

# THE BISON PIPELINE PROJECT



## PUBLIC DISCLOSURE DOCUMENT



## WHO IS INVOLVED WITH THE BISON PROJECT?

Bison Pipeline Ltd. (Bison Pipeline), a wholly owned subsidiary of BC Gas Inc., has released a public disclosure for a proposed \$800 million, 516-kilometre long pipeline to transport bitumen from the Athabasca oil sands to the Edmonton area. The "Bison Pipeline" is intended to accommodate bitumen production from several shippers. Initial capacity will be 15,900 m<sup>3</sup>/day (100,000 bpd) with an ultimate capacity of almost 71,500 m<sup>3</sup>/day (450,000 bpd).

Trans Mountain Pipe Line Ltd., a wholly owned subsidiary of BC Gas Inc, will provide expertise for the design, construction and operation of the pipeline system.

Bison Pipeline is involved in joint engineering and technical studies with potential shippers, including TrueNorth Energy and Petro-Canada. The intentions of these prospective shippers to ship on the Bison pipeline remain expressly subject to:

- The completion of preliminary engineering to demonstrate that the Bison Pipeline will be able to meet their needs;
- That their respective development projects receive the necessary regulatory and corporate approvals; and
- Reaching appropriate commercial arrangements with Bison.

Other potential shippers will be encouraged to ship on the pipeline as their projects come on-stream.

## PROJECT DESIGN ALTERNATIVES

The current preferred design for the Bison pipeline calls for a single insulated pipeline to be constructed. A more conventional dual pipeline system carrying diluent and diluted bitumen could also be considered. The alternative that best meets the needs of our customers and other stakeholders will be the focus of an application to the Alberta Energy and Utilities Board.

This public disclosure document has been prepared for the preferred design alternative, the insulated pipeline. During stakeholder consultation, Bison Pipeline is committed to discussing both alternatives.

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### DOCUMENT PURPOSE

This document provides information about the proposed Bison Pipeline Project to regulators, industry and the general public. It forms part of Bison Pipeline Limited's comprehensive communications and public consultation program in support of a permit application to the Alberta Energy and Utilities Board (AEUB) in accordance with Guide 56.

## BACKGROUND

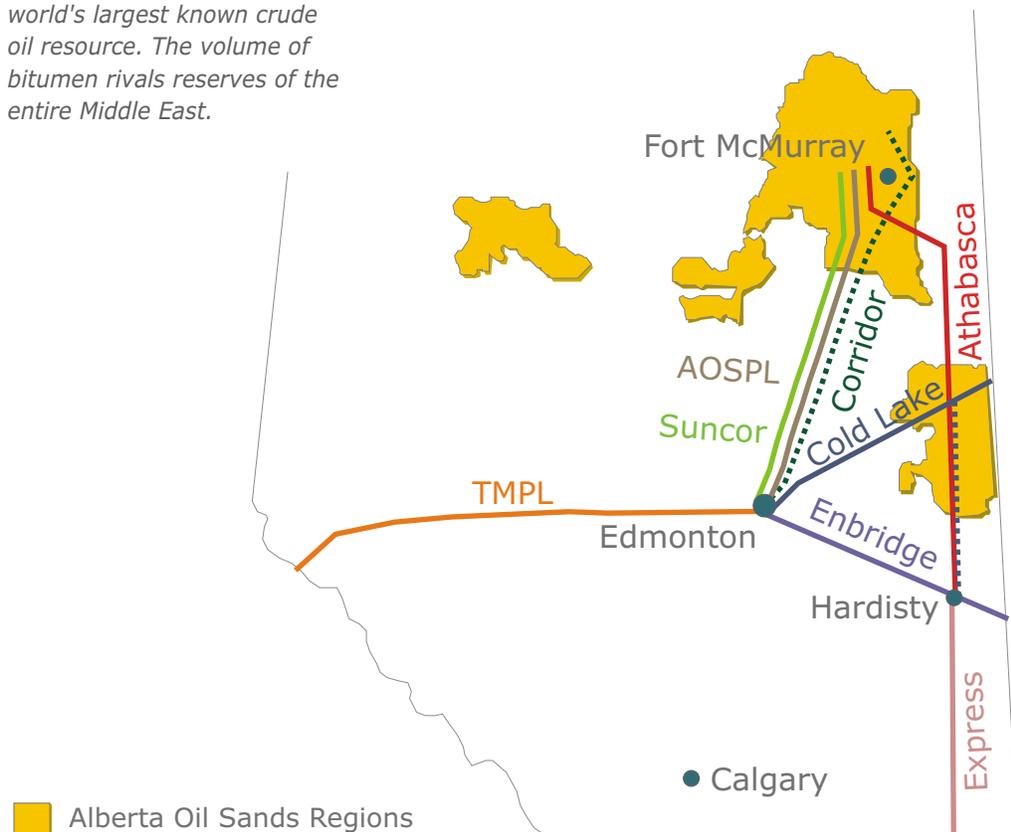
Northeastern Alberta has a unique natural resource—the bitumen rich Athabasca Oil Sands. Athabasca oil sand deposits are composed of about 70% sand and clay, 10% water and between 0-18% heavy oil, known as bitumen. Once separated from the sand, bitumen is a heavy, black, viscous (thick) petroleum not easily transported in a conventional pipeline.

To overcome the transportation challenges, bitumen and heavy oil has traditionally been transported through the use of “dilbit systems” which generally consists of two parallel pipelines; one pipeline carries diluted bitumen to markets, and the other transports diluent to the production facilities for blending with bitumen. Other pipelines carry synthetic crude produced from bitumen processed in an “upgrader.”

In recent years, insulated pipelines have been successfully designed, constructed and operated as an alternative to the traditional transportation methods for heavy oil. An insulated system uses the combination of a higher flowing temperature and insulation to keep the product at a pumpable, liquid state. Bison Pipeline's intention is to build and operate a single, large-diameter, insulated bitumen pipeline system.

### EXISTING MAJOR HEAVY AND SYNTHETIC OIL PIPELINE NETWORK IN NORTHEAST ALBERTA

*The Athabasca Oil Sands is the world's largest known crude oil resource. The volume of bitumen rivals reserves of the entire Middle East.*



\* Corridor Pipeline and Cold Lake extension to Hardisty are currently under construction

## **ABOUT BISON PIPELINE**

As Canada's conventional light crude oil reserves decline, the petroleum industry is turning increasingly to bitumen and other heavy end hydrocarbons for refinery feedstock. With the growth in oil sands development, the existing pipeline infrastructure servicing the Athabasca region will not be sufficient to meet expected increases in production.

The Bison pipeline is being designed to capture growth opportunities in the Athabasca oil sands region by building a pipeline that will provide a transportation solution to several parties.

### **ADDING TO THE ALBERTA ADVANTAGE**

Construction of oil sands projects is a major economic driver behind Alberta's economic growth and key to the "Alberta Advantage." All operational phases of this project will contribute to the economic well-being of the province through long-term employment creation, purchase of goods and services, and payment of taxes and royalties. Bison Pipeline will create significant employment opportunities during its construction and provide important long-term source of tax revenue to local municipalities.

### **INSULATED PIPELINE SYSTEM**

The Bison project is expected to use an insulated pipeline to retain the temperatures of bitumen produced by surface mining and steam assisted gravity drainage (SAGD) production methods. The use of insulation, and consequent higher flowing temperatures, means that little or no diluent is needed to transport the bitumen. Only a single pipeline is needed.

### **SYSTEM ADVANTAGES**

For producers not planning to process their bitumen production in the Fort McMurray area, an insulated pipeline system carries specific advantages including:

- Minimizing or eliminating the use of diluent at production facilities.
- Providing shippers' access to a more varied diluent supply in Edmonton, hence more competitive pricing and reduced cost.
- Improving integration for shippers with processing facilities in the Edmonton area.

A bitumen pipeline that services the petroleum processing and pipeline transportation hub at Edmonton ensures the bitumen can access as many markets as possible to maximize the value derived from the oil sands. From Edmonton, producers can market bitumen or bitumen products to eastern and western Canada as well as to the United States.

In order to provide service to multiple shippers, each with potentially different products, the Bison pipeline will be designed and operated as a batch system.

### **DESIGNED TO MEET EXPANDING CAPACITY**

The design of the Bison pipeline will allow the system capacity to be expanded at relatively low cost from the initial throughput of approximately 15,900 m<sup>3</sup>/day (100,000 bpd) to its ultimate capacity of 71,500 m<sup>3</sup>/day (450,000 bpd). The potential for several access points into the system will allow a number of shippers to ship on the pipeline as production in the Athabasca oil sands region grows.

## SYSTEM CHARACTERISTICS

Bison Pipeline will apply proven design, construction and operating principles to create a safe and efficient system. The system will consist of:

### PIPELINE

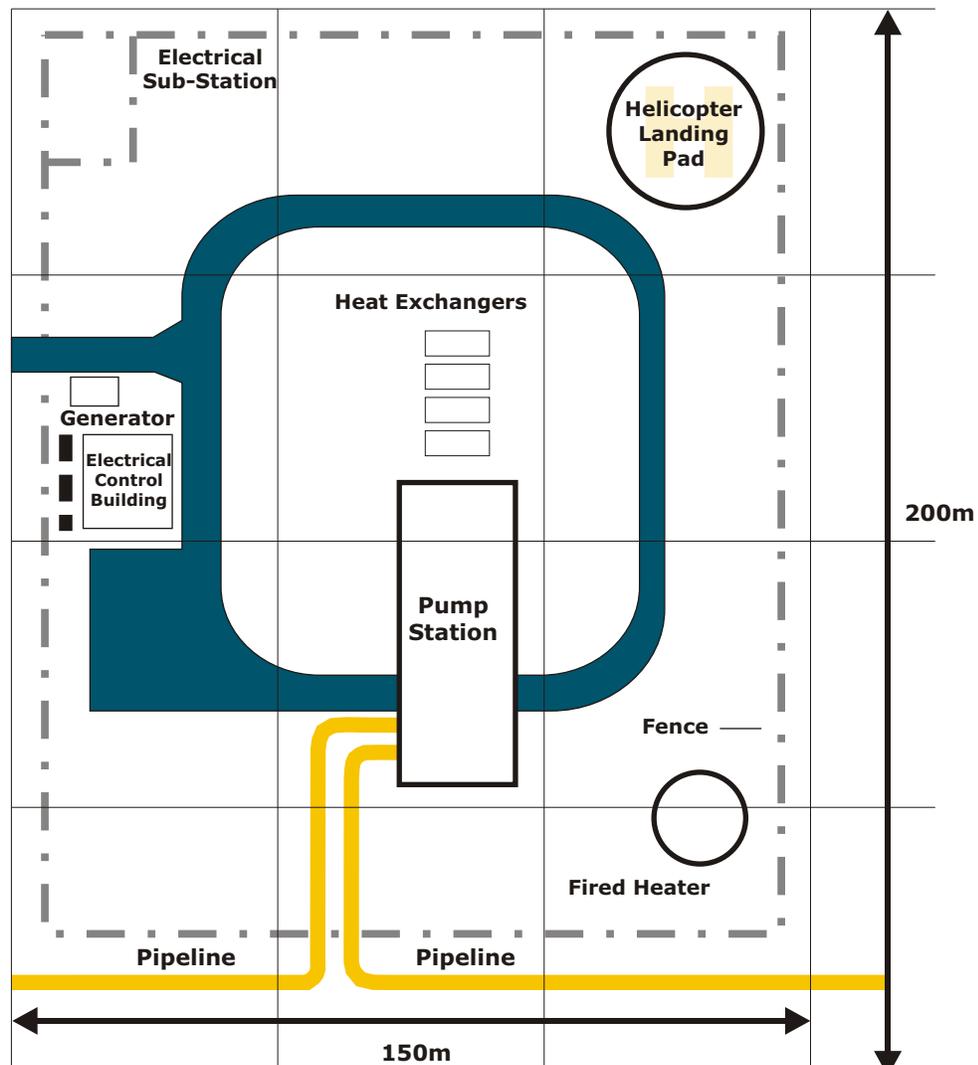
- 516 km of 762 mm (30 inch) pipeline originating at TrueNorth Energy's Fort Hills site passing through Petro-Canada's Meadow Creek site and terminating in Edmonton. (see route map p.5)

### FACILITIES

- Initially three pump stations located near Fort Hills, the Meadow Creek area and in Township 68, Range 17 near Highway 63 (approximately 35 km south of Wandering River).
- Initially six storage tanks with a capacity of 79,490 m<sup>3</sup> (500,000 bbl) each: three in Fort Hills and three in Edmonton.
- Cooling and blending facilities in Edmonton.

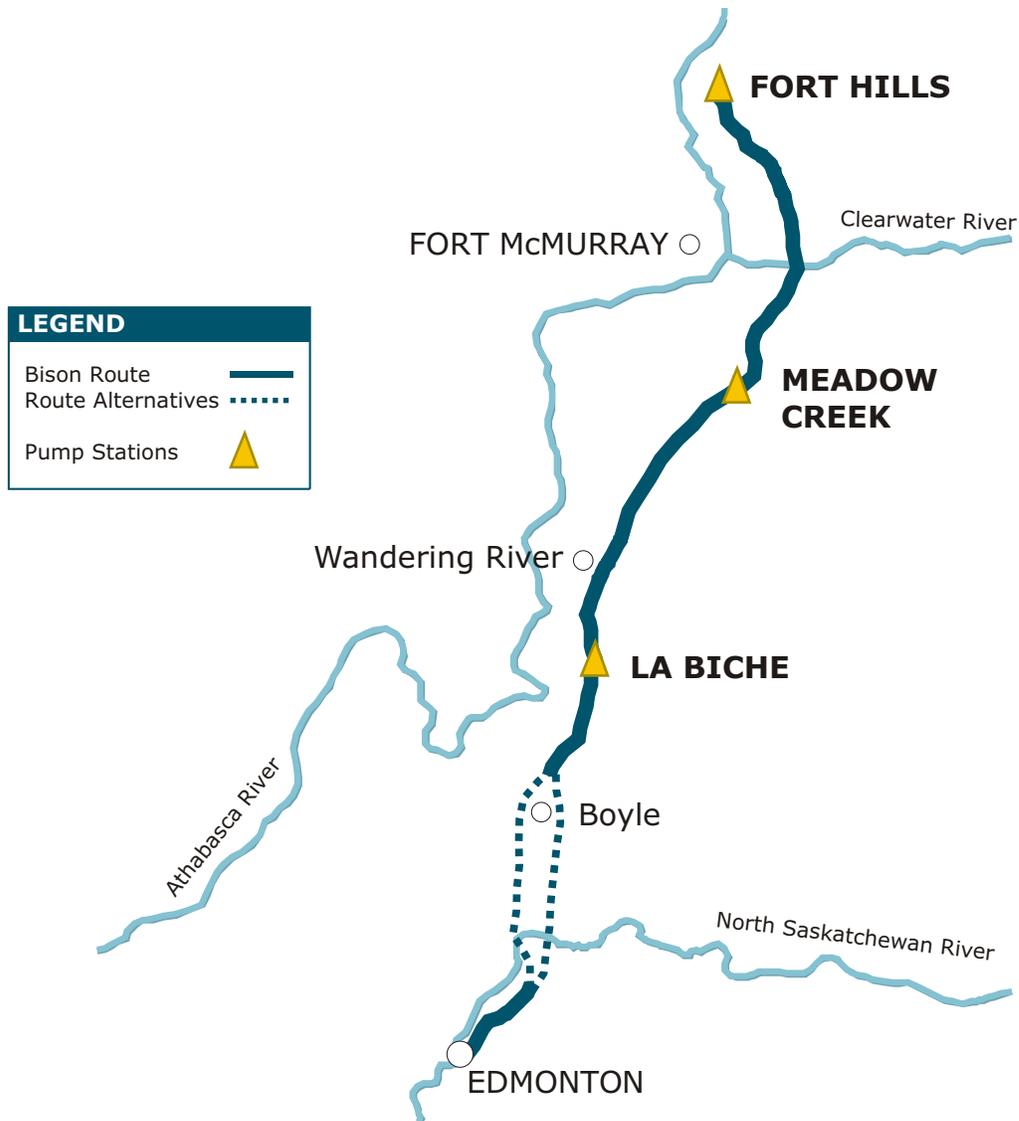
Both the size of the pipeline and the number of facilities along the route may change depending on shipper commitments prior to the execution of the project.

### A TYPICAL PUMP STATION



## PIPELINE ROUTE

Bison Pipeline has identified a preferred route and an alternate route to Edmonton. The final selection will be based on economic, engineering, environmental and social considerations. Depending on the final route, the Bison pipeline will parallel approximately 90% of existing rights-of-way.



## CONSTRUCTION

A large section of the pipeline will be built in muskeg areas, requiring a significant winter construction program. Bison Pipeline proposes to use three construction seasons to complete the project:

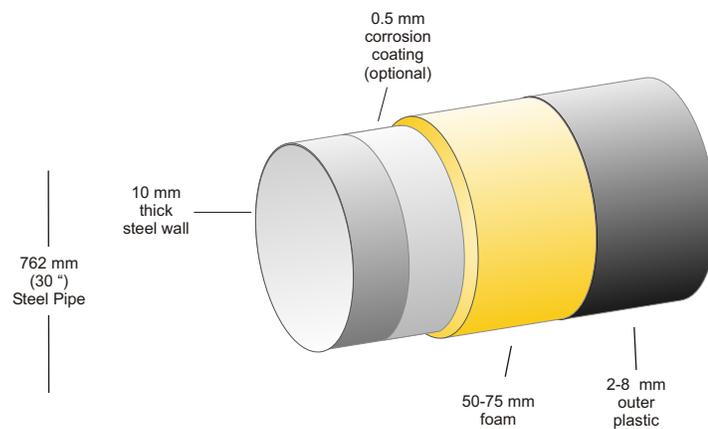
- Winter 2003/2004
- Summer 2004
- Winter 2004/2005

## DESIGN CHARACTERISTICS

Bison Pipeline has spent considerable time developing the necessary design specifications to ensure the system will run safely and efficiently. The pipeline will be designed to operate at internal temperatures between 80° and 120° Celsius. Similar to other insulated pipelines already in service, an insulation system made of polyurethane foam protected by a layer of polyethylene, will be applied to the pipeline. This coating system will:

- Minimize temperature loss;
- Protect the pipeline from corrosion;
- Protect the environment; and,
- Enhance the safety of the public.

## PIPE STRUCTURE



## TEMPERATURE VARIANCE

The Bison pipeline will be buried deeper than many other pipelines for much of its length. The increased burial depth improves the thermal performance of the pipeline, while providing increased safety and security. The Bison pipeline will be designed to limit the impact of heating the soil around the pipe.

The bitumen in the pipeline will cool as it flows downstream. Even though the bitumen temperature inside the Bison pipeline will be higher than conventional pipelines, the insulation will serve to dramatically reduce the heat loss to the environment. Initially, gas fired heaters will be used to provide additional heat to the flowing bitumen at the pump stations. However, as flows on the system increase the need for supplemental heat will be reduced or completely eliminated.

**PROJECT TIMELINE**

The schedule below outlines the major steps of the Bison pipeline project. The proposed timeline is subject to the results of the regulatory process, market conditions and commercial arrangements with shippers.

	2001				2002				2003				2004				2005			
	Q1	Q2	Q3	Q4																
Feasibility Study																				
Public Consultation																				
AEUB Application Preparation																				
AEUB Regulatory Review																				
Engineering																				
Construction																				
In-service																				

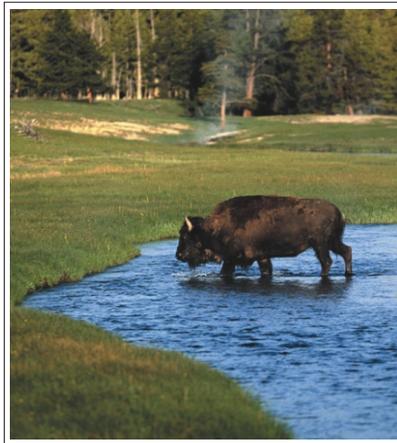
**SOCIO-ECONOMIC BENEFITS**

Bison Pipeline will provide significant socio-economic benefits to northeastern Alberta specifically and to the province of Alberta more generally. The majority of the design and construction of the project will be undertaken by Alberta companies. It is estimated that ongoing operations of the system will generate over \$6 million per year of property tax revenues for the Province of Alberta and local municipalities.

**REDUCING ENVIRONMENTAL FOOTPRINT**

The Bison pipeline will reduce its footprint on the environment by using existing utility corridors for most of its length and building a single line. Bison Pipeline is committed to minimizing environmental impacts during the construction and operations of the project by combining appropriate construction techniques and reclamation procedures with ongoing dialogue with regulatory agencies, landowners and other appropriate stakeholders.

Environmental protection and soil conservation practices will minimize the pipeline's effect on agricultural land. Bison will use right-of-way stripping and topsoil separation techniques that allow the right-of-way to be restored to full agricultural productivity. The pipe will be buried to a depth of 1.8 m (6 feet) below the surface to avoid disruption of soil tilling. Bison Pipeline is planning to use a 30 m (100 feet) wide right-of-way to efficiently build, operate and maintain the system. In agricultural areas approximately 15 m (50 feet) of additional temporary work space will be required during construction to provide room for topsoil segregation.



Bison Pipeline is committed to managing green house gas (GHG) emissions from its operations and participating in GHG policy and program development processes.

**PUBLIC CONSULTATION**

Bison Pipeline is committed to keeping interested stakeholders informed about the project. An ongoing public outreach program will be undertaken to inform and resolve the issues and concerns stakeholders may have about the project. The consultation program will be ongoing through the regulatory filing, application, construction and operations phases of the project.

**GENERAL INQUIRIES****BISON PIPELINE LIMITED**

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