs to inform the hypothetical spill scenarios that would be relevant to this Application.

Trans Mountain has adopted the evidence in reference (ii) because it regards the selected scenarios and results appropriate for informing decisions relating to financial assurances. Also, as noted in Trans Mountain Response to NEB IR No. 1.10b, these results are expected to remain robust to a variety of different credible assumptions and scenarios.

References:

Government of Canada. 2013. Considerations. Report of the Joint Review Panel for the Northern Gateway Project. Volume 2. December 2013. (Page 362)

National Transportation Safety Board. 2012 (Adopted July 10). Pipeline Accident Report: Enbridge Incorporated, Hazardous Liquid Pipeline Rupture and Release, Marshall, Michigan, July 25, 2010. Report: NTSB/PAR-12/01, PB2012-916501 Notation 8423. Washington, D.C. (page Executive Summary xii)

- v) Not confirmed. Trans Mountain was not deemed to be 100% responsible for this spill.

The total cost of this spill to Trans Mountain is calculated to be \$23.7 million (please see Response to Allan R IR No. 1.18.y).

Trans Mountain is not aware of any health care cost claims related to this incident.

- w) Safety is the number one priority at Trans Mountain, and all cleanup activities are chosen and conducted in a way to protect the public, personnel, and environment regardless of the cost. Trans Mountain cannot confirm or deny that the weather and tide conditions lead to relatively lower cleanup costs for the Westridge Delivery Line Release. Trans Mountain does not track the impact weather and tide conditions have on total cost of cleanup, nor is cost a factor in the determination of cleanup methods to be used.

- x) The following is an illustrative calculation to demonstrate how the multiplicative factors in the algorithm work. The key information is found in Table B.1, not Table B.2. A spill of 1,500 bbl would fall in the scale category having an “Expected Cleanup Cost Reflecting Scale” of C\$2,396/bbl. The four multiplicative factors excluding cleanup method are judgmental, but conservatively one could choose the highest level in the range for each (i.e., Remoteness = 1.20; Nearshore Water Exposure = 1.46, Oil Type = 1.82; Shoreline Impacts = 1.06). The product of these four factors is 3.38. An additional maximum multiplier of 1.89 (assuming manual cleanup) would then be applied to yield an overall cost factor of $3.38 \times 1.89 = 6.388$. This then provides an expected upper bound cleanup

cost of C\$2,396 x 6.388= C\$15,300/bbl (with rounding). To this, as described in the text, an additional potential damage cost can be applied, corresponding to a scaling factor of 1.5. The per unit maximum estimated damage cost is thus C\$15,300 x 1.5 = \$22,950/bbl. The total financial exposure of this hypothetical spill would be the sum of the cleanup and damage estimates (\$38,250/bbl) multiplied by the assumed spill volume (1,500 bbl), or potentially \$57 million. Recall that this is the expected maximum exposure and factors in an actual spill situation could differ, resulting in lower total costs.

- y) The Trans Mountain clean up costs for the entire spill were approximately \$23.7 million, which includes costs of both land and marine based clean up.

Trans Mountain is unable to answer the request for costs related to cleanup that were borne by other parties, as it only has record of amounts that were paid by Trans Mountain.

- z) No. Trans Mountain relies on the evidence of Dr. Ruitenbeek in this matter. However, Trans Mountain considers the findings and evidence consistent with its own experience regarding spills, and regards the evidence as appropriate for informing potential financial liabilities.

1.19 Scope of Environmental Assessment

Reference:

- i) Trans Mountain ULC, Trans Mountain Expansion Project, Volume 1, Summary, (A3S0Q7).
- ii) National Energy Board, Terasen Pipelines (Trans Mountain Inc.) Application for Pump Station Expansion Program, Application
- iii) National Energy Board, Terasen Pipelines (Trans Mountain) Inc. (Name changed to Trans Mountain Pipeline Inc.), Application for the TMX – Anchor Loop Project (OH-1-2006), Application
- iv) Terasen Pipelines (Trans Mountain Inc.) (Name changed to Trans Mountain Pipelines Inc.) Application for the Transfer of Certificate OC-2 and OC-9, NEB, Application

Preamble:

Reference (i) page 1-6, explains that, “The Project requires an environmental assessment under the NEB Act.” Reference (i), page 1-12 also explains that the, “Application is being made pursuant to Section 52 of the *National Energy Board Act* (NEB Act) for the proposed Project.

The NEB will undertake a detailed review and hold a Public Hearing to determine if it is in the public interest to recommend a Certificate of Public Convenience and Necessity (CPCN) for construction and operation of the Project.”

However, reference (i) does not clearly explain what the “Project” is. Reference (i), pages 1-1 – 1-5, do state that, “The existing TMPL system is an approximately 1,147-km pipeline system between Edmonton, Alberta and Burnaby, British Columbia (BC) which transports a range of crude petroleum and refined products to multiple locations in BC.

In addition to pipeline facilities, the existing TMPL system includes 23 active pump stations along the pipeline route and four terminals at Edmonton, Sumas, Burnaby and Westridge. The number of tanks and capacity of each of these terminals is as follows:

Edmonton: 35 tanks, capacity of 1,274,310 m³ (8,015,000 bbl)

Sumas: 6 tanks, capacity of 113,680 m³ (715,000 bbl)

Burnaby: 13 tanks, capacity of 267,900 m³ (1,685,000 bbl)

Westridge: 3 tanks, capacity of 62,800 m³ (395,000 bbl)

Since its completion in 1953, various modifications have been made to the TMPL system to add throughput capacity and facilities in order to respond to growing demand and changing shipper needs. As a result, between 1957 and 2013, the capacity of the TMPL system gradually increased from 150,000 bbl/d to 300,000 bbl/d.”

Reference (i) also states that, “The Project will increase the capacity of the TMPL system to 141,500 m³/d (890,000 bbl/d)”, and “The existing TMPL facilities, combined with the facilities proposed in this application, will result in two parallel pipelines:

Line 1, consisting only of existing pipeline segments, will have a sustainable capacity of 55,640 m³/d (350,000 bbl/d)

Line 2, consisting of the three new pipeline segments and two reactivated existing segments, will have a sustainable capacity of 85,850 m³/d (540,000 bbl/d).”

An environmental assessment has not been conducted on the existing Trans Mountain Pipeline system as none was required when the Pipeline was originally approved, and subsequent expansions have not triggered a full environmental assessment review under the *National Energy Board Act* or the *Canadian Environmental Assessment Act* for the complete system.

Reference (ii) includes all documents on the record for the NEB review conducted in 2005 when Trans Mountain applied for increased pumping power to expand system throughput capacity. A Section 58 application does not require a full environmental assessment and none was conducted on the Pipeline system.

Reference (iii) includes all documents on the record for the NEB review conducted in 2006 when Trans Mountain applied to the National Energy Board for approval of a looping through Federal and Provincial parks resulting in an increase in throughput capacity of the system. The environmental portion of the review was limited to an environmental screening of the looped portion of the pipeline. Traditional land and resource use evaluation were also restricted to the looped portion of the pipeline.

Reference (iv) is the NEB application filed February 21, 2007 for approval to transfer CPCN OC-2 for Trans Mountain from Terasen Inc. (Terasen) to Trans Mountain Pipeline L.P.

Request:

- a) Please provide a full and clear definition of the term “Project”.
- b) Please explicitly state whether the definition provided in (a) above means that the project applies to a system with a capacity of 890,000 barrels per day or a system with the capacity of 590,000 barrels a day.
- c) Please explicitly state whether the definition provided in (a) above means that the project applies to a marine facility that supports tanker traffic of approximately 408 tankers a year, or the marginal tanker traffic anticipated by virtue of the expanded capacity which is approximately 350 tankers a year.
- d) Please provide a map that clearly identifies Line 1 and the proposed Line 2 as defined in reference (i) and illustrate which portions are currently in operation as what is commonly known as the Trans Mountain pipeline system. Also include on the map locations of pump stations, storage tanks, connecting pipes including the pipeline going to the US border, which clearly identifies the existing and proposed to enable a clear understanding of the scope of the environmental review undertaken by Trans Mountain, and the scope that has been excluded by virtue of Trans Mountain considering it an existing facility(ies)
- e) Please clearly identify which portions identified in the map provided in (d) represent the “Project”.

- f) Please explain based on the definition of “Project” whether or not Trans Mountain has interpreted the scope of the Environmental Assessment required by the Acts to be limited to Trans Mountain’s definition of “Project” as described in (a) and illustrated in (d).
- g) If Trans Mountain has not included the existing Trans Mountain system as part of its scope of review for the environmental assessment please explain why it has excluded the environmental impact of the existing system from the review particularly when Trans Mountain is requesting approval to expand capacity on the existing pipeline from 300,000 barrels a day to 350,000 barrels a day and permission to reactivate existing portions of pipeline.
- h) Please confirm that the determination of the public interest relates to a full and proper assessment of the environmental risk related to the entire Trans Mountain Pipeline system including the existing and the proposed expansion to that system.
- i) If not confirmed, please define Trans Mountain’s understanding of the scope of the public interest concern respecting environmental assessment as required by legislation.
- j) Please confirm that Trans Mountain believes the scope of the environmental assessment for its pipeline system should reflect as accurately as possible the public interest concern related to the impact of the entire system once completed, and not simply the impact from marginal additions to the system. If not confirmed, why not?
- k) If the “Project” definition applies only to the marginal expansion please explain how the public interest can be served if the scope of the current review is limited only to the impact of the marginal expansion and not the complete system.
- l) Please confirm that there has never been an environmental assessment and public interest review of the:
 - i) current Trans Mountain Pipeline System including the Westridge marine terminal and storage tanks;
 - ii) current Trans Mountain pipeline; or
 - iii) current volume of tanker traffic required to service the Westridge marine terminal.
- m) If not confirmed in (l), please provide dates and nature of such review and copies of the related environmental assessments.
- n) Please confirm the number of CPCN’s that Trans Mountain Pipeline ULC currently holds.
- o) Please provide a history of the CPCN’s including OC number and related Amending Order numbers, the dates of issue and amendments, reason for the amendments.
- p) Please provide copies of the original CPCN’s and amended CPCN’s now held by Trans Mountain ULC.
- q) Please fully explain whether the CNCP being sought by the current Application will replace the existing certificate(s) held by Trans Mountain and thus provide approval to construct and operate two pipelines, or whether the CNCP being sought will be in

addition to the existing certificates, only apply to the expansion of the system and provide approval to construct and operate one new pipeline.

- r) Please identify which CPCN enables the operation of the Westridge marine facilities.
- s) Please explain how the new CPCN being sought will relate to the new Westridge marine facilities since the proposal contemplates the dismantling of the existing tanker berth to be replaced with three new berths. That is, would Trans Mountain believe it has the right to build a fourth bay if it dismantles the existing bay once three new ones are built?
- t) Please provide a history of the corporate entities that have held the original CPCN's for Trans Mountain Pipeline ending with Trans Mountain ULC.
- u) Please confirm that the approval to transfer CPCN's in 2007 as documented in reference (iv) identified Trans Mountain Pipeline Inc. as the general partner, but that Trans Mountain Pipeline ULC is now the general partner of Trans Mountain Pipeline LP and holds the CPCNs.

Response:

- a) For a Project description, refer to the *Trans Mountain Expansion Project Application, Volume 1, section 1*.
- b) Refer to the response to Allan R IR No. 1.19a.
- c) Refer to response Allan R IR No. 1.19a.
- d) Figure 1.2.1 in Volume 1 of the Application clearly shows the existing Trans Mountain Pipeline (TMPL) System and the proposed Trans Mountain Expansion Project (the Project). A detailed description of the physical components of the Project is provided in Section 2.1.3 and these components are indicated in the legend of Figure 1.2.1. As there are no proposed changes to the existing Puget Sound Pipeline System as part of this Project, this pipeline system is not included in Figure 1.2.1.
- e) See the response to Allan R IR No. 1.19d.
- f) Confirmed.
- g) Refer to the response to Allan R IR No. 1.01a.
- h) Refer to the response to Allan R IR No. 1.01a, Allan R IR No. 1.01v and Allan R IR No. 1.01z.
- i) Refer to the response to Allan R IR No. 1.01a, Allan R IR No. 1.01v and Allan R IR No. 1.01z.
- j) Refer to the response to Allan R IR No. 1.01a, Allan R IR No. 1.01v and Allan R IR No. 1.01z.

- k) Refer to the response to Allan R IR No. 1.01a, Allan R IR No. 1.01v and Allan R IR No. 1.01z.
- l) The information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- m) Please see the response to Allan R IR No. 1.19l.
- n) Trans Mountain Pipeline ULC currently holds two CPCN's.
- o) The information request is not relevant to one or more of the issues on the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- p) The information request is not relevant to one or more of the issues on the National Energy Board's List of Issue for the Trans Mountain Expansion Project.
- q) The Certificate of Public Convenience and Necessity sought in the Facilities Application is for the Trans Mountain Expansion Project and, if granted, will be in addition to existing certificates currently held for the Trans Mountain Pipeline system.
- r) The information request is not relevant to one or more of the issues on the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- s) If Trans Mountain proposes additional bays at the Westridge Marine Terminal at some point in the future, it will make an application to do so and the additional bay will be the subject of a separate regulatory review.
- t) The information request is not relevant to one or more of the issues on the National energy Board's List of Issue for the Trans Mountain Expansion Project.
- u) Confirmed.

1.20 Southern Resident Killer Whales

Reference:

- i) Volume 1, Summary, page 1-7, (A3S0Q7)

Preamble:

Reference (i) states, “The ESA for the marine transportation component of the Project concludes that the Project will not have a significant adverse effect on any biophysical or socio-economic element except the potential effect of sensory disturbance on southern resident killer whales that use the shipping lanes and the additional effect on traditional marine resource use (TMRU) by Aboriginal communities.

Reference (i) also states that, “Port Metro Vancouver (PMV) is developing a collaborative multistakeholder program to look at the current levels of underwater noise in the Strait of Georgia and surrounding waters and to consider options for reducing potential cumulative environmental effects of noise from marine vessel traffic on marine mammals.”

Request:

- a) Please confirm that southern resident killer whales have been in existence for about 11 million years. If not confirmed, please provide Trans Mountain’s understanding of how long southern resident killer whales have been in existence.
- b) Please confirm Trans Mountain’s understanding of how long mechanized ships have been in existence.
- c) Please confirm that shipping lanes did not exist before ships relied on them. If not, please confirm Trans Mountain’s understanding of the development of shipping lanes through BC coastal waters and how long those shipping lanes have been in existence.
- d) Please confirm that it is not possible for resident killer whales to “use the shipping lanes” required by oil tankers planned for the Project, but it is crude oil tankers that use the migratory paths of killer whales.
- e) More information on the collaborative multi-stakeholder program in reference (i) is needed. Please explain the intent and deliverables of the initiative and provide reports, position papers, studies, or other evidence of the program being developed by PMV “to look at current underwater noise in the Strait of Georgia and surrounding waters”.
- f) Please expand on the ongoing discussions TMPL is having with PMV, and provide copies of any and all correspondence TMPL has had in regard to this initiative with the Port or other parties to the initiative.
- g) Has Trans Mountain undertaken any study to estimate value or costs related to the sensory disturbance of resident southern killer whales as a result of the tanker traffic triggered by the expansion? If yes please provide the study.

- h) Please confirm that Trans Mountain agrees the sensory impact on southern resident killer whales is a significant adverse effect.
- i) Please confirm that Orca is another name for the southern resident killer whale in reference (i). If not, please explain.
- j) Under what level of proof of damage to the sensory perception of southern resident killer whales would Trans Mountain withdraw its request to expand the Westridge marine facilities?
- k) Please provide Trans Mountain's understanding of where on the list of compromised species—the Endangered Species List—the southern resident killer whale sits as well as the legal obligations pertaining to this classification.
- l) Has Trans Mountain raised the issue of the status of southern resident killer whales with representatives from the federal government in an effort to obtain a less serious classification? If yes, please provide dates, the names of the officials Trans Mountain met with, and whether any conclusions were reached regarding a change in the status of southern resident killer whales.

Response:

- a) The 'southern resident killer whale population' as it currently exists today, has been shown through genetic analyses using nuclear and mitochondrial DNA, to most likely be reproductively isolated from the northern resident population (Hoelzel *et al.* 1998, Barrett-Lennard 2000, Barrett-Lennard and Ellis 2001). This taxonomic separation into a discrete and distinct population segment (Krahn *et al.* 2004) occurred much more recently than 11 million years ago. Likewise, 'transient' or 'Bigg's killer whales', likely diverged from the resident killer whales approximately 700,000 years ago (Morin *et al.* 2010). However, Trans Mountain agrees that the oldest delphinid (an early ancestor of the southern resident killer whale) has been dated back to the latest Miocene age, possibly 11 million years (Barnes 1976, Berta and Sumich 2003).

References:

- Barnes L.G. 1976. Outline of Eastern North Pacific Fossil Cetacean Assemblages. *Syst Biol* (1976) 25 (4):321-343.
- Barrett-Lennard, L. G. 2000. Population structure and mating patterns of killer whales as revealed by DNA analysis. Ph.D. Thesis, University of British Columbia, Vancouver, British Columbia.
- Barrett-Lennard, L. G. and G. M. Ellis. 2001. Population structure and genetic variability in northeastern Pacific killer whales: towards an assessment of population viability. Research Document 2001/065, Canadian Science Advisory Secretariat, Fisheries and Oceans Canada, Ottawa, Ontario.
- Berta, A. and J.L. Sumich. 2003. *Marine Mammals: Evolutionary Biology*. Academic Press, San Diego, California. 494 pp.

Hoelzel, A. R., M. Dahlheim, and S. J. Stern. 1998. Low genetic variation among killer whales (*Orcinus orca*) in the eastern north Pacific and genetic differentiation between foraging specialists. *Journal of Heredity* 89:121-128.

Krahn, M.M., M.J. Ford, W.F. Perrin, P.R. Wade, R.P. Angliss, M.B. Hanson, B.L. Taylor, G.M. Ylitalo, M.E. Dahlheim, J.E. Stein, and R.S. Waples. 2004. 2004 status review of southern resident killer whales (*Orcinus orca*) under the Endangered Species Act. NOAA Technical Memorandum NMFS-NWFSC-62, U.S. Department of Commerce, Seattle, Washington.

Morin, P.A., F.I. Archer, A.D. Foote, J. Vilstrup, E.E. Allen, P. Wade, J. Durban, K. Parsons, R. Pitman, L. Li, P. Bouffard, S.C.A. Nielsen, M. Rasmussen, E. Willerslev, M.T.P. Gilbert and T. Harkins. 2010. Complete mitochondrial genome phylogeographic analysis of killer whales (*Orcinus orca*) indicates multiple species. *Genome Research*. 20: 908-916

- b) Ships fitted with a propeller or paddlewheel and driven by a steam engine were introduced in the late 1700s and over a few decades steam propulsion came to replace sail on ships.
- c) The combined area of today's shipping lanes in the Salish Sea has been used by communities and traders for many centuries and that would have over time led to certain regular routes of travel over water being established. Due to the nature of the geography of the region, this path would also be used by ships arriving or departing Vancouver for centuries.

Since 1979 the Canadian Coast Guard and the U.S. Coast Guard have worked cooperatively with the intention of managing vessel traffic in adjacent waters through the Cooperative Vessel Traffic Service (CVTS). An international level agreement between the two nations helped establish vessel traffic management areas based not on international boundaries, but rather on geography and waterways to provide the best possible seamless and safest collective service for the mariner. A system of traffic lanes separating incoming and outgoing traffic in the region was initially established and subsequently agreement was reached at an international level at the IMO (International Maritime Organization) that led to The Traffic Separation Scheme (TSS) being adopted by the IMO. The traffic lanes, separation zone, and TSS buoys that comprise the TSS are depicted on nautical charts published by member nations of the IMO, and International COLREGS apply everywhere. Annually the CVTS oversees the safe transit of over 30,000 vessel movements (not including smaller pleasure yachts and fishing vessels) through the CVTS region.

- d) The range of the southern resident population extends from Haida Gwaii, BC to Monterey Bay, California (COSEWIC 2008). The transboundary area between BC and Washington State in the United States, which includes the southern portion of the Strait of Georgia, the southern Gulf Islands, Boundary Pass, Haro Strait and Juan de Fuca Strait, has been designated as "critical habitat" under the *Species at Risk Act* (SARA) for the southern resident population (DFO 2008, 2009, 2011). The shipping lanes described

in the Application and in the response to Allan R IR No. 1.20c are used by all ships arriving or departing Canadian and US ports in the region.

- e) Please see the response to NEB IR No. 1.55a.
- f) Please see the response to NEB IR No. 1.55a.
- g) Trans Mountain has not undertaken any study to estimate monetary value or costs of potential Project-related effects on southern resident killer whales.
- h) While Trans Mountain does not own or operate the tankers that call at Westridge Marine Terminal, it is committed to participating in collaborative solutions to aid in the recovery of Southern Resident Killer Whales.

While activities will be consistent with current accepted uses, the increase in Project-related marine vessel traffic will contribute additional underwater noise to the existing adverse acoustic conditions in the Marine Regional Study Area (RSA). This increase is expected to be proportionately small relative to the overall current marine transportation activities in the region.

For southern resident killer whales, it has been determined that with the current status of the population any residual effect beyond current levels is undesirable; the entire population spends much of its time in the Marine RSA. For this reason, effects on southern resident killer whales were determined to be significant. Please see the Application, Section 4.3.7.6 of Volume 8A and NEB IR 1.55, 1.56 and 1.57 for further details.

- i) The scientific name for killer whales (which currently applies to all populations, including the southern residents) is *Orcinus orca*. Killer whales are therefore sometimes referred to as 'orca'.
- j) Please see response to Allan R IR No. 1.20h. The Project is undergoing an environmental review by the National Energy Board and Trans Mountain is unable to comment on what circumstances, if any, would cause Trans Mountain to either amend or withdraw its Application.
- k) Information relating to the Northeast Pacific southern resident killer whale ("southern resident killer whale") is provided in Marine Resources, Volume 8B, Part 19-2 of the Application. It is Trans Mountain's understanding that Schedule 1 of the Species at Risk Act ("SARA") lists the southern resident killer whale population as endangered. Once a species is listed as endangered, both the Crown and other persons must fulfill the obligations established under the SARA.
- l) No, Trans Mountain has not raised the issue of the status of southern resident killer whales with representatives from the federal government in an effort to obtain a less serious classification. Trans Mountain is committed to working with Fisheries and Oceans Canada (DFO) and other stakeholders on implementing the Action Plan for the Recovery of the Southern Resident Killer Whale as well as developing other strategies to assist in southern resident killer whale recovery.

1.21 Marine Spill Risk and Response Preparedness

Reference:

- i) Volume 1, Summary, page 1-81, (A3S0Q7)
- ii) A Review of Canada's Ship Source Oil Spill Preparedness and Response Regime, Transport Canada, Report
- iii) Review of the Joint Review Panel for the Enbridge Northern Gateway Project, Volume 2, pages 113 – 114, Report
- iv) West Coast Spill Response Study, Province of BC, Three Volumes
- v) Application, Volume 8A, Marine Transportation Effects Assessment and Spill Scenarios, Appendix 8, page 6, (A3S4Z1)
- vi) Kinder Morgan Investor Conference, January 24, 2011, Presentation Ian Anderson, Slide page 9, Presentation Slides

Preamble:

Reference (i) states that, "On March 18, 2013 the Government of Canada announced a number of measures toward the creation of a world-class tanker safety system. The implementation of eight tanker safety measures was announced along with the introduction of the Safeguarding Canada's Seas and Skies Act, and the creation of a Tanker Safety Expert Panel (the Panel) to review Canada's current tanker safety system and propose further measures to strengthen and bring Canada's tanker safety system to a world-class status.

On December 3, 2013 the federal Minister of Transport, the Honourable Lisa Raitt, released the report by the Panel, providing recommendations resulting from its review of the current state of Canada's ship-source oil spill preparedness and response regime south of the 60th parallel.

Trans Mountain has reviewed the Panel's recommendations and notes that those related to preparedness and response are consistent with the process Trans Mountain followed to conduct its marine risk assessment and to develop the subsequent assessment of response requirements.

Trans Mountain concurs with the Panel's finding that emergency response and preparedness measures need to be tailored to the geographic setting and in response to the unique risks in each region in Canada, particularly in the Salish Sea. Overall, Trans Mountain is supportive of the Panel recommendations and looks forward to working with the Federal Government on their implementation."

Reference (i) also states that, "On October 10, 2013, BC released a comprehensive study assessing current marine-spill preparedness and response capabilities on the West Coast. The report points to where resources and efforts need to be dedicated in order to improve response, readiness and recovery on the West Coast. In the report the current response standard is considered inadequate. Trans Mountain has considered this report in the context of tankers in the Salish Sea."

Reference (ii) states that, "Canadian taxpayers should not bear any liability for spills in Canadian waters."

Reference (ii), page 30, states that the maximum compensation available for a persistent oil spill is \$1.3 billion, and the maximum available for a bunker oil spill is \$261 million.

Reference (ii) explains that “In May 2013, Transport Canada commissioned a Canada-wide risk assessment to examine the probability and the potential impacts of ship-source spills. The risk assessment was conducted by GENIVAR, a leading professional services firm, which subcontracted SL Ross, a consulting firm specializing in the behaviour of oil and chemical spills, for portions of the work.”

Reference (iii) states that, “Marine shipping navigation, safety, and spill prevention are not under the jurisdiction of the National Energy Board. Marine shipping legislation and associated regulations, standards, programs, and policies fall primarily under the jurisdiction of Transport Canada. Other departments, such as Canadian Coast Guard, also have a role. International organizations, such as the International Maritime Organization, play a role in the development of marine shipping safety regulations and standards. Any refinements or additions to Canada’s marine shipping regulatory regime would be under the jurisdiction of these authorities as they have the appropriate mandate, regulatory authority, and expertise.”

Reference (iii) also states that, “This regime (compensation for marine shipping spills) is not regulated by either the National Energy Board or Canadian Environmental Assessment Agency and, therefore, the Panel does not express a view as to the sufficiency of the current amount available. The Panel notes that any changes to the marine spill compensation framework would be handled by the regulatory bodies that are responsible for the current regimes.”

Reference (v) states that, “Typically, five tankers per month are loaded with crude oil. Tanker traffic consists of a mix of Panamax and partially-laden Aframax vessels. The expanded system would be capable of serving up to 34 partially-laden Aframax vessels per month. The maximum size of vessels served at the terminal is not forecast to change as part of the project. Similarly, the primary cargo for future traffic will likely continue to be heavy crude oil, primarily diluted bitumen. We forecast that of the 890,000 bbl/d capacity of the expanded system, up to 630,000 bbl/d may be delivered to the Westridge Marine Terminal.”

Reference (vi) provides a powerpoint slide that references accommodating Suezmax post dredging and that the Port of Vancouver is supportive of the strategy. Audio recording supporting the presentation is no longer publicly accessible.

Request:

- a) Is Trans Mountain aware that the Tanker Safety Expert Panel review did not consider the fate and behaviour of a diluted bitumen spill in the marine environment, nor did it consider a diluted bitumen spill as a possible event? Please comment on how effective the Tanker Panel’s work is when the effects of a diluted bitumen spill have not been considered in their assessment.
- b) Did Trans Mountain review and consider in depth the GENIVAR report referenced in reference (ii)?

- c) If yes, please explain how the GENIVAR and Tanker Safety Expert Panel Report informed Trans Mountain's Application.
- d) Please confirm the total volume of diluted bitumen that could be transported to the Westridge marine terminal for export by oil tanker in barrels per day after the expansion is complete to be 630,000 bbl/d.
- e) Please comment on how the Tanker Safety Expert Panel's work could lead to the creation of a system that will provide an effective response regime for diluted bitumen.
- f) Does Trans Mountain consider diluted bitumen transported by tanker to present a unique risk to the marine environment? If not, why not.
- g) Does Trans Mountain consider bunker fuel to present a unique risk to the marine environment? If not, why not.
- h) Does Trans Mountain agree that Canadian taxpayers should not bear any liability for spills in Canadian waters?
- i) Please confirm Trans Mountain's understanding of the NEB's jurisdiction over marine shipping, safety and spill prevention.
- j) Does Trans Mountain consider the current level of financial resources available for compensation related to a persistent oil spill to be sufficient? Please explain.
- k) If Trans Mountain does not believe the financial resources are sufficient what representations has Trans Mountain made to the relevant authorities to have the level of resources increased. Please provide any and all representations made, including written correspondence.
- l) Does Trans Mountain consider the current level of financial resources available for a bunker spill to be sufficient? Please explain.
- m) Please confirm that tankers calling at the Westridge marine terminal rely on bunker fuel to run their engines when outside Canadian marine borders. If not, please explain what grade of fuel oil tankers rely on.
- n) Please confirm that the reference to the October 10, 2013 report released by the Province of BC is also the West Coast Spill Response Study in reference (iv).
- o) Please confirm that Trans Mountain is interested in meeting the Province of BC's five conditions.
- p) Please confirm that a "world class marine preparedness and response regime" is one of the five conditions.
- q) Please confirm that the West Coast Oil Spill Response Study Volume 3 is "An analysis to identify international best practices and elements required for establishing a world

class marine spill preparedness and response regime, which is one of B.C.'s five conditions for considering heavy oil transport.”

- r) As Trans Mountain has considered the West Coast Spill Response Study for its Application, please provide the complete report (3 volumes in total) as evidence.
- s) How did the study impact Trans Mountain’s risk assessment?
- t) Does Trans Mountain agree with the West Coast Spill Response Study’s findings that the current marine spill preparedness and response regime is inadequate and far from world class?
- u) Please provide a complete listing with explanation as to what Trans Mountain believes needs to be introduced, which parties should be responsible and who should pay to achieve a “world class” marine spill preparedness and response regime with appropriate access to financial resources. Include in this listing how these recommendations relate to the recommendations in reference (iv) including any features that reference (iv) recommends, but Trans Mountain disagrees with.
- v) Although Trans Mountain states that, “The maximum size of vessels served at the terminal is not forecast to change as part of the project” an earlier proposal included a clear intent to dredge Burrard Inlet and enable the loading and offloading of Suezmax tankers, as is illustrated in reference (vi). Would Trans Mountain agree to a potential condition attached to the CPCN for the project that commits Trans Mountain to never recommending or pursuing a strategy whereby larger tankers than Aframax (at 90% load) would be allowed to call at the Westridge and commit that it will never pursue a strategy whereby dredging of Burrard Inlet for purposes of enabling Suezmax, or fully loaded Aframax to be supported at the marine facilities.
- w) Reference (v) states that Panamax and partially laden Aframax are intended for the Westridge Marine facility. Would Trans Mountain agree to a potential condition for the certificate be that dredging of the Burrard Inlet never be contemplated for purposes of enabling Aframax tankers to be fully laden. If not, please explain why.
- x) Please explain how many Panamax tankers would be estimated to call at Westridge if only Panamax tankers were to be loaded in a given year.

Response:

- a) Trans Mountain is supportive of the recommendations made by the Panel and believes the Tanker Safety Expert Panel’s work has been effective. The review (A Review of Canada’s Ship-Source Oil Spill Preparedness and Response Regime - Setting the Course for the Future) has highlighted the strong prevention measures in place in Canada that has helped ensure that Canada has not had any significant oil spills since the current regime was implemented and it made 45 recommendations that will help strengthen Canada’s Ship-source Oil Spill Preparedness and Response Regime. The report has noted that, “marine transportation of other products such as diluted bitumen and hazardous and noxious substances, including liquefied natural gas, has also

increased in past years and these now make up an important share of the products shipped by tankers”. Given that the fate and behaviour of a diluted bitumen oil spill in the marine environment has been shown in various studies to be similar to that of other heavy crude oils and certain refined heavy products (please see responses to Allan R IR No. 1.21f and 1.21g) it is not considered a constraint on the manner of the review or the recommendations made by the Panel.

- b) Trans Mountain has reviewed and considered the report, “Risk Assessment for Marine Spills in Canadian Waters” prepared by Genivar. Please see response to Allan R IR No. 1.21c.
- c) Did Trans Mountain review and consider in depth the GENIVAR report referenced in reference (ii)?
- d) After the proposed expansion is complete, it is intended that Westridge Marine Terminal will be able to handle up to 100,160 m³/d (630,000 bbl/d) for export by oil tanker, on an annual average basis. See Volume 4A, Section 1.1 of the Application. For additional information, refer to the responses to NEB IR No. 1.93d.1 and NEB IR No 1.93d.2.
- e) Trans Mountain agrees with the Tanker Safety Expert Panel’s work, which recommends the need for Canada to tailor its preparedness efforts for each sector of the country, as the risks across the country are demonstrably different. The Tanker Safety Expert Panel (the Panel) recommends that the Government of Canada should implement a risk-based area response planning model to prepare for ship-source oil spills. The planning process described by the Panel is similar to that used to develop the marine spill response enhancements described by Trans Mountain in the Application (see Volume 8A) and could, therefore, be expected to result in similar standards. The enhancements described by Trans Mountain are allocated based on the predicted risks specific to the Project, the nature of the cargo oil and the geographic area. The time to respond, depending on the area of response, would be considerably reduced from what it is today to ensure timely and effective response. A substantially increased spill response capacity (20,000 MT) dedicated to this area is proposed to address a very low probability credible worst case event. Dedicated response capacity would be further supplemented by additional cascading of equipment from other areas in Canada and internationally. The Western Canada Marine Response Corporation (WCMRC), the certified marine response organization in British Columbia, is currently updating its geographic response strategies. Please see the Application, Volume 8A, Section 5.5.2 and Volume 8C, Termpol 3.15, Section 13.3 to gain more information on the future risk based response system proposed by Trans Mountain.
- f) Based upon the results of the comprehensive risk review conducted by Trans Mountain, which includes the study, “A Comparison of the Properties of Diluted Bitumen Crudes with Other Oils” (see the technical report S8 in TR8C-12, Volume 8C), the transportation of diluted bitumen as proposed by the Project, and with the additional risk reducing measures in place, does not present a unique risk to the marine environment. The study shows that comparing both physical and chemical properties of various oils, the risks to the marine environment from the transport of diluted bitumen by tanker are not

significantly different than those of other medium to heavy oils that are currently transported safely in this region.

- g) Please see the response to Allan R IR No. 1.21f. Any oil spilled in the marine environment would pose a risk to the environment. Bunker fuel is not unique in that respect and is a product that is commonly carried on the majority of larger vessels transiting the Salish Sea.
- h) Trans Mountain supports the principle of the polluter pays.
- i) The National Energy Board does not regulate marine shipping. It is primarily under the jurisdiction of Transport Canada. For a discussion on the marine shipping regulatory regime, including marine navigation and safety and marine oil spill preparedness and response, please see Section 7.1.2, Volume 2 of the Report of the Joint Review Panel for the Enbridge Northern Gateway Project.

Reference:

National Energy Board. 2013. Report of the Joint Review Panel for the Enbridge Northern Gateway Project. Volume 2. Section 7.1.2.

- j) Trans Mountain Pipeline ULC (Trans Mountain) understands that the Government of Canada is currently in the process of reviewing Canada's Marine Oil Spill Preparedness and Response Regime. In its recent report, A Review of Canada's Ship Source Preparedness and Response Regime – Setting the Course for the Future, the Federal Tanker Safety Expert Panel recommended that the current limit of liability per incident within the Canadian Ship-source Oil Pollution Fund (SOPF) should be abolished.

On May 13, 2014, the Government of Canada announced it will enhance the liability and compensation regime by introducing legislative and regulatory amendments to:

- Allow the full balance of the SOPF, currently about \$400 million, to be available in the event of an oil spill;
- In the event that all available sources of funds have been exhausted by spill-related claims, the Government of Canada will ensure compensation is provided to eligible claimants, and then recover those payments from the marine oil transport industry through a levy; and
- Align the SOPF with international funds by covering pure economic losses suffered by people who have had a loss of earnings but whose property has not been contaminated by an oil spill.

In addition to the announced changes to the Marine Oil Spill Preparedness and Response Regime, the Government of Canada has also made announcements on Canada's Pipeline safety systems.

On May 14, 2014, the Government of Canada announced new measures to further enhance Canada's world-class pipeline safety system. The new measures announced include:

- Introducing absolute liability for all NEB-regulated pipelines, meaning companies will be liable for costs and damages irrespective of fault – \$1 billion for major oil pipelines; companies continue to have unlimited liability when at fault or negligent;
- Developing a strategy with industry and Aboriginal communities in an effort to increase Aboriginal Peoples' participation in pipeline safety operations, including planning, monitoring, incident response and related employment and business opportunities;
- Providing the NEB authority to order reimbursement of any cleanup costs incurred by governments, communities or individuals;
- Giving the NEB the ability to provide guidance on the use of the best available technologies used in federally-regulated pipeline projects. This includes materials, construction methods, and emergency response techniques; and
- Providing the NEB authority and resources to assume control of incident response if a company is unable or unwilling to do so (i.e. in exceptional circumstances).

Trans Mountain notes that these recent federal government announcements regarding changes to tanker and pipeline liability and compensation were not accompanied by proposed legislation, and that the announcements were made during the information request response period. Accordingly, Trans Mountain has not had the opportunity to conduct a detailed analysis of these proposed legislative changes and it should be assumed that other information request responses related to these topics are being provided without the benefit of such analysis, unless otherwise indicated in the response.

See also Volume 8A, Section 1.4.1.6 of the Application which provides additional information about the Marine Liability Act and the SOPF.

In addition, see the attached Claims Manual from the International Oil Pollution Compensation Funds, which provides information on the scope of international funding in the event of a tanker spill and complements the Canadian SOPF (Allan R IR No. 1.21j – Attachment 1).

References:

Tanker Safety Panel Secretariat, A Review of Canada's Ship Source Preparedness and Response Regime – Setting the Course for the Future.

<http://www.tc.gc.ca/eng/tankersafetyexpertpanel/menu.htm> viewed May 10, 2014.

Government of Canada, World-Class Tanker Safety System: New measures to strengthen oil spill prevention, preparedness and response, and the polluter pay principle.

<http://news.gc.ca/web/article-en.do?&nid=847489> , viewed May 13, 2014.

- k) Please see the response to Allan, R IR No. 1.21j.
- l) Please see the response to Allan R IR No. 1.21j.
- m) Similar to the many thousands of other commercial marine vessels that transit the Salish Sea, the tankers calling at the Westridge Marine Terminal also carry bunker fuel (residual marine fuel) for use outside the North American ECA (Emission Control Area). Within the North American ECA, the ships use low sulphur distillate bunker fuel. IMO (International Maritime Organization) requires that all tankers built after August 2010 are designed and built with protected bunker tanks and with individual bunker tank size not exceeding 2,500 metric tons. Therefore a large proportion of the tankers calling Westridge Marine Terminal will have protected bunker tanks, similar to the cargo tanks of these vessels, when the Project is expected to be in service.
- n) Trans Mountain confirms that the reference to the October 10, 2013 report released by the Province of BC is also the West Coast Spill Response Study.
- o) Confirmed. Trans Mountain notes it is the role of British Columbia and not Trans Mountain to evaluate the Project within the five conditions framework. As described in Volume 1 – Summary Page 1-77 to 1-78 of the Application:
- “In the preparation of this application, Trans Mountain has taken into consideration the interests and concerns expressed by both provinces, in particular the BC Five Conditions enunciated by the Province of British Columbia. Trans Mountain has endeavoured to address these conditions in this application through a comprehensive analysis of the potential benefits, effects, and risk mitigation for the expansion. Provincial interests are reviewed below, using the themes of the BC Five Conditions as a template, and within the context of the regulatory process now underway for the Project. If approved by the NEB, the construction and long-term operation of the Project including the associated marine activities will be done to the highest standards of environmental performance, support Aboriginal communities, and benefit all British Columbians, Albertans and Canadians.”
- p) Not confirmed. Trans Mountain notes the following text from the executive summary in reference (iv) authored by Nuka Research “.....world-class marine oil spill prevention, preparedness, and response regime.....”. British Columbia’s second condition as written is: “World-leading marine oil spill response, prevention and recovery systems for B.C.’s coastline and ocean to manage and mitigate the risks and cost of heavy oil pipelines and shipments.
- q) Confirmed.
- r) Please refer to attachments:
- Allan R IR No. 1.21r – Attachment 1
 - Allan R IR No. 1.21r – Attachment 2
 - Allan R IR No. 1.21r – Attachment 3

References:

Nuka Research & Planning Group, LLC. 2013. West Coast Spill Response Study – Volume 1: Assessment of British Columbia Marine Oil Spill Prevention & Response Regime. March 28, 2013. British Columbia.

Nuka Research & Planning Group, LLC. 2013. West Coast Spill Response Study – Volume 2: Vessel Traffic Study. July 19, 2013. British Columbia.

Nuka Research & Planning Group, LLC. 2013. West Coast Spill Response Study – Volume 3: World-Class Oil Spill Prevention, Preparedness, Response & Recovery. July 19, 2013. British Columbia.

- s) The West Coast Spill Response Study has been useful to Trans Mountain in formulating some of the key marine risk reducing measures proposed in its Application including reduced response times and increased capacity for marine spill response. The introduction of additional risk reducing measures as part of Trans Mountain's risk assessment (see Volume C, TR 8C-12, Termpol 3.15) have helped develop a future tanker transportation risk management model that, when implemented, will help maintain the current low level of oil spill probability in the region (please see the response to Allan R IR No. 1.21c). When coupled with the enhancements proposed to consequence reduction, the combined outcome of the recommendations in Trans Mountain's risk assessment would result in reduction in oil spill risk in the Salish Sea region.
- t) The West Coast Spill Response Study acknowledges that "There will be many visions of what a "world-class" system entails, and almost as many ways to assess them. In presenting a vision of a world-class system, the authors reviewed existing standards and assessment tools, which typically focus on either spill prevention (vessel safety) or spill response (including planning and preparation for a spill response)."

Trans Mountain in its submission to the Tanker Safety Panel Review in June 2013 commented: "The term "world class" is used throughout the Tanker Safety Expert Panel's guidance document and is also used by the BC Government in its heavy oil policy paper: Requirements for British Columbia to Consider Support for Heavy Oil Pipelines. This term is an effective means to express a worthy objective which we support. However, it must be recognized that because of differences in geographic, commercial, technical and political settings around the world, there is no single formula or example of "world class" that can be copied from another regime and directly applied to the Canadian context. We believe Canada should seek to establish a leading regime for spill response. However, if it is to be successful, it cannot be a formulaic exercise without considerations to unique conditions in Canada and its maritime regions. We can be guided by the best of other regimes to establish principles appropriate for a Canadian setting."

Trans Mountain has worked with the Western Canada Marine Response Corporation (WCMRC) and proposed ways to improve marine oil spill preparedness and response in the Salish Sea region. Please also see the response to Allan R IR No. 1.21e.

- u) Please see the responses to Allan R IR No. 1.21e and 1.21t, and NEB IR No. 1.63.
- v) Trans Mountain can confirm that the maximum size of vessels served at the Westridge Marine Terminal is not forecast to change as part of the Project. Should changes in conditions in the harbour in future ever allow larger vessels to call at Westridge Marine Terminal, Trans Mountain would depend on the relevant federal regulatory authorities to decide what, if any, conditions should be placed on the movement and loading of such vessels.

The waters of the Burrard Inlet are the jurisdiction of Port Metro Vancouver and any decision to pursue dredging in Burrard Inlet will be made by that entity.

- w) Please see the response to Allan R IR No. 1.21v.
- x) Pipeline shippers have expressed a preference for Aframax class vessels over Panamax class vessels, where the intended discharge ports can accept them, in order to reduce transportation cost per barrel through economy of scale. A scenario in which only Panamax vessels call at the Westridge Marine Terminal over the course of a year is, therefore, highly theoretical and has a probability of nearly zero. An estimate for this theoretical scenario depends on various assumptions, including size variations within the Panamax class, the sizes of the cargoes commercially transacted by the shippers (the percentages of nominal vessel capacity utilized), and the densities of the cargoes. Assuming average size vessels, 13.0 m draft, 80% heavy crude oil cargoes and 20% light crude oil cargoes, the estimate is 528 Panamax class vessels per year.

1.22 Throughput Capacity

Reference:

- i) Application, Volume 1, Summary, page 1-11. A3S0Q7
- ii) Kinder Morgan (KMR) Annual Financials, 2013, page 26, Report
- iii) Canadian Pipeline transportation System, Energy Market Assessment, National Energy Board, April 2014, page 17, Table A-14 Report

Preamble:

Reference (i) states that, “The TMPL system has an operating capacity of approximately 47,690 m³/d (300,000 bbl/d) using 23 active pump stations and 40 petroleum storage tanks. The expansion will increase the capacity of the TMPL system to 141,500 m³/d (890,000 bbl/d).”

Reference (ii) states that, “Our Trans Mountain pipeline system originates at Edmonton, Alberta and transports crude oil and refined petroleum products to destinations in the interior and on the west coast of British Columbia...The capacity of the line at Edmonton ranges from 300 MBbl/d when heavy crude oil represents 20% of the total throughput (which is a historically normal heavy crude oil percentage), to 400 MBbl/d with no heavy crude oil.” Reference (ii) also states that, “In 2013, the Trans Mountain pipeline system delivered an average of 264 MBbl/d.”

Reference (iii) provides a graph of Trans Mountain Pipeline Throughput versus Capacity that illustrates that since 2009, and when when 0% heavy oil is shipped on Trans Mountain’s existing system capacity is 400,000 bbl/d.

Request:

- a) Please address the apparent contradiction between the understanding Trans Mountain’s parent has of Trans Mountain’s existing throughput capacity as reflected in KMR’s filing with the Security and Exchange Commission, the National Energy Board’s understanding of Trans Mountain’s throughput capacity, and the throughput capacity presented in the Application.
- b) Please confirm that according to reference (ii) there was unused capacity on Trans Mountain in 2013 of an average of 135,000 bbl/d if only light oil were transported on the system, and unused capacity of 35,000 bbl/d when 20 percent heavy oil is transported. If not confirmed, please explain fully.

Response:

- a) There is no contradiction. The nominal throughput capacity of 47,690 m³/d (300,000 bbl/d) presented in the Application assumes 20% heavy crude oil, which is historically typical. Throughput in 2013 was reduced from the nominal capacity primarily by temporary pressure restrictions, all of which are expected to be removed by the end of 2014.
- b) There was no unused capacity in 2013. The Trans Mountain system operated at the capacity available given the pressure restrictions discussed in the response to Allan R IR No. 1.22a.

1.23 Market Demand

Reference:

- i) Trans Mountain Pipeline ULC - Application for Firm Service to the Westridge Marine Terminal (A27445), Purvin and Gertz Report, Prepared by Steven J. Kelly, November 2010.
- ii) Volume 2 – Project Overview, Economics and General Information Appendix A and Appendix A-1 Direct Written Evidence of Steven J. Kelly, IHS Global Canada Limited, Table 2, (A3S0R1)

Preamble:

Reference (i) page 3, Trans Mountain Historical Deliveries, presents data on crude oil and refined product deliveries from 2002 - 2010.

Reference (i) page 10, BC Refined Products Balances, presents data on demand and supply for refined products in BC.

Request:

- a) Please provide a table similar to the table in reference (i) page 3, that illustrates the same information for bbl/d from 2002 - 2013 and forecast for 2014 - 2037 including an update of actual figures for 2010. Please revise the figure to include the volumes shipped across Westridge dock to US Oil in Tacoma Washington as a separate line item, and explain whether these transports are by barge or tanker.
- b) For the updated table requested in (a) above, please disaggregate the Westridge crude by market including Washington State, California, Gulf Coast and Asia (with a breakdown in Asian exports to country of destination.)
- c) Please provide a table similar to the table on page 10 for bbl/d with updated actual information and explain clearly what is meant by “Trans Mountain transfers” and “Other transfers.” Please explain where refined products are imported into BC if not through Trans Mountain’s pipeline system, with an identification of any refined product imports by tanker or barge that is offloaded at the Westridge facility.
- d) Please explain the current status of the bio-fuels impact and how it affects the actual and forecast experience.
- e) Please confirm that 80 percent of the capacity of the pipeline system once expanded, (707,000 bbl/d) are allocated to long term shippers with 15 and 20 year contracts.
- f) Please confirm that in reference (ii), Table 2, Mr. Kelly assumes all committed shipments are heavy crude oil.
- g) Please confirm that reference (i) assumes that any refined product transport to the British Columbia market will be at the spot shipper rate and confirm that this assumption

still holds for refined product post Trans Mountain's expansion. If not confirmed, please explain.

- h) Please provide a detailed table showing the toll rate currently charged for refined petroleum products by destination as compared to the proposed toll rates under the expansion scenario.
- i) Please provide Trans Mountain's estimate of the number of litres of gasoline in a barrel of gasoline.
- j) Please confirm that the increased cost of transport for refined products produced in Edmonton is borne by the refinery, the retailer, or the consumer at the pumps.
- k) Please indicate where in the Part III Public Interest Application, reference (ii), that the higher post expansion Trans Mountain transport costs for refined petroleum products has been identified and included as a cost netted off the gross economic benefits.
- l) Does Trans Mountain believe that the cost of gasoline at the pumps, and the cost of other petroleum product prices facing end users may be a public interest issue? If not, please explain.
- m) Recognizing that each barrel of crude oil, and each refinery will impact the amount of gasoline possible per barrel of heavy crude, please provide Trans Mountain's understanding of the cost economics involved when a barrel of crude oil is upgraded/refined into gasoline. That is, if a barrel of heavy crude is \$80 delivered to a refinery in Edmonton, and that same barrel increases in price by \$5 because of clearing market dynamics, everything else constant including the transport cost facing the refinery to deliver its gasoline to market, please clearly explain Trans Mountain's understanding of how that price could flow through to gasoline prices, should market dynamics enable the refiner to flow through the price increase to end users.

Response:

- a) Trans Mountain cannot provide the information requested as it is not available to IHS.
- b) Not provided, as the requested information is not available to IHS.
- c) Not provided, as the requested information was not part of the current analysis, and is not available to IHS.
- d) Trans Mountain cannot provide this information as it was not part of the current analysis.
- e) Confirmed. Trans Mountain notes the committed capacity is 707,500 bbl/d not 707,000 bb/d as referenced in the question.
- f) Not confirmed. The committed shipments on the Project may include light crude oil.
- g) Not confirmed, as the requested information was not part of the current analysis.

- h) There are only two categories of petroleum in the toll design for the expanded system either light or heavy. Refined products would be categorized as light for the purpose of applying tolls for the expanded system. The current tolls for the transportation of refined products by destination are published in Trans Mountain's current tariff which is publicly available.
- i) There are about 159 liters of gasoline in a barrel of gasoline.
- j) Not confirmed, and not relevant to one or more of the list of issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- k) It has not been, nor is necessary to do so.
- l) Trans Mountain acknowledges that the price of gasoline and other petroleum prices facing end users is of interest to the public. Trans Mountain notes that crude stock prices for the refiners is only one of many factors (including but not limited to World oil prices, refinery margins, and competition from other transported sources of refined products) that may effect prices to the public; however, the information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.
- m) Please refer to Allan R IR No. 1.15o. Trans Mountain notes that if crude oil prices to the refinery are not the defining factor in determining end user petroleum prices, the price for end user petroleum prices will not change, however the information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project. Please refer to Allan R IR No 1.23I.

1.24 Storage Tanks — Westridge Marine Terminal

Reference:

- i) RH-2-2011, Application for Firm Service to Westridge Marine, page 5. Reasons For Decision
- ii) Application, Volume 1-Summary, page 1-2 and 1-3. (A3S0Q7)

Preamble:

Reference (i) explains that, “Trans Mountain stated that the volumes shipped off the Westridge dock and the number of tankers required to move those volumes are affected by several factors, including market demand and customers’ requirements for specific lot sizes. In addition to the limitations caused by the need to ship in lots, a physical limitation exists due to the amount of tank storage available at the Dock. Based on existing physical limitations, Trans Mountain advised that the Westridge dock could currently ship upwards of 23 900 to 31 800 m³/day (150,000 to 200,000 bpd). In March 2009, shipments off the Westridge dock peaked at 22 700 m³/day (143,000 bpd).”

Reference (ii) states that, “In addition to pipeline facilities, the existing TMPL system includes 23 active pump stations along the pipeline route and four terminals at Edmonton, Sumas, Burnaby and Westridge. The number of tanks and capacity of each of these terminals is as follows:

Edmonton: 35 tanks, capacity of 1,274,310 m³ (8,015,000 bbl) Sumas: 6 tanks, capacity of 113,680 m³ (715,000 bbl) Burnaby: 13 tanks, capacity of 267,900 m³ (1,685,000 bbl) Westridge: 3 tanks, capacity of 62,800 m³ (395,000 bbl)”

Reference (ii) also explains that the project includes plans to construct, “20 new tanks located at the Edmonton (5), Sumas (1) and Burnaby (14) Terminals, preceded by demolition of 2 existing tanks at Edmonton (1) and Burnaby (1), for a net total of 18 tanks to be added to the system.”

Request:

- a) Please explain fully, why, if there are storage capacity constraints at the Westridge marine terminal there is no planned increase in storage tanks or storage capacity at the facility?

Response:

- a) In Reference (i), the phrase “tank storage available at the Dock” was used generically and should be taken to mean “tank storage available at Burnaby Terminal”. All of the storage for Westridge Marine Terminal (WMT) export crude oil is located at Burnaby Terminal. The tanks at WMT are currently in import jet fuel service. There is no available space for export crude oil tanks at WMT.

1.25 Oil Spills a Kinder Morgan Business Opportunity

Reference:

- i) Application, Risk Assessment and Management of Pipeline and Facility Spills, Volume 7, Section 6.3.1, Economy page 7-86 (A3S4V6)
- ii) Application, Marine Transportation - Effects Assessment and Spill Scenarios, Volume 8A, Section 5.6.1.1, Economy page 8A-615 (A3S5Q3)
- iii) Application, Marine Transportation - Effects Assessment and Spill Scenarios, Volume 8A, Section 5.6.1.1, Economy page 8A-720 (A3S4Z0)
- iv) Canadian Ship-Sourced Spill Preparedness and Response: An Assessment, Robyn Allan, Submitted to The Tankers Safety Expert Panel, June 21, 2013 Report

Preamble:

Reference (i) states that, "Pipeline spills can have both positive and negative effects on local and regional economies, both in the short and long term. Spill response and clean-up creates business and employment opportunities for affected communities, regions, and clean-up service providers.

This demand for services and personnel can also directly or indirectly affect businesses and resource dependant livelihoods. The net overall effect depends on the size and extent of a spill, the associated demand for clean-up services and personnel, the capacity of local and regional businesses to meet this demand, the willingness of local businesses and residents to pursue response opportunities, the extent of business and livelihoods adversely affected (directly or indirectly) by the spill, and the duration and extent of spill response and clean-up activities."

Reference (ii) similarly notes for marine spills that, "Marine spills can have both positive and negative effects on local and regional economies over the short- and long-term. Spill response and clean-up creates business and employment opportunities for affected communities, regions, and clean-up service providers, particularly in those communities where spill response equipment is, or would be, staged (Section 5.5). This demand for services and personnel can also directly or indirectly affect businesses and resource-dependant livelihoods. The net overall effect depends on the size and extent of a spill, the associated demand for clean-up services and personnel, the capacity of local and regional businesses to meet this demand, the willingness of local businesses and residents to pursue response opportunities, the extent of business and livelihoods adversely affected (directly or indirectly) by the spill, and the duration and extent of spill response and clean-up activities. As an example, positive spill-related economic effects were documented for major spill clean-up areas following the EVOS (McDowell Group 1990). Negative effects on tourism and commercial fishing were also documented, as described below."

Reference (iii) explains that the Western Canadian Marine Response Corporation, a Transport Canada certified response organization plans to expand its capacity to prepare for and respond to greater major and catastrophic events than its current capabilities permit. The reference also mentions that, "Although Trans Mountain is not directly and legally responsible for the operation of the vessels calling at the Westridge Marine Terminal, it is an active member in the maritime

community and works with maritime agencies to promote best practices and facilitate improvements focussing on the safety, efficiency, and environmental standards of tanker traffic in the Salish Sea. Trans Mountain is a shareholder and member of the Western Canadian Marine Response Corporation (WCMRC) and works closely with WCMRC and other members to ensure that WCMRC remains capable of responding to any oil spill from vessels transferring product or transporting it within their area of jurisdiction.”

Reference (iv) explains that Kinder Morgan, Trans Mountain’s owner, is one of five shareholders in WCMRC along with 4 major oil companies (Imperial Oil, Shell Canada, Chevron and Suncor). WCMRC earns revenues for being prepared to respond to a spill and has contracts in place with ship owners for complete cost recovery when responding to a spill event. For a major or catastrophic spill, if the financial resources of the international and Canadian ship sourced oil pollution compensatory regime that covers marine spills is exhausted, WCMRC would be made whole at market rates for its services while harmed parties and the environment would be subject to a pro-rata share of available funds.

Reference (iv) documents a December 7, 2007 marine oil spill. “A crane barge being towed by a tug collided with the anchored Chinese crude carrier Hebei Spirit. The accident occurred near the port of Daesan on the Yellow Sea and severely impacted the area including Mallipo Beach, one of South Korea’s most popular beaches. The region affected by the spill also includes one of Asia’s largest wetland areas, a national maritime park, and 445 sea farms.

About a third of the size of the Exxon Valdez spill, the Hebei Spirit leaked 10,800 tonnes of oil from three of its five tanks. The spill was responded to immediately and estimates suggest there were 1 million person-days of effort in the first 6 weeks of clean up.

The incident created South Korea’s worst spill—surpassing one that occurred in 1995— with ongoing economic and environmental impacts. Financial loses related to commercial claims from the spill have not been compensated as the claims settlement process is still ongoing.

Although there are a number of complex issues related to this spill that contributed to the lengthy claims settlement process, the event identifies some of the challenges inherent in the international oil pollution fund regime. Funding limits can become sorely inadequate, and appropriate redress for legitimate losses can be frustrated. At this point, assessed claims will be pro-rated to 35 cents on the dollar, and a number of claims will likely be denied outright.”

Request:

- a) Please confirm that Trans Mountain regards oil pipeline and marine spills as potentially positive since “spill response and clean-up creates business and employment opportunities for affected communities, regions, and clean-up service providers.”
- b) Please confirm which Kinder Morgan corporate entity holds the shares in WCMRC.
- c) Please confirm that Kinder Morgan has a 20% ownership in WCMRC. If not, what is Kinder Morgan’s proportionate share ownership?

- d) Please confirm that Trans Mountain is a service provider through its ownership share in WCMRC.
- e) Please confirm that Kinder Morgan directly benefits through dividends or profit sharing from WCMRC's activities. If not confirmed, please explain the rights afforded through share ownership of WCMRC.
- f) Does Kinder Morgan plan to finance the capital spending plans of WCMRC as it expands its asset base to provide greater preparedness and response services as described in reference Volume 8A? If no, would Kinder Morgan accept this as a potential condition of certification? If no, why not?
- g) Please explain in detail the returns or distributions Kinder Morgan has received over the past five years through its ownership rights to WCMRC.
- h) Does Kinder Morgan consider oil pipeline or tanker spill preparedness and response as a profit centre or growth opportunity for its business activity?
- i) Please confirm that WCMRC has contractual arrangements with tanker owners/operators for the services it provides that guarantees complete cost recovery in the event the company responds to a spill. If not, please explain the contractual arrangements surrounding certainty of payment for response activities.
- j) Does Trans Mountain believe the compensatory regime for marine pollution events is sufficient to cover legitimate claims and clean up a major or catastrophic event?
- k) Does Trans Mountain believe a spill such as the Hebei Spirit represents a positive economic benefit and opportunity for the community?

Response:

- a) Regrettably, recent media coverage has caused the reference in the preamble to be taken out of context and some have interpreted it in a way that is not consistent with its original intent. The following clarification is provided in response to this request and to other similar Information Requests. First and foremost, no spill is acceptable to Trans Mountain, nor is it part of the economic justification for our project. Please see the response to Allan R IR No. 1.01cc for an explanation of the assessments of potential spill effects included in the Application.
- b) Shares in the Western Canada Marine Response Corporation are held by Trans Mountain Pipeline L.P.
- c) Not confirmed.

Under terms of the Western Canada Marine Response Corporation (WCRMC) shareholder agreement each shareholder's ownership percentage is adjusted periodically by dividing the volume of oil handled by a particular WCRMC shareholder within WCRMC's Geographic Area of Response (GAR) during a calendar year by the

volume of oil handled by all WCMRC shareholders within the WCMRC's GAR during the same period and multiplying the quotient by one hundred.

Trans Mountain L.P.'s proportionate share varies based on the volume of oil handled relative to that of other shareholders. Subject to adjustment by this mechanism Trans Mountain's current proportionate share ownership is 50.9%.

- d) Not confirmed.
- e) Under terms of the Western Canada Marine Response Corporation (WCMRC) shareholder agreement shareholder equity is entitled to a fixed rate of return based on the last published National Energy Board rate of return on equity. For the year ended December 2013 this was 7.58%. This return on shareholder equity is included as a cost of service in determining the Bulk Oil Cargo Fee (BOCF). This return on shareholder equity is distributed annually in proportion to share ownership.

The BOCF is calculated as WCMRC's revenue requirement net of revenue from memberships, spill response services, and other operations activities divided by a forecast volume of oil handled within WCMRC's Geographic Area of Response (GAR). Oil handled refers to the volume of oil loaded or unloaded as cargo (but not both) at member facilities within the GAR.

- f) Please see response to NEB IR No. 1.64.

The Western Canada Marine Response Corporation's (WCMRC's) existing funding framework can be used to recover the cost of proposed improvement; therefore financing from Trans Mountain is not necessary.

- g) Further to the response to Allan R IR No. 25e, for the past five years Trans Mountain L.P.'s share of the Western Canada Marine Response Corporation's (WCMRC's) return on equity has been as follows:

2009: \$64,019
2010: \$108,839
2011: \$108,204
2012: \$102,616
2013: \$96,456

- h) No.
- i) Western Canada Marine Response Corporation's (WCMRC's) contractual arrangements with tanker owners are in the form of the *Ship (Bulk Oil) Membership Agreement and Confirmation of Arrangement*. This agreement does not guarantee complete cost recovery.

Costs and expenses incurred by a certified response organization, like WCMRC, do not form a priority over the claims of others. In the event of a spill, the owner of a ship is liable for the costs and expenses incurred by the Minister of Fisheries & Oceans, by a certified response organization like WCMRC and by any other person in Canada, which

are in addition to the costs of reasonable measures of reinstatement undertaken or to be undertaken regarding impairment to the environment. Unlike other persons in Canada, a certified response organization does not have a right of direct access to the Canadian Ship-source Oil Pollution Fund (SOPF) (see section 103(3) of the *Marine Liability Act*). A certified response organization can assert a claim for unsatisfied costs and expenses to the Fund but only after exhausting its rights of recovery against the ship-owner.

The Application, Volume 8A, Section 1.4.1.6 provides more information about the *Marine Liability Act* and the Canadian Ship-source Oil Pollution Fund.

Please also see the response to Allan R IR No. 1.21j.

- j) Please see the response to Allan R IR No. 1.21j.
- k) No. Please see Trans Mountain's response to Allan R IR No. 1.21j.

1.26 Kinder Morgan's Death Spiral Scenario

Reference:

- i) Volume 2 – Project Overview, Economics and General Information Appendix A - 1 Appendix A Direct Written Evidence of Steven J. Kelly, HIS Global Canada Limited, (A3S0R1)
- ii) The Trans Mountain Expansion Project: Understanding the Economic Benefit for Canada and Its Regions, Appendix B, (A3S0R1)
- iii) RH-01-2012, Trans Mountain Expansion Part IV, Toll Application, Transcripts, Volume 1, February 12, 2013, paragraph 701-735 (A3F3Y2)

Preamble:

Reference (i) provides three production scenarios: a low production, base production and high production case. All these cases show a positive upward growth trajectory in the production and supply of diluted bitumen.

Reference (ii) provides two scenarios in its I/O model of operations impacts based on committed shippers (80% capacity utilization) and then a scenario with committed and spot shippers (100% capacity utilization).

Under cross-examination during the Trans Mountain Expansion Project Toll Hearings, Trans Mountain witness, Mr. Stoness explained that there are risks to the project such as the risk of increasing construction costs, increasing operating costs, underutilization, changing market conditions and shipper default. Mr. Stoness also indicated that because Trans Mountain is a negotiated, not a cost of service, toll settlement, Trans Mountain is less exposed to death spiral risk.

MR. BERGNER: I was trying to understand the clarification you were offering about market conditions or changes to market conditions. And I was clarifying that I had understood that to be a reference to changing market conditions may result in underutilization and so that that's a risk for Trans Mountain.

MR. STONESS: Right. And what I was saying is that I agree with Mr. Reed but there is a risk that we could have death spiral and that risk is shift -- shifted to the cost-of-service entity unlike the others.

Request:

- a) Please identify in reference (i) where risks have been presented that might impact the likelihood of any of the three scenarios from developing.
- b) Please identify in reference (ii) where any risks to the forecast results have been identified including an identification of the possibility of changing market conditions, leading to underutilization, and possibly shipper default.
- c) Please confirm that for long term take or pay contracts "death spiral" has been shifted, not eliminated. That is, the risk of underutilization of pipeline capacity is shifted away

from the pipeline operator towards the shipper, but still poses a threat to the economic wellbeing of the Canadian economy and the public interest.

- d) Please clearly explain why no consideration has been given in Trans Mountain's economic benefits case to a scenario whereby the system is significantly under-utilized and the impact this would have on the regional and Canadian economy?

Response:

- a) In Trans Mountain's view, the IHS report addresses a reasonable range of potential outcomes relating to both crude production and supply (through the development of the Base Case, Low Production Case and High Production Case) and infrastructure development (through the development of the Reference Scenario and the Expansion Scenario).

As to the risks or opportunities that might impact production and supply, which is assumed to be the basis for the reference to "the three scenarios" in the question, Trans Mountain suggests that many factors could affect overall production and supply of Western Canadian crude. These may include macroeconomic factors, market factors, company specific factors and project specific factors. The impact of these factors (which can be both positive and negative) can be captured qualitatively, without providing an itemized list of the factors themselves. This has been done in the construction of the scenarios developed in reference (i).

- b) Even in the low production scenario described in reference (i), which is well below consensus forecasts (as described in reference (i)), there is sufficient production to utilize the expansion project at 80% capacity. As well, the price discount on Canadian oil as described in reference (i) is also evidence of the market need for additional oil transportation infrastructure. Finally, the long-term contracts signed by 13 shippers for 80 per cent of capacity (described in reference (ii)) require payment even if oil is not actually shipped, providing shippers with a significant incentive to make use of the expansion project. These three factors suggest that the probability of the pipeline being underutilized is small.
- c) Not confirmed.
- d) Please see the response to Allan R IR No. 1.26b.