

# Enbridge Northern Gateway Pipeline Project

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## Background Information

This is one of several pipeline project proposals by different companies planned in the northern part of British Columbia. For example, the Pacific Trail Pipelines project is a natural gas pipeline that 15 First Nations band councils have already signed on to a combined 30 percent stake that could realise projected cash flows of more than \$500 million over the 25 year life of the deal for the bands. This project will run west to Kitimat from Summit Lake near Prince George. Enbridge is looking at this project closely, potentially sharing the right of way from near Burns Lake west to Kitimat.

## Enbridge Northern Gateway Pipeline Project

The Enbridge Northern Gateway project consists of two parallel pipelines between an inland terminal at Bruderheim, Alberta and a marine terminal near Kitimat, BC, each with a length of 1,177 kilometers (731 mi). Diluted bitumen (dilbit) produced from oil sands, would be transported from Bruderheim to Kitimat, while natural gas condensate would move in the opposite direction in a smaller pipeline.

- A statistic from the Energy Resources Conservation Board (ERCB) states: “ It should also be noted that pipelines in Alberta have never been safer. In 2009, Alberta posted a record-low pipeline failure rate of 1.7 pipeline failures per 1,000 km of pipeline (considering all substances), bettering the previous record-low of 2.1 set in both 2008 and 2007.” [Source](#)

## What is diluted bitumen or dilbit?

- Bitumen in its undiluted state is very viscous and dense. To create a fluid capable of transportation by pipeline, bitumen must be mixed with a diluent that has much lower viscosity and will keep bitumen from precipitating out of the mixture. Natural gas condensate would be used for this purpose. The blend ratio may consist of 25 to 55% diluent by volume, depending on characteristics of the bitumen and diluent, pipeline specifications, operating conditions, and refinery requirements. Condensate is the most often used diluent in transporting crude oil in western Canada. Dilbit is an industry term referring to diluted bitumen. [MSDS Sheet](#)

## What is Natural Gas Condensate?

- As natural gas comes to the surface, in a gas well, pressure is released and temperatures are lowered, and some of the gas content naturally condenses into light oil called condensate. This naturally occurring hydrocarbon primarily consists of pentane, hexane, heptane, octane, as well as more complex impurities, including benzene, toluene, xylene, ethylbenzene and hydrogen sulfide. This condensate is sometimes referred to as naptha or “natural gasoline”. Condensate is considered a dangerous good, and is classified as a highly toxic substance by the federal

government. It is highly flammable, and under certain conditions, explosive. It is toxic in its liquid form, and vapours are extremely toxic also. [Source](#)

About 520 kilometers (320 mi) of pipeline would run in Alberta and 657 kilometers (408 mi) in British Columbia. It will cross the headwaters of some of British Columbia's most important salmon and steelhead producing watersheds; the Fraser, Skeena and Kitimat. It will cross more than 785 rivers and streams, many of which are important fish bearing habitat, including: Kinuseo Creek, Murray River, Parsnip River, Wicheedo River, Crooked River, Muskeg River, Salmon River, Stuart River, Endako River, Morice River and Thautil River.

- The crude oil pipeline would have a diameter of 36 inches (910 mm) and an average capacity of 525,000 to a maximum of 1,000,000 barrels per day. The condensate pipeline would have a diameter of 20 inches (510 mm) with an average capacity of 193,000 barrels per day
  
- Enbridge expects these pipelines to be completed by 2015 at a cost of at least C\$5.5 billion.
  
- The proposed Kitimat Marine terminal complex would include an oil and condensate tank farm, a pump station and comprise of two marine oil tanker berth platforms. One of the platforms would service "Very Large Crude Carriers". Typically VLCCs carry 2.1 million barrels of oil, the largest, however, can carry approximately 3.1 million barrels and are between 150,000 and 320,000 dead weight tonnes. These ships are up to 340 m long (1000'+). The other platform would service Suezmax-type condensate tankers, typically between 120,000 and 200,000 DWT and carry 1 million barrels and are up to 274 m long.
  
- The expected average number of tanker trips transiting coastal waters would be 220 per year.

Tankers would use one of three main routes to navigate inland coastal waters to reach open ocean:

1. *The Northern Approach* (for tankers arriving from or departing to Asian ports). 158 nautical miles, via Haida Gwaii through Dixon Entrance, Hecate Strait, Browning Entrance, Principe Channel, Nepean Sound, Otter Channel, Squally Channel, Lewis Passage, Wright Sound and Douglas Channel.

2. *The Southern Approach* (for tankers arriving from or departing to west coast ports south of Kitimat) 98 miles, via Queen Charlotte Sound, Hecate Strait, Caamano Sound, Campania Sound, Squally Channel, Lewis Passage, Wright Sound and Douglas Channel.

3. *The Southern Approach (via Principe Channel*, in weather conditions where Caamano Sound cannot be used) 133 miles. This route goes via Hecate Strait, Browning Entrance, Principe Channel, Nepean Sound, Otter Channel, Squally Channel, Lewis Passage, Wright Sound and Douglas Channel

## Something to Compare

- The commonly accepted number for the Exxon Valdez spill, in 1989, was around 260,000 barrels, though some estimates were as high as 750,000 barrels. The standard barrel (bbl) is 42 US Gallons approximately 35 Imperial gallons, or approximately 159 litres. Less than 10% of the spilled oil was ever recovered from the 2100 km of coastline and 28,000 square km of ocean that was contaminated. Litigation concerning compensation over the Exxon Valdes spill is still before the courts more than 20 years after the fact.

There has been an informal moratorium on large tanker traffic in Dixon Entrance, Hecate Strait and Queen Charlotte Sound since 1972. Since then, the federal and provincial governments have commissioned periodic studies to reassess whether to lift the tanker moratorium. Each study has concluded that the risk of tanker spills is too high. In 2003–2004, the federal government initiated a three-part review process, including a scientific review by the Royal Society of Canada (the RSC report), a First Nations engagement process (the Brooks Report), and a public review process (the Priddle Panel).

The RSC report concluded that "the present restriction on tanker traffic along the West Coast of British Columbia should be maintained for the time being."

In 2009, the Harper government's position was that there is no moratorium on tanker traffic on the coast of British Columbia. However, on December 7, 2010, Canada's environmental watchdog said that "Canada isn't ready to respond to a major oil spill emanating from a tanker or other vessel."

## **Some of the specific issues concerning SSBC:**

This project with 785 significant waterway crossings is transporting materials that are considered dangerous and hazardous through unstable terrain that is prone to landslides:

- "The proposed corridor crosses three distinct physiographic units: the Nechako Plateau, the Hazelton Mountains, and the Kitimat Ranges. These units are distinct topographically as reflected in present day landforms, erosion, and landslides, and thus present different hazards to a pipeline. The Nechako Plateau appears relatively benign; however, large landslides have occurred in volcanic rock overlying other older volcanic and sedimentary rock. Active bedrock spread is occurring to the east of Parrott Creek, possibly foreshadowing further movement along the northwest-southeast trending ridges running between Houston and Francois Lake. Along the Morice River, advance-phase glaciolacustrine sediments have historically experienced landslides. Road construction and wildfires have reactivated these landslides. The proposed pipeline corridor crosses an historic earth flow west of Owen Creek, glaciolacustrine sediment along Owen Creek, and probably buried advance-phase glaciolacustrine sediments near Owen Creek, Fenton Creek and Lamprey Creek. The pipeline corridor follows the Crystal forest access road up Gosnell Creek. Shifting channels on active alluvial fans pose road maintenance challenges along a 10 km section of the road. Pipelines will likely present similar challenges crossing these fans. There is considerable lateral bank instability at the proposed Crystal Creek and Gosnell Creek crossing"...
- "...The volcanic bedrock of the Hazelton Mountains is inherently unstable as evident in many prehistoric landslides. Three documented large landslides within the Bulkley Range of the

Hazelton Mountains have severed the natural gas pipeline since its construction in the early 1970s; large landslides have also impacted forest roads and highways...”

“Landslides travel long distances and damage linear infrastructure such as pipelines. Six large rock slides occurred in west central B.C. since 1978, five of these since 1999, and four since 2002. Three of the six rock slides severed the natural gas pipeline (Howson landslides in 1978 and 1999, and Zymoetz landslide in 2002). Damage to linear infrastructure commonly occurs in run out zones many kilometres from the initial landslide. This has occurred with recent landslides in west central B.C.; the longest traveled in excess of 4 km along a slope of 9°. Therefore, the potential for damage to pipelines extends to unstable terrain and potential landslides that start well outside the construction corridor” [Source](#)

### **Valuations of the Skeena watershed fisheries that are imperiled by this project:**

- *Based on the report “Wild Salmon Economy of the Skeena River Watershed,”* prepared by IBM Business Consulting (2006), estimates that the wild Salmon economy of the Skeena River can be valued at approximately \$109,987,000 based on a 2004 base year and 4-year average revenue or revenue equivalents. [Source](#)

The proposed pipelines cross waterways that are British Columbia’s most important salmon and steelhead producing rivers. Some of which are considered to be the most prolific steelhead and salmon producing rivers in the world. The July 25 2010 pipeline failure near Kalamazoo, Michigan, that spilled 819,000 gallons (20,000 bbl) of diluted bitumen is an example of what could happen here in BC.

“..The spill involved diluted bitumen... Also known as tar sands oil, diluted bitumen has posed a unique challenge to cleanup crews. The Enbridge spill was the first in-land, diluted bitumen spill in the United States. The composition of the oil caused its heavier parts to sink to the bottom of the riverbed, creating a phenomenon known as submerged oil. The EPA has said the spill is "writing the book" on how to clean up the oil. Connolly said this same unfamiliarity to this type of oil applies for human health effects. A tar sands spill of this nature in a community like this has never happened before, she said. Besides from not knowing how to clean it up, no one knows the long-term effects ...” [Source](#)

### **An Enbridge Case Study in Construction Impacts**

“ In early 2009, Enbridge Energy Limited Partnership was found liable for environmental damages incurred during the construction of two parallel pipelines in Wisconsin known as the Southern Access Expansion. The state lawsuit was settled after Enbridge paid \$1.1 million in damages over violations of the conditions of their wetland and waterway protection permit. The Civil Complaint was filed by the Wisconsin Department of Justice and documented over 500 violations, including 282 wetland violations (soil mixing, rutting, unauthorized clearing, improper restoration), and 176 land disturbance and erosion control violations near navigable waters and wetlands. All of the violations were documented by independent environmental monitors hired by the Wisconsin Department of Natural Resources.” Information from Wisconsin Department of Justice, “Enbridge Energy Settles State Lawsuit Over Environmental Violations For \$1,100,000,” media release, January 2, 2009. [Source](#)

“ The potential for significant environmental harm from pipelines is high. Federal and provincial regulations and law have failed to prevent pipeline spills and leaks in Canada: Between 1990 and 2005 an average of 803 pipeline failures occurred every year in Alberta. [Source](#)

As Enbridge’s own experience shows, promises of advanced technology can’t prevent spills from happening, and can’t protect the environment and livelihood of downstream communities in the event of a spill.

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## Letter of Comment

SSBC is asking you to write a letter expressing your concern regarding the potential effects of this pipeline project on these highly valuable steelhead and salmon producing waterways. Please note: Nothing has been mentioned in this information package regarding First Nations issues, downstream water user issues, marine transportation issues or any of the other many potential issues that this project will have. The focus has been deliberately kept to within the realm of SSBC and that is regarding some of the potential impacts on anadromous salmon and steelhead and the rivers they inhabit.

You can communicate your views about the Project to the Panel by submitting a letter of comment. A letter of comment is a written statement that expresses your knowledge, views or concerns on the proposed Enbridge Northern Gateway Project. A letter of comment should include any information that will help explain or support your comments as well as the nature of your interest in this proposed project.

Letters of comment **MUST include personal contact information** such as full name and mailing address. Panel members will read and consider all letters of comment throughout the joint review process. Once submitted, letters of comment become public documents. Your contact information and the letter of comment will be available on this website in the [Public Registry](#). Letters may be submitted in hardcopy or [electronically](#). Deadline for submitting a letter of comment is 13 March 2012.

SSBC recommends that **letters are hand-written** because they informally carry more weight in the review process. Please feel free to paraphrase our [sample letter](#).