

Requirements for British Columbia to Consider Support for Heavy Oil Pipelines

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Government of British Columbia

Statement of Minimum Requirements: Expansion of Heavy Oil Export Activity

At present, there are two proposed pipeline projects that would result in the export of Alberta oil sands-produced heavy oil through British Columbia ports. As with most economic development opportunities, while there are fiscal benefits that accrue to individuals, companies and governments, there are environmental risks to assess, manage and mitigate.

Our government has identified five minimum requirements that must be met before we would consider supporting the commencement of these projects.

Trans-Mountain Pipeline Anticipated Project

Kinder Morgan has proposed a \$4.1 billion expansion of its Trans Mountain Pipeline from Alberta to Vancouver that would potentially increase the amount of heavy oil shipped to 750,000 barrels per day. It is estimated that this expansion would increase the number of oil tankers in Vancouver's Burrard Inlet to 20-25 per month from the current 4-5 per month.

As Kinder Morgan has not filed an application to the National Energy Board, British Columbia has yet to conduct a significant or comprehensive review of the proposal. However, our government would ensure the same minimum requirements be met before provincial approval of this project would be considered.

Enbridge Northern Gateway Project

The Enbridge Northern Gateway Project (the "Project") proposes the construction of twin pipelines across northern British Columbia and Alberta to move oil and condensate between Kitimat, B.C., and Bruderheim, AB.

The Project would also require the construction of a new marine shipping terminal on the Douglas Channel, near Kitimat, to enable tankers to ship oil to the United States or Asia and import condensate from overseas.

The Project is estimated to cost in excess of \$5.5 billion (estimate made prior to the company's July 20 announcement on pipeline safety measures) and provide both long term and construction employment in both provinces as well as incremental government revenues through taxation and resource royalty payments.

Currently, the Project is undergoing a federal regulatory process jointly-led by the Canadian Environmental Assessment Agency and the National Energy Board. This Joint Review Panel ("JRP") is conducting a public process whereby they will receive and consider all information presented by both the proponent and other participants.

At the conclusion of the JRP process, the Panel will submit an environmental assessment report to the federal government. This report will include the Panel's conclusions and recommendations as well as any mitigation measures and follow-up that should be considered by government.

Following receipt of the Panel Report, the federal government will make a decision on the environmental assessment and whether to issue a certificate under the National Energy Board Act. The Panel may then establish conditions to be included in the certificate.

British Columbia's Interests

Our government recognizes there are significant environmental risks associated with this project as well as economic benefits to Canada, Alberta, B.C. and northern aboriginal and non-aboriginal communities of our province.

Our government strongly believes in economic development, particularly natural resource development, as a way to sustain and further our prosperity. However, we recognize that there are some projects for which the environmental and social risks outweigh the economic benefits. We do not yet have enough information to determine whether or not this statement applies to the Northern Gateway Project.

Throughout the Joint Review Panel process our government has:

- 1 Tracked and is reviewing all testimony and evidence presented to the Panel;
- 2 Requested information from Enbridge (<https://www.neb-one.gc.ca/11-eng/livelink.exe?func=11&objId=700155&objAction=browse&sort=name>);
- 3 Presented procedural submissions;
- 4 Identified key areas relating to our province's interest that require additional information and evidence; and
- 5 Undertaken a significant and comprehensive policy analysis to identify and develop our government's minimum requirements that reflect and protect B.C.'s interests and must be met before project support would be considered.

Our government has identified five areas of significant concern for British Columbia and our citizens. These five areas must be addressed by our partner governments and Enbridge before British Columbia would consider supporting the Project.

The five areas are as follows:

- Successful completion of the environmental review process. In the case of Enbridge, that would mean a recommendation by the National Energy Board Joint Review Panel that the project proceed;
- World-leading marine oil spill response, prevention and recovery systems for B.C.'s coastline and ocean to manage and mitigate the risks and costs of heavy oil pipelines and shipments;
- World-leading practices for land oil spill prevention, response and recovery systems to manage and mitigate the risks and costs of heavy oil pipelines;
- Legal requirements regarding aboriginal and treaty rights are addressed and First Nations are provided with the opportunities, information and resources necessary to participate in and benefit from a heavy oil project; and,
- British Columbia receives a fair share of the fiscal and economic benefits of a proposed heavy oil project that reflects the level, degree and nature of the risk borne by the province, the environment and taxpayers.

We have developed principled policy positions on four of these requirements to ensure complete clarity for our government partners, the project's Proponent and most importantly British Columbians.

These requirements were prepared in advance of the National Transportation Safety Board Report on the Enbridge pipeline spill in the Kalamazoo River in Michigan and in advance of Enbridge's recent proposed changes to the project design. The report of the NTSB into the actions of the company and their response to the spill have reinforced our belief that the adequacy of spill response and prevention needs to be significantly improved in advance of construction of any new heavy oil pipelines in British Columbia.

The following is a brief synopsis of each area of concern and potential mitigation strategies.

Joint Review Panel Approval

The Joint Review Panel process must recommend approval of the project before our government would consider granting support.

In the event the JRP chooses not to recommend approval, the Government of British Columbia will not provide provincial support. As our government has always said, the outcome of the environmental review must not be predetermined or prejudged, and we must allow for all evidence, testimony and facts to be presented regarding the risks and benefits of the project.

The JRP is an extremely thorough and detailed examination of the benefits and potential environmental consequences of proceeding with the pipeline and shipping of heavy oil offshore. For the JRP to recommend that the application be refused would, in our opinion, indicate that the economic benefits to Canada are insufficient to overcome the environmental risks associated with the Project.

World Class Coastal Protection Regime

Objective: Canada becomes a world leader in marine spill prevention, preparedness and response.

Our government remains concerned about the current level of marine protection and potential spill response available on Canada's West Coast. We do not believe that the current level of spill response is sufficient for the level of shipping between our B.C. ports and the world, based on work undertaken by the Ministry of Environment and the 2010 Oil Spills from Ships report by the Canadian Auditor General.

With port traffic expected to continue to increase, British Columbia is concerned about the current capacity of spill response even in the absence of additional oil tankers from the Northern Gateway Project or the Kinder Morgan proposal to increase the amount of oil shipped out of the Port of Vancouver.

Consequently, B.C. has already begun to work with the federal government to improve the capacity of marine spill response on the West Coast and ensure the highest level of spill preparedness on routes where oil is transported either as a cargo or as a fuel.

Terrestrial Protection and Spill Prevention

Objective: Canada becomes a world leader in terrestrial spill prevention, preparedness and response for pipelines transporting heavy oil or bitumen.

Over the past months, British Columbians have heard of oil pipeline breaches in both Canada and the United States that have resulted in significant environmental damage and clean up costs due, in part, to poor response from pipeline owners.

In particular, the US National Transportation and Safety Board (NTSB) report into Enbridge's 2010 spill into the Kalamazoo River in Michigan has left a profoundly negative perception of Enbridge, their

commitment to safety and their ability to adequately deal with spills in their pipelines. The report by the NTSB was highly critical of the response of Enbridge and of their commitment to ensuring their pipelines are properly maintained.

British Columbians are understandably both proud and protective of our natural environment and take our stewardship responsibilities very seriously to ensure future generations are able to enjoy the same quality of environment as we do. The Kalamazoo spill report illustrates the need for the highest quality preparedness, resources and safety standards to be applied to Northern Gateway or any heavy oil pipeline in B.C.

The Northern Gateway Project, as proposed, runs the entire width of our province from east to west, and would cross 773 watercourses with defined beds and banks. Of these 773 watercourses, 669 are fish-bearing and are of special significance to both the aboriginal and non-aboriginal citizens of our province.

In order to protect the land and inland waters of British Columbia, our government believes that terrestrial spill prevention and response must be elevated to the highest standards possible. Some concepts being proposed include an industry funded spill response organization, an expanded provincial environmental emergency program and a natural resources damages assessment that would be pre-determined in the event of a spill or accident.

British Columbia believes that an industry-funded spill response regime is required to ensure that provincial taxpayers do not face the financial risk associated with the movement of hazardous materials, including the export of oil. This regime will be the subject of consultation between the province and the companies wishing to ship hazardous materials, including oil or oil products, across our province.

Appropriate Aboriginal Engagement, Participation and Accommodation

Objective: Legal requirements regarding aboriginal and treaty rights are addressed and First Nations are provided with the opportunities, information and resources necessary to participate in and benefit from the Northern Gateway Project.

British Columbia has entered into significant revenue sharing agreements and other strategic economic agreements that are dedicated to providing First Nations with resources they need to improve life for their members.

The Canadian Council of CEO's has recently issued a report calling on industry to make First Nations 'true partners' in energy development and resource extraction. B.C. believes that this approach, if undertaken, would significantly improve the time required to take a development from concept to completion, and reduce the potential for long and costly court proceedings.

With respect to Northern Gateway, we are concerned that, to date, B.C. First Nations do not appear to have not been appropriately and meaningfully engaged in the Project, and, as a result, there appears to remain significant opposition to the Project within those communities.

While we do not expect that every First Nation along the pipeline and marine route will choose to support the Project, the Province believes that both Canada and Enbridge must significantly improve the opportunities for input and benefits that would accrue to First Nations whose traditional territories will be crossed by the pipeline or tanker traffic in and out of the Douglas Channel. This principle should have, in our opinion, been guiding project discussions from the outset.

Improved Fiscal Benefits to British Columbia

Objective: B.C. enjoys commensurate fiscal benefits for its citizens in proportion to the environmental risks the province would assume if the project is approved.

According to Enbridge, the Project is anticipated to generate significant revenues to both governments and individuals. They estimate that over a 30 year period the Project will generate \$270 billion in additional GDP to Canada and provide \$81 billion in incremental government revenues.

However, the incremental revenues that accrue to British Columbia are a fraction of those accruing to Canada or Alberta. Of the \$81 billion of incremental revenues, British Columbia is projected to receive only \$6.7 billion, or approximately 8 per cent, while assuming much of the risk to our land and rivers, and all of the risk to our coastline.

Our government does not agree that we should bear the majority of risk with the minority share of benefits being returned to our citizens.

Summary

The proposed heavy oil projects represent a unique opportunity to expand the global markets for Alberta's oil, increase federal and provincial government revenues, and create jobs.

However, while they are a unique opportunity, they also represent a unique challenge to ensure that the projects, if approved, are built and operated in as environmentally safe a manner as possible with world class environmental protection.

In order for there to be any possibility of this project receiving the support of our government, each principle must be satisfactorily addressed in advance of formal support being considered by British Columbia.

World leading marine spill preparedness and response systems for British Columbia

Purpose

The purpose of this discussion paper is to look exclusively at spill risk in the context of: current and future tanker traffic; what can be learned from other jurisdictions; and, what is needed from the provincial and federal governments to become leaders in spill prevention, preparedness, and response (herein referred to as spill management).

Scope

This discussion paper represents a high level summary of necessary improvements to spill management on B.C.'s coast. The paper examines the risks posed to B.C.'s marine environment from current and future tanker traffic, as well as the related risks posed by large vessels with significant fuel capacity. While the paper will focus on the petrochemical risk, it is important to note that the discussion contained in this paper will be relevant for most hazardous materials transported along B.C.'s coastline.

The scope here is the marine environment – on-land spill response systems are dealt with separately in the next section.

Intended use

- Inform policy development with the goal of achieving world-class spill management for British Columbia;
- Inform discussion on areas where procedures, policies, legislation, and programs can be enhanced;
- Support negotiations with the federal government with respect to necessary enhancements to the spill response regime in B.C., both with respect to regulation and spill response capacity.

Introduction

Today there are approximately 1,180 tanker trips along B.C.'s coastline each year; a figure that could increase to 2,280 per year should a number of proposed major developments advance. The possibility of a tanker spill has always existed; however, the proposed increase in traffic has led to a growing debate on the extent of the risk. The purpose of this paper is to look exclusively at the spill risk in the context of current and future tanker traffic; what can be learned from other jurisdictions; and, what is needed from the federal government to become a leader in reducing the risk of a spill. It assesses marine spill management capacity along B.C.'s coastline, and examines how that capacity can be strengthened – working towards standards that are among the best in the world.

Tanker Traffic Along B.C.'s Coast

Note: *the tanker numbers discussed below are not exact counts as multiple sources report different figures. Also, in many instances tankers have been discussed as trips. When the term trips is used it refers to the arrival and departure of tankers; thus each tanker visit has two trips. This is important because each tanker is crossing B.C.'s coastline or adjacent waters twice.*

Existing

The number of tankers operating within B.C. is variable from one year to the next, depending on market demand, infrastructure availability, and resource development.

Today, tankers operate via ports near Vancouver and Kitimat.¹ Kinder Morgan's Port Vancouver Terminal loaded 69 oil tankers in 2010.² Port Vancouver also handled 111 jet fuel and gasoline tankers that year.³ Kitimat receives approximately 60 tankers carrying petrochemicals a year.⁴

Tankers arriving at and departing from US ports also impact B.C.'s current tanker count. In 2010, there were approximately 700 oil tanker trips between Alaska and Washington State.⁵ Tankers are loaded in Alaska and unloaded in Washington State; they then make a return trip to Alaska. The route passes the entire length of B.C.'s outer coastline and runs through the Salish Sea. While these tankers do comply with a voluntary tanker exclusion zone⁶ that keeps them outside of B.C.'s northern coastal waters and inside passage, they are close enough that they impact B.C.

Analysis from 2003 provides a glimpse into the concentration of vessel movements along B.C.'s coast, with denser traffic taking place near Victoria, Vancouver, and the Strait of Juan de Fuca (see **attachment 1** for a visual representation of all vessel movements in 2003). While this includes all vessels – not only tankers – the areas where denser traffic is noted are also areas where most tankers currently operate. Awareness of vessel concentration is important, because as concentration increases, it points to an elevated risk from pollution and collision. Further, other large vessels – notably container ships, bulk cargo vessels, and cruise ships and ferries – carry a significant amount of fuel that, if spilled, could also pose a major threat to the environment.

Between 1996 and 2003, there was an average of 410,301 vessel movements a year.⁷ In the last seven years there have been over 470,000 movements.⁸

Future

There are a number of proposed projects that would increase tanker traffic along B.C.'s coastline. The projects would lead to increased traffic in areas where tankers already operate (Vancouver and Kitimat), as well as Prince Rupert.

Projects that, if approved as expected in the next ten years, would lead to noteworthy increases in tanker traffic include:

- Enbridge Northern Gateway would add 500 tanker trips in and out of the Port of Kitimat per year;⁹ and,
- Kinder Morgan's expansion project would add up to 600 additional tanker trips in and out of the Port of Vancouver each year.¹⁰

These increases alone would amount to more than double the number of tankers arriving and departing from B.C. coastal waters and ports each year (up to 2,280 per year from 1,180 now).

Table 1: Existing and future tanker movements in B.C.

Existing Tanker Traffic:		Future Major Proposed Increases:	
	Tanker movements		Tanker movements
Kinder Morgan (Port Van)	138	Enbridge NGP (Kitimat):	500
Port of Vancouver	222	Kinder Morgan (Port Van):	600
Kitimat	120		
Alaska-Washington	700		
Total:	1,180	Total:	1,100
Total future potential:		2,280 tanker movements per year	

This increase does not account for any changes in US traffic through or near B.C. waters, nor does it consider other future B.C. projects. With five refineries along the B.C.-Washington State border (one in Canada),¹¹ at minimum crude shipments should be expected to continue at present levels.

Over the next 15 years, large vessel movements of all types along B.C.'s coast are expected to increase. In addition to the tankers cited above, container traffic is expected to increase by 300 per cent, bulk cargo vessels by 25 per cent, and cruise ships by at least 20 per cent.¹² We also expect increased traffic from liquefied natural gas exports. As a Pacific Gateway, growth is expected at all major ports in the north and south of the province.¹³

Size and types of tankers

The size of the tankers is an additional consideration alongside the number of trips. The larger the tanker, the more oil it can carry. There are typically four classifications, ranging from the Panamax, with a capacity of roughly 500,000 barrels of oil, to the Ultra Large Crude Carriers, with an approximate three million barrel capacity.^{14, 15} The geographic features of the waterways that lead up to ports often present limitations on the size of the tankers that can use port facilities.

Currently, the only oil tankers operating in B.C. are those collecting crude from the Port of Vancouver. Here, the largest possible size is the Aframax, which can carry between 500,000 and 800,000 barrels of oil. However, in the case of the Port of Vancouver, the Aframax tankers are forbidden from carrying a full load due to restrictions in the waterway.¹⁶

Adjustments to the waterway along with expansions at the Port of Vancouver are being planned. These changes would allow for full Aframax tankers, as well as the next class up, the Suezmax (capacity up to one million barrels of oil).¹⁷ On the US side of the Strait of Juan de Fuca – the same area that vessels bound for Vancouver travel – tankers greater than 125,000 deadweight tonnes are not permitted to the east of Port Angeles.¹⁸ A Suezmax is typically larger than 125,000 deadweight tonnes. Thus, Suezmax tankers would not be allowed to travel to US destinations via the same route where they are being considered for Canadian destinations.

At a flow rate of over 500,000 barrels per day and a commitment to having 225 oil tankers visit the Port of Kitimat a year,¹⁹ the Northern Gateway crude oil pipeline can be expected to see visits by Suezmax and Ultra Large Crude Carriers to transport product out of B.C. (see **attachment 2** for a table outlining the different sizes of Northern Gateway tankers).

The Risks Associated with Tankers

Types of Oil being Transported

Crude oil and refined oil makes up the majority of the oil products being shipped along North America's west coast. As such, most available spill response capacity has been designed to address these types of spills. This capacity remains absolutely critical because when crude oil is spilled its volatile nature poses a significant risk to human safety.

Proposals to transport more Alberta bitumen to west coast tankers require that the scope of west coast marine spill management be assessed. The properties of bitumen are different than crude oil. It is heavy and more likely to sink in water. Further, even once it is diluted for pipeline transport it contains more contaminants such as sulphur or heavy metals and therefore presents higher environmental risks if spilled (as compared to crude oil and refined products). A greater degree of difficulty is involved in recovering bitumen and more remediation is required should an unintended release occur, particularly once bitumen sinks into the water column or into soils. The impacts of a refined bitumen spill would likely more closely resemble a crude oil spill.

West coast marine spill management will have to be strengthened to increase capacity for all types of spill scenarios. It is possible that the capacity that exists for crude oil spills—from training to equipment—may not be appropriate for bitumen. Thus, a major gap may likely exist for all current and future bitumen shipments taking place on Canada's west coast.

Likelihood of a spill

The issue of tanker spills—due to collisions, hull failures, and fires and explosions, for example—has become increasingly polarised in B.C. According to opponents of tanker traffic, the risk of a spill can be viewed as not a matter of if, but when; while supporters argue that spill risk can be almost completely mitigated with the right technology and safety measures.

Globally, the rate of large spills (5,000 barrels or more) has consistently decreased since the 1970s. During the 1970s, 245 large incidents were reported, whereas only 33 were reported in the 2000s. Representing the decrease another way, of the 5.7 million tonnes of oil lost due to tanker incidents since the 1970s, less than 5 percent was lost during the 2000s. This major decrease occurred as tanker traffic continued to increase.²¹

This global trend is repeated in the Canadian context. In fact, Canada—along with the Netherlands and Sweden—reported no major spills during the 2000s; setting them apart as leaders among other countries with major shipping routes.²²

Enbridge, a major proponent of increasing tanker traffic in B.C.'s northern waters, has used a Transport Canada formula designed to measure spill risk to assess the likelihood of a tanker spill from its proposed project. Enbridge found that a major spill of 250,000 barrels of oil could occur along its proposed north coast route once in 1,500 years—a rate that Enbridge states is comparable to other similar operations around the world.²³ In its project application, Enbridge commits to tanker safety requirements that are beyond existing federal standards (see recommendation 11 for more information on these volunteer measures).

The odds of a spill are low, and even decreasing. However, it only takes one major incident to cripple an ecosystem and incur enormous costs on the responsible party, individuals, local communities, other sectors of the economy, and government. This risk exists today with current tanker traffic, and would expand into new parts of the province in the future should proposed developments go forward.

An important reference point for B.C. is the 1989 Exxon Valdez spill, which led to 260,000 barrels of oil spilling into Alaska's Prince William Sound. This spill is considered the 35th largest spill to have occurred worldwide since 1967; and, while the number of large spills has consistently decreased, major incidents do continue to occur.²⁴

Exxon has paid \$3.4 billion so far; some estimates put total cleanup costs as high as \$7 billion. Determining exactly how much Exxon should pay is something that is still held up in courts.^{25, 26}

A 2002 Pacific States/B.C. Oil Spill Task Force assessment on the risk posed by outer coast B.C. vessel traffic revealed that risks are greatest in winter and vessels traveling closest to the shore pose the greater risk to the environment – such as bulk carriers, cargo vessels, and oil barges.²⁷ This was a rigorous study that looked at a series of risk factors, including: volume of oil, drift, collision hazards, distance to shore, weather, tug availability, route/density, historical factors, and environmental sensitivity.

Those who are more cautious about tanker traffic along B.C.'s coast have pointed to B.C.'s rocky coastline, the narrowness and low depth of many waterways, along with frequent stormy conditions and increasing general vessel traffic to suggest that B.C. is at an elevated risk of a major tanker spill compared to other jurisdictions. The more time vessels spend confined to the inner coast the higher the risk. Most tanker ports in the world are located to provide quick access to outside waters where risks are significantly lower (this would not be the case with tanker ports near Kitimat).

Though such claims are difficult to fully substantiate, tanker traffic on the west coast has been the subject of concern and debate for decades.

Impact of a large spill were it to occur

Limits of liability rules in Canada mean that a spiller – through insurance and pooled industry funding – may not have to spend more than approximately \$1.3 billion cleaning up a spill.³⁰ This means that costs could fall to the B.C. and federal government, as well as local businesses and residents. Such costs include: clearing beaches of oily-waste and disposing of it; rehabilitating oiled wildlife and coastlines; salvaging wreckage; and, economic impacts to other sectors that operate in the area.

The legacy of a spill and cleanup can last for decades. Indeed, the impacts from the Exxon Valdez spill have still not been completely addressed. Chronic impacts – such as higher mortality and poor recovery – have been recorded in many other species as well.³¹ Indeed, only six of the 26 species and habitats most impacted by the oil have recovered, and some continue to decline (as reported in 2004).³² Such long term effects are due, in part, to the persistence of Exxon Valdez oil in the environment and food chain.³³

As noted in the previous section, as spill management requirements have advanced, the number of large spills has consistently decreased. Indeed, much has changed since the Exxon Valdez spill. For example, Exxon Valdez was a single hulled tanker; double hulls are now the industry standard.

Note: While the emphasis of this paper is on tanker traffic, other large vessels, such as container ships, bulk cargo vessels, and cruise ships and ferries, carry large amounts of fuel. By way of example, average fuel holds for vessels travelling in Alaska's Aleutians in 2005-2006 are: 38,000 barrels on container ships; 11,000 on freight ships; between 4,000 and 13,000 barrels on cruise ships; and, 700 on fishing vessels.³⁴ If part or all of the fuel on one of these vessels leaked it could have serious and costly impacts on the environment.

In New Zealand in October 2011, the container vessel *Rena* struck a reef and leaked up to 350 tonnes (approximately 2,500 barrels) of heavy fuel ashore. About 60 kilometres of beach suffered heavy to moderate oiling, with significant impacts to wildlife. The cost to government has been US \$37 million so far, and the cost to *Rena's* owners and insurance companies has been US\$300,000 each day (approximately US\$100 million if it persists for a year).³⁵

The enhancements recommended in this paper would serve to address this risk as well, which is very important given projected increases in all forms of vessel movements.

Existing Marine Spill Management Capacity in B.C.

The provincial and federal governments both have responsibility for hazardous spill response on the province's land base and in Canada's marine environment. Exactly where responsibility falls depends on the specific details of each individual spill incident. No matter who is ultimately responsible, both orders of government have an interest in ensuring effective spill management that both reduces the likelihood of spills occurring, and lessens the impacts when they do happen.

Shared jurisdiction

The federal government has constitutional authority for navigation and shipping, whereas both the provincial and federal governments have shared authority over the environment. The province has authority for the management of provincial lands and natural resources.

While federal agencies – principally Transport Canada and the Canadian Coast Guard – are the recognized leaders for spills in the marine environment, the Ministry of Environment has a critical role. In the event of a marine spill, the Ministry's Environmental Emergency Program is the lead provincial agency, responsible for ensuring the protection of provincial interests, such as those related to health and environment, and social and economic values.

Further, provincial jurisdiction technically extends over all land between the high and low water mark (inter-tidal zone), as well as the seabed of the Strait of Georgia, Juan de Fuca and Queen Charlotte Sound-Johnstone Strait, and the coastal seabed between many major headlands along the outer coast.

Both the provincial and federal governments have legislation that points to responsibilities for marine spill management, including legislation related to: the discharge of pollutants; protection of wildlife; environmental emergency management; and, industry responsibilities related to response and cleanup (e.g., polluter pays and cost recovery).

Table 2: Major provincial and federal legislation related to marine spill management

	Provincial Government	Federal Government
Managing discharge of pollutants	Environmental Management Act	Canadian Shipping Act, Migratory Birds Convention,
Protection of wildlife	Wildlife Act	Fisheries Act, Species at Risk Act
Environmental Emergency management	B.C. Emergency Program Act Environmental Management Act	Canadian Environmental Protection Act
Cost recovery from a spiller (polluter pays)	Environmental Management Act	Marine Liability Act Canadian Environmental Protection Act
Requirements for ships regarding construction, equipment, reporting and operational standards (to prevent pollution)		Canadian Shipping Act Fisheries Act
Industry funding of marine spill response organizations; establish the Ship Source Oil Pollution Fund		Canadian Shipping Act

Federal leadership in marine spill management can be attributed to the fact that the federal government has jurisdiction over the entire marine environment, including responsibility for regulating those entities – in particular vessels – that may pollute or spill into it. By comparison, provincial jurisdiction in the marine environment does not always extend into the open sea and is generally overlapped by federal jurisdiction. It is this dynamic that appears to provide the federal government a more dominant position in marine spill management.

However, the B.C. Ministry of Environment has plans that could be used to take over aspects of an underperforming spill response that is impacting provincial interests. Further, in the event of a major marine spill, the Ministry would join or form a Unified Command structure with the spiller, again to ensure provincial interests are being protected (see attachment 3 for more information on unified command/incident command structure).

Federal role^{36, 37, 38, 39}

The key aspects of the federal marine spill response program are: a marine spill preparedness and response regime (government regulated, industry-funded response organization); and, departments' response capacity. The response regime is regulated by Transport Canada, and the federal response capacity is contained within the Canadian Coast Guard (part of Fisheries and Oceans Canada). Marine spill management is organized around the responsibility to prevent, prepare for, and respond to spills that effect the environment.

Federal prevention

A central component of the federal approach to prevention is the establishment of environmental regulations and standards that ensure steps are taken to reduce the likelihood of an incident (e.g., the requirement that ships over 5,000 tonnes have double hulls). This, along with related inspections of ships to ensure compliance, falls under the responsibility of Transport Canada. Transport Canada also makes decisions related to ships needing assistance and requests for a place of refuge. The Canadian Coast Guard maintains marine services that can help ships avoid accidents, such as the regulation of ship movements and broadcasts of weather bulletins. Further, foreign ships over 350 gross tonnes are required to take on a marine pilot when they enter Canadian waters. The pilot provides local knowledge to ensure the vessel is safely navigated through the various passageways along the coast.

Federal preparedness

Federal preparedness is regulated by Transport Canada. Tankers and barges of 150 tonnes and greater, all ships 400 tonnes and greater, and oil handling facilities must be a member and fund a Transport Canada certified response organization. The organization is required to maintain a capacity to respond to spills of up to 10,000 tonnes. In B.C., it is known as the Western Canada Marine Response Corporation.⁴⁰ Standards for the response organization are:

- Response Times – Deploy equipment within time standards of 6 to 72 hours after notification depending on location of spill.
- Shoreline cleanup – A minimum of 500 meters of shoreline is to be treated each day.
- On-water recovery – Remove oil from water within 10 days of an operation beginning.
- Equipment – Sufficient storage to maintain twice the capacity of oily-water waste collected during a 24-hour period. Less capacity required where technology or treatment locations that reduce storage needs are available.

Western Canada Marine Response Corporation – a federally mandated response organization – is required to maintain this spill response capacity. However, its services are not free, and must be contracted by responsible parties, both those that fund its capacity and others that wish to employ it. If a responsible party was unidentified or unavailable, it would have to be contracted by the government before it would initiate response activities.

Tankers and barges of the above-mentioned sizes are also required by Transport Canada to develop and test Ship Oil Pollution Emergency Plans, be equipped with enough booms to circle the vessel, carry sorbent material in remote areas, and maintain documentation outlining its insurance arrangements. Response organizations are also required to maintain infrastructure, plans, equipment and trained personnel, as well as exercise plans and maintain a constant state of operational readiness.

Federal agencies are required to maintain up-to-date emergency management plans with current knowledge on risks, supported by training, exercises, and appropriate spill response equipment. This readiness is critical for those situations where a responsible party is not identified, and the federal government must lead the response.

In the Pacific region, the Coast Guard maintains three Response Centers located at the Coast Guard bases in Victoria, Prince Rupert and Sea Island in Richmond.⁴¹ The Response Organization – Western Canada Marine Response Corporation – maintains operational personnel on the South Coast (Burnaby-head office), Vancouver Island (Duncan), and North Coast (Prince Rupert).⁴²

Federal response

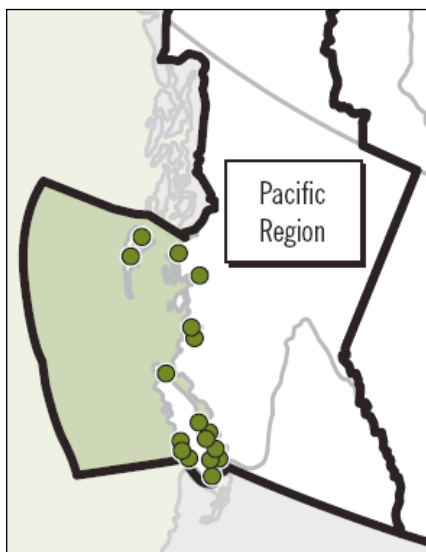
In the event of a ship-source spill into the marine environment, the Canadian Coast Guard is responsible for the federal response. It can serve as either:

- The federal monitoring officer, and in this role ensure the spiller's response is minimizing damage to the marine environment, satisfying the response requirements (mentioned on page 6 under preparedness) and working with a certified response organization; or,
- The on-scene commander, and directly manage the spill (in those instances where a spiller is unknown, unwilling, or unable to take on all or some response obligations). This can include the Coast Guard taking cleanup measures itself, or directing others to take action.

Response activities overseen by the Coast Guard include containment and recovery of pollutants, shoreline cleanup and wildlife recovery, and can involve local communities, provincial governments, and international cooperation. If a spill is large enough to require it, Response Organization and Coast Guard equipment can be transported from across Canada to assist; though not all types of equipment are amenable to rapid transport (e.g., response vessels) or could arrive in time to be effective.

The Coast Guard may also act as a resource agency, and can be contacted by organizations to obtain advice and/or equipment. It also maintains depots of equipment at various locations across Canada (see **Figure 1** for B.C. depots). It can operate on a cost recovery basis (polluter pays model); attempting to recuperate expenses from a spiller, Canada's Ship-Source Oil Pollution Fund, or the International Compensation Fund.

Figure 1: B.C. locations of Canadian Coast Guard equipment depots



Source: Report of the Commissioner of the Environment and Sustainable Development to the House of Commons – Fall 2010. Chapter 1: Oil Spills from Ships

Environment Canada also serves in a resource capacity, providing advice during a spill event, on issues related to environmental priorities, resources at risk, and approaches to cleanup. It coordinates multi-stakeholder Regional Environmental Emergencies Teams (REET) composed of representatives from federal, provincial, and territorial governments; industry; and other organizations in a region, such as local governments and Aboriginal groups.

Provincial Role^{43,44}

The province takes an active leadership and participatory role in identifying provincial resources that would be impacted by a spill and, in the event of a spill, the protection and cleanup of the intertidal shoreline and seabed.

Provincial Prevention

The province continues to participate on the B.C./Pacific States Oil Spill Task Forces' Pacific Oil Spill Prevention and Education Team, which includes working with B.C. based ENGOs to reduce spills.

The provincial government recognizes that many actions related to marine spill prevention are beyond its legislative mandate (e.g., vessel design; traffic monitoring; navigation, tanker routes; and, avoidance

of accident-prone and environmentally sensitive areas). Therefore, the provincial role in this area has centered on advocacy for actions that will reduce risks.

Provincial Preparation

The provincial government maintains a B.C. Marine Oil Spill Response Plan that outlines what it would do in the event of a spill. Its emphasis is on protecting areas under its immediate jurisdiction, including coastal environmental resources (e.g., intertidal shores, seabed, and wildlife protection). The Program also maintains data on shoreline types, areas of environmental sensitivity and other baseline data essential to spill response. Similarly to prevention work, preparedness in the marine environment is largely something that falls under federal responsibility, leaving the province as an advocate for what it sees as leading practices.

Provincial Response

In the event of a major spill into the marine environment, the province – under the lead of the Ministry of Environment’s Environmental Emergency Program – would serve in as significant a capacity as it deemed necessary. Its emphasis would be on areas under provincial jurisdiction, such as: the protection and cleanup of the intertidal shoreline and seabed; and, the protection of provincially regulated species and their habitat.

The Program also has access to resources through an incident management team, comprised of members with technical knowledge from across government. These individuals can be called upon to provide advice to help respond to a major spill.

When a spill occurs, the province expects the spiller to report the incident and implement its emergency response plan, setting out steps to contain the spill and to restore the environment to its original condition (likely contracting Western Canada Marine Response Corporation). The Program is prepared to take over an incident should the spiller be unknown or default on its obligations, or if local government is unable to cope with the situation.

Following a major incident, the Program would work with the responsible party and/or response organization to establish Unified Command. Currently, the Coast Guard does not use this response structure (see **attachment 3** [incident command] and **attachment 4** [government response step-by-step] for more information). Under this structure, the Program, responsible party, and directly impacted local governments and First Nations would co-lead the coordination of response activities and resources. The Coast Guard would remain outside the formal structure, and receive regular updates as needed.

The provincial Program would occupy key positions in the Unified Command/Incident Command Structure, including Incident Commander, Environmental Unit, Technical Specialists and field observers. From these positions the Program can ensure the response is proceeding in a manner that is consistent with provincial objectives. It is this structure that would allow the province to take over an underperforming response if required; it would likely do this by taking over and managing first response contracts.

During an industry-led response, the main focus of the Ministry is to ensure the spiller is successful in its response and that provincial priorities are being addressed appropriately. The most common roles for the Program are to monitor the response, ensuring public safety and environmental protection, and augment the response with provincial equipment and expertise if requested.

Both the provincial and federal government would operate on a cost recovery basis that would see the spiller pay for the full cost of response and cleanup (though existing rules around limits of liability may prevent this in the event of a major spill [see **recommendation 8**]). The ability of the province to

recuperate funds will not be a deciding factor in the timing and degree of provincial response to an event. Such matters will be addressed with the polluter once the situation is under control and the impact fully evaluated.

For more Information: *Attachment 4 outlines what would likely happen in the event that an oil tanker hits a rock along B.C.'s coastline and begins to leak significant quantities of oil. It includes a flow chart of what would happen if a responsible party is identifiable as well as discussion on what would be different were a responsible party not available. It provides insight into how the federal and provincial governments would actually work together in the event of a major marine spill.*

International partnerships

Transboundary spills could impact B.C. along its borders with Alaska (Dixon Entrance and Hecate Strait) and Washington (Salish Sea). Such a spill increases the complexity of a response, in particular because responsibility for cleanup may become shared between jurisdictions; and, as environmental impacts cross over international borders, the number of rules to follow, and agencies and stakeholders to engage increases.⁴⁵

For Example: *December 23, 1988 a tug rammed a hole in its tow – the tanker barge Nestucca – three kilometres off the coast of Washington, near Gray's Harbor. The collision resulted in 5,500 barrels of bunker C oil being spilled, some of which came ashore in discontinuous patches mainly on Vancouver Island, not far from Victoria. Numerous beaches were oiled and many sensitive shoreline ecosystems suffered damage. Reports indicated that as many as 56,000 seabirds were killed. Many crab and shellfish populations were oiled in addition to herring spawning areas. Traditional native fishing practices were affected due to the contamination of the shoreline.*

*There was no attempt made at open water recovery by Canadian or US authorities. High seas and current precluded the use of containment booms.*⁴⁶

The transboundary agreements that cover B.C.'s coastal waters include the Pacific States/British Columbia Oil Spill Task Force (provincial), and the Canada-United States Joint Marine Pollution Contingency Plan (federal). The federal-level plan includes specific arrangements for the Pacific under the CANUSDIX (Dixon Entrance) and CANUSPAC (Salish Sea) geographical annexes. The Plan provides guidance for joint response teams should they be required.⁴⁷

Under both the Pacific States/B.C. Task Force and federal-level Plan, the emphasis is on working together to both reduce the likelihood of a transboundary spill occurring and to improve response were one to occur. Indeed, in April 2011 the Pacific States/British Columbia Oil Spill Task Force released a report examining planning and response capabilities throughout the northwest Pacific (The Stakeholder Workgroup Review of Planning and Response Capabilities for a Marine Oil Spill on the US/Canadian Transboundary Areas of the Pacific Coast Project Report).⁴⁸

Local governments and First Nations

Local governments have a responsibility to assess local risks, prepare emergency response plans, and to have a delivery capability proportionate to the types and level of hazards that exist in their communities.⁴⁹ While response to land-based emergencies would often begin with local governments, that is

unlikely to be the case for a spill into the marine environment. However, the Environmental Emergency Program would work closely with local officials to both share information and provide opportunities for local assistance with the response (through an Incident Management Structure).

Indeed, local communities could be called upon to assist in dealing with consequence management, such as housing and supporting evacuees, handling the influx of responders, and addressing marine transportation closures and associated impacts to the community.

Given First Nations' intimate knowledge of the coastal environment and their concern for the impact of oil on resources, First Nation communities represent a significant source of support and expertise for all aspects of spill response, including shoreline cleanup. Some coastal First Nations live in the remote areas where tankers are likely to operate, their local knowledge could also be important in regards to spill prevention and preparedness work. The Ministry's Program has been working with First Nations communities on the coast for the past several years doing training on shoreline cleanup and assessment.

Lessons from leading jurisdictions

No single jurisdiction is a leader on all aspects of spill management; achieving global leadership would require elements from a number of spill management programs.

Pacific Northwest States

In March 2012, the B.C. Ministry of Environment surveyed spill management programs in Alaska, Washington, Oregon, California, and Hawaii. The objective of the study was to explore spill management capacity in these jurisdictions, and see what lessons B.C. could take away for its program. Common features in these states include: industry funding for government programs, a government spill response fund, and full spiller responsibility for cleanup costs (e.g., natural resources damages assessments, and opting out of international spill funding agreements that were viewed as insufficient following the Exxon Valdez spill); spill prevention and contingency planning requirements for vessels and geographic areas; and, larger budgets, and equipment and staffing levels.

Alaska

Alaska stood out as a leader among these states. Its spill management program is designed to ensure an incident like the 1989 Exxon Valdez is as unlikely as possible to ever occur again.

On the prevention side, oil tankers are required to (1) employ a single government registered spill response contractor, which (2) maintains five state-of-the-art tugs. Registered spill response contacts are required to (3) maintain response capacity for spills of 50,000 barrels for oil tankers with less than 500,000 barrel capacity, and (4) response capacity of 300,000 barrels for tankers with capacity larger than 500,000 barrels. (5) Advanced training is required for tanker officers, tug officers, and marine pilots; (6) a marine safety committee monitors and evaluates tanker operations. Tankers are required to (7) maintain high-tech information systems that track other vessels and hazards. Last, all tankers are required to (8) maintain government approved oil discharge prevention and contingency plans. These plans must meet (9) response planning standards that describe the ability to cleanup a large spill within 72 hours based on the geographic area of operation.⁵⁰

On the response side, equipment is staged in four key areas along Alaska's coast. Stockpiled materials include: (1) 50 miles of containment boom; (2) dispersant that can be delivered by helicopter or plane; (3) eight barges with capacity for 850,000 barrels of oily-waste (in addition to 54 smaller barges for

near-shore work). The program maintains 34 trained dedicated spill responders (among 146 program staff),⁵¹ along with groups of trained citizens and fishing vessels to assist in the event of an emergency.

The response work also incorporates protection for fish hatcheries and wildlife rescue, ensuring that plans and equipment are in place and stockpiled to protect these interests.

Major drills are conducted annually, with frequent smaller – announced and unannounced – drills also taking place.

Finally, a Unified Command/Incident Command structure is the accepted and required approach to lead spill cleanup in the State; used by Alaska, the US Coast Guard, spill response contractors, and shippers.

Norway

Norway has also been pointed to as a leader for its spill management capacity, and provides an example of the approaches taken in a jurisdiction that is not an immediate neighbour to B.C. The Norwegian Coastal Administration is the government agency responsible for organizing and maintaining the government's oil spill response preparedness, which includes controlling and monitoring any response operations that take place.⁵² Its capacity includes:

- 16 contingency depots with oil spill control equipment, trained personnel and small boats;
- 4 designated government oil pollution control vessels; and,
- 8 coast guard vessels permanently equipped with oil recovery equipment.

Private capacity also exists, and is maintained by the Norwegian Clean Seas Association for Operating Companies, an organization of 13 oil companies operating in Norwegian waters. It maintains (1) five regular equipment depots and three large stockpiles of equipment (including vessels), and has a (2) large number of supply vessels that can be converted for oil recovery operations. All companies have similar, compatible equipment, (3) consisting of large heavy duty containment and recovery systems. (4) Helicopter contracts are maintained, to assist with infra red monitoring of vessels and oil movements, were a spill to occur. Because of the extensive range of equipment held by national and local government agencies and the oil industry, there is little call for clean-up contractors in Norway.⁵³

The National Contingency System is divided into private, municipal, and government contingency areas, each with specific responsibilities. All plans are standardized and coordinated so that in the event of a major incident, the system will work as a single integrated response organization. Norway's 430 municipalities are divided into 34 inter-municipal preparedness areas, each with their own approved contingency plan. All parties – industry included – are obligated to provide assistance to other such parties should the need arise. As such, equipment may be used from a number of industry stockpiles.⁵⁴

Discussion and Recommendations

Prior to reviewing the issues and recommendations raised in this section, it is important to acknowledge that greater clarity is required about existing marine spill management capacity in B.C. A full assessment does not exist and is required in order to have a complete picture of government, industry, and community expertise and resources.

In December 2010, The Office of the Auditor General of Canada released a report titled Oil Spills from Ships. It found that, on the federal side, risk assessments related to spills were incomplete, emergency management plans were out of date, and there was no national approach to training, testing plans (exercises), and maintaining equipment.⁵⁵ These types of gaps make it difficult to fully assess the extent

of spill management in Canada's marine environment. A more complete understanding would support a deeper review and comparison of the combined Canadian capacity with the combined capacity of other spill response leaders.

Tanker traffic and other large vessel traffic is likely to increase along B.C.'s coast. Despite lacking a full assessment of the Canadian capacity, existing provincial and federal spill management capacity appears to be insufficient for current needs. There are a number of areas where major improvements to marine spill management can be made. Correcting these deficiencies is beyond the scope of any one tanker project.

Contained within the 11 recommendations below is information on areas where Canadian capacity should be strengthened. With these improvements in place, proponents of tanker traffic would be able to convincingly point to the response capacity on the west coast and state that while the threat of a spill is not completely eliminated, Canada is on the leading edge of mitigating the risk of a major spill, as well as the impacts were one to occur.

Recommendation #1: Establish a time limited B.C.-federal government working group to respond to the challenges facing marine spill response on Canada's west coast

Several recommendations below would be best addressed collectively through a time limited B.C.-federal government working group. Such a group could be comprised of government and stakeholders, and have its work described under a formal Terms of Reference. To be most effective its mandate would be to develop policy recommendations and then see those recommendations through to agency- and cabinet-level approval in both orders of government.

At a minimum, a working group would establish a forum for relevant agencies to raise concerns about the state of current operations in the context of proposals for increasing west coast tanker traffic.

Recommendation #2: Advocate for Transport Canada to strengthen requirements for its certified marine spill response organizations operating on Canada's west coast

The existing requirements for marine spill response organizations on the west coast are insufficient given the potential impacts of a major spill. Chief among these insufficiencies is the modest requirements that response organizations maintain capacity to address spills up to a maximum of 10,000 tonnes. This maximum is the equivalent of 70,000 barrels of oil. The west coast's response organization would be completely overwhelmed by a spill similar in scope to Exxon Valdez (260,000 barrels spilled).

Given the size of current tankers travelling in B.C., along with proposals for far larger tankers, (1) increasing this threshold is critical. Alaska's requirements that response organizations maintain capacity to respond to spills of 300,000 barrels for tankers with over 500,000 barrel capacity⁵⁶ would lead to a response capability that is far more reflective of the actual threat.

Further, requiring (2) geographic response plans with mandated capacity in specific regions would ensure a prompt response. For example, new requirements could ensure each region has [a] appropriate oil-waste disposal facilities along the coast, and that all the [b] necessary equipment is available for the initial response. Without appropriate equipment and disposal facilities, a response could be brought to a standstill and lead to delays that may increase the impacts of a spill. Further, geographic response plans could address local conditions that could disrupt a response. For example, there could be a response gap in certain areas where conditions are likely to decrease the effectiveness of certain approaches to spill management, or create access challenges for response personnel and their equipment.

Geographic response plans could also be used to [c] ensure areas are properly equipped, thus reducing the amount of travel time required by responders to reach a spill location. Currently, responders are permitted 72 hours plus travel time for large spills. In Alaska, 72 hours is the maximum limit and there are no extra allowances for travel.⁵⁷ It is perfectly reasonable to expect that a spill in B.C.'s north would require a unique response as compared to a spill in B.C.'s side of the Salish Sea, and both areas should have the capacity to respond as soon as possible.

Response organization requirements also make no mention of (3) oiled wildlife response. A spill can devastate wildlife, and particularly for species of significance, mandating capacity in this area would help protect important provincial values.

The requirement that (4) 500 meters of shoreline to be treated per day could be extended, particularly if it was coupled with a requirement that responsible organizations maintain plans (5) to manage a large workforce in the event of a major spill. Exxon Valdez impacted almost 2,000 km of coastline. At 500 meters per day, a similar spill occurring in B.C. would require a 10 year cleanup. Developing the capacity to organize a large workforce—of contractors and possibly volunteers—is critical to an effective response. The sooner work begins the more likely impacts can be contained.

Currently, response organizations are not allowed to engage volunteers on cleanup work. Efforts to channel the outpouring of concern British Columbians would no doubt have following a major event could lead to a major push early into the cleanup work. Finding a way to promote volunteerism and ensuring the response organization is not impaired in carrying out its functions is an area where more consideration is required.

Recommendation 3: Reach a B.C.-federal government consensus on acceptable techniques for managing a range of spilled substances

The main Canadian provincial and federal agencies involved in spill response are the: B.C. Ministry of Environment, Transport Canada, Canadian Coast Guard (Fisheries and Oceans Canada) and Environment Canada. These agencies should review the types of hazardous materials that are transported by tankers along B.C.'s coastline and, wherever possible, agree on management techniques in advance.

The use of dispersants is an area where a clear decision is required. Dispersants can be applied to spilled substances to assist with the cleanup but its use has opponents and proponents. Environment Canada maintains a pre-approved list of dispersants suitable for use in Canadian waters, whereas Fisheries and Oceans Canada considers them to be another dangerous substance added into the environment. The Ministry of Environment sees a use and wants it explored for those situations where a Net Environmental Benefit Analysis justifies its usage.

Canadian coordination is critical given the fact that in shared waters US agencies would likely use dispersants. Without advanced consideration a very quick decision by Canadian agencies would be required in the event of a transboundary spill.

Other areas where similar disagreements exist or more consideration is required are: insitu oil burning (burning spilled oil on the water); and, techniques for handling different types of oil, in particular heavier oil from the Alberta oil sands, which has the potential to sink and render all current response capabilities for on-water recovery in B.C. ineffective.

Recommendation 4: Confirm the timeline for federal government – mainly Canadian Coast Guard – support for Unified Command/Incident Command Structure

The Incident Command Structure is an established and tested technique for responding to a range of emergencies, including marine spills. It is used worldwide by companies and governments (including the US). The Canadian Coast Guard has a unique response system, which only it uses.

If a major marine spill were to occur today, B.C.'s Environmental Emergency Program – as the provincial lead – would aim to establish a Unified Command Structure with the responsible party/response organization, and directly impacted local governments and First Nations. The Canadian Coast Guard would remain outside this structure, where it would monitor and quasi-approve response plans.

This dynamic is not conducive to effective, coordinated response and adds a layer of approvals to a situation where prompt decisions are required. The structure is designed to bring a collection of agencies together to focus on common rather than individual objectives. By working outside the structure, the Canadian Coast Guard is not connected to the shared response.

Recommendation 5: Develop an interactive mapping system to manage information about response capacity along B.C.'s coastline

An online password protected mapping tool could be created that outlines where common tanker traffic takes place, and what types of response capabilities are in place along Canada's coast. It could be intimately linked with geographic response plans and risk assessments. Such a tool would provide a clear picture of where improvements could be made – particularly around the staging of equipment and personnel. For example, detail on the exact quantity of booms is absolutely central to planning an effective response. Were a spill to occur, all relevant agencies could see exactly what resources are likely to be deployed and approximately how long it will take for them to arrive on scene. Also, by having it online agencies could access and update as conditions change.

Such a system would go a long way towards providing clarity about capacity. The state of clarity on capacity is something both the Auditor General of Canada and research for this policy paper have uncovered as an area where improvements are necessary. Previously mentioned recommendations for geographic response plans would tie in closely with this recommendation.

Recommendation 6: Review the justification for why Canadian federal tanker requirements differ when compared to US requirements for the same shared waterway

In the US, tankers in excess of 125,000 deadweight tons (e.g., a Suezmax with a capacity for one million barrels of oil) are not permitted to travel east of Port Angeles in Washington.⁵⁸ Yet the Port of Vancouver is looking at expansions in its waterways to allow Suezmax sized tankers to make regular calls to its facilities.

Further, Washington State and US federal laws require tug escorts for laden tankers travelling east of Port Angeles. In Canada, the equivalent tug escort rules are voluntary.⁵⁹ An industry funded emergency response tug is stationed at Neah Bay (tip of Olympic Peninsula at the entrance to the Strait of Juan de Fuca in Washington), as per Washington State requirements. It has provided direct assistance to 46 vessels since 1999; in eleven instances it prevented disabled vessels from drifting onto rocks and spilling oil.⁶⁰ There is no similar capacity on standby on the Canadian side of the Strait of Juan de Fuca.

These stricter US requirements are in place for a shared body of water used regularly by tankers traveling to and from Canadian and US destinations. If there are good reasons why Canadian standards

are different then they should be clearly communicated, otherwise Canada should review options to strengthen requirements.

Recommendation 7: Ensure all impediments to transboundary assistance are addressed in advance of a major spill in B.C./Canada waters

The 1993 Pacific States/British Columbia Oil Spill Task Force Mutual Aid Plan provides a mechanism for notifications and requests for assistance (equipment and personnel). US response organizations would require more immunity protection than what is currently offered under relevant federal legislation (e.g., Canadian Shipping Act). Further, it is possible that certain aspects of a response could cross into provincial jurisdiction; thus, some guarantees from the provincial government may also be required.^{61, 62}

Administrative details like this should be addressed so that if a major spill occurred in Canada, US responders could assist with the response without any delay (or worse, decide not to assist because responder immunity could not be granted).

Recommendation 8: Strengthen current limits of liability rules to reduce government and public exposure to financial risk

Once a spill has occurred there are three levels of industry response funding in Canada, which have a combined maximum of up to approximately \$1.3 billion.

The first level is the tanker-required shipper liability insurance for a maximum amount of up to \$137 million; the amount is covered by insurance and is the total cost a spiller is required to pay. After that, approximately \$1 billion is available through the International Oil Pollution Fund. Lastly, Canada has a domestic Ship-Source Oil Pollution Fund, which can be applied to for an additional \$154 million (total value of fund is \$380 million, but individual incidents are entitled to a maximum of \$155 million).^{63, 64}

Once costs exceed \$1.3 billion, additional costs may be covered by the spiller, but financial constraints may limit that ability. Cleanup and impact cost estimates for Exxon Valdez range from between \$3.4 billion and \$7 billion.

Canada has no plan in place to cover the excess costs of a major spill. A spill of that magnitude could lead to significant costs for individuals, businesses, communities and governments.

The US federal government maintains a fund through an 8-cent levy on oil imports/exports that is forecast to grow from \$1.5 billion in 2009 to just less than \$4 billion in 2016.⁶⁵ Any one oil pollution incident is limited to \$1 billion or the balance of the fund, whichever is less.⁶⁶ The US does attempt to recover all its response costs up to the responsible party's limit of liability.⁶⁷ The US is not party to the International Oil Pollution funds and therefore cannot draw additional support from that source.⁶⁸ In the US such limits are based on vessel type and weight; coverage ranges from \$160 million for a medium sized Aframax to \$640 million for a medium sized Ultra Large Crude Carrier.^{69, 70}

The US situation is not perfect; it is not party to the International Oil Pollution Fund,⁷¹ meaning that its industry funded coverage is fairly similar to the coverage in Canada. However, the lesson to draw from the US experience is that an ongoing 8-cent levy on oil imports/exports can gradually build a fund that reduces public financial vulnerability to a major spill. Canada used a levy to build its Ship-Source Oil Pollution Fund initially, but it has not been in place since 1976. At a maximum of \$155 million an incident, from a fund capped at \$380 million, there is not much funding room for a major cleanup.

Recommendation 9: Establish a B.C. industry funding model for emergency spill response that can be used to complement and strengthen Ministry of Environment marine spill management capacity

As mentioned under recommendation 2, reforming federally-regulated industry funded spill management along B.C.'s coastline would bring the province up to a level on par with neighbours to the North and South (Pacific States). It is an area where the province should request that the federal government review requirements for its response organizations. In addition, as some aspects of a marine spill response are perhaps more important to provincial interests, a complementary provincial industry funding model is something that may be worth exploring, particularly given that the Ministry of Environment is already looking into what it would take to develop a terrestrial-based model.

The terrestrial-based model could be designed in such a way that it is available to also respond to marine spill impacts to provincial lands and interests – cleanup of the intertidal zone and beaches, for example. It could ensure that the Environmental Emergency Program has the resources it needs, working towards a capacity that is likely significantly more than the 12 Response Officers and \$2 million budget it has now. It could ensure that funding for provincial marine response, for both large and small incidents, is funded by those industries that pose the threat, rather than public money.

The Ministry is exploring the following changes:

- Program enhancements funded by a levy linked to oil and other hazardous materials:
 - *Increased staff and prevention, preparedness, and response capacity*
 - *Establishment of a provincial spill response fund*
- A government regulated industry funded spill response organization, which:
 - *Maintains robust response capacity to respond to incidents that impact provincial interests*
 - *Maintains geographic response plans*
 - *While its focus would be terrestrial response (pipelines, rail, etc.) it could be designed to maintain capacity for the intertidal zone and beaches (where most oil would end up in a marine spill)*

Recommendation 10: Develop a new regulatory regime in B.C. that ensures the province has the explicit right to full compensation for complete environmental restoration after a fuel spill, similar to the system in place in Washington State

Washington's Natural Resource Damage Assessment scheme assesses the value of loss resulting from a spill, which the party responsible for the incident must pay in order to make society and environment whole again. Dollar amounts should be based upon research and be documented.

The key benefit of the Assessment is it establishes a system for ensuring full compensation following a spill. Currently, in B.C. the Environmental Emergency Program may either negotiate with the party at fault on how to remediate, or lead remediation work alone, pursuing costs through the court. Given limited resources, the Program is not well positioned to lead remediation work, and if a responsible party is uncooperative, it may be challenging to get the remediation required. A recognized assessment tool, set out in regulation, would provide the Program the tools it needs to mandate full restoration.

Recommendation 11: Welcome offers from individual project proponents for above-standard spill management, but avoid relying on this patchwork approach as a means to achieving leading standards in marine spill management

In the case of the Northern Gateway project, Enbridge has offered to go above and beyond national and international requirements for managing tanker traffic.⁷² These voluntary measures include:

- Simulator training for pilots and tug crews;
- A requirement for laden tankers in a confined channel to have two escort tugs (one tethered);
- Escort tugs available for ocean rescue;
- Tugs equipped with oil pollution emergency response equipment;
- A requirement for radar to be installed to monitor traffic;
- Strategic location of response equipment;
- Identification and prioritization of particularly sensitive areas; and,
- Non-acceptance of tankers with full width cargo tank.

Transport Canada's review of the project found that these enhancements can reduce the probability of an incident and also reduce its consequences. These are important safety requirements. They go above what is required in Canada, but in most cases represent standard practices in other jurisdictions.

The commitment to these measures is commendable. If these are measures necessary for safe operations of this project, it may be that they should become broader industry requirements, and not only be requirements of this project. In general, rather than having individual companies adopt project-specific measures, more stringent requirements could be set in law and apply to all tankers.

Such an approach would provide consistency for marine spill management across B.C., and ensure that commitments made in advance of a project are followed through with once work is underway. Further, regulators can manage compliance more easily if standards are common across the industry.

Conclusion

Enhancing spill management on Canada's west coast is critical; existing capacity is insufficient for future tanker traffic. Alaska's experience with Exxon Valdez is an important reference point. Relaxed requirements combined with major human error, led to arguably the worst environmental disaster to ever impact the Pacific Northwest. In response, Alaska has built a leading marine spill management program that aims to prevent such an incident from ever occurring again. The B.C. and federal governments in Canada may wish to consider what can be done to strengthen spill management, given projected increases in west coast tanker traffic.

The recommendations contained in this paper can be used to focus that investigation, and direct the west coast towards a position of global leadership in marine spill management.

First and foremost is the need for a commitment that relevant provincial and federal agencies work together to outline the precise capacity that exists now, so that they can confirm what is needed to effectively mitigate spill risk in the future.

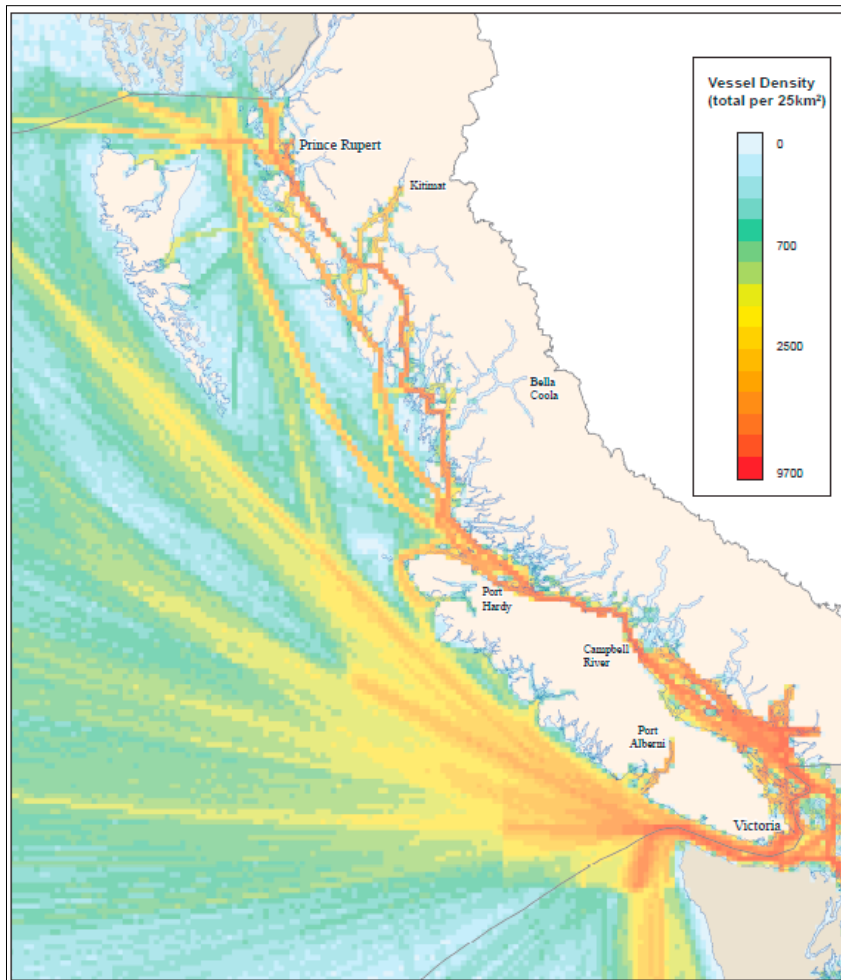
Most of the recommendations are geared towards areas of federal responsibility; things that federal agencies could do to improve spill management. In order to implement many of the recommendations, the province will require the support and cooperation of the federal government.

With respect to the proposed Northern Gateway Project, the concern continues to be that the risk posed by oil tanker traffic is carried by B.C., while the benefits are to either Alberta (where the oil is produced) or the country as a whole (depending how those benefits are diffused). This dynamic, that B.C. carries the risk while others benefit, is important. It is an imbalance that must be addressed, and strengthening federal spill management is a necessary part of redefining the risk/benefit ratio associated with this particular project.

The province can make improvements as well. In particular, it may be time to learn from other jurisdictions – including the federal government and Pacific states – and institute a polluter pays system for spill management. Currently, in the event of a major marine or terrestrial spill, the province would be exposed to an enormous amount of financial risk. An industry funding model can strengthen government and industry spill management while ensuring related costs sit with those industries that pose the risk rather than with the government.

As long as there is tanker traffic it may not be possible to completely eliminate the risk of a spill. However, the B.C. and federal governments have an obligation to ensure that industry engages in world class spill preparedness and in so doing, effectively manages the risk associated with its activities.

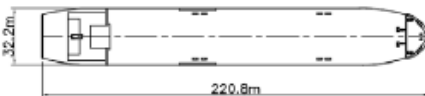
Attachment 1: Marine traffic vessel density along the coast of B.C. in 2003




Source: *MoE 2006 State of the Environment Report*

Attachment 2: Proposed Tankers for Enbridge Northern Gateway Proposal

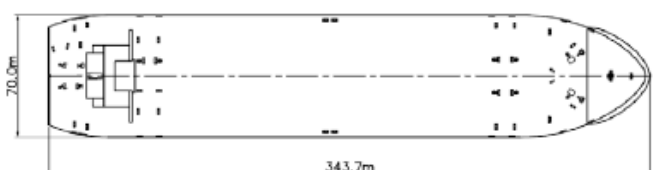
Design Vessels				Example Vessels	
Vessel Particular	Crude Oil	Oil and Condensate		Bulk Carrier	Cruise ship
Vessel Class	VLCC ⁷⁴	Suezmax	AFRAMax ⁷⁵	Current	Large ⁷⁶
Length Overall (m)	343.7	274.0	220.8	183	294
Beam (m)	70.0	48.0	32.2	32.2	32
Draught (m)	23.1	17.0	11.6	13.3	8.0
Deadweight (t)	320,472	160,000	81,408	50,939	
Displacement (t)	365,472	185,000	96,408	81,939	91,000
Hull Type	Double	Double	Double	Double	



AFRAMAX
80,000 DWT (MIN.)

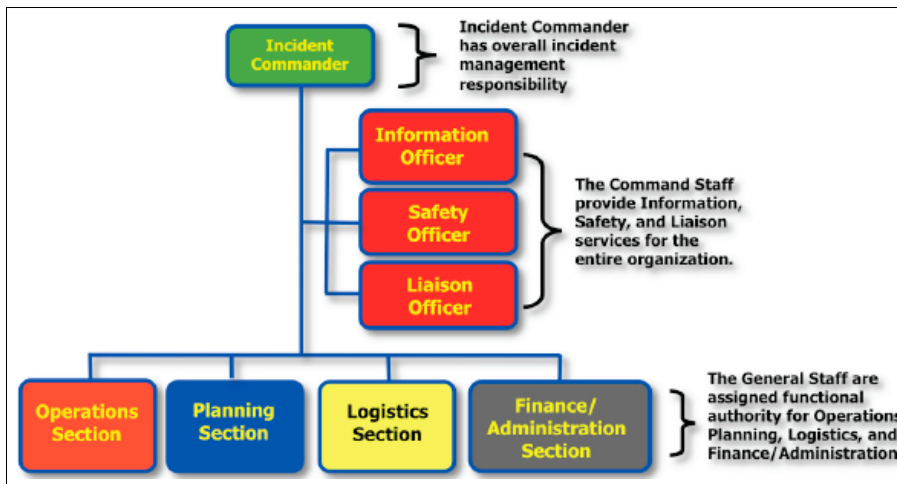


SUEZMAX
160,000 DWT (AVG.)



VLCC
320,000 DWT (MAX)

Attachment 3: Unified Command/Incident Command Structure⁷³



The Incident Command System (ICS) is a common, proven organizational structure employed by many companies and government agencies throughout Canada, the United States, and world-wide to manage emergencies of all types and scales, including spills, vehicle accidents, floods, and severe storms. The use of the ICS and preparation of response plans addresses the “timeless tactical truth”: Effective emergency response needs effective organization.

An Incident Management Team (IMT) employs the ICS, principally at an Incident Command Post (ICP). The ICP/IMT is characterized by three fundamental elements:

- First direct line of supervision to field personnel that have the “hands-on” work (e.g. beach cleanup, waste handling, wildlife rescue, field reconnaissance, equipment staging, etc),
- Where the response strategy and tactical (operational) decisions and plans are formulated, and
- Where unified shared command is established with other jurisdictions.

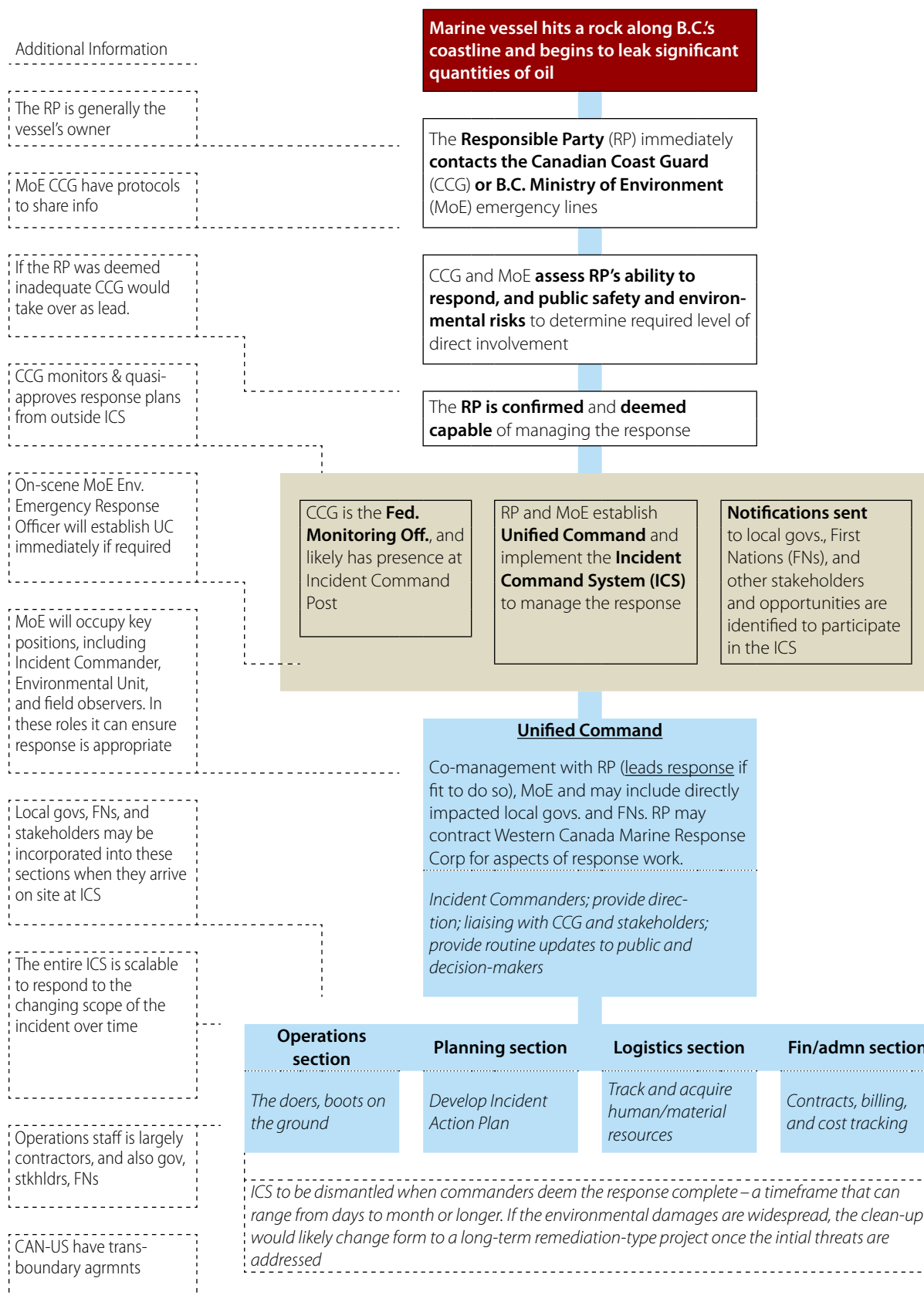
The objective of the ICS is to maximize team efficiency by defining lines of communications, delegating responsibilities, expanding with new people and duties to ensure no one exceeds their capabilities—mentally or physically.

The ICS organization builds from the ground up, with the management of all major functions initially being the responsibility of just a few people. Functional units are designed to handle the most important incident activities, and as the incident grows, additional individuals are assigned. Effective responders foster a team identity, rather than that of their originating agency or company. That is a primary alliance to the team and its mission—public safety and environmental protection—galvanizes actions. The ICS promotes such a focus as it is “function” based (i.e. coordinate, operate, plan, acquire, etc.). It is important for an Incident Management Team—whether government or industry—to understand that they are not alone, but have the entire resources (equipment, personnel, expertise, etc.) of their government, or industry associations at their disposal. The ICS ensures that such resources are received by an organization capable of handling and deploying them. It also ensures, when government agencies and the Responsible Party are working together in a unified/integrated manner, that limited resources are pooled. The ICS brings both capability and capacity to emergency preparedness and response.

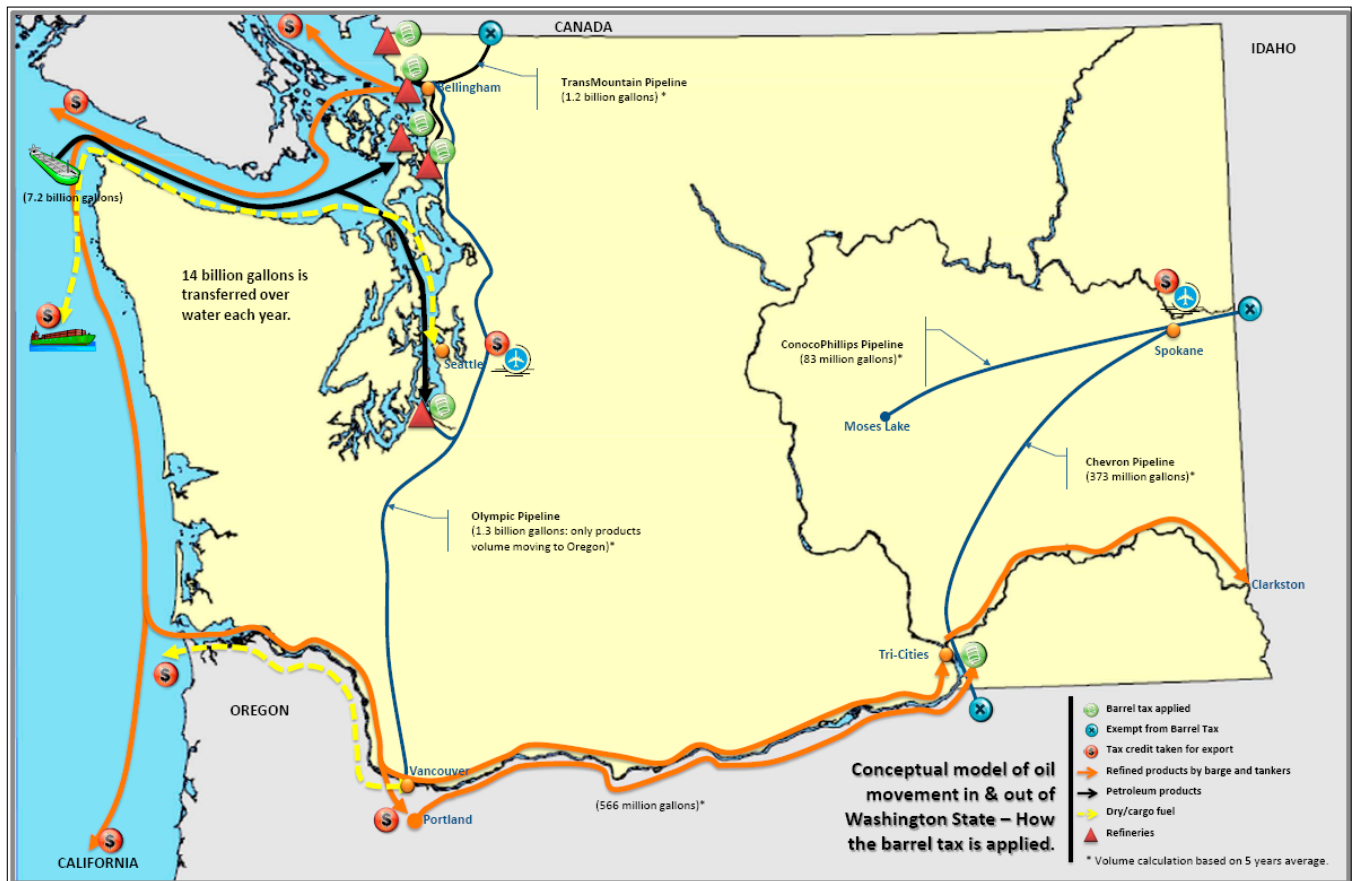
Attachment 4: How governments would respond to a major marine spill

- On the following page is a flow chart outlining what would likely happen if an oil tanker hit a rock and began to leak its cargo – causing a major spill.
- A major assumption in the chart is that a responsible party is identified, willing and able to take on leadership of response work for the duration of the cleanup.
- There are a number of reasons why this may not be the case, including a mystery spill where no responsible party is identified, company bankruptcy due to cleanup costs, and limits of liability that dictate just how much a responsible party has to pay towards a spill.
- If a responsible party does not lead, then the Canadian Coast Guard would shift from being the Federal Monitoring Officer to the On-Scene Commander.
- It is very unclear how the province would engage in a Coast Guard-led response, since the Coast Guard does not recognize the Incident Command Structure.
- The province – through the Ministry of Environment – may be limited to an advisory on environmental impacts, through Environment Canada channels (the Regional Environmental Emergency Team). This would not allow for the province to have a direct role in ensuring that provincial interests are being considered and addressed.
- It is inconsistent with international best practices; that all directly impacted parties play a role through an Incident Command Structure.

A MAJOR Spill in the Marine Environment in the Canadian North Pacific



Attachment 5: Conceptual model of oil movement in and out of Washington State



Endnotes for this section

- 1 <http://www.tc.gc.ca/eng/marinesafety/menu-4100.htm>
- 2 <http://www.theglobeandmail.com/news/national/british-columbia/robertson-seeks-to-protect-vancouver-from-increased-tanker-traffic/article2418663/print/>
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- 18 http://www.oilspilltaskforce.org/docs/notes_reports/Final_US_Canada_Transboundary_Project_Report.pdf
- 19 B.C. ministry of Environment September 2010 Assessment of the Enbridge Northern Gateway Pipeline.
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- 33 Long-Term Ecosystem Response to the Exxon Valdez Oil Spill. By: Peterson, Charles H., Rice, Stanley D., Short, Jeffrey W., Esler, Daniel, Bodkin, James L., Ballachey, Brenda E., Irons, David B., Science, 00368075, 12/19/2003, Vol. 302, Issue 5653
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- 45 http://www.oilspilltaskforce.org/docs/notes_reports/Final_US_Canada_Transboundary_Project_Report.pdf
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- 48 http://www.oilspilltaskforce.org/docs/notes_reports/Final_US_Canada_Transboundary_Project_Report.pdf

- 49 <http://www.env.gov.B.C.ca/eemp/resources/strategies/oilstrat.htm>
- 50 [http://www.legis.state.ak.us/basis/folioproxy.asp?url=http://www.jnu01.legis.state.ak.us/cgi-bin/folioisa.dll/aac/query=\[group+18+aac+75!2E438!3A\]/doc/{@1}/hits_only](http://www.legis.state.ak.us/basis/folioproxy.asp?url=http://www.jnu01.legis.state.ak.us/cgi-bin/folioisa.dll/aac/query=[group+18+aac+75!2E438!3A]/doc/{@1}/hits_only)
- 51 Program staff include 6 in the Director's Office, 51 for contaminated sites, 39 for industry preparedness, 34 for prevention and emergency response, and 16 for response fund administration.
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- 65 http://www.uscg.mil/npfc/docs/PDFs/Reports/Liability_Limits_Report_2010.pdf#Figure10
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- 69 http://www.uscg.mil/npfc/Response/RPs/limits_of_liability.asp
- 70 <http://www.lethagencies.com/calculator.asp?Port=SUEZTREG>
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World-leading on-land spill preparedness and response systems for British Columbia

Purpose

The purpose of this discussion paper is to look at terrestrial (land based) spill risk in the context of current and future resource transportation activity. This paper assesses the risks, asks what can be learned from other jurisdictions, and explores what is needed from government to become a leader in spill prevention, preparedness, and response on the land base (herein referred to as spill management).

Scope

The paper examines the risks posed to B.C.'s terrestrial environment from current and future resource transportation activity and presents a summary of proposed improvements to terrestrial spill management. It represents a starting point for discussion with industry and Canada towards building a world leading terrestrial spill management system for B.C.

Intended use:

- Provide an update on the policy direction being considered by the Ministry of Environment for industry funded and enhanced terrestrial spill management;
- Inform discussions on areas where procedures, policies, legislation, and programs can be enhanced;
- Inform discussions with federal government and industry partners regarding B.C.'s expectations related to terrestrial spill preparedness and response; and,
- Inform B.C.'s position with respect to the Enbridge Northern Gateway Pipelines and Kinder Morgan Trans Mountain expansion pipeline projects.

Introduction

The safe transportation and use of hazardous materials—including petrochemicals, such as oil and natural gas—is critical to British Columbia's economy and way of life. Whenever hazardous materials are present, the possibility of a spill into the environment exists. While public interest focuses most heavily on the risks posed by oil tankers at sea, there are risks that exist in the terrestrial environment as well; an area where the province has significant management responsibilities. Major resource developments in the province's northeast, coupled with proposals to open new and expand existing transportation corridors for petrochemicals, makes it timely for the province to consider its terrestrial spill management capacity.

The purpose of this paper is to look exclusively at the spill risk in the context of the transportation and use of hazardous materials on the land, examine lessons from neighbouring jurisdictions, and outline the industry-funded terrestrial spill response policy being explored by staff in the Ministry of Environment.

While the Enbridge Northern Gateway pipelines and the anticipated Kinder Morgan Trans Mountain pipeline expansion proposals are not the only reason for looking at strengthening terrestrial spill response,

these projects make it imperative that the province put in place policy tools that adequately address the inherent risk of spills linked to the transportation of petrochemicals and other hazardous substances.

Background

Transportation and use of hazardous materials

Hazardous materials include chemical, biological, radiological explosives, toxic substances, flammables, and corrosives, which are stored, manufactured, transported, recycled and handled in B.C.¹ Their use is critical to B.C.'s economy and way of life. The use and transportation of hazardous materials in B.C. led to a total of 3,492 spill incidents being reported to the Ministry of Environment in 2010/2011.¹ Since 1992/1993, the average number of annual spill reports has ranged from between 3,000 and 4,000.²

In discussing hazardous materials in the land environment, attention almost always focuses on the transportation of oil and other petrochemicals, particularly by pipeline, rail and road. Such a focus is appropriate, both given the growing petrochemical industry in B.C., but also because the risks and response capacity for petrochemical spills are – at least at a high level – common for all hazardous materials.

The transportation of hazardous materials is poised to expand. Using pipeline developments as a measure, there are a number of proposals that, if approved, would dramatically increase the movement of natural gas, condensate and Alberta oil through B.C. These proposals, which add to an existing network of liquid and gas pipelines, include:

- 1 The Enbridge Northern Gateway Pipelines project, which would move over 500,000 barrels of crude oil per day in an east-west pipeline out of Alberta's oil sands to tankers in Kitimat, and 193,000 barrels of condensate in a west-east pipeline from tankers in Kitimat to Alberta.³
- 2 The Kinder Morgan Trans Mountain Edmonton-Vancouver pipeline expansion project that would increase its crude oil shipments from 300,000 barrels per day up to 850,000.⁴ Previously, this expansion had referenced adding a northern diversion to Kitimat at the B.C.-Alberta border.

The Ministry of Environment's Environmental Emergencies Response Program (the Program) operates under the assumption that approximately 30 per cent of all goods transported in B.C. are hazardous. Growing Asian markets and the province's push to be the Pacific Gateway for North America are leading to increased transportation of all types of goods through B.C. It is expected that this increase, in addition to the above-mentioned pipelines, will lead to a corresponding increase in the transportation of all types of hazardous materials.

The risk of a spill

The Program manages – either through on-site response or remotely through oversight of spiller response – between 3,000 and 4,000 spill reports per year. Reported spills can range from small (minor leaks resulting from motor vehicle accidents) to large incidents (such as the 2005 train derailment into Cheakamus River⁵). With the recent increase in large-scale industrial development (e.g. Northern Gateway Pipelines proposal) and the associated transportation of hazardous substances, whether by road, rail or pipeline, there is a very real likelihood that the incidence of spills will increase in the coming decade.

While terrestrial spills can be mitigated, they cannot be completely avoided. They are a feature of a modern economy. Spills can occur for a number of reasons, including as a result of general use, accidents

.....
¹ Any substance spilled in sufficient quantities and receiving environments can have environmental and public safety impacts. The Ministry of Environment's Environmental Emergency Program responds to all types of spills not just hazardous materials (e.g., grain, milk, chlorinated water, sewage).

(including ruptures), unsafe disposal, derailments, equipment failures, fire, human error, vandalism, and natural occurrences.

Depending on the location of an incident, a spill can put public safety and human health at risk, and/or the environment, including species at risk, waterways, wetlands, protected areas, and important habitat.

Returning to the pipeline example above, there have been a number of recent high profile pipeline spills in other jurisdictions that point to the importance of robust terrestrial spill management capacity in areas where pipelines are present. Examples are:

- July 2010, an Enbridge pipeline in Michigan ruptured and leaked 20,000 barrels of oil over 17 hours; the oil then spread over a 60 kilometre stretch of the Kalamazoo River. This was a large incident, and cleanup cost the company US\$767 million.^{6,7}
- May-June 2012, a series of three relatively small spills in Alberta over a short period – one at 1,450 barrels of oil, a second at 5,030 barrels, and a third between 1,000-3,000 barrels.⁸

These spills point to the need to ensure: (1) industry is well-prepared for those rarer, but major spills; (2) there is response capacity available for multiple incidents at once; and, (3) the provincial government has the resources it needs to effectively verify industry prevention, preparedness, and response activities.

Existing spill management capacity⁹

The province's spill response program protects human health and the environmental quality of the province's water, land, and air resources by: (1) monitoring, augmenting or taking over a response to spills; and, (2) developing tools to prevent, prepare for and respond to spills. It works closely with other provincial and federal agencies, industry, local government and stakeholders.

Note: *The Program also provides central emergency planning for other environmental and public safety threats, including: (1) water-related debris flows; (2) erosion and accretion; and, (3) submarine slides. It is available to support other provincial agencies in the event of: (1) flood hazards, (2) landslides, (3) dam safety issues; and, (4) seismic threats.*

The federal government has responsibility for spills to federal lands as well as jurisdiction over migratory birds and fish and their habitats. Additionally, the federal Species at Risk Act mandates the protection of identified species at risk; species which could be affected by a terrestrial spill. For spills to lands under provincial jurisdiction, Environment Canada and Fisheries and Oceans Canada would be expected to provide professional advice and guidance to spill responders in relation to those species and habitats under their jurisdiction.

Industrial operators that store, manufacture, transport, recycle or handle dangerous goods, hazardous wastes, or hazardous chemicals should prepare a response plan to respond to emergencies involving the accidental release of these substances. These plans should identify potential hazards, develop systems for preventing accidents, provide appropriate mechanisms for minimizing risk, loss, and damage, and provide an incident management structure to guide response activities. Plans are not currently a requirement, nor are voluntary plans reviewed by the Program.

When a spill occurs, the responsible party is expected to: (1) report the spill as required under provincial legislation; (2) implement its plan; and, (3) take reasonable steps to contain the spill and restore the environment to its original condition. If the Ministry incurs costs while augmenting or taking over a

response, the responsible party is expected to pay the full costs incurred by the province when assistance is provided (polluter pay principle).

When the system is working well the responsible party and its contractors implement a plan that fully restores the environment to its original condition, the program verifies cleanup to ensure provincial interests are protected, and the responsible party pays all the costs associated with cleanup and restoration (including all program costs).

The system does not always work as it should. The responsible party does not always do what is required to prevent, prepare for, and respond to spills in a timely and adequate manner. Sometimes the responsible party is unwilling or unable to respond effectively and fully. In some instances a spill may not present a high enough risk for the program to fully verify that an effective response has taken place. Lastly, disputes could arise between the responsible party and the program regarding how much should be paid for cleanup and restoration.

The Ministry of Environment has reviewed areas where terrestrial spill management could be enhanced to avoid these issues, and ensure that the system works as it should all the time.

Lessons from neighbour jurisdictions¹⁰

A scan of neighbouring jurisdictions took place earlier this year. Those jurisdictions surveyed were Alaska, Washington, Oregon, California, and Alberta. Responsibilities for prevention and responding to environmental spills are specific to each jurisdiction; however, general principles and categories can be described. These descriptions provide B.C. with direction on how it may wish to organize and strengthen its capacity.

Near complete implementation of the polluter pays principle was a common theme across all the states surveyed. Not only are responsible parties required to cover all cleanup costs in these states, but the industries that create the spill risk must pay into special accounts – often through a per barrel levy on the transportation of petrochemicals. These accounts partially or completely fund state spill management capacity, including prevention and preparedness activities, as well as response (Alaska, Washington, California, Oregon, and Hawaii).

With industry funding, states are able to take on more spill prevention and preparedness work. For example, they can use funding to verify industry plans, support geographic response planning, conduct exercises and drills, and maintain readiness in all strategic locations.

Industry funding has been designed to match spill management to the risk that exists. State programs are:

- Alaska has 82 staff (36 emergency responders); approximately US\$9 million annual capital budget; and, a US\$50 million response account.
- Washington has 70 staff (28 emergency responders); approximately US\$12 million annual capital budget; and, a US\$9 million response account.
- California has 150 direct emergency response staff; approximately US\$30 million annual capital budget; and a US\$50 million response account.

Oregon and Hawaii, as well as Alberta, all maintain programs that appear to be smaller or similar in scope to B.C. There are numerous possible reasons for why neighbouring programs are larger and smaller than what is in place in B.C. These are: varying degrees of federal support and local capacity; differences in the scope of program coverage (e.g., some have contaminated sites and marine capacity, while others do not); and, differences in the extent of risks, both in terms of hazardous material volumes and activities, as well as geographic conditions.

The examples of Alaska, Washington, and California reveal that some of B.C.'s neighbouring jurisdictions are better protected than others. Further, all the neighbouring US states have robust industry funding models in place that allow them to promote resource development without putting spill management costs directly onto residents.

Making B.C. a leader in oil spill response standards

At the current level of resourcing, the existing B.C. spill response program may not be large enough to respond to any growth in the volume of spills, nor the potential for concurrent major incidents. To assess options related to program enhancements, the different, and in some cases more extensive approaches taken among neighbouring US states were examined. The need to consider resourcing options from the private sector to strengthen provincial spill management capacity became even more acute as the full extent of potential new resource development and hazardous material transportation became clear.

Ministry staff are in the process of reviewing options to implement what is being referred to as industry funded and enhanced spill management for the terrestrial environment. Under this model, industry would be required to support government spill management costs (prevention, preparedness, response and natural resources damages), as well as maintain robust spill response capacity of its own through an industry-funded spill response organization. Industry funding would be provided to the province's Environmental Emergency Program so it could more effectively verify industry preparedness and response activities, as well as maintain and execute its own response capacity.

Note: *Transport Canada currently requires that marine operators maintain membership in and fund an industry funded spill response organization for the marine environment. B.C.'s proposal can be clearly distinguished from Transport Canada's requirement because its focus is the terrestrial environment. Aspects of B.C.'s approach may overlap onto the shoreline, but only so far as it complements federal efforts.*

Principles

- Polluter pays principle – industrial and commercial sectors that pose a risk to the environment and public safety have a responsibility to address risk and redress impacts to human health and the environment. These costs should not be left to the public.
- Emergency management is a shared responsibility – businesses and government whose interests are directly affected by a spill (or threat) and have capability to respond have a shared role in emergency preparedness and response.
- The level of emergency preparedness is linked to the known risk – Risk should be assessed and managed appropriately.
- Response strives for a net environmental benefit – Response work should benefit people, property and the environment. Human health and safety cannot be compromised.
- Effective spill management is good for the economy – With public trust in spill prevention, preparedness and response comes greater public support for those economic activities that bring some element of risk. Industry can take comfort in knowing that there are clear rules and a consistent level playing field.

Policy proposal

Industry-funded and enhanced spill management has three central elements. All three elements require industry funding. These changes would address some key issues facing B.C.'s terrestrial spill response

regime, including new: requirements for industry to have tested and government approved response plans; and, provincial response capacity that matches the known risk, including staff and resources to address all types of spills.

The central element is industry funding for spill management. This funding would be directed at these three areas:

- 1 An Industry funded terrestrial spill response organization. Funds would be used to:
 - *Maintain region-specific spill response capacity (e.g., equipment, personnel) linked to risk assessments, best practices and continuous improvement;*
 - *Maintain geographic response plans (approved by government); and,*
 - *Participate in scheduled and announced exercises that verify capacity.*

The objective of this element would be to ensure that adequate capacity and expertise is maintained by industry, with that capacity strategically located across the province to ensure a timely response to any terrestrial spills. The specific design of the organization would be the prerogative of industry; however, the Western Canada Marine Response Corporation (WCMRC) is a model that would be a critical reference point. WCMRC is a Transport Canada certified marine spill response organization. West coast marine vessels of a certain size and oil handling facilities are required to join and fund WCMRC, which is required to maintain marine spill response capacity up to Transport Canada tested response standards. This new terrestrial-based capacity would likely be made available to members first, but also other entities that happen to cause a spill. Members pay so that capacity is available. Services would still have to be contracted, even by members. This way, good actors would not be subsidizing the response costs for those entities that spill more often.

Key considerations:

- *How will industry funding be collected? Will it be a levy on the transportation of hazardous materials? What materials will be included? What size of company would be included (e.g., would small operations be exempt)? Can a levy collected for a certain material be used only for related spill management activities?*
 - *Are there any issues related to jurisdiction that could impact the design of this program?*
- 2 An enhanced provincial Environmental Emergency Program.
Funds collected from industry would be used to:
 - *Finance capital costs, including program staff and equipment;*
 - *Build a provincial government spill response and recovery fund that would be capped at a certain limit and available to government when a spiller is unidentified, unable, or unwilling to respond;*
 - *Finance program activities, such as verifying industry capacity, research (e.g., risk assessments and innovation), and stakeholder engagement;*
 - *Policy development that continues to improve the program and,*
 - *Ongoing spill prevention and preparedness activities (e.g., provide initial spill response equipment and training to local communities).*

This element of the proposal is intended to ensure that the Provincial spill response program is resourced to fulfill its responsibility to oversee the adequacy of industry spill response actions and to assume the lead role in spills where the responsible party cannot be identified or is unable or unwilling to respond. Oversight of industry is critical to maintaining public confidence in the adequacy and timeliness of terrestrial spill response.

Key considerations:

- *What is the level of comfort with industry providing funding directly to government programs?*
- *Where will industry funding be held? What mechanism, be it a trust fund or special account or other, is best suited for this model?*
- *What level of funding would be required for (A) an enhanced Environmental Emergency Program; and, (B) a provincial spill response and recovery fund?*
- *What budget and staff increases are required to bring the Environmental Emergency Program up to a size that better reflects the risk in B.C.?*
- *How will this added terrestrial spill management capacity complement existing marine environment spill management capacity?*

3 Natural Resources Damages Assessment that:

- *Broadens the government and industry's focus from removal and remediation to include restoration of damaged species, habitats, and loss of public access/use;*
- *Establishes a standard pre-determined formula to cost damages to the environment that are caused by hazardous materials;*
- *Provides certainty that a responsible party will address all costs associated with a spill, and removes time and debate over reasonable restoration (in extreme cases it avoids costly litigation); and,*
- *Ensures public confidence in the polluter pays principle.*

At the time that a spill occurs, dialog very quickly turns to how much it will cost to remedy its impacts. Uncertainty and debate over reasonable costs often consumes valuable time. A lack of clarity on financial accountability also leads to uncertainty for the responsible party, weakens public confidence in the polluter pays model and can in extreme cases lead to costly litigation.

Through the establishment of appropriate policy and legislation, the Province can describe standard methods by which damage assessments are standardized and easily calculable based on common formulae. Examples of just such an approach exist in a number of neighbouring jurisdictions where it has contributed greatly to the successful timely resolution of spill incidents.

Enbridge Northern Gateway Pipelines proposal

The pipeline portion of the Enbridge proposal would transport crude oil and condensate across the middle latitudes of B.C. crossing lowland river systems, rolling plateaus, flat plains, large lakes, forest, and mountain ranges.

If approved, the project would significantly increase the volume of hazardous materials transported in the province and introduce it to new remote areas. To adequately mitigate the new risk that both these factors would bring, additional spill management capacity would be required.

Proposals such as this point to a need for industry funded and enhanced terrestrial spill management. Such a policy would ensure that spill management capacity is linked to the risk that exists. As new projects come on line, it would be up to industry to ensure that appropriate prevention, preparedness and response capacity is available where it is needed. This is consistent with the polluter pays principle because it requires that industry – not government – fund the risk that such projects create.

The proposed policy would strengthen the province's oversight role by requiring that the program regularly verifies industry capacity. Further, it would ensure that a stable source of funding is available to enable the program to have a strong presence on-scene when a spill occurs. This role for government is

critical to protecting the provincial economic, social and environmental interests that can be impacted when a spill takes place.

The July 2010 Enbridge spill into the Kalamazoo River underscores the need for strong government oversight. In preliminary content from its anticipated report, The US National Transportation Safety Board has stated that this major spill can be attributed to “pervasive organizational failures” by Enbridge, as well as “weak federal regulations” (July 2012).¹¹

The Board found that the spill was allowed to persist for 17 hours because Enbridge employees did not follow appropriate shutdown procedures when pressure decreased in the line. It has also been revealed that proper preventative measures had not been taken. For example, Enbridge had failed to properly assess the state of the line that ultimately ruptured; a cause for particular concern given that cracks had first been identified in it – and gone unrepaired – in 2005.¹²

Government oversight can be designed to ensure these issues do not occur by routinely verifying that industry spill management capacity is up to date and leading edge. The unfortunate events on the Kalamazoo serve as an important lesson to B.C.; major projects with significant hazardous material components require strong government regulations and verification. Industry funding and enhanced spill management achieve these requirements, and do so with limited or no costs to the public.

It also provides consistency to industry and assurance that all companies are operating under the same set of rules. Effective spill management requirements serve British Columbians and industry by providing opportunities for economic activities with fewer corresponding risks.

Work to date

Ongoing networking and joint planning with neighbouring jurisdictions have provided an opportunity for Ministry staff to learn about the extensive use of industry funding models in Alaska, Washington, Oregon, California and Hawaii. Formal jurisdiction scans have also been completed.

Next Steps

These steps have been identified as being required to bring this proposal from concept to reality. Much of this work can occur concurrently.

- 1 Immediately Strike a Terrestrial Spill Response Working Group (for duration of policy development) – to be responsible for development and implementation of revised policy and legislation including consultation with industry.
- 2 Engagement with key industry associations and federal agencies (ongoing) – an engagement strategy is nearing completion and will be ready to be initiated imminently.
- 3 Complete, in-depth technical analysis of policy and options.
- 4 Public consultation on Policy Intentions Paper.

Endnotes for this section

- 1 B.C. Provincial Emergency Program Emergency Coordination Centre, Annual Operational Statistical Summary 2010/2011
- 2 B.C. Provincial Emergency Program Emergency Coordination Centre, Total Incidents 1991/92 to 2010/11
- 3 B.C. ministry of Environment September 2010 Assessment of the Enbridge Northern Gateway Pipeline
- 4 <http://www.cB.C.ca/news/canada/british-columbia/story/2012/04/12/B.C.-kinder-morgan.html>
- 5 http://www.env.gov.B.C.ca/eemp/incidents/2005/cheakamus_05.htm
- 6 <http://www.cB.C.ca/news/canada/edmonton/story/2012/06/22/edmonton-enbridge-leak-kalamazoo-river-report-united-states.html>
- 7 http://www.nts.gov/news/events/2012/marshall_mi/index.html
- 8 <http://www.theglobeandmail.com/globe-investor/third-oil-spill-fuels-calls-for-alberta-pipeline-review/article4352760/>
- 9 <http://www.env.gov.B.C.ca/eemp/>
- 10 In February 2012, B.C. Ministry of Environment sent out questionnaires to spill management programs in Alaska, Washington, Oregon, California, Hawaii, and Alberta. Responses to these forms informed this section.
- 11 <http://www.nts.gov/news/2012/120710.html>
- 12 <http://www.nts.gov/news/2012/120710.html>

Proposed Northern Gateway Pipeline (NGP) by Enbridge – Joint Review Panel Aboriginal Issues

Summary

The relationship between British Columbia and First Nations has evolved to include meaningful consultation with First Nations on Crown actions that impact land and resources, as well as the greater opportunities for First Nation participation in social and economic development. The Province takes an inclusive approach to land and resource management, including a commitment that First Nations be involved in decision-making processes. British Columbia shares revenues from resource development and negotiates economic development agreements with First Nations in an effort to stimulate local economies and improve social conditions.

British Columbia acknowledges the increasing role that responsible business practices can play in fostering strong relationships with First Nations and in building solid foundations for effective consultation processes, business partnerships and informed decision-making.

Background

Unlike other provinces, treaties largely have not been concluded in British Columbia. In the absence of treaties, the courts have confirmed that Aboriginal rights continue to exist. However, the courts have not clearly defined the nature of those rights and where they exist. Case law requires British Columbia to consult with First Nations on any decision that may infringe their treaty or Aboriginal rights. Where government makes a decision that will infringe rights, there is a legal duty called “accommodation,” which can include mitigation measures. These legal requirements impact resource development and government decision-making.

In response, British Columbia has developed an innovative and flexible approach with First Nations that has had a large degree of success in shifting from a primarily adversarial relationship to one that is more proactive and respectful, benefitting all parties. This approach has led to a suite of strategic agreements with First Nations that can facilitate consultation, support more effective land-use decision processes, share provincial revenue, and provide tools for First Nations to partner with industry and to participate in the economy.

Principles

Given this background, there are three key principles that guide how British Columbia interacts with First Nations on resource development projects:

- 1 Legal requirements to consult and accommodate First Nations for impacts on Aboriginal and treaty rights must be addressed;
- 2 Proponents should make best efforts to avoid or mitigate the impact of a project on Aboriginal and treaty rights; and
- 3 First Nations should have the opportunity to benefit from major developments on Crown land; specifically, proponents should make best efforts to conclude agreements that provide training, employment and other economic benefits to First Nations.

Building Relationships with First Nations

Proponents have an important role in ensuring First Nations are involved in decision making and receive benefits from development on Crown land. More importantly, appropriate First Nation-proponent partnerships can provide significant benefits to all parties.

To increase general understanding of industry's role, the province has collaborated with the Business Council of British Columbia to develop the best practices summarized below.

Increasingly, companies recognize that building relationships with First Nations makes good business sense, and are taking steps to form effective relationships that result in mutual benefits. Benefits for industry include:

- 1 Certainty for processes: a positive relationship can facilitate certainty for business and other processes that result in timely business operations and decisions while averting costly delays. Unmitigated potential impacts to Aboriginal rights can delay decision-making and other related processes.
- 2 Access to a labour force: resource companies operating in rural areas face potential shortages of skilled labour. First Nations communities are located throughout British Columbia, including in rural and sometimes isolated parts of the province. Their populations are young and are experiencing rapid growth – about three times the rate of the non-First Nation population. This means First Nations communities can offer a local and available workforce.
- 3 Access to services: the size, terrain and geography of British Columbia and distribution of population also present challenges in accessing services. Often, the community located closest to a project is a First Nation community which may be able to provide a range of services that otherwise would be costly to access or in short supply.
- 4 Marketing and social responsibility: some sector organizations and social responsibility programs make it a condition that members form partnerships with First Nations. Benefits of membership include improved access to markets, business partners and services.
- 5 Support for government consultation: a positive relationship between a company and a First Nation can support the Province's consultation obligations. It allows companies to share information about their proposed projects directly with First Nations in a timely manner. And, based on feedback from the First Nation, companies can readily modify plans in order to avoid impacts to Aboriginal rights.
- 6 Access to local knowledge: First Nations hold a wealth of knowledge about the diversity and interactions among plant and animal species, landforms, watercourses and other biophysical features. Companies may benefit from this knowledge in order to build new practices for protecting and conserving resources, including heritage resources.

British Columbia's Expectations of the Proponent

In the context of the opportunity to build mutually beneficial partnerships with First Nations, British Columbia would expect the proponent to:

- 1 Recognize the nature of the First Nations' connection to the land or traditional territories.
- 2 Provide opportunities for First Nations' involvement in the planning of the project, offering greater opportunities to address cultural issues, economic priorities, and environmental values.
- 3 Seek First Nations' input into, and involvement in, environmental protection measures, including adaptive management regimes, potential remediation measures, and environmental monitoring.
- 4 Modify development plans to mitigate potential impacts on Aboriginal rights. For example, should consultation reveal that the project may need to be modified to protect a culturally sensitive area, the proponent would be expected to modify plans accordingly.
- 5 Establish a commitment to provide employment, training and education opportunities to First Nation community members.
- 6 Provide financial support for First Nations' participation in project planning, development and review.
- 7 Establish a commitment to enter into service and supply arrangements to the project that would build the economic capacity of a First Nation and meet the needs of the company and the industry.
- 8 Provide financial support for environmental assessments or traditional use studies by First Nations.
- 9 Enter into protocols for engaging, sharing information and clarifying roles and responsibilities.
- 10 Provide the opportunity for First Nations to participate in equity, profit or benefit sharing in the project through such vehicles as Impact and Benefit Agreements.
- 11 Produce a comprehensive and accurate recording of the engagements with First Nations.

Conclusion

British Columbia expects the proponent to build strong, enduring relationships with First Nations potentially affected by the Northern Gateway Pipeline project. Through those relationships, there should be discussion of possible impacts on Aboriginal rights, implementation of measures that would mitigate those impacts, and the development of impact management and benefit agreements.

Economic Benefits: Enbridge Northern Gateway Pipeline

Enbridge applied to the National Energy Board (NEB) for approval to build a \$5.5 billion Northern Gateway Pipeline on May 27, 2010 (this analysis was prepared prior to the July 20, 2012 announcement by Enbridge regarding pipeline safety). Public hearings began in January 2012, with final arguments set for the spring of 2013. NEB's Joint Review Panel Report will be made in late 2013, setting the stage for a final Federal Cabinet decision in 2014.

For British Columbia to develop its final argument for the spring of 2013, the Province is reviewing the fiscal and economic implications of the pipeline and what they could mean to every citizen of British Columbia.

The following paper is targeted specifically at examining the distribution of fiscal and economic benefits and how they align with the inherent risks to our province.

Environmental impacts are discussed generally in this paper. More in-depth analysis can be found in the accompanying analysis on marine and land spill responses.

The Northern Gateway Pipeline is being built to carry a large amount of bitumen from the oil sands in Alberta. Bitumen, or "heavy oil," represents a significant risk and cost to British Columbia should a spill occur on land or sea. Recovery from a "heavy oil" spill in British Columbia would result in significant direct and indirect long-term costs. This fact differentiates bitumen from other commodities such as potash or grain, that are also shipped through our Province from other jurisdictions.

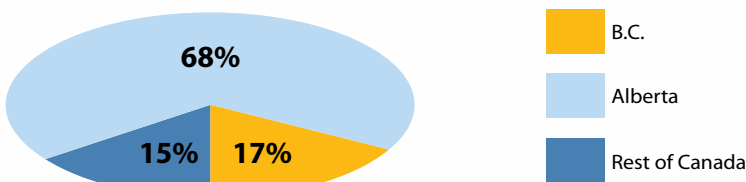
The Project

The Project consists of two 1,172 kilometre pipelines located in one right of way. About 670 kilometres of this pipeline would be built in British Columbia. Enbridge estimates that once fully operational the pipeline will carry 525,000 barrels per day (bbls/d) of bitumen from the Alberta oil sands to Kitimat for export, and return 193,000 bbls/d of imported condensate from Kitimat to Alberta.

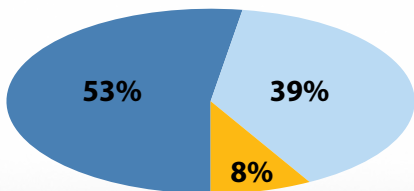
The Project is forecast to provide significant benefits to governments, communities and individuals through taxation and royalty revenues, employment and indirect and induced jobs. It is important to note that British Columbia is assuming a majority of the risks associated with the transportation of bitumen to the coast by pipeline, 100 per cent of the risk in exporting bitumen by tanker from our coastline, and a minority of the fiscal and economic benefits.

Economic Benefits to B.C., Alberta and Canada

Gross Domestic Product = \$270 billion (over 30 years)



Incremental income = \$81 billion (over 30 years through provincial and federal government taxation)



Economic Research

According to a research report by Wright Mansell², a Calgary based firm, the pipeline is likely to generate \$81 billion in additional income through provincial and federal government taxation over a 30 year period between 2016 and 2046.

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.

The remaining \$45 billion in provincial revenues are split with \$32 billion (39.5 per cent) to Alberta, \$6.7 billion (8.2 per cent) to British Columbia, \$4 billion (4.9 per cent) to Saskatchewan, and the remaining \$4 billion split among the remaining provinces, who benefit from providing labour or services to the project.

British Columbia's share is 8.2 per cent of the total \$81 billion in incremental taxation revenue.

In addition, prices are forecast to rise between 2016 and 2046 due to the creation of a new market for Canadian oil in Asia. According to the Wright Mansell report, the price lift is estimated at \$107 billion, split \$103 billion to Alberta and \$4 billion to Saskatchewan.

According to Wright Mansell's analysis, the Pipeline's economic benefits to Canada are:

Economic Benefit	Benefit to Canada
Gross Domestic Product (GDP) for first 30 years	\$270 billion
Additional labour income for first 30 years	\$48 billion
Employment (person years) for first 30 years	558,000
Government revenue (federal and provincial) for first 30 years	\$81 billion
Oil Industry Net Incremental Revenue for first 10 years	\$28 billion

British Columbia's share of the total \$270 billion generated in Gross Domestic Product (GDP) over the 30 years is about 17 per cent in exchange for 100 per cent of the marine risk and a significant proportion of the land-based risk. The: \$270 billion is equivalent to the total output of the entire Canadian economy over two months.

In terms of employment, the Project is expected to generate 558,000 person years of employment over the 30 years. According to Wright Mansell, the Enbridge pipeline will increase employment across Canada and 25% of the employment benefit will accrue to British Columbia. However, as the majority of this employment is during construction, B.C.'s long-term employment gain is a small fraction of the total jobs created.

Based on this report, the fiscal and economic benefits of the proposed project are significant and long term for the national economy. However, for British Columbia, the degree of environmental risks compared to the level of fiscal and economic benefits is greatly imbalanced.

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² Wright Mansell Research Ltd., Public Interest Benefits of the Enbridge Northern Gateway Pipeline Project, March 2010, included as Appendix B of Enbridge Application, Volume 2: Economics, Commercial and Financing, www.northerngateway.ca/assets/pdf/application/Master_Vol%202_Final_11May10.pdf

British Columbia versus Alberta

Although Enbridge attributes jobs to British Columbia directly, the actual labour and taxation associated with the construction employment may come from Alberta or other parts of Canada. There is no guarantee that British Columbians would fill these positions.

Enbridge estimates the general benefits to British Columbia as economic, social and environmental in Appendix 1 at this end of this section.

Generally, Enbridge's analysis shows both Canada and Alberta gain benefits that exceed those to British Columbia even though the majority of environmental risk related to bitumen transportation would be located in this province, as the pipeline crosses our land before being shipped off of our coastline.

Economic Principles

British Columbia has established several principles to guide this type of development. If these principles are applied to the Project, the Province is optimistic British Columbia and its citizens can realize financial benefits that more appropriately reflect the risks the province will bear.

The reality is the Province is obliged to build on its economic strengths so that growth and investment can flourish in a manner that delivers optimal fiscal, economic and social benefits necessary for job creation and skills development for all British Columbians.

As a safe haven for investment in a time of global uncertainty, British Columbia needs to leverage its strengths in the area of natural resource development, multiculturalism, education and transportation infrastructure to create the synergies required to drive our economy longer term. This includes a more equitable fiscal arrangement for the Northern Gateway Pipeline.

British Columbia is in a strategic position as Canada's gateway to Asia Pacific. Today, the Pacific Gateway is the key to economic development and diversification for all of Canada. This is the time to promote and foster trade with Asia. Economic growth cannot be done in isolation, and British Columbia has leadership to ensure that an equitable share of the gains flows into our economy.

In order to keep up with forecast demand from the growth in Asian economies, British Columbia must continue to invest in critical infrastructure. The Province together with the Government of Canada is doing just that. British Columbia's port infrastructure provides a competitive advantage by facilitating trade with growing markets in Asia.

In fact, renewing our infrastructure is the second pillar within the Province's recently-announced strategy, *Canada Starts Here: The BC Jobs Plan*. These pillars are:

- 1 Enable job creation across British Columbia;
- 2 Strengthen our infrastructure to get goods to market; and
- 3 Expand markets for British Columbia products and services.

Long-term jobs and investment require converting the Province's strengths into competitive advantages, and turning opportunities into lasting economic benefits for all British Columbians while maintaining strong fiscal discipline. In the context of the current Enbridge pipeline proposal, British Columbia is presented with an opportunity to build a strategic advantage that delivers meaningful, new benefits for the entire province, and all of Canada.

Liquefied Natural Gas

Like our western neighbours in Alberta and Saskatchewan, our government is also focussed on expanding trade with the growing Asian markets. We have an incredible opportunity with our liquefied natural gas reserves to develop a B.C. resource, with B.C. jobs and economic benefits to our province and minimal risk to our land and marine environment. Our priority is to grow our economy, with a sustainable industry that provides jobs for British Columbians and with developers that have partnered with First Nations.

Interest in developing liquefied natural gas has been growing exponentially, and now includes five big proposals that could imply up to 4 trillion cubic feet (tcf) per year of Canadian natural gas exports by 2020.

If the five big plants are built in British Columbia, impact on our GDP is expected to add \$1.5 trillion by 2046, requiring 100,000 persons/year in construction jobs and about 2,700 full time jobs once in operation. The development could imply a capital investment of \$278 billion by 2020 in terminals, pipelines and upstream. This is a B.C. resource, with B.C. jobs, minimal risk and huge economic benefits for British Columbia.

Liquefied natural gas is being developed in a manner that ensures benefits flow to local First Nations and creates local procurement opportunities that will benefit our communities in a fair and equitable manner.

Liquefied natural gas development is British Columbia's top priority. Our anticipated five LNG plants are forecast to produce the equivalent of 2 million barrels of oil per day, roughly the current level of production in Alberta's oil sands.

By contrast, the Enbridge pipeline proposal would generate \$81 billion in additional income through provincial and federal government taxation over a 30-year period, with approximately \$6.7 billion – or 8.2 per cent – coming to British Columbia.

Opportunities for British Columbians

The Enbridge Project proposal presents opportunities that could provide benefits for British Columbians. In light of the national significance of bitumen, the need for access to the coast, and Federal Government support for the Project, commencement of substantive dialogue with the government parties is appropriate.

Port development, spill and marine response programs, marine safety, Aboriginal economic development and access to Asian markets are all areas where the Federal Government has a significant role.

The Federal Government has played a leadership role in the development of oil and gas in Canada, including several accords with both Newfoundland and Nova Scotia. These saw provinces receive an estimated \$3.7 billion in loan guarantees³, non-repayable contribution and interest assistance—dating back to the 1980s and early 1990s.

The 1985 Atlantic Accord allowed Newfoundland to tax East Coast offshore oil development as if it were the resource owner, and gave a guarantee of equalization payments for a 12 year period. The 2005 Offshore Arrangement built on this Accord. The 1986 Canada-Nova Scotia Offshore Petroleum Resources Accord was quite similar to the Atlantic Accord in terms of taxation and included payments for a 10-year period.

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3 Source: <http://www.thetelegram.com/Business/2011-08-20/article-2717041/hibernia-adding-up-for-feds/1>

The great majority of revenue from bitumen transported to the coast will be realized by Alberta because the resource originates in the oil sands. Royalties collected by Alberta in 2010/11 were in the \$3.7 billion range based on a bitumen price of \$62.30/bbl. Alberta can continue to ship oil to United States markets based on the \$62 bbl price range, which is a discounted rate. Should it have access to Asian markets, the price of oil would increase, along with Alberta's royalty revenues.

New resource developments, like the Bakken play in North Dakota, promise increased, new competition for oil from Alberta and Saskatchewan. Forecasts for the Bakken show dramatic increases in production to 2020 and beyond. This new production will result in greater United States self sufficiency of supply and result in less reliance on Canadian oil thus making access to Asian markets through British Columbia critical.

According to Muse Stancil⁴ the consulting firm that estimated commercial costs for Enbridge, "increased prices for Canadian oil would result in annual producer revenues increasing by \$2.39 billion in the first full year of operation and growing to over \$4.47 billion by 2025. The net benefit to the Canadian oil industry would be \$28 billion over the first 10 years of the project's operations alone."

Regional Port and Industrial Development

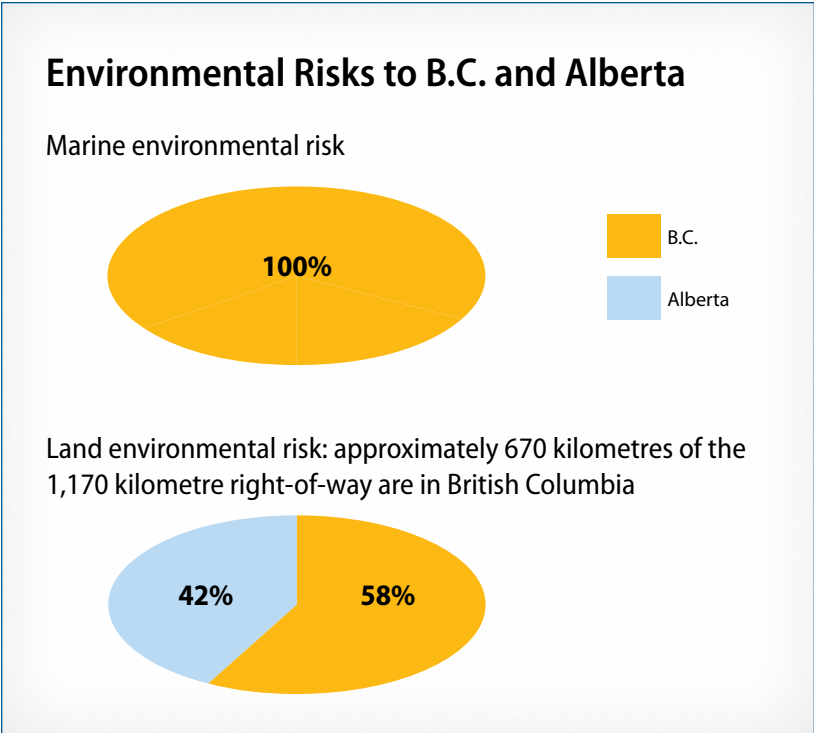
Port and industrial development in the Prince Rupert/Terrace/Kitimat area will stimulate the local economy and create jobs and benefits far beyond the terminus of a pipeline.

A North Western Industrial Zone with the infrastructure to support extensive investment in industrial development and job creation is a must.

The concept is one of a high concentration of industrial activities in an area so businesses can flourish from both internal and external economies. For example, we could see the development of a marine industry and secondary support businesses such as machine shops with First Nations and communities benefiting from economic diversification, increased availability of well-paid jobs and increased local government revenues.

In the North West, the Prince Rupert/Terrace/ Kitimat triangle affords an opportunity to support new industrial development within easy driving distance of established communities that are well suited to support new development.

Empirical evidence suggests that costs of moving goods and economies associated with labour pools, and a proximity to shared natural resources, add to economic development. Over time, industrial clustering results in the growth of associated and interdependent businesses.



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⁴ Source: Enbridge Application, Volume 2: Economics, Commercial and Financing, www.northerngateway.ca/assets/pdf/application/Master_Vol%202_Final_11May10.pdf

For the development of the industrial zone, negotiations with the Federal Government regarding port investment, establishment of a Port Authority in Kitimat, tax incentives for industrial development, and funding of an electrical line to the Port and industrial areas, need to be considered.

Federal Government programs such as Asia Pacific Gateway and Corridor Initiative and other Transfer Payment Programs exist that could be used to fund the development of the Kitimat Port. Recent investments have ranged between \$1 million and \$365 million for strategic transportation infrastructure projects including British Columbia's Lower Mainland initiatives. The principal road and rail connections stretch across Western Canada and south to the United States, key border crossings, and major Canadian ports.

Conclusions

Should British Columbia receive benefits from the Project, they must reflect the risks that the province will face.

Port and industrial development in the Prince Rupert/Terrace/Kitimat Triangle would stimulate the economy of the area and create jobs and opportunities far beyond the terminus of a pipeline.

The probable outcome involves a high concentration of industrial activities in an area so that industries may enjoy both internal and external economies when clustered together.

Initial estimates indicate the Enbridge proposal, a liquefied natural gas industry, and the Kitimat/Prince Rupert/Terrace triangle would result in a minimum of 3,525 new, well-paying jobs in the next ten years⁵.

British Columbia has many opportunities related to developing market access to the coast for both oil and natural gas.

With any development, be it a pipeline or a road, there are risks. The Project presents numerous risks from the public perspective. Yet it also has the ability to strengthen the economy.

The challenge is to ensure that the fiscal benefits to British Columbia are in proportion to the risk that it will incur and that the principles and standards that the residents of British Columbia support are achieved. To succeed, port and industrial development must continue to be supported by Federal Government funding, maximum job creation must be realized for British Columbians, and discipline must be demonstrated to prevent the flow of any excessive fiscal burden to the Province of British Columbia, its communities, and its people.

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5 Source: Wright Mansell Research Ltd., Public Interest Benefits of the Enbridge Northern Gateway Pipeline Project, March 2010, included as Appendix B of Enbridge Application, Volume 2: Economics, Commercial and Financing, www.northerngateway.ca/assets/pdf/application/Master_Vol%202_Final_11May10.pdf and MEM internal analysis on LNG employment

Appendix 1: Benefits for British Columbians as Identified by Enbridge

(<http://www.northerngateway.ca/economic-opportunity/benefits-for-british-columbians/>)

- 4,100 person-years of direct on-site employment in B.C.
- 35,000 person-years of total employment (on-site, purchases, indirect, induced) in B.C.
- Northeast B.C. region:
- 1,150 person years for construction employment; 675 from within the region
- Peak pipeline construction will require up to 818 people
- Peak pump station construction will require 56 people
- 15 jobs for operational employment
- \$112 million in goods and services, Northeast B.C.:
- Equipment rentals—\$26 million
- Camps / Accommodations / Catering—\$30 million
- Clearing / logging / salvaging—\$16 million
- Fuel—\$12 million
- Stockpiling Pipe - \$5 million
- Trucking—\$5 million
- Equipment Parts—\$5 million
- Surveying—\$2 million
- Access Roads—\$4 million
- Other Items and Services \$6 million
- B.C. Central region:
- 5,160 person years of total construction employment; 3,675 from within region
- 1,805 person years of direct construction employment; 500 from within region
- Peak pipeline construction will require 1,322 people
- Operational employment will create 19 jobs
- Purchase of goods and services will create 65 jobs
- \$401 million in goods and services, B.C. Central region:
- Equipment rentals—\$102 million
- Construction Camps / Catering—\$94 million
- Clearing / logging / salvaging—\$61 million
- Fuel—\$42 million
- Stockpiling Pipe - \$15 million
- Equipment Parts—\$20 million
- Surveying—\$7 million
- Access Roads—\$23 million
- Trucking—\$18 million
- Other Items and Services—\$18 million
- Coastal B.C. region:
- 4,025 person years of total construction employment; 2,235 within region
- 1,715 person years of direct construction employment; 515 from within region
- Peak terminal construction will require 419 people
- Peak tunnel and pipeline construction will require 765 people
- \$318 million in goods and services, Coastal B.C.:
- Site grading—\$121 million
- Equipment rentals—\$34 million
- Camps / Accommodations / Catering—\$81 million
- Clearing / logging / salvaging—\$15 million
- Fuel—\$10 million
- Stockpiling Pipe - \$3 million
- Equipment Parts—\$6 million
- Trucking—\$6 million
- Surveying—\$2 million
- Access Roads—\$35 million
- Other Items and Services—\$5 million

