

Pipeline to Nowhere?

Uncertainty and unanswered questions about
the Enbridge Northern Gateway pipeline

By Nathan Lemphers



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Editor: Emma Gilchrist

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Executive Summary

Pipeline company Enbridge has applied to the federal government for permission to build the Northern Gateway pipeline, a \$5.5 billion oilsands pipeline from Bruderheim, Alta., to Kitimat, on B.C.'s North Coast. If approved, the project would export 525,000 barrels per day of diluted bitumen to Asia and California via oil tankers. A federal Joint Review Panel has been struck to review the economic, technical and financial feasibility of the pipeline and consider its environmental and socio-economic impact. Ultimately, the panel will determine if the pipeline has adverse environmental impacts and if the pipeline is in the public interest of Canadians.

While Enbridge has been active in promoting the perceived benefits of the project, there are some critical questions that remain unanswered.

Is there demonstrated demand for this pipeline? Enbridge has yet to provide adequate evidence that there is specific market demand for the oil products being transported in the proposed pipeline. Moreover, there are no long-term commitments from shippers and there is no refinery-specific demand analysis, as conventionally provided in past export pipeline applications.

Is there a need for more pipeline capacity? The current export pipeline system to the United States is only operating at 59% capacity. What is the impact of creating even more capacity on a system that is not close to being full?

Does the panel have enough information to make an informed decision? Enbridge's application inadequately assesses alternatives to the project, provides no information on the impacts from oilsands development needed to fill the pipeline and considers only a narrow interpretation of the economic impacts from its project.

This lack of balanced information creates considerable uncertainty over whether the Enbridge Northern Gateway pipeline is actually needed and whether in fact it is likely to be built — even if approved.

The report concludes with one recommendation: the Joint Review Panel should not convene public hearings until Enbridge has filled information gaps present in their current application. The public and government decision-makers require enough information to make a reasoned and informed decision on the pipeline. The onus is on Enbridge to address these gaps and prove that its project is needed and in the public interest of Canadians.

1. Introduction

As oilsands development continues to grow, companies are exerting increasing pressure to ensure adequate access to export markets via pipeline. Enbridge's proposed Northern Gateway Pipeline would link Alberta's increasing oilsands production with the port of Kitimat on the North Coast of British Columbia.

The Northern Gateway Pipeline project consists of 1,170 km of dual pipeline connecting Alberta's oilsands to British Columbia's Pacific coast, and from there to Asian Pacific and Californian markets by oil tankers.¹ If approved, the 36-inch (91 cm) westward line could export 525,000 barrels per day of diluted bitumen² and the 20-inch (51 cm) eastward line could import 193,000 barrels per day of condensate (a gasoline-type substance used to dilute raw bitumen so that it can flow in a pipeline). Both pipelines would travel through the Great Bear Rainforest, one of the largest intact coastal temperate rainforest in the world.

The project would also necessitate the construction of a marine oil tanker terminal at the north end of Douglas Channel, near Kitimat. Each year approximately 225 tankers with a capacity of up to two million barrels of oil each would access Douglas Channel via Hecate Strait, Queen Charlotte Sound and/or Dixon Entrance unloading condensate and picking up diluted bitumen and/or synthetic crude.³

How does two million barrels per tanker compare to the Exxon Valdez spill? The total amount of crude spilled from the oil tanker Exxon Valdez in 1989 was 260,000 barrels,⁴ eight times less oil than the amount carried by some of the tankers that would come to the proposed Kitimat terminal.

Shortsighted benefits

Enbridge and other advocates for an export pipeline to the British Columbia coast frequently cite project benefits but gloss over any of the potential drawbacks to the pipeline. Decreased dependence on the United States as our sole customer for oil, assurance that Canadian oil producers will receive world prices, higher local employment through construction and maintenance jobs and increased government revenues (federal and provincial taxes and provincial royalties in Alberta) are noteworthy outcomes from building an export pipeline.

¹ Project description is found at Enbridge Northern Gateway Pipelines, "Project Info: Northern Gateway at a Glance," 2009, <http://www.northerngateway.ca/project-info/northern-gateway-at-a-glance> (accessed Dec. 11, 2010)

² "Oil" for this project is defined by Enbridge as petroleum ordinarily found in liquid form including bitumen, diluted bitumen and synthetic crude oil. This report assumes diluted bitumen is the petroleum product that could be shipped.

³ Enbridge Northern Gateway Pipelines, *Enbridge Northern Gateway Project, Kitimat Terminal and Marine Transportation Environmental and Socio-Economic Assessment Discussion Guide*, 2009, <http://www.northerngateway.ca/environment-safety/environmental-assessment/marine> (accessed Dec. 11, 2010)

⁴ John Piatt, Calvin Lensink, William Butler, Marshal Kendziorek, and David Nysewander. 1990. "Immediate impact of the 'Exxon Valdez' oil spill on marine birds," *The Auk*, 107(2): 387-397.

However, there are many unanswered questions that have yet to be adequately addressed by Enbridge. This information imbalance gives the impression that the need for the pipeline is more certain than it may actually be and leaves local communities and government decision-makers in the challenging situation of not having enough information to make a well-informed decision.

Growing opposition

There is significant and growing opposition to the Northern Gateway pipeline. Nine Coastal First Nations declared an oil tanker and pipeline ban under their traditional laws in March 2010.⁵ No First Nations communities have officially expressed their support for the pipeline project. In October 2010, the Union of B.C. Municipalities passed resolutions opposing oil tanker traffic and the Northern Gateway pipeline.⁶ There have been thousands of public submissions to the Joint Review Panel's website from individuals and groups concerned about the pipeline. With all of this opposition to the pipeline, it is becoming clearer that the regulatory review process must be sufficiently rigorous if it is to address the myriad concerns that have already been expressed by Canadians.

More recently, in December 2010, 61 B.C. First Nations signed a declaration stating they “will not allow the proposed Enbridge Northern Gateway Pipeline, or similar tar sands projects, to cross our lands, territories and water sheds, or the ocean migration routes of the Fraser River salmon.”⁷ In the same month the House of Commons passed a motion calling for the federal government to ban bulk oil tanker traffic off the north coast of British Columbia.⁸

Use as a bargaining tool to weaken U.S. climate legislation

“We must export oil to China,” BMO chief economist Sherry Cooper said Thursday [Nov 19, 2009] in a speech in Calgary. “It’s very important. And the sooner the better.” Such an outlet [an export oil pipeline to Asia] is both a useful exercise in market diversification, but also a necessary strategy in the face of looming U.S. climate policies, which may restrict oilsands imports, she said. “For sure, the U.S. isn’t going to like it,” Ms. Cooper said. “But that’s good, because it gives us more leverage with the U.S. For example, it makes it more difficult for the U.S. to threaten us with comments about dirty oil.”⁹

⁵ Coastal First Nations, “First Nations Say They Will Not Allow Pipelines and Oil Tankers Carrying Alberta’s Tar Sands Oil in British Columbia,” March 23, 2010, <http://coastalfirstnations.ca/files/PDF/C35010032215240.pdf> (accessed Dec. 11, 2010)

⁶ Terrace Daily Online, “BC Municipalities vote against Enbridge pipeline and tankers,” Oct. 1, 2010, <http://www.terraceonline.ca/go7186a/MAYORS - LEADERS - UBCM VOTE AGAINST ENBRIDGE>

⁷ Derrick Penner, “Opposition to Northern Gateway pipeline grows among first nations,” Vancouver Sun, Dec. 3, 2010, <http://www.canada.com/health/Opposition+Northern+Gateway+pipeline+grows+among+first+nations/3921472/story.html> (accessed Dec. 8 2010).

⁸ Andrew Mayeda, “Motion calls for oil tanker ban off B.C. coast,” Vancouver Sun, Dec. 8, 2010, <http://www.vancouversun.com/business/Motion+calls+tanker+coast/3943415/story.html> (accessed Dec. 9 2010).

⁹ Nathan VanderKlippe, “Oilsands pipeline to West Coast gains backing,” The Globe and Mail, Nov. 19, 2009, <http://www.theglobeandmail.com/globe-investor/oil-sands-pipeline-to-west-coast-gains-backing/article1370402/> (accessed Dec. 11, 2010)

In spite of the uncertainty about the need or likelihood that the Gateway pipeline will actually be built, the prospect of the pipeline is already being used as political leverage against climate change policy measures in the United States that would affect the market for oilsands.

The Government of Canada has been actively attempting to weaken U.S. climate legislation for the past few years. In an Access to Information request, the Pembina Institute obtained government correspondence on how the Department of Foreign Affairs was working to weaken Section 526 of the 2007 U.S. Energy Independence and Security Act — legislation that sought to reduce the carbon footprint of the U.S. government.¹⁰ The Government of Canada has also been actively undermining the development of California’s low carbon fuel standards and the European Union’s Fuel Quality Directive, both policies seek penalize fuel sources, such as the oilsands, that have a higher greenhouse gas intensity.¹¹

In fact, a report commissioned by Enbridge and submitted with its regulatory application to the Joint Review Panel explicitly highlights the political leverage to protect the oilsands:

“ . . . the existence of the Northern Gateway option would provide important leverage in achieving changes to such limiting policies or regulations to reduce the negative impacts on the Canadian oil and gas sector. Indeed, this option may also allow the exertion of leverage in obtaining exemptions or changes to protectionist US policies or regulations that might affect Canadian industrial sectors other than crude oil.”¹²

It would appear that in the face of U.S climate policy that might force improvements in environmental performance in the oilsands sector, the Government of Canada and the oilsands industry are wielding the threat of exports to Asian markets via the proposed Northern Gateway pipeline in order to undermine or seek exemption from such policies.

Why is this report being written?

Adding to the concerns of those communities directly impacted by the pipeline, there is considerable uncertainty about whether the Northern Gateway pipeline is actually necessary. There is concern that the purported benefits to local communities and to Canada may be overstated and the purported costs understated. As this report will illustrate, there are numerous uncertainties and unanswered questions that must be addressed by Enbridge, in advance of the Joint Review Panel hearings, to inform public consideration of this proposed pipeline.

Outline

First, the report will focus on the unprecedented lack of commercial interest in the pipeline. Second, the issue of excess pipeline capacity will be discussed. Third, the noticeable lack of information in Enbridge’s application will be advanced, with particular attention paid to their

¹⁰ Foreign Affairs and International Trade Canada. All documents (including briefing notes, memos, correspondence) prepared on the subject of the United States “Energy Independence and Security Act of 2007,” <http://pubs.pembina.org/reports/foi-foreign-affairs.pdf> (accessed Dec. 8 2010).

¹¹ CBC News, “Feds, Alberta fight foreign climate laws: report,” Nov. 22, 2010, <http://www.cbc.ca/politics/story/2010/11/22/oilsands-report-climate.html> (accessed Dec. 8 2010)

¹² *Public Interest Benefits of the Northern Gateway Project* Wright Mansell Research Ltd. (March 2010), p.23-24 in Enbridge Northern Gateway, Section 52 Application, Volume 2, Appendix B

alternatives assessment, upstream impacts and project economics. The report concludes with a list of questions that Enbridge must consider if their application is to be adequate for the Joint Review Panel to make an informed decision.

2. Is there demonstrated demand for this pipeline?

2.1 Why doesn't Enbridge have shipper agreements?

Typically, a pipeline proponent demonstrates that demand exists for a new pipeline by securing pre-arranged agreements with oil producers to ship their oil, and these agreements are referenced in the application submitted to the National Energy Board. Shipping agreements provide a clear signal to the public, regulators, investors and other pipeline companies that there is demonstrated market demand for additional pipeline capacity and that the project is economically viable.

Enbridge has noted it intends to use long-term shipper agreements to provide assurance to project lenders and equity investors that Northern Gateway can produce stable and long-term cash flows.¹³ Enbridge clearly states that, “long-term shipper commitments will confirm the evidence of need. The Project will not proceed until the markets make those commitments.”¹⁴

However, Enbridge's Northern Gateway application makes it clear that no long-term shipper agreements have yet been concluded. In fact, Enbridge has argued against providing any shipping agreements before project approval:

“Before entering into unconditional transportation service agreements, prospective shippers will need to be satisfied that the Project has been approved by the regulator, subject to acceptable terms and conditions (if any). They will also need to be satisfied that the costs to construct the Project are reasonable and can be satisfactorily managed, and that the in-service date for the pipeline will coincide with their individual crude oil production, marketing or refining plans.”¹⁵

It is unprecedented for an export pipeline to be approved without any long-term shipper agreements. For example, when TransCanada submitted applications to the National Energy Board for its Keystone and Keystone XL pipelines, it had transportation service agreements in

¹³ Enbridge Northern Gateway Pipelines, Inc. May 2010. Section 52 Application, Volume 2: Economics, Commercial and Financing, Section 2: Commercial Considerations, 2.1.2 The Need for Firm, Long-Term Shipping Commitments, P. 2-1

¹⁴ Enbridge Northern Gateway Pipelines, Inc. May 2010. Section 52 Application, Volume 2: Economics, Commercial and Financing, Section 1: Economics – Supply, Transportation and Markets, 1.1.3 Conclusion on Supply for Project's Oil Pipeline, P. 1-5

¹⁵ Enbridge Northern Gateway Pipelines, Inc. May 2010. Section 52 Application, Volume 2: Economics, Commercial and Financing, Volume 2: Commercial Considerations, 2.2 Progress toward long-term firm transportation commitments, P. 2-2,

place for 84% and 75% of the pipelines' capacity, respectively.^{16,17} Indeed, in past export pipeline applications, pipeline companies have used shipping agreements as “. . . demonstrable evidence that there is market support for the . . . pipeline and that the terms of the negotiated arrangements are reasonable and competitive.”¹⁸

KinderMorgan Canada, a competitor of Enbridge's that operates the TransMountain crude oil pipeline from Alberta to Vancouver, B.C., has suggested that Enbridge is simply trying to achieve competitive advantage by receiving approval for the project to assist with drumming up commercial support. In a letter filed with the Joint Review Panel for the Enbridge Northern Gateway project, KinderMorgan Canada noted that Enbridge's regulatory application is incomplete because it fails to meet the National Energy Board's test for economic feasibility.

“In essence, the whole basis upon which pipeline competition has operated since deregulation would shift from being a race to obtain contractual support for new services, to a race predicated upon who appears first before the regulator for approval of a concept and where no market support for that concept is needed.”¹⁹ — Letter from Kinder Morgan to Joint Review Panel

Given Enbridge's arguments against the need to secure long-term shipper agreements prior to regulatory approval, it is clearly seeking a precedent-setting decision that would diminish the amount of information and certainty required by regulators to consider a proposed pipeline. This precedent could lead to a rush of pipeline speculators who seek regulatory approval for conceptual pipelines, effectively putting the cart before the horse and placing greater strain on both regulators and the affected public alike.

2.2 Why won't Enbridge disclose its “Funding Participants?”

While Enbridge has not disclosed any long-term shipper agreements for the Northern Gateway pipeline, it has made mention of “Funding Participants.” Enbridge has secured a combination of Canadian producers and Asian market area interests who have committed to ten \$10 million units (\$100 million total). These companies are referred to by Enbridge as the “Funding Participants.” Enbridge has made much of the existence of these Funding Participants; however, it's worth noting that a \$10 million placeholder for a prospective \$5.5 billion pipeline project is a small price to pay relative to the scale of investment and profits in the oilsands sector.

Enbridge's application makes no mention of the specific identity of these “Funding Participants,” except that they are “a group of western Canadian producers and East Asian refiners”²⁰ whose identity cannot be disclosed. “Funding Participants” are encouraged to be a part of the initial

¹⁶ National Energy Board. March 2010. Reasons for Decision: Keystone XL, TransCanada Keystone GP Ltd., OH-1-2009, Facilities and Toll Methodology, P. 14

¹⁷ TransCanada Keystone Pipeline GP Ltd, Keystone XL Section 52 Application, Section 2, P. 6.

¹⁸ TransCanada Keystone Pipeline GP Ltd, Keystone XL Section 52 Application, Section 2, P. 6..

¹⁹ Kinder Morgan. 2010. Letter from Kinder Morgan to Joint Review Panel – Enbridge Northern Gateway Project. September 8th, 2010. <http://www.ceaa.gc.ca/050/documents/45167/45167E.pdf> (accessed Sept. 21, 2010). P. 5

²⁰ Andrea Lorenz, “Opening the door: pipelines are lining up again to satisfy Asia's growing thirst for Canadian crude oil,” Oilweek Magazine, October 2008, <http://www.oilweek.com/articles.asp?ID=606>

stages of the proposed pipeline through the incentives of lower tariffs and prioritized booking of capacity in the pipeline.²¹ In other words, these financial backers get front-of-the-line access to the proposed pipeline and enjoy reduced shipping fees if they provide this initial support to Enbridge.

*"We would like to be able to tell you who [those] participants are. At this point, we are not able to do that because of the confidentiality agreements we put in place."*²²

Pat Daniel, Enbridge CEO

In sum, not only has Enbridge not secured and disclosed long-term shipper agreements, but they are also refusing to disclose the identities of the "Funding Participants."

This lack of transparency is troublesome as it impinges upon the ability of the Joint Review Panel and public alike to weigh the significance of these agreements as it relates to the likely commercial viability of the Northern Gateway project. Simply put, the presence of backers willing to put money up in secret in an attempt to prove whether or not the pipeline can be built, does not necessarily translate into actual oil in the pipeline. Testing the commercial viability after a pipeline has been approved, instead of before, puts additional economic and environmental risk on Canadians and especially British Columbians.

"If you buy both sides of the Panama Canal, it's not just money"²³

With the recent investment by Chinese oil companies in the oilsands some concerns have been raised, including from within Prime Minister Harper's own caucus, about the possibility that China will ignore the marketplace and is simply interested in putting a "lock on strategic resources."²⁴ In other words, Chinese oilsands producers may not sell their oil on the open market to the highest bidder. Instead, they may prefer to sell, potentially at a discounted rate, to the Chinese marketplace. While the jury is out amongst "China watchers" on China's intentions for its stake in the oilsands, the lack of transparency from Enbridge about its "Funding Participants" will only fuel these concerns.

²¹ Andrea Lorenz, "Opening the door: pipelines are lining up again to satisfy Asia's growing thirst for Canadian crude oil," Oilweek Magazine, October 2008, <http://www.oilweek.com/articles.asp?ID=606>

²² Enbridge, Inc "Q2 2008 Quarterly Conference Call"– Final Transcript, question from Matthew Akman,

²³ Campbell Clark, "China's move on oil sands is about more than money," The Globe and Mail, April 14, 2010, <http://www.theglobeandmail.com/news/politics/chinas-move-on-oil-sands-is-about-more-than-money/article1534948/> (accessed Dec. 12, 2010).

²⁴ Campbell Clark, "China's move on oil sands is about more than money." The Globe and Mail, April 14, 2010, <http://www.theglobeandmail.com/news/politics/chinas-move-on-oil-sands-is-about-more-than-money/article1534948/> (accessed Dec. 12, 2010).

2.3 Why hasn't Enbridge provided details on commercial demand?

“Still, many producers in Alberta see the Asian market as a long-term option at best, with competition from the Persian Gulf and increasing volumes of oil from Russia due to the opening of the East Siberia Pacific Ocean pipeline. In private meetings, one producer said that the Asia market would only make sense when the US market is saturated.”²⁵

In its regulatory application, Enbridge hired the energy industry consulting firm Muse Stancil to provide a “Market Prospects and Benefits Analysis for the Northern Gateway Project.”²⁶ The Muse Stancil analysis provides no specific information on the prospective, let alone likely, refineries that would be the recipients of diluted bitumen and synthetic crude oil transported in the Northern Gateway pipeline. Rather, they aggregate demand on a country-by-country basis (with the exception of China, which was split into North and South), with no refinery-specific details (Table 1).

Table 1. Refinery demand²⁷

Country	Potential Demand (barrels/day)
Japan	630,000
Northern China	400,000
Southern China	210,000
South Korea	340,000
Taiwan	170,000

Once again, the lack of detailed analysis contrasts sharply with the detailed refinery-specific breakdown that is usually submitted by pipeline proponents, and was included by TransCanada in their recent Keystone XL pipeline application (which stands as the most recent oilsands export pipeline approved in Canada by the National Energy Board).²⁸

Rather oddly, despite the fact that Enbridge has publicly stated that it has refinery support from Singapore,²⁹ it’s application notes “once trade routes are established, other countries will be

²⁵ Robert Johnston, Outlook: Oilsands – Canada’s unconventional oil mega-play faces new challenges and opportunities, Eurasia Group, 19 May 2010.

²⁶ *Market Prospects and Benefits Analysis for the Northern Gateway Project*. Muse Stancil (January 2010), in Enbridge Northern Gateway, Section 52 application, Volume 2, Appendix A.

²⁷ *Market Prospects and Benefits Analysis for the Northern Gateway Project*. Muse Stancil (January 2010) Table 5, p. 23, in Enbridge Northern Gateway, Section 52 application, Volume 2, Appendix A.

²⁸ TransCanada Keystone Pipeline GP Ltd, Keystone XL Section 52 Application, Section 3: Supply and Markets, pg 4, Table 3-1.

²⁹ “At the end of July, Enbridge CEO Patrick Daniel informed investors that “belief in the project is so strong that we have obtained \$100 million of funding from a group of western Canadian producers and East Asian refiners to

interested in Canadian crude oil (e.g. India, Thailand, the Philippines and *Singapore*),”³⁰ (*emphasis added*) and the Muse Stancil analysis makes no reference to Singapore as a near-term market.

In addition, the Muse Stancil analysis does not attempt to differentiate potential markets for diluted bitumen versus synthetic crude oil, a curious omission given that the analysis assumes the pipeline will carry both products, with assumed export flows averaging 300,000 barrels per day of diluted bitumen and 200,000 barrels per day of synthetic crude oil.³¹ In effect, there was no effort made to correlate potential refinery demand with the distinct products (diluted bitumen and synthetic crude oil) and their relative proportion of projected supply. Because refineries need to be specially equipped to be able to handle heavier, and often sour (i.e. high sulphur content) bitumen, this lack of information and analysis raises questions about the rigour of the analysis conducted by Enbridge and ultimately undermines confidence in Enbridge’s assertion that there is sufficient demand.

Bitumen has a higher sulphur content and is a heavier source of oil than conventional crude. As a result, more energy-intensive and costly steps are needed to extract, upgrade, refine and transport bitumen. Refineries that process bitumen must be appropriately configured to crack large hydrocarbon molecules into simpler compounds, to stabilize the hydrocarbon compounds and to remove impurities, such as sulphur.

The Muse Stancil analysis demonstrates that of the Northeast Asian countries that are prospective markets, only refineries in North and South China are potential recipients of diluted bitumen, as Japan, South Korea and Taiwan do not have refining capacity that can handle the heavier, sour diluted bitumen (Table 2).

Table 2. Refinery characteristics

Country	Refinery Characteristics
Japan	“a strong potential customer for Canadian <i>synthetic crudes</i> , particularly the premium <i>synthetic crude</i> grades that feature better distillate properties” ³² (<i>emphasis added</i>)
North China	“...over 60 percent of the northern Chinese refining industry is assessed to have a <i>high or medium capability to process heavy, high sulphur crudes</i> . The total size of the northern coastal Chinese refineries is approximately 408,000 m3/d (2,570 kb/d). Moreover, the Chinese refiners have been steadily increasing both the capacity and capability of their domestic refineries over the last several years. <i>They specifically</i>

get the project to regulatory approval. The support from Asia for Gateway is broad based and now includes refinery support from Singapore to Japan.” <http://www.oilweek.com/articles.asp?ID=606>

³⁰ Enbridge Northern Gateway, Section 52 Application, Volume 2, Section 1, p.1-8

³¹ *Public Interest Benefits of the Northern Gateway Project*, Wright Mansell Research Ltd., (March 2010) p.24 in Enbridge Northern Gateway, Section 52 Application, Volume 2, Appendix B

³² *Market Prospects and Benefits Analysis for the Northern Gateway Project*. Muse Stancil (January 2010) p.16 in Enbridge Northern Gateway, Section 52 Application, Volume 2, Appendix A

Is there demonstrated demand for this pipeline?

	<i>have been adding residuum conversion units that will increase their capability to process heavy crude, and this trend is expected to continue.</i> ³³ (<i>emphasis added</i>)
South China	Roughly 75% of southern Chinese refining is assessed to have a high or medium capability to process heavy, high-sulphur crudes. However, “ <i>supply to the southern China refineries is somewhat handicapped by the greater distance from Kitimat, and the lessened distance from competing sources of crude supply.</i> ” ³⁴ (<i>emphasis added</i>)
South Korea	Although many of the South Korean refineries are very large, <i>they are not specifically designed to process heavy sour crudes.</i> ³⁵ (<i>emphasis added</i>)
Taiwan	Similar to the situation in South Korea, the Taiwanese refineries are large and quite complex, but <i>not specifically designed to process heavy sour crudes.</i> ³⁶ (<i>emphasis added</i>)

However, the Muse Stancil analysis provides no details regarding how it assessed “medium” or “high” capability to process heavier, sour crude, and the analysis concedes that, “Data regarding the specific crude grades imported by China are not available, but the review of the countries of importation suggests that the Chinese import basket is predominately a blend of medium sour crudes and various sweet crude grades.”³⁷

This lack of detail prevents a more detailed understanding of the extent of potential demand in China, which is particularly significant given that it is the only market (of those assessed) that could possibly receive diluted bitumen, which will account for more than half of the product that would be transported by the Northern Gateway pipeline. For example, when assessing the feasibility of the Japanese market, Muse Stancil provided a graph illustrating trends in Japanese refinery receipts based upon both the gravity (i.e. weight, how light or heavy the oil is) and the sulphur content (sour or sweet), Figure 1, which can be cross-referenced with the weight and sulphur content of diluted bitumen.³⁸ The Canadian Association of Petroleum Producers uses Cold Lake crude as a representative illustration of the properties of diluted bitumen, noting that it has a gravity of 21 degrees API³⁹ and a sulphur content of 3.6%.⁴⁰

³³ *Market Prospects and Benefits Analysis for the Northern Gateway Project*. Muse Stancil (January 2010) p.18, in Enbridge Northern Gateway, Section 52 application, Volume 2, Appendix A.

³⁴ *Market Prospects and Benefits Analysis for the Northern Gateway Project*. Muse Stancil (January 2010) p.18, in Enbridge Northern Gateway, Section 52 application, Volume 2, Appendix A.

³⁵ *Market Prospects and Benefits Analysis for the Northern Gateway Project*. Muse Stancil (January 2010) p.20, in Enbridge Northern Gateway, Section 52 application, Volume 2, Appendix A.

³⁶ *Market Prospects and Benefits Analysis for the Northern Gateway Project*. Muse Stancil (January 2010) p.22, in Enbridge Northern Gateway, Section 52 application, Volume 2, Appendix A.

³⁷ *Market Prospects and Benefits Analysis for the Northern Gateway Project*. Muse Stancil (January 2010) p.17, in Enbridge Northern Gateway, Section 52 application, Volume 2, Appendix A.

³⁸ *Market Prospects and Benefits Analysis for the Northern Gateway Project*. Muse Stancil (January 2010) p.15, in Enbridge Northern Gateway, Section 52 application, Volume 2, Appendix A.

³⁹ American Petroleum Institute gravity or API Gravity — a measure of how the density of a petroleum liquid relates to water.

⁴⁰ Canadian Association of Petroleum Producers, *Crude Oil Forecast, Markets and Pipelines*. (June 2010) p. 6 <http://www.capp.ca/getdoc.aspx?DocId=173003> (accessed 12 Dec. 2010)

Similar data on API and sulphur content was provided for South Korea, but was not provided for China or Taiwan, which prevents greater clarity on the extent to which refineries in these countries are currently equipped to handle diluted bitumen.

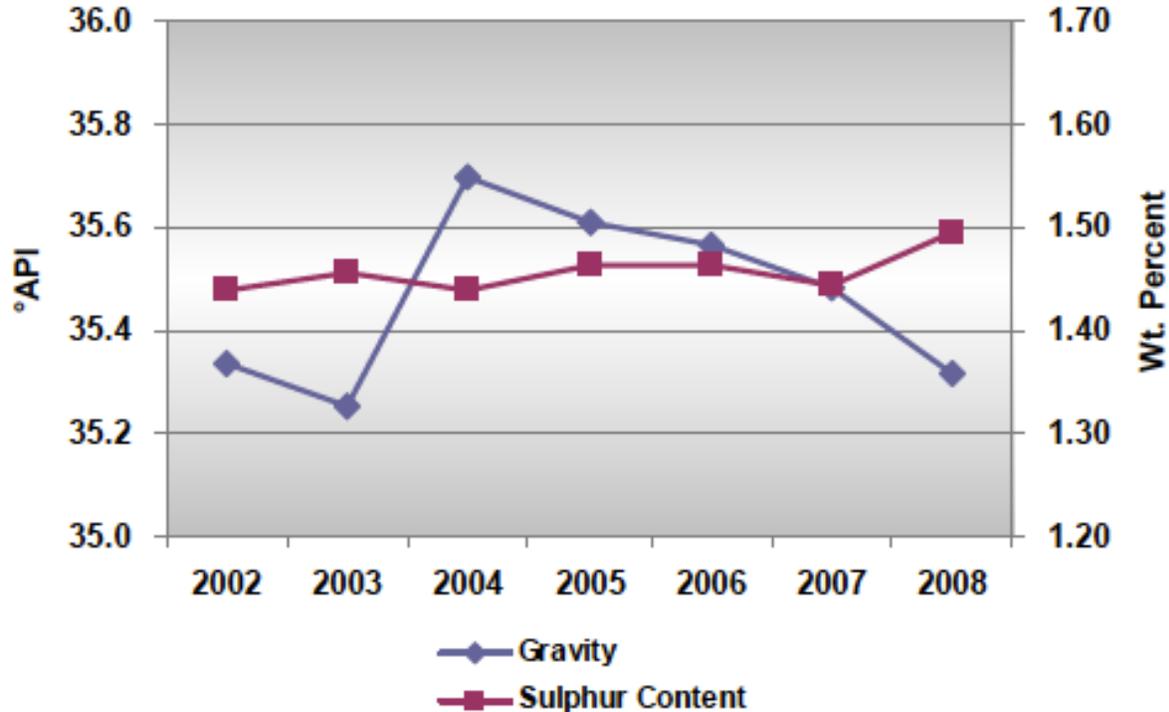


Figure 1. Japanese crude imports characteristics

Source: Petroleum Intelligence Weekly

What appears clear is that, of the Northeast Asian countries that might serve as destinations, only Chinese refineries might be ready to handle the characteristics of diluted bitumen. This is confirmed by a 2007 Alberta Energy study, which found that China was the only Asian market for diluted bitumen.⁴¹

However, it is not at all clear that Chinese refineries are interested in receiving diluted bitumen from Canada. The jury is out, with a range of “China watchers” holding conflicting opinions, on the extent to which China’s investment upstream in oilsands production is linked to a desire to “repatriate” this production to supply domestic consumption versus a purely commercial interest.⁴²

⁴¹ *Marketability of Oil Sands Products in Asian Countries*, Duke du Plessis, Alberta Energy Research Institute (AERI) Nancy Wu, Alberta Employment, Immigration and Industry. June 20, 2007, http://www.energy.alberta.ca/Petrochemical/docs/IEEJ_Study_Presentation_Final_20June2007.pdf (accessed Dec 12, 2010).

⁴² Robert Johnston, Outlook: Oilsands – Canada’s unconventional oil mega-play faces new challenges and opportunities, Eurasia Group, 19 May 2010.

“It is a mistaken view that China’s oil demand will keep growing as it has in the past few years.”⁴³

— Peter Tertzakian, Chief Economist, ARC Financial Corp.

Moreover, China’s increasing demand for energy may not even be for oil but for other energy sources such as nuclear energy and natural gas. China is planning up to 55 nuclear reactors and a massive investment in natural gas importing infrastructure.⁴⁴ The Chinese government is also considering investing \$1.5 trillion (U.S.) over five years into the development of seven new strategic industries, including: “*alternative energy, biotechnology, new-generation information technology, high-end equipment manufacturing, advanced materials, alternative fuel-cars and energy saving and environmentally friendly technologies*” (emphasis added).⁴⁵ This investment could significantly reduce China’s demand for high-carbon imported sources of oil.

Compounding this uncertainty about Chinese energy demand is a proposed federal policy, committed to by the Conservative Party during the 2008 federal election, which would “prevent any company from exporting raw bitumen (unprocessed oil from the oilsands) outside of Canada for upgrading in order to take advantage of lower pollution or greenhouse gas emissions standards elsewhere.”⁴⁶ As noted above, the Northern Gateway pipeline is intended to export, among other products, diluted raw bitumen to Asia.⁴⁷ One of the concerns raised over raw bitumen export is that the bitumen could simply be shipped to countries that have weaker environmental regulations than Canada. In effect, Canada would be exporting the pollution caused by upgrading oilsands to another country. Given the greenhouse gas emissions arising from oilsands upgrading and refining, the magnitude of carbon leakage could be significant. Life-cycle analyses of the greenhouse gas emissions produced by oilsands production indicate that the upgrading and refining of oilsands is 87 to 96% higher than conventional oil.⁴⁸

To date, the Government of Canada has not officially adopted the Conservative Party’s 2008 campaign promise. However, former Environment Minister Jim Prentice reaffirmed the

⁴³ Dave Cooper, “Gas gaining on oil summit told; Worldwide shift changing Alberta’s future: economist,” Edmonton Journal, Nov. 26, 2010 http://www.edmontonjournal.com/story_print.html?id=3887609&sponsor= (accessed Dec. 12, 2010).

⁴⁴ Dave Cooper, “Gas gaining on oil summit told; Worldwide shift changing Alberta’s future: economist,” Edmonton Journal, Nov. 26, 2010 http://www.edmontonjournal.com/story_print.html?id=3887609&sponsor= (accessed Dec. 12, 2010).

⁴⁵ Benjamin Kang Lim and Simon Rabinovitch, “China mulls \$1.5 trillion industry boost,” Globe and Mail, Dec. 2, 2010, <http://www.theglobeandmail.com/report-on-business/economy/china-mulls-15-trillion-industry-boost/article1821827/> (accessed Dec. 12, 2010).

⁴⁶ Conservative Party of Canada. 2008. *The True North Strong and Free: Stephen Harper’s plan for Canadians* 2008, Conservative Party policy platform <http://www.conservative.ca/media/2008-Platform-e.pdf> p. 23

⁴⁷ The Northern Gateway pipeline is designed to transport conventional light and heavy oil, synthetic oil, bitumen blended with condensate and bitumen blended with synthetic oil. Enbridge Northern Gateway Pipeline Project, Section 1.1 Project overview, Page 1-1

⁴⁸ Pembina calculations from data in: Jacobs Consultancy Life Cycle Associates. Life Cycle Assessment Comparison of North American and Imported Crudes. Prepared For: Alberta Energy Research Institute, no. July (2009). http://www.albertainnovates.ca/media/15753/life_cycle_analysis_jacobs_final_report.pdf (accessed Dec. 12, 2010)..

Government's intention to hold its promise in June 2010.⁴⁹ The policy is supposed to come into place in January 2011 and would only affect new export deals, such as Northern Gateway, and would not affect existing contracts that export raw bitumen to the United States.⁵⁰

Enbridge has largely brushed this potential issue aside, vaguely responding that environmental standards at refineries receiving bitumen from Northern Gateway should “match North American [standards], so the Canadian government would have no cause to block exports.”⁵¹ Enbridge adds that, “the conflict [over carbon leakage] could be a moot point as China reduces its environmental footprint from oil and gas development.”⁵² But Enbridge has not provided any information or analysis to support either of these claims, and as such this proposed policy could significantly impact the viability of exporting diluted bitumen to China, which would fundamentally undermine Enbridge's assertion that there is sufficient market demand for a pipeline that would transport 300,000 barrels per day of diluted bitumen.

In sum, Enbridge's demand analysis is relatively superficial compared to most pipeline proposals seeking regulatory approval. There is a notable lack of correlation between refinery demand and specific oilsands products. The resultant uncertainty about the existence of specific demand is compounded by the lack of commercial support, no clearly identified supporters, a massive investment from China in clean energy and a proposed federal policy that could prohibit the export of diluted bitumen to China, the sole market identified by Enbridge for this product.

⁴⁹ Jason Fekete, “Special report: Feeding the dragon,” Calgary Herald, December 11, 2010, <http://www.calgaryherald.com/life/gardens/Special+report+Feeding+dragon/3961962/story.html> (accessed Dec. 12, 2010).

⁵⁰ Jason Fekete, “Battle brewing between Alberta, Ottawa over oilsands exports.” Calgary Herald, June 23, 2010.

⁵¹ Shawn McCarthy, “Oilsands bitumen to flow to West Coast by 2015: Enbridge,” The Globe and Mail, April 29, 2010, <http://www.theglobeandmail.com/globe-investor/oil-sands-bitumen-to-flow-to-west-coast-by-2015-enbridge/article1551613/> (accessed Sept. 21, 2010).

⁵² Jason Fekete, “Battle brewing between Alberta, Ottawa over oilsands exports.” Calgary Herald, June 23, 2010.

3. Is there a need for more pipeline capacity?

While oilsands development has expanded rapidly, the construction of pipelines has moved at even quicker pace. An additional 2.7 million barrels per day in oilsands pipeline capacity has been proposed in the last four years alone — more than is needed to meet the projected growth in oilsands production.

“The pipeline capacity has gotten far ahead of the export demand – that’s the major impediment to Gateway” — Chad Friess, Oil and Gas Analyst with UBS Securities.⁵³

Pipeline overcapacity is an ongoing concern. In the National Energy Board hearings for TransCanada’s Keystone XL pipeline to the United States, BP Canada, Imperial Oil and Nexen all raised concerns about the excess supply and insufficient demand for crude oil from Western Canada.⁵⁴ Suncor and Imperial Oil have also taken Enbridge to court over its decisions to build what they argue is too much pipeline capacity to the United States with its Alberta Clipper pipeline.⁵⁵ In the past two years, concerns about overcapacity contributed to decisions to shelve plans for more than 1,495,000 barrels per day in export pipelines.

Enbridge’s Northern Gateway pipeline would take 525,000 barrels per day of oilsands to the West Coast of British Columbia by 2016, adding additional capacity to an export pipeline system already awash in capacity.

Using growth estimates and pipeline capacity figures from the Canadian Association of Petroleum Producers and the National Energy Board, this analysis shows that even if both TransCanada’s Keystone XL and Enbridge’s Northern Gateway pipelines are not built, there will still be pipeline overcapacity until at least 2022 (Figure 2).

⁵³ Shaun Polczer, “Sinopec deal puts pipeline to West Coast in spotlight,” Calgary Herald, April 14, 2010. <http://www.calgaryherald.com/technology/Sinopec+deal+puts+pipeline+West+Coast+spotlight/2904500/story.html> (accessed Sept. 21 2010).

⁵⁴ National Energy Board, *Reasons for Decision – TransCanada Keystone Pipeline GP Ltd. OH-1-2009*, March 2010, p16, 23, 24

⁵⁵ Nathan VanderKlippe, “Energy giants battle over costs of oil sands pipeline,” Feb. 3, 2010, Globe and Mail, <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/energy-giants-battle-over-costs-of-oil-sands-pipeline/article1455350/> (accessed Nov 24, 2010).

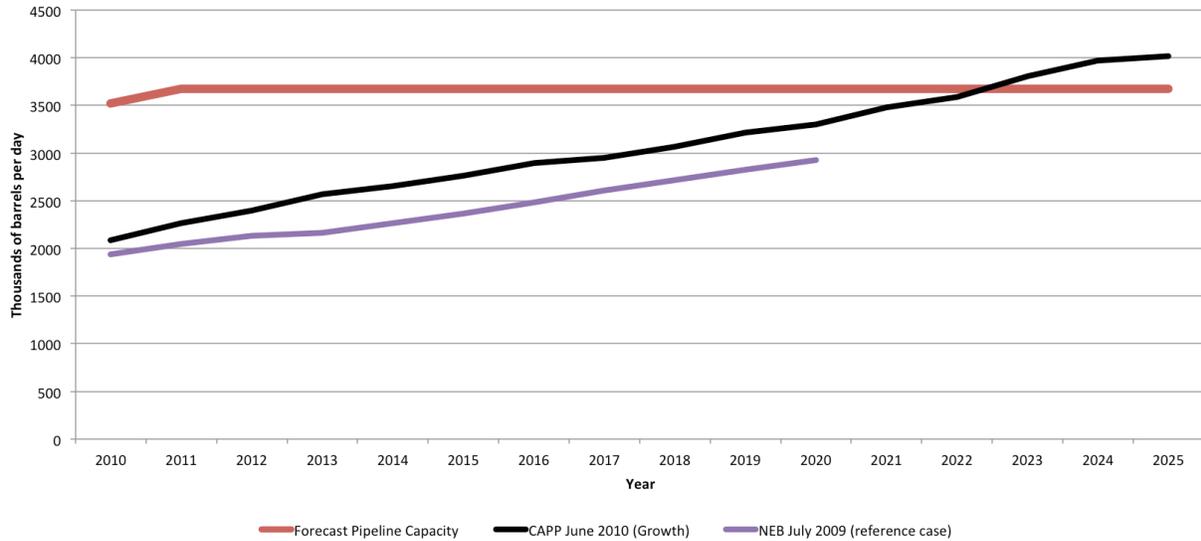


Figure 2. Existing export pipeline capacity (thousands of barrels per day) and Western Canada crude oil supply estimates

Source: NEB July 2009 Reference Case Scenario, 2010 CAPP Crude Oil Forecast Markets & Pipeline Report, June 2010 Oilsands Review, Enbridge Northern Gateway regulatory filings

The application for Enbridge’s Northern Gateway assumes that TransCanada’s Keystone XL will be approved in the United States and constructed.⁵⁶ Under this assumption the amount of pipeline overcapacity increases substantially to 1.8 million barrels per day in 2013, decreasing to 359,000 barrels per day in 2025, using CAPP growth estimates (Figure 3).

⁵⁶ TransCanada’s proposed Keystone XL pipeline will be the first oilsands pipeline that runs from Alberta directly to the U.S. Gulf Coast. Keystone XL has received approval for its Canadian portion from the National Energy Board but has not yet received approval from the U.S. Department of State for the American portion.

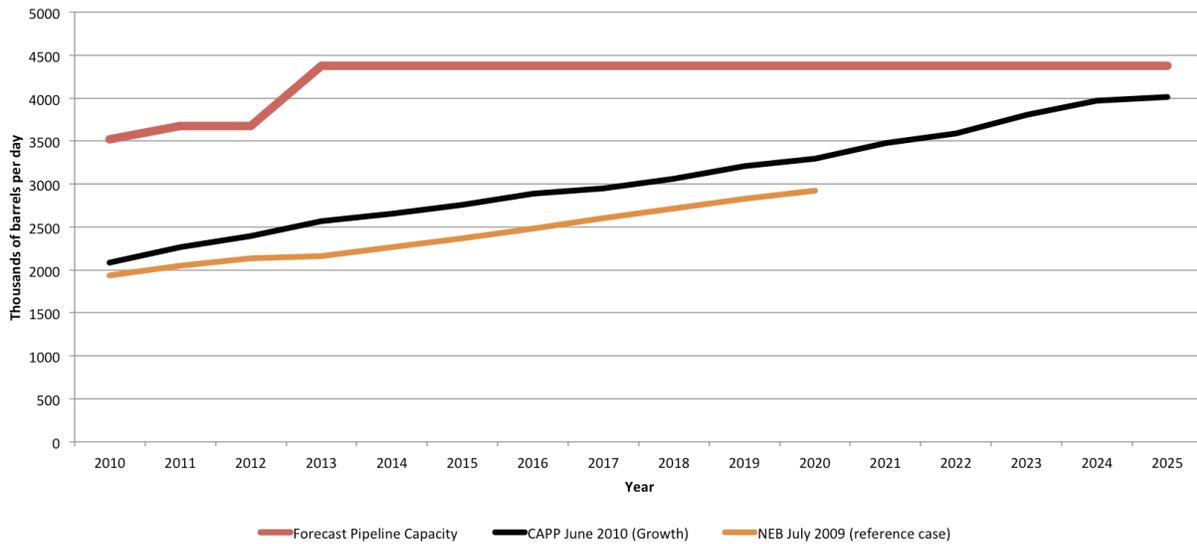


Figure 3. Existing export pipeline capacity plus Keystone XL and projected crude oil export supply

Source: NEB July 2009 Reference Case Scenario, 2010 CAPP Crude Oil Forecast Markets & Pipeline Report, June 2010 Oilsands Review, Enbridge Northern Gateway regulatory filings

If Keystone XL is not approved in the U.S. and only Northern Gateway is approved, there will be 1.25 million barrels per day in overcapacity in 2016 and 184,000 barrels per day in 2025.

If both Keystone XL and Northern Gateway are approved and in operation (a core assumption of the Enbridge Gateway regulatory application), the amount of overcapacity increases to more than two million barrels per day in 2016 and 884,000 barrels per day in 2025 (Figure 4).

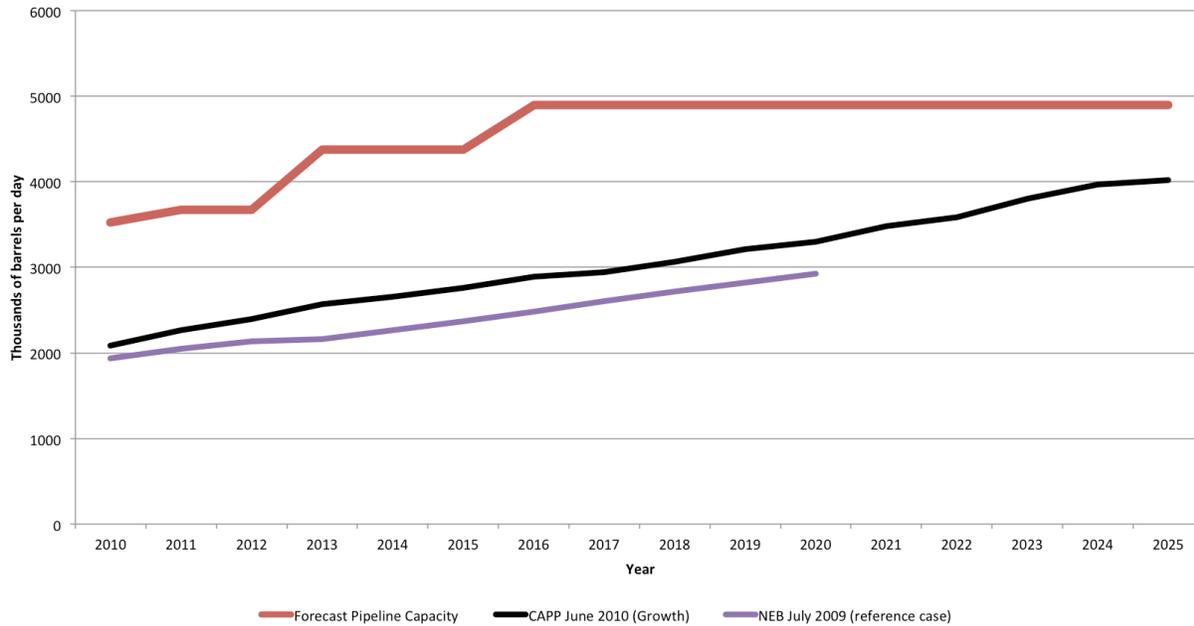


Figure 4. Existing export pipeline capacity plus Keystone XL and Northern Gateway and projected crude oil export supply from Western Canada

Source: NEB July 2009 Reference Case Scenario, 2010 CAPP Crude Oil Forecast Markets & Pipeline Report, June 2010 Oilsands Review, Enbridge Northern Gateway regulatory filings

TransCanada has noted in its Keystone XL proposal that there is value in having 20 to 25% in excess pipeline capacity because this can allow flexibility for shippers to react to market changes.⁵⁷ If both KXL and Northern Gateway are approved, there would be a considerable 41% in excess capacity in the entire export pipeline system in 2016, dropping to 18% in 2025 as production in the oilsands increases (Figure 5).

⁵⁷ National Energy Board, *Reasons for Decision – TransCanada Keystone Pipeline GP Ltd. OH-1-2009*, March 2010, p12

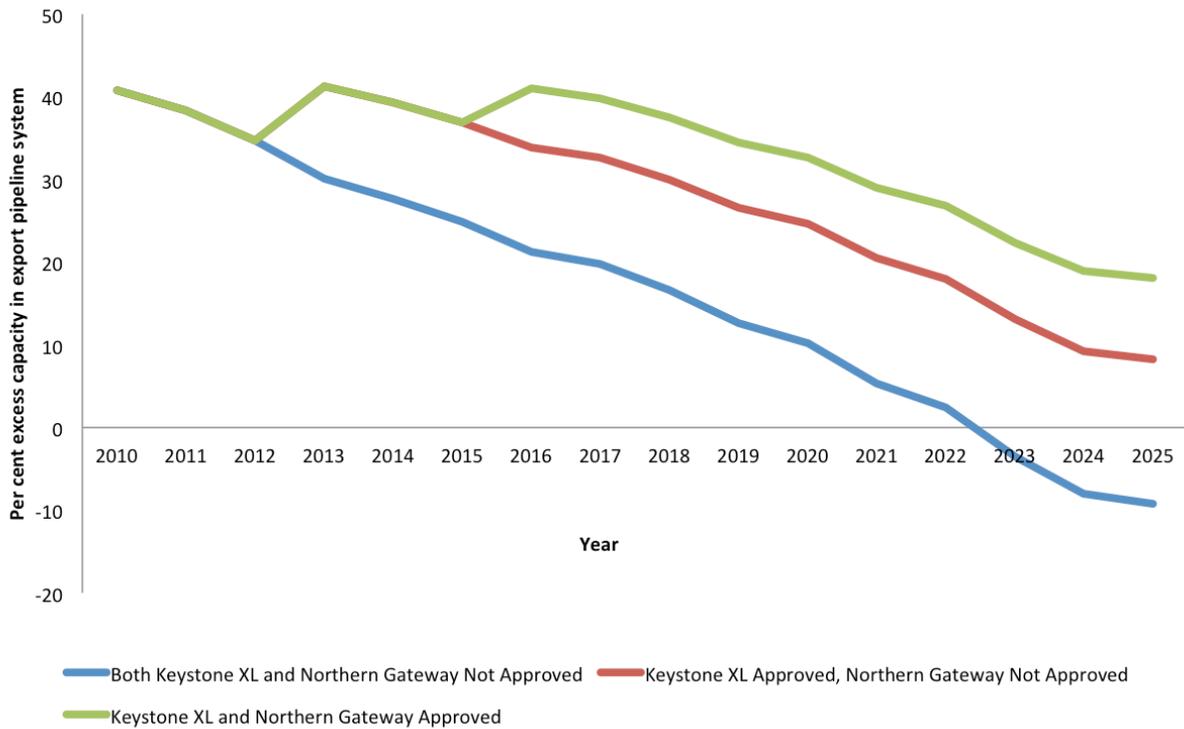


Figure 5. Per cent of excess export pipeline system capacity for three development scenarios

Source: Pembina analysis based on data from: NEB July 2009 Reference Case Scenario, 2010 CAPP Crude Oil Forecast Markets & Pipeline Report, June 2010 Oilsands Review, Enbridge Northern Gateway regulatory filings

This analysis indicates there will be significant export pipeline excess capacity for the next 15 years given current production estimates. While Northern Gateway is potentially servicing a new Asian market, the actual demand from Asia for diluted bitumen or synthetic crude oil remains uncertain (See Section 2) given the limited information advanced by Enbridge in the application for Northern Gateway. The magnitude of excess capacity on the export pipeline system and the market ramifications of that oversupply create additional uncertainty as to whether Northern Gateway is actually needed.

4. Is there enough information to make a decision?

It is difficult for the public or the government to make an informed decision on the Northern Gateway pipeline if there is not enough information in the project application. This section highlights three major deficiencies in Enbridge's application: inadequate assessment of alternatives to the project, no information on the upstream impacts and an inadequate evaluation of project costs.

4.1 Inadequate assessment of alternatives to the project

As required by the Canadian Environmental Assessment Act (CEAA), Enbridge has considered some alternatives to the Northern Gateway project. In particular, the company examined alternative means to construct the project, such as various locations for the inland/marine terminals and different route options. Following this assessment, Enbridge reached the following conclusion: "Only this Project can provide the high-capacity access that is required to supply the very large and expanding feedstock markets of northeast Asia in addition to the potential for serving new United States west coast markets, as discussed in Section 1.3."⁵⁸

However, this assessment failed to adequately consider alternatives to the project, most notably if there are "functionally different ways to meet the project need and achieve the project purpose."⁵⁹ For instance, alternative pipeline systems were not adequately considered; the proposed expansion of Kinder Morgan's existing TransMountain pipeline (TMX 2/3), which runs from Edmonton to Vancouver, was not mentioned. Kinder Morgan has publicly disclosed its intention to expand its TransMountain line by 2015/2016,⁶⁰ and has highlighted its expansion plans with the Joint Review Panel for the Northern Gateway project.⁶¹ Yet the Gateway application merely states, "the existing TMPL [Trans Mountain Pipeline] system operates at or

⁵⁸ Enbridge Northern Gateway Pipelines, Inc. May 2010. Section 52 Application, 1.2.2 Conclusions on Current Transportation Systems and the Project's Crude Oil Pipeline, pg 1-7

⁵⁹ Canadian Environmental Assessment Agency, Operational Policy Statement: Addressing "Need for," "Purpose of," "Alternatives to" and "Alternative Means" under the *Canadian Environmental Assessment Act*, Updated Nov. 2007. <http://www.ceaa.gc.ca/default.asp?lang=En&n=5C072E13-1>

⁶⁰ Canadian Association of Petroleum Producers, 2010 CAPP Crude Oil Forecast Markets & Pipeline Report, page 22.

⁶¹ Osler, Hoskin & Harcourt LLP, June 1, 2010, "Letter to Ms. Anne-Marie Erickson/Gateway Panel Secretariat," <http://www.ceaa.gc.ca/050/documents/43481/43481E.pdf> (accessed Oct. 21, 2010).

near full capacity, and the full configuration and location of its terminal facilities will limit access to the new markets that the Project is designed to serve.”⁶²

Enbridge is required under CEAA to consider “alternative means of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means.”⁶³ Additional clarity on alternatives assessments are given in a CEAA Operational Policy Statement,⁶⁴ and the Terms of Reference for the Joint Review Panel indicate they will consider “alternatives to the project,”⁶⁵ yet Enbridge failed to give more than a cursory examination of alternatives to its pipeline.

4.2 No information on upstream impacts from oilsands development to fill the pipeline

Besides the direct environmental impacts from the construction and operation of Northern Gateway, considerable impacts will be created from the increased oilsands production necessary to fill the proposed pipeline. Overall, filling the pipeline will require a 30% increase in daily oilsands output, if current oil shipments to the United States are maintained.⁶⁶ Specifically, the increased oilsands production to achieve exportation of 525,000 barrels per day of diluted bitumen (367,500 barrels a day of bitumen)⁶⁷ for one year is estimated to:

- consume 200 million barrels of processing water;
- consume 74 billion cubic feet of natural gas for processing;
- disturb 12.5 square kilometres of land directly;
- produce 6.5 million tonnes of greenhouse gas emissions;
- produce 25 million barrels of toxic tailings;
- contribute to 2.7 million barrels of seepage from toxic tailings lakes into groundwater and surface water.

⁶² Enbridge Northern Gateway Pipelines, Inc. May 2010. Section 52 Application, Volume 2: Economics, Commercial and Financing, p. 1-7.

⁶³ Section 16 (2) b of the Canadian Environmental Assessment Act.

⁶⁴ Canadian Environmental Assessment Agency, Operational Policy Statement: Addressing “Need for,” “Purpose of,” “Alternatives to” and “Alternative Means” under the *Canadian Environmental Assessment Act*, Updated Nov. 2007. <http://www.ceaa.gc.ca/default.asp?lang=En&n=5C072E13-1> The use of this OPS was reiterated in the “Scope of Factors – Northern Gateway Pipeline Project” issued by CEAA, August 2009: <http://www.ceaa.gc.ca/050/documents/44033/44033E.pdf>

⁶⁵ Part II – Factors to be Considered During the Joint Review, *Agreement between the National Energy Board and the Minister of the Environment Concerning the Joint Review of the Northern Gateway Pipeline Project*, <http://www.ceaa-acee.gc.ca/050/documents/40851/40851E.pdf>

⁶⁶ Greg Brown, Jeremy Moorhouse and Jennifer Grant, *Opening the Door for Oil Sands Expansion: the Hidden Environmental Impacts of the Enbridge Northern Gateway Pipeline*, (Calgary, AB: The Pembina Institute, 2010), <http://pubs.pembina.org/reports/gateway-upstream-report.pdf>

⁶⁷ For analytic purposes, the “Opening the Door” report assumes that the 525,000 barrels per day export pipeline will ship diluted bitumen at a ratio of 30% diluent, most likely condensate, and 70% bitumen. ($0.7 \times 525,000 = 367,500$). The pipeline may ship other petroleum products, such as synthetic crude oil, which will require even higher bitumen extraction levels.

Because there is no regional environmental management system in place to address the climate, land, water and air impacts of Alberta's oilsands development, the need for federal agencies like the National Energy Board and the Canadian Environmental Assessment Agency to consider upstream impacts is all the greater.⁶⁸

The Pembina Institute, along with other non-governmental organizations, has expressed its concern to the Federal Environment Minister and the president of the Canadian Environmental Assessment Agency that upstream impacts of oilsands production should be considered in the Northern Gateway Joint Review Panel Terms of Reference.^{69,70} As quoted in a Globe and Mail article in January 2010, the National Energy Board showed some interest in including upstream impacts in the hearing but was ambiguous as to the exact role this information would play in the hearing.

“But the panel may opt to broaden its scope if it encounters significant concerns about the upstream impacts, said NEB spokeswoman Kristen Higgins. “Just because it wasn't listed in the terms of reference doesn't mean it's not an issue that the hearing can consider,” Ms. Higgins said.⁷¹

The Federal Environment Minister replied in March 2010 to the Pembina Institute's request to include the upstream impacts from oil sands development, stating, “I am of the view that the Terms of Reference for the Panel are sufficiently broad and no amendments are required.”⁷²

By not including consideration of upstream impacts in Terms of Reference, the Joint Review Panel has created the situation where Enbridge is not required to produce any information on upstream impacts. Not surprisingly, in its application Enbridge has opted to not include any information regarding the upstream impact caused by the Northern Gateway pipeline. As a result, this shifts the onus of proof to concerned communities and under-resourced non-governmental organizations to provide information on upstream impacts, which may or may not be considered by the Joint Review Panel.

⁶⁸ Jeremy Moorhouse, Marc Huot and Simon Dyer. *Drilling Deeper: the In Situ Oil Sands Report Card*. (Drayton Valley, AB: Pembina Institute, <http://pubs.pembina.org/reports/in-situ-report-card.pdf> P 62

⁶⁹ Karen Campbell, 2010, *Letter to Hon. Jim Prentice, Minister of the Environment and Peter Sylvester, President of the Canadian Environmental Assessment Agency, Jan 22, 2010, RE: Enbridge Northern Gateway Pipeline Project CEAR Reference Number 06-05-21799*, Vancouver: BC: Pembina Institute, <http://pubs.pembina.org/reports/upstreamimpacts-tor-final.pdf>

⁷⁰ *Letter to Hon. Jim Prentice, Minister of the Environment and Peter Sylvester, President of the Canadian Environmental Assessment Agency, Jan 28, 2010, RE: Enbridge Northern Gateway Pipeline Project CEAR Reference Number 06-05-21799*, Signed by: Dogwood Initiative, Douglas Channel Watch, ForestEthics, Friends of Wild Salmon, Georgia Straight Alliance, Greenpeace, Headwaters Initiative, Kitimat Naturalist Society, Living Oceans Society, Nature Canada, Northwest Institute, Pacific Wild, Raincoast Conservation Society, Sea to Sands Conservation Alliance, Skeena Conservation Coalition, SkeenaWild Conservation Trust, Steelhead Society (Northern Branch), T. Bick Suzuki Environmental Foundation, West Coast Environmental Law, http://friendsofwildsalmon.ca/images/uploads/resources/_JRP_NGO_letter_jan2010.pdf

⁷¹ Shawn McCarthy, 2010, “Watchdog Disputes Pipeline”, *The Globe and Mail*, Jan. 19, 2010.

⁷² Hon. Jim Prentice, Federal Minister of the Environment, Letter to Ms. Karen Campbell, Staff Counsel and Director of Strategy, Pembina Institute, 3 Mar 2010, RE: 22 Jan 2010 Pembina Institute request to amend the Terms of Reference for the Enbridge Northern Gateway Pipeline.

4.3 Inadequate Economic Assessment

While Enbridge is diligent to highlight the economic benefits of the proposed pipeline in its application, its analysis of the project costs is of real concern. Enbridge is only using half of the balance sheet in its economic assessment, making it very difficult for the public and the government to make an informed decision about the Northern Gateway pipeline. In particular, there are a host of environmental liabilities (e.g. costs of potential pipeline ruptures) and economic externalities (e.g. loss of upgrading/refining jobs, loss of ecosystem services) that are not considered in the Northern Gateway application and may have a material impact on the economic feasibility of the project. For example, the annual economic value of the wild salmon fishery in Skeena watershed (an area through which the proposed pipeline crosses) is estimated to be \$110 million;⁷³ however, the economic effect that proposed tanker traffic and standard pipeline operation, let alone of a pipeline rupture or tanker spill on the Skeena salmon fishery has not been considered in Enbridge's application. While it is standard practice to not consider these types of impacts in the assessment of a project, this current practice is unfortunate, especially for those projects, such as the Northern Gateway Pipeline, that are much more risky than overland pipelines to the United States.

A best practice that is emerging in sustainable development decision-making is the use of full-cost accounting. Full-cost accounting is considered more comprehensive than traditional accounting standards, such as those used in the Enbridge application, and more representative of the actual costs and benefits accrued from a project. It is important to note the Joint Review Panel has not requested that full-cost accounting be used by Enbridge and Enbridge has not sought to undertake a more rigorous economic analysis than the narrowly-scoped cost benefit analysis set out in the Terms of Reference.

Full-Cost Accounting Components⁷⁴

Usual Costs – Includes direct and indirect costs usually associated with the project of both a capital and revenue nature.

Hidden Costs – These are additional costs that are usually found in overheads/general accounts. They would include regulatory and environmental management systems, monitoring and safety costs – both capital and revenue in nature.

Liability Costs – These are “contingent liability costs” that are not presently incurred in a conventional accounting sense. They may emerge depending on circumstances (for example, if the law changes) and their likelihood can be estimated. Such costs include fines, future cleanup costs and regulatory costs associated with a project.

Less Tangible Costs – Costs and benefits that may be assessable in financial terms are likely to arise from improved environmental management. These costs and benefits could include the loss/gain of

⁷³Northwest Institute for Bioregional Research, 2006, “Valuation of the Wild Salmon Economy of the Skeena River Watershed,” Prepared by IBM Business Consulting, http://northwestinstitute.ca/downloads/IBM_skeena_report_06.pdf Accessed 8 Dec 2010.

⁷⁴ Jan Bebbington and John Tan, “Accounting for sustainability” *Chartered Accountants Journal of New Zealand*, 75, no 6 (1996), 75-76 as quoted in “Jan Bebbington, Rob Gray, Chris Hibbitt and Elizabeth Kirk, 2001, Full cost accounting: an agenda for action, London, UK: Certified Accountants Educational Trust, http://www.accaglobal.com/pubs/general/activities/research/research_archive/rr-073-001.pdf p. 24

goodwill arising from a project; changing attitudes of suppliers, customers and employees; and advertising/image issues arising from environmental performance of projects.

Environment-Focused Costs – Costs that would be incurred if an environment-focused approach was taken to a project can be estimated. Costs to ensure that a project had zero environmental effect can be estimated. It is unlikely that such costs would become real costs in the absence of substantial change in the regulatory and operating environment.

Enbridge’s application (Table 3) focuses on a few key areas of economic benefit from the pipeline (investment/revenues/reinvestment, labour income, GDP, employment and government revenue) and includes basic information on the expected capital and operating costs.⁷⁵ While it is critical that that information be included in the application, Enbridge fails to consider a host of other costs, which would have been identified through a full-cost accounting analysis and that may have considerable impact on the purported economic benefits created by this pipeline.

Table 3. Expected benefits of Northern Gateway to the year 2046 (in millions of dollars)

TOTAL IMPACTS	BC	Alberta	Ontario	Quebec	Sask	Other	Canada
Investment/Revenues/Reinvestment	51,359	203,139			25,593	9,772	289,863
Labour Income	12,034	23,812	3,371	745	5,471	2,634	48,066
GDP	46,672	184,839	5,142	1,143	23,745	8,447	269,988
Employment (person years)	139,784	260,810	51,216	12,790	61,928	31,459	557,987
Federal Government Revenue	5,133	26,054	912	145	2,911	1,099	36,253
Provincial Government Revenue	6,709	32,014	565	198	3,914	1,574	44,974
Total Government Revenue	11,842	58,068	1,476	343	6,825	2,673	81,227
ANNUAL AVERAGE IMPACTS	BC	Alberta	Ontario	Quebec	Sask	Other	Canada
Investment/Revenues/Reinvestment	1,511	5,975			753	287	8,525
Labour Income	354	700	99	22	161	77	1,414
GDP	1,373	5,436	151	34	698	248	7,941
Employment (person years)	4,111	7,671	1,506	376	1,821	925	16,411
Federal Government Revenue	151	766	27	4	86	32	1,066
Provincial Government Revenue	197	942	17	6	115	46	1,323
Total Government Revenue	348	1,708	43	10	201	79	2,389

Source: Wright Mansell Report on the Public Interest Benefits of the Northern Gateway Project, page 32. In 2009 dollars.

Unconsidered Environmental Liabilities

The environmental liabilities for this project include, but are not limited to: reclamation and remediation costs, risks from increased tanker traffic, risks to salmon-bearing streams and rivers, risks of pipeline ruptures and damage to ecosystem services as a result of the pipeline

⁷⁵ For estimated capital costs of the project see Table 2-3 (Page 2-13) in Volume 1, Section 2 of the Northern Gateway application. For estimated operating expenses see Table 4-1 (Page 4-2) of Volume 2, Section 4 of the Northern Gateway Application.

disturbance footprint and the increased footprint from resultant oilsands production increases. All of these liabilities carry with them an economic cost. The monetization of each of these liabilities and their likelihood are readily available through existing full cost accounting techniques.

Volume 7B of Enbridge's application addresses "Risk Assessment and Management of Spills;" however, there is no quantification of costs anywhere in this volume. While a qualitative mention of costs to local communities of a spill is made, it is too vague to be of value to either the public or decision-makers.

"A fishing closure could cause increases in travel cost for local fishers and loss of tourism revenue, depending on the timing and duration of the closure. Loss of tourism jobs and businesses would be noticeable in a community the size of Kitimat."

Page 9-29, Volume 7b Risk Assessment and Management of Spills – Pipelines, Enbridge Northern Gateway Pipelines Application.

It is unfortunate that neither the Joint Review Panel nor Enbridge intend to consider the quantifiable environmental liabilities that will be created from the Northern Gateway pipeline. Actual economic costs of these liabilities would provide a more balanced perspective on the benefits advanced by Enbridge.

Loss of Natural Capital

There is no information in the application on the expected loss of natural capital from the project. Natural capital is the sum of all the resources and free services provided by nature, and is often a part of full cost accounting. Avoided health care costs, water and wastewater treatment and carbon offsets are a few examples of the natural capital that is often unaccounted in traditional economics. A comprehensive assessment on the economic impact of the Northern Gateway pipeline needs to consider the effect the project will have on the services provided by nature along the proposed route.

Estimating Natural Capital in the Credit River Valley Watershed

In November 2009, the Pembina Institute and Credit Valley Conservation estimated the annual ecological services provided by the Credit River watershed, near Toronto, was more than \$371 million.⁷⁶ This analysis was then able to educate local decision-makers on the importance of considering the region's natural capital in their development and conservation decision.

Loss of Upgrading and Refining Industry Jobs

Another omission in Enbridge's application is the lack of analysis on the economic trade-off of exporting raw bitumen. Historically there has been considerable opposition from labour groups that are concerned about how the export raw bitumen will impact the upgrading, refining and other secondary industries in Canada.⁷⁷ Both the Alberta Federation of Labour and the

⁷⁶ Mike Kennedy and Jeff Wilson, *Natural Credit: Estimating the Value of Natural Capital in the Credit River Watershed*, (Calgary, AB: Pembina Institute, 2009) <http://pubs.pembina.org/reports/natural-credit-report.pdf>

⁷⁷ Alberta Federation of Labour, 2009, *Lost down the pipeline*, Edmonton, AB. <http://www.afl.org/index.php/View-document/116-Lost-Down-the-Pipeline-April-2009.html>

Communications, Energy and Paperworkers Union have opposed recent raw bitumen export pipelines to the United States.⁷⁸ Local industrial development associations have also expressed concerns over the loss of upgrading and refining opportunities.

“Oilsands producers found alternatives to AIH [Alberta Industrial Heartland] refineries by retrofitting existing facilities in the United States to process Alberta bitumen, diluted and shipped south by pipeline. As a result, says Shelly, \$75 billion in capital investments (and with that Calgary’s role in becoming a hotbed of upgrader-engineering expertise) went unrealized, along with 75,000 person-years of construction employment, 12,000 permanent jobs and \$3.6 billion in provincial and federal tax revenue. “This is above and beyond royalties,” he [Neil Shelly, Executive Director of Alberta’s Industrial Heartland] adds.”⁷⁹

If the Joint Review Panel is to consider if the project is in the public interest, it is essential that the loss of potential upgrading and refining jobs be factored into their decision. Such an analysis would demonstrate due diligence and help the Joint Review Panel to make a more informed and defensible decision.

Lack of Shipper Contracts

Besides full-cost accounting, without secured long-term shipper agreements in place, it is difficult to develop an accurate understanding of the expected revenue from Northern Gateway. Many assumptions based on non-existent contracts need to be made in Enbridge’s economic analysis to produce the benefits highlighted in their application. It is in the public interest to reduce the risk and uncertainty borne by Canadians over expected revenue from the project by requiring long-term shipper contracts before the Joint Review Panel hearing takes place.

In conclusion, Enbridge has provided an economic assessment that only captures a fraction of the actual and potential economic impact from the proposed pipeline. They have not used a full-cost accounting framework and have not monetized any environmental liabilities, any subsequent loss of natural capital or any loss of upgrading and refining industry jobs. The lack of secured shipper contracts adds further uncertainty over the economic impact of the pipeline. Consequently, the information provided to the Panel by Enbridge is insufficient for the Panel to make a reasoned recommendation.

The application narrowly considers the economic benefits accruing over the life of the pipeline without considering the economic costs and liabilities that are inextricably tied to the operation of the pipeline. Any public interest decision made by the Joint Review Panel needs to be informed by balanced and accurate information that compares the broader economic and environmental impacts and benefits of this project. A narrowly scoped assessment does not provide the information needed to convince Canadians that the Northern Gateway pipeline is needed, will be filled and will result in a net positive contribution to Canada.

⁷⁸ National Energy Board, Reasons for Decision – Enbridge Alberta Clipper Expansion Project. OH-4-2007. February 2008, Pg 61, 62; National Energy Board, Reasons for Decision – TransCanada Keystone XL Pipeline, OH-1-2009, March 2010, Pg 30, 31.

⁷⁹ Scott Messenger, “Crude Awakening: the Potential Impact of the BRIC program on Alberta’s bitumen upgrading industry,” *Alberta Venture*, April 1, 2010, <http://albertaventure.com/2010/04/crude-awakening/> (accessed Dec 12, 2010).

5. Recommendations

The National Energy Board and the Canadian Environmental Assessment Agency, which comprise the Joint Review Panel, are required by legislation to consider whether the proposed Enbridge Northern Gateway pipeline is needed and in the public interest. The application submitted by Enbridge fails to provide adequate information to the Joint Review Panel to make an informed decision about need or public interest. The Canadian public, who have many documented concerns with this project, want answers on the potential impacts of this pipeline. Moreover, the JRP must be able to reach a reasoned conclusion. Enbridge's materials do not adequately address the public concerns and do not adequately inform the JRP.

In the event that the Joint Review Panel proceeds with considering this project despite the uncertainties and lack of information provided by Enbridge, it will establish a new precedent that stands to erode the integrity of the regulatory review process.

This report has one main recommendation — the JRP should not proceed further until Enbridge has filled information gaps and fully answered the questions, described below. Prior to further consideration of the Northern Gateway pipeline application (and therefore prior to any public hearing), the Joint Review Panel must ensure that all stakeholders are provided with sufficient information and analysis to inform their perspective on the project. This requires that the Joint Review Panel require Enbridge to conduct additional analysis and increase the transparency of its own assessment.

The burden of proof to answer these questions falls on Enbridge. Their onus is especially great considering the risks and threats posed by this pipeline are very significant; this is no ordinary JRP and no ordinary pipeline.

5.1 Is there demonstrated demand for this pipeline?

To sufficiently address this question, Enbridge must:

Secure and make public long-term shipper commitments. The Joint Review Panel for the Northern Gateway pipeline should be pushed to require long-term shipping agreements for 75% of the pipeline's capacity before starting the hearing process. This would demonstrate the due diligence of the Panel and ensure that there is actual market demand for the proposed pipeline.

Conduct a refinery-level demand analysis. Similar to previous export pipeline proposals, Enbridge should conduct a refinery level analysis on the actual demand for diluted bitumen and synthetic crude oil from the oilsands. Given the absence of long-term shipper agreements, the impetus for a more detailed demand analysis is even greater.

Demonstrate refinery compliance with Canadian environmental standards. Enbridge has asserted that anticipated federal policy prohibiting exports of raw bitumen to jurisdictions with lower environmental standards is not an issue. This assertion must be validated by information

on Chinese refinery performance and/or a contractual commitment (included in the long term shipper contract) to achieve a level of performance equal to Canadian environmental standards.

5.2 Is there a need for more pipeline capacity?

To sufficiently address this question, Enbridge must:

Keep pipeline capacity and production estimates linked. Government and industry production forecasts indicate that there will not be enough oil produced to fill the Northern Gateway pipeline, until at least 2025, without emptying other pipelines. There is more than enough time and existing pipeline capacity for Enbridge to address the significant information gaps in their application without risking shutting in Canadian oil.

Further, if oil producers were to shift to an Asian-bound Northern Gateway pipeline, there are a host of potential economic impacts to U.S. refineries and Canadian producers, based on existing shipping and trade agreements. While providing access to additional markets is beneficial to Enbridge and oilsands producers, it is not feasible if there is insufficient production to fill the pipeline and not a critical mass of shipments to Asia to overcome any barriers to access those markets.

5.3 Is there enough information to make a decision?

To sufficiently address this question, Enbridge must:

Provide an adequate alternatives assessment. The current alternatives analysis only gives passing mention to existing pipeline systems to the West Coast. The Joint Review Panel should require Enbridge follow the rigour of alternative assessment and a) develop criteria to determine the technical and economic feasibility of the alternatives b) describe the environmental effects of each alternative in sufficient detail and c) identify those alternatives that are feasible.⁸⁰

Quantify the upstream environmental impacts from additional oilsands development. While the Joint Review Panel has not made this a requirement of the Terms of Reference, it has indicated that this information can be considered in the hearing. Given the growing public concern about these impacts, Enbridge should conduct and include this analysis in its application for the Northern Gateway pipeline.

Present the full cost of the pipeline, including a comprehensive and defensible full-cost economic analysis of the Northern Gateway pipeline that considers the financial implications of environmental liabilities, natural capital and the loss of upgrading and refining industry jobs in Alberta.

⁸⁰ Canadian Environmental Assessment Agency, 2007, Operational Policy Statement: Addressing “Need for”, “Purpose of”, “Alternative to”, and “Alternative Means” under the *Canadian Environmental Assessment Act.*, http://www.ceaa.gc.ca/5C072E13-8440-4123-9F66-85589234C2B3//Addressing_Need_-_Purpose_-_Alternatives_under_the_CEEA.pdf (accessed Nov. 24, 2010).