



BISON  PIPELINE
P R O J E C T

*W*elcome

The Bison Pipeline Project

Bison Pipeline Ltd. (Bison) is proposing an \$800 million pipeline project to transport bitumen from the Athabasca oil sands to the Edmonton area. The project includes:

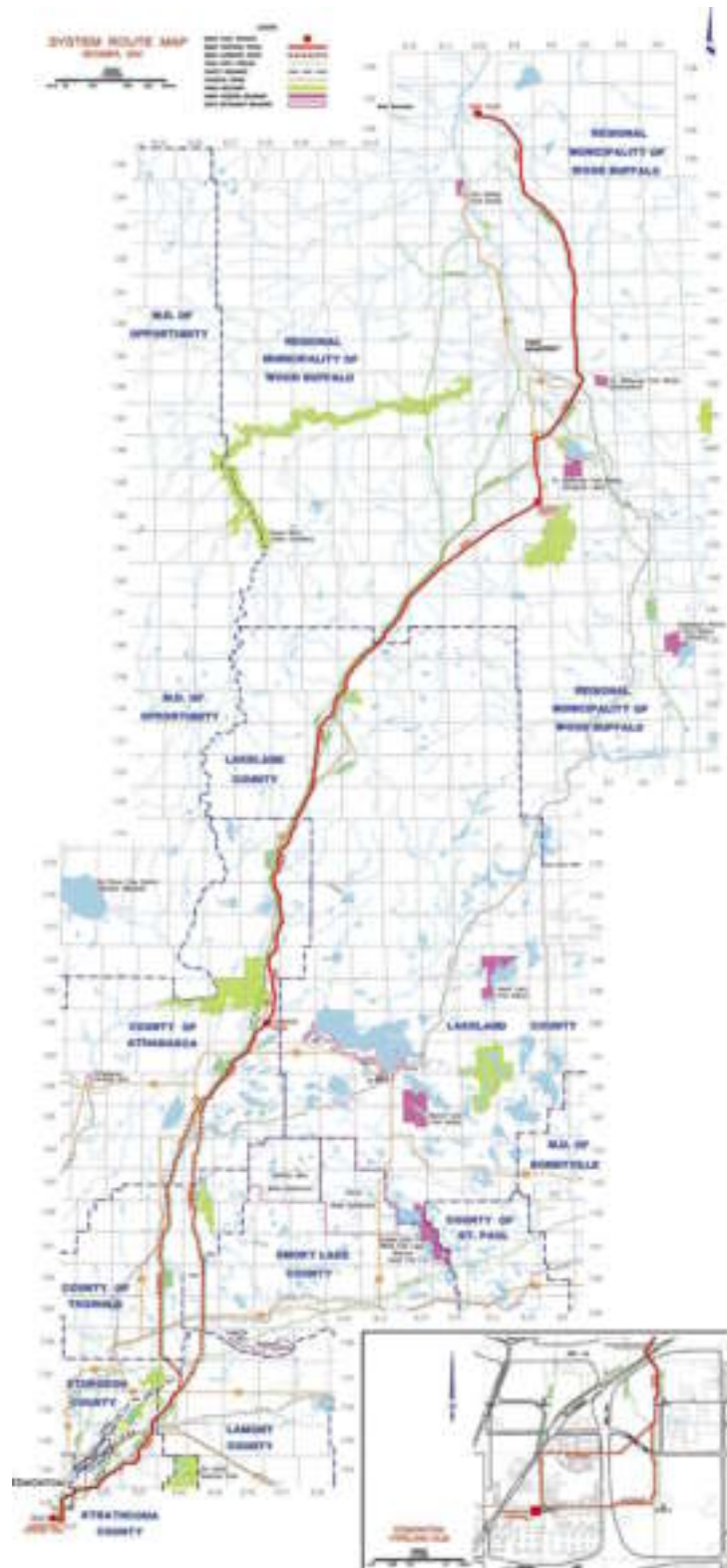
Pipeline

- 516 km of 762 mm (30 inch) insulated pipeline originating at TrueNorth Energy's Fort Hills site and terminating in Edmonton

Facilities

- Initially, three pump stations
 - near Fort Hills
 - in the Meadow Creek area
 - about 35 km south of Wandering River, near Highway 63
- Initially, six storage tanks with a capacity of 79,490 m³ (500,000 bbl)
- 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 construction.



The Pipeline Route

- Bison has identified a preferred route and an alternate route.
- The final selection will be based on a number of factors including public comment.
- Depending on the final route, the majority of the pipeline will parallel existing rights-of-way.



Project Team

Bison Pipeline Ltd., the project proponent, is a wholly owned subsidiary of BC Gas Inc.

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

Bison will be working with other companies during the design and construction of the project. These include:

- **Progress Land Services Ltd.** – land agents
- **TERA Environmental Consultants** – environmental studies
- **Praxis, Inc.** – public consultation
- Bridging Circles Inc. – Aboriginal liaison
- **Yet to be Awarded** – pipeline design, construction and project management



TRANS MOUNTAIN



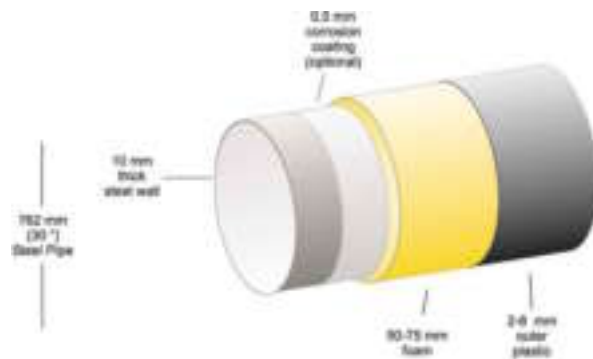
The Insulated Pipeline

- Bitumen is heated as part of the oils sands processing.
- An insulated pipeline helps retain the temperature of bitumen and keep it pumpable.
- The temperature of the bitumen inside the pipeline may range between 80° and 120°C.

Insulated Pipeline Features

Wall Thickness

- The steel pipe will be about 10 mm thick for most of its length.
- There will be an extra thickness of up to 15mm under river, road and railway crossings.



Coating

- The pipe will be coated with an insulating layer of polyurethane foam, protected by an outer layer of polyethylene (plastic).
- The foam helps retain the bitumen's heat and dramatically reduces heat loss from the pipe.
- The outer plastic protects the foam and ensures a water-tight system.

Burial Depth

- The pipeline will be buried with a depth of cover of approximately 1.8 m.
- The increased burial depth provides further insulation, improves the operation of the pipeline and increases safety and security.

With these features, the Bison insulated pipeline will behave like a conventional line. The temperature at the ground surface above the pipeline will be comparable to that of other pipelines.

Other Insulated Pipelines

There are other insulated pipelines in Alberta and around the world. These include:

- ECHO Pipeline between Elk Point and Hardisty
- Caroline Pipeline in south central Alberta
- Pacific Pipeline System in California
- Enbridge's pipeline in the Fort McMurray area – to commence operation in late 2002

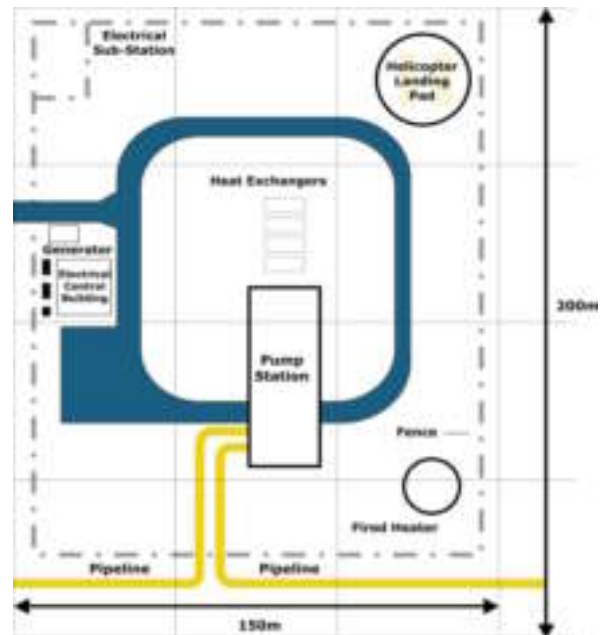
Other Facilities

Pump Stations

- Include facilities required for pipeline operation
- Initially there will be three pump stations along the route

Typical Bison Pump Station

- A fenced land area of about 150 m by 200 m
- Pumps
- Two buildings – for the electrical controls and the pumps
- An electrical sub-station
- Pipes, valves, meters and other associated facilities
- Tanks (at Fort Hills)
- Gas heaters (at Meadow Creek and Wandering River)



Pumps

- Twelve pumps will generate a total maximum of 20,000 horsepower enough pressure to push the bitumen through the pipeline.

Heaters

- | Initially, gas fired heaters will be used to provide additional heat to the flowing bitumen.
- | As flows on the system increase, the need for extra heat will be reduced or completely eliminated.

Other Equipment

- Some pump stations will have connections to allow maintenance and inspection equipment (“pigs”) to be inserted into and withdrawn from the pipeline.

The pump stations will be designed to ensure that noise and emissions comply with provincial government regulations.

Environmental Considerations

Minimizing Environmental Impact

Route Selection

The pipeline will follow existing utility corridors for most of the route. Efforts will be made to manage:

- clearing
- road, pipeline and water crossings
- impact to areas with wet terrain, muskeg or springs
- disturbance to wildlife habitat

Construction Approaches to Minimize Environmental Impact

- Topsoil will be salvaged and used during reclamation.
- Soils will be segregated to ensure that different soil layers are not mixed together.
- Depending on local conditions, the pipeline could be covered with 1.8 m of soil.
- Specialized construction installation techniques will be used to protect water courses.
- Steep slopes will be stabilized to prevent run-off and erosion.
- Winter construction along forested portions of the route will minimize environmental impact, particularly in wet areas.
- Merchantable timber will be salvaged.
- Non-cultivated, disturbed areas will be revegetated following construction.



Environmental Studies

Prior to project construction, studies are undertaken to help:

- identify potential project impacts
- determine the best way to mitigate impacts

Possible Bison Project Environmental Studies

Soil Assessment

- along the portion of the pipeline route on agricultural land to determine topsoil depth, topsoil and subsoil characteristics such as texture, stoniness and salinity levels

Fish and Fish Habitat Assessments

- at select watercourses crossed by the proposed pipeline

Historical Resources Impact Assessment

- at certain locations where there is a moderate to high potential for the discovery of heritage resources and archaeological sites

Vegetation Assessment

- a weed survey along portions of the route with agricultural land uses
- possible rare plant surveys at select locations along the route

Wildlife Surveys

- at locations along the proposed route considered to have high quality habitat for wildlife species of concern



Construction

There will be three construction seasons:

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

Construction Steps:

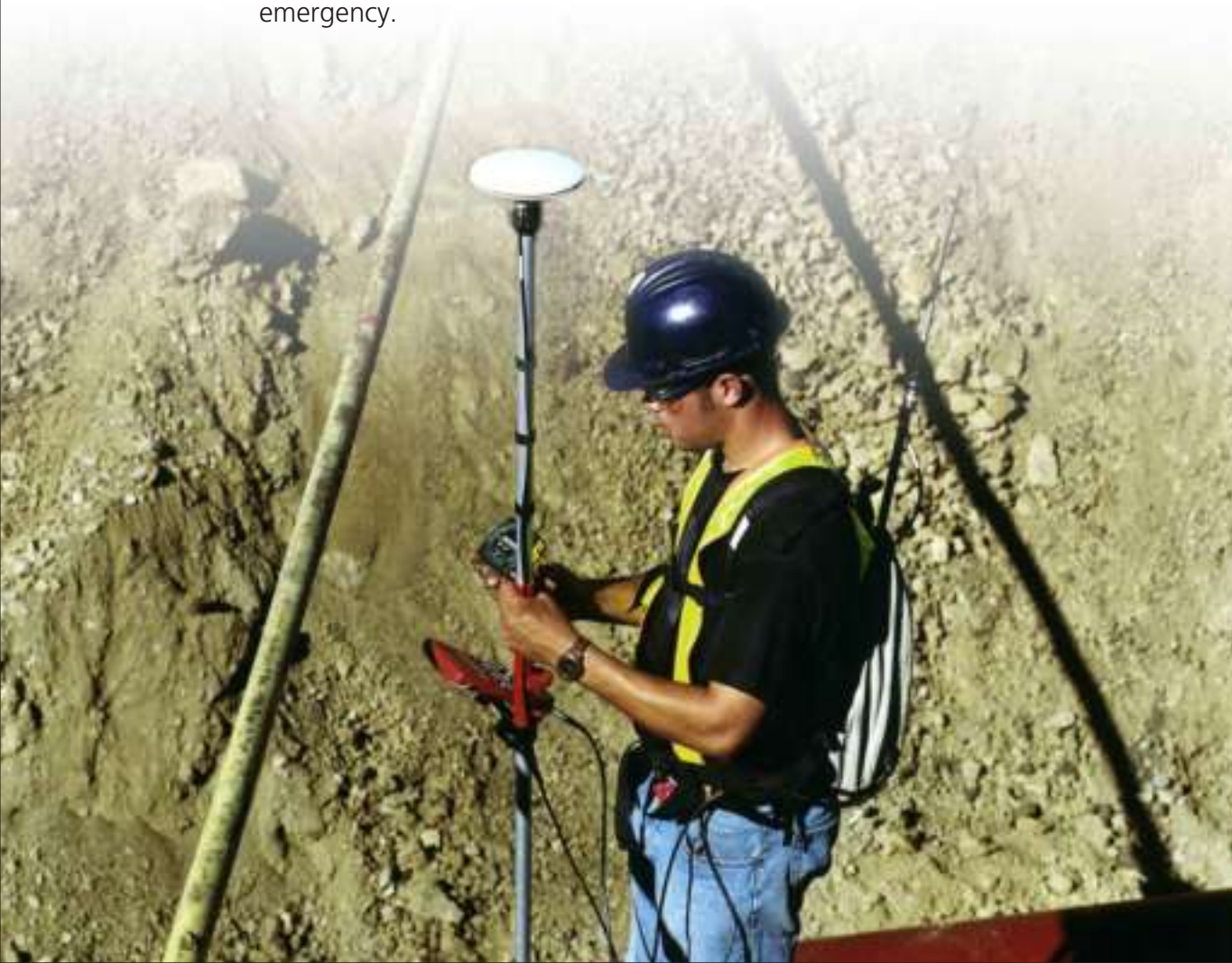
- **Preparing the right-of-way** – This includes clearing or mowing vegetation, salvaging topsoil and grading. The **right-of-way** will be 30 m with an additional 10-15 m temporary workspace, where required.
- **Delivering and storing the pipe** – Sections of pipe will be delivered to storage sites along the route.
- **Stringing and welding the pipeline** – Pipe sections are welded, insulated, inspected and lowered into the ground.
- **Digging the trench** - Trenchers and backhoes will dig a trench and the pipe will be covered with soil.
- **Cleaning up and restoring the land** – Salvaged topsoil will be replaced across the right-of-way and seed will be applied to most disturbed areas.



Operations and Safety

Bison is committed to public safety. Safety measures include:

- **Coatings** - The pipeline will have an insulated coating and anti-corrosive protection.
- **Monitoring** - The system will be monitored 24 hours a day, seven days a week by a computerized Supervisory Control and Data Acquisition (SCADA) system located in Edmonton. This system alarms operators if there is a potential problem.
- **Inspection** - The route will be regularly inspected for erosion and encroachments and the entire route will be inspected from the air.
- **Valves** - There are shutdown valves approximately every 40 km along the line and on either side of major river crossings. These valves allow operators to isolate sections of the pipeline if there is an emergency.
- **Emergency Response Planning** - There will be an Emergency Response Plan for the pipeline and associated facilities. Emergency response equipment will be available at various locations along the line. Trained personnel will be available to respond if there is an emergency.



Regulatory Review

- Bison will prepare a project application for review by the Alberta Energy and Utilities Board and Alberta Environment.
- The application will be made in the summer of 2002.
- Public comments are an essential part of the application.

Summer 2002
Public comments



Project Timeline

This schedule may change as a result of the regulatory review process, market conditions and arrangements with shippers.

	200 1				200 2				2003				200 4				2005			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Feasibility Study			█	█																
Public Consultation				█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
AEUB Application Preparation				█	█	█														
AEUB Regulatory Review							█	█												
Engineering				█	█	█	█	█	█	█	█	█								
Construction													█	█	█	█	█	█	█	█
In-service																			█	



Local Benefits

Bison Pipeline is committed to maximizing local opportunities during the construction and operations phases of the project. It is estimated that the project will generate:

- between \$5 to \$6 million per year in property and other tax revenues
- local service contract opportunities – during construction through our mainline contractor – and during operations through Bison Pipeline directly.



Public Consultation

Bison is committed to sharing information about the project and working with interested people to ensure that their opinions and concerns are understood and resolved. Public consultation will occur throughout the project – from planning through to operations.

Here are some ways to stay involved:

- Call our toll free line: 1-866-514-6700
- Complete a comment sheet

Thank you for participating.

