

# PIPELINES – OUR INVISIBLE highway



*Pipelines – Our Invisible Highway* is part of an integrated education program distributed nationally by the Canadian Centre for Energy Information (Centre for Energy). The purpose of this series of current and practical petroleum industry learning resources is to increase students', teachers' and parents' understanding of petroleum and its relevance to all Canadians.

Each part of the series focuses on student participation and real-world examples to help make the petroleum industry come alive to students. Important background information and thought-provoking questions to extend learning are woven through each activity.

The activities in *Pipelines – Our Invisible Highway* are designed to be used in a variety of ways. Students can complete the activities in groups or individually, or they can be directed by the teacher.

Featured activities are sequenced to build an understanding of concepts and a competency in increasingly more complex thinking skills. As a result, activities should be completed in the order in which they are presented. The culminating activity offers students an opportunity to apply their learning in a simulation of a real pipeline industry situation.



## Canadian Centre for Energy Information

### Your Resource Source

The Canadian Centre for Energy Information (Centre for Energy) is a non-profit organization created in 2002 to meet a growing demand for balanced, credible information about the Canadian energy sector. On January 1, 2003, the Petroleum Communication Foundation (PCF) became part of the Centre for Energy. Our educational materials will build on the excellent resources published by the PCF and, over time, cover all parts of the Canadian energy sector from oil, natural gas, coal, thermal and hydropower to nuclear, solar, wind, fuel cell and other alternative sources of energy.

The Centre for Energy does not take positions on issues. The Learning Resource Series was developed using a multi-stakeholder review process with the aim of creating fact-based, balanced documents. Educators helped ensure that the educational materials are interesting and applicable to students in schools across Canada.

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To find out more about the Canadian Centre for Energy Information or to find up-to-date information on petroleum issues, statistics or Centre for Energy education resources, please visit the Centre for Energy's portal at: [www.centreforenergy.com](http://www.centreforenergy.com).

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## Background Information

Teachers are encouraged to read the Centre for Energy background information on gasoline pricing prior to introducing these activities. Centre for Energy classroom materials are available free to Canadian teachers (some restrictions apply). Other Centre for Energy publications may be purchased at a minimal cost. Please visit the Bookstore section of the web site at [www.centreforenergy.com](http://www.centreforenergy.com) for product descriptions and ordering information. Products may also be ordered by calling the toll-free order line at 1-877-606-4636.

### TEACHING TIPS

The *Did You Know* text blocks offer additional information, which teachers can use to provide a more complete understanding of the concepts or encourage students to explore further. The *Hints* provide the teacher with ideas to guide students to think through some of the questions and problems posed in the activities. *Hints* can be shared with students as needed. *Tips* offer suggestions for facilitating the activities.

- *Canada's Pipelines*: Canada's Pipelines is divided into eight sections and it includes information on the pipeline grid, how pipelines work, regulations, safety, and environmental and economic issues concerning pipelines. Illustrations detailing the pipeline construction process, and the locations of pipelines in Canada are also included. [www.centreforenergy.com/Shopping/Product.asp?ProductKey=75](http://www.centreforenergy.com/Shopping/Product.asp?ProductKey=75)
- *Our Petroleum Challenge, 7th edition* This book provides a general introduction to Canada's crude oil and natural gas industry. Section 1 presents an overview of the nation's crude oil and natural gas resources and the role they play in modern society. Section 2 describes in more detail the steps involved in finding, producing, processing, transporting, refining, selling and using petroleum products. Section 3 discusses the challenges and opportunities facing the industry in the 21st century.

More pipeline and other energy information can be found at:

- Background information on the petroleum industry, educational materials and a careers section from the Centre for Energy: [www.centreforenergy.com](http://www.centreforenergy.com)
- Canadian Energy Pipeline Association (CEPA): [www.cepa.com](http://www.cepa.com)
- Natural Resources Canada: [www.nrcan-rncan.gc.ca](http://www.nrcan-rncan.gc.ca)

## Curriculum Links and Learning Outcomes

The activities in *Pipelines – Our Invisible Highway* are designed to fit within these Alberta curricula and learning outcomes:

### *SOCIAL STUDIES 9*

#### **Canada: Responding to Change**

- Understand that technology has affected our way of life and will continue to influence our future.
- Understand that in a mixed economy, decisions are made by both the public and private sectors.
- Understand that quality of life is affected by changes in technology.
- Read and interpret maps to uncover relationships between geography and industrialization in Canada.
- Make notes (jottings, point form, webbing) that outline the main and related ideas from reading and while listening and observing.
- Identify and evaluate alternative answers, conclusions, solutions or decisions regarding questions and issues used for inquiry and research on responding to change.
- Develop increased facility in communicating with others in more formal situations such as interviews and panel discussions.
- Contribute to the group (leader, recorder, member) and group processes – staying on topic, extending the ideas of others, paraphrasing, and working toward a consensus or a decision.
- Develop a concern with issues of significance to the future of Canada and themselves.
- Develop a willingness to participate responsibly in the resolution of issues.
- Develop an appreciation that social issues are complex and may take time to resolve.

*ENGLISH LANGUAGE ARTS 9*

- Synthesize ideas and information from a variety of sources to develop own opinions, points of view and general impressions.
- Select information sources that will provide effective support, convincing arguments or unique perspectives.
- Evaluate sources for currency, reliability and possible bias of information for a particular research project.
- Use own words to summarize and record information in a variety of forms; paraphrase and/or quote relevant facts and opinions; reference sources.
- Select and record ideas and information that will support an opinion or point of view; appeal to the audience, and suit the tone and length of the chosen form of oral, print, or other media text.
- Choose specific vocabulary, and use conventions accurately and effectively to enhance credibility.
- Integrate appropriate visual, print, and/or other media to reinforce overall impression or point of view and engage the audience.

*INFORMATION AND COMMUNICATION TECHNOLOGY 9*

- *P1*: Compose, revise and edit text.
- *C1*: Access, use and communicate information from a variety of technologies.
- *C4*: Use organizational processes and tools to manage inquiry.
- *C7*: Use electronic research techniques to construct personal knowledge and meaning.

**NOTE**

This set of activities is designed to support the curriculum strands listed on these pages, but is not a complete unit of study designed to meet all the learning requirements for each curriculum. Rather, the resource is intended as a supplement or extension to the broader lessons included in the curriculum and therefore covers only selected learning outcomes.

## Invisible Highway

### Learning Outcomes

- *SS 9:* Read and interpret maps to uncover relationships between geography and industrialization in Canada.
- *SS 9:* Identify possible sources and location of information (print, non-print, interviews, surveys).
- *ICT 9:* Access, use and communicate information from a variety of technologies.

### Activity

Explain that, in total, there are about 700,000 kilometres of different-sized pipelines hidden beneath Canadian landscapes. Help students picture that length by stating that if all our country's pipelines were laid end to end, they would circle the earth 17 times at the equator.

Tell students that because most pipelines are tucked one or two metres below the ground, they are considered an 'invisible highway'. Explain that at one end of a major pipeline is an extensive network of small pipes to gather the natural gas from wells and compressor stations. At the other end, a similar network of small pipes is used to deliver the gas to homes and businesses. As a result, the 'invisible highway' can be better compared to an intricate network of narrow roads, wide streets and major highways, all connected underground.

Have students research crude oil and natural gas transmission pipeline routes that run across Canada and into the United States. Ask the class: Where do the pipelines start? Where are most of them headed? Have students use their pipeline maps to describe the supply and demand of oil and natural gas in Canada and North America.

### TIP

Pipeline maps are available on the education section of the Centre for Energy web site at: [www.centreforenergy.com](http://www.centreforenergy.com). Students might also consult the Centre for Energy publications *Our Petroleum Challenge, 7th edition*, and *Canada's Pipelines*, or the Canadian Energy Pipeline Association (CEPA) website at: [www.cepa.com](http://www.cepa.com)

### Did you know?

Crude oil moves in a pipeline at about five kilometres per hour – about walking speed. At that rate, it takes 30 to 35 days for oil to travel through pipelines from Alberta to southern Ontario. Natural gas travels in a pipeline at about 40 kilometres per hour – about the speed of an Olympic sprinter.

## Pipeline Planning and Construction

### HINT

See the Centre for Energy booklet *Canada's Pipelines*, pages 23 to 26. Additional suggestions can be found in the sample answers on page 10.

### Did you know?

Given the technical, economic, environmental and social complexity of a pipeline project, pipeline companies must follow a multi-stage, interactive process. This design process starts years in advance of actual construction and consists of several phases or steps, as follows:

Project design,  
route planning and  
environmental/social  
review – Public meetings  
and consultations  
– Hearings and approvals  
– Detailed design  
– Construction and land  
restoration – Operations,  
monitoring and  
maintenance (25 + years).

### Learning Outcomes

- *SS 9:* Understand that technology has affected our way of life and will continue to influence our future.
- *SS 9:* Identify possible sources and location of information (print, non-print, interviews, surveys).
- *SS9:* Make notes (jottings, point form, webbing) that outline the main and related ideas from reading and while listening and observing.
- *ELA 9:* Use own words to summarize and record information in a variety of forms; paraphrase and/or quote relevant facts and opinions; reference sources.
- *ICT 9:* Integrate appropriate visual, print and/or other media to reinforce overall impression or point of view and engage the audience.
- *ICT 9:* Access, use and communicate information from a variety of technologies.
- *ICT 9:* Use organization processes and tools to manage inquiry.
- *ICT 9:* Use electronic research techniques to construct personal knowledge and meaning.

### Activity

Explain that planning and constructing a pipeline is a complex, time-consuming and expensive project because every pipeline involves five key considerations: technology, environment, economy, safety and society. For example, a pipeline company must: test for leaks (technology), research animal migration patterns (environment), maintain control of construction costs (economy), train construction workers (safety) and negotiate to cross people's land (society).

Have students investigate all the steps involved in planning and constructing a pipeline, from selecting the route to digging a trench to maintaining the finished pipeline. Then ask them to think about those steps while they complete the table on the student handout on page 9. Ask them to try to list three steps and three reasons for each issue.

### Summary

Once students have completed the table, lead a class discussion on the role technology plays in each of the issues listed. Ask: Could any of these pipeline issues be addressed without the use of technology? If so, what might be the impacts on the project and the people?

### Extension

Ask students to think about jobs or careers that are directly or indirectly connected to the pipeline industry. As a class, make a web diagram of pipeline jobs and careers, starting with the five categories from the activity above: technology, environment, economy, safety and society. Have each student choose one job or career and research what that position requires in terms of education, experience and skills, and what it offers in terms of salary, benefits and working conditions. Then have students find out what technologies would be employed in that role and where in Canada someone in that position would likely live and work.

Have students use the information they discovered to write, design and create a one-page job advertisement that describes the position as clearly as possible. Have each student exchange their draft ad with a classmate to ensure they didn't omit any important information. Post the finalized descriptions on a class website or in the hall.

### HINT

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Students can find out everything they ever wanted to know about jobs in the petroleum industry on the Centre for Energy's searchable career database. Each career in the database features a job description, identifies the required educational level, and supplies details on skills and related occupations. The Centre for Energy careers database can be found at: [www.centreforenergy.com](http://www.centreforenergy.com)

**STUDENT HANDOUT**

# Pipeline Planning and Construction

Think about all the steps in the pipeline planning and construction process. Fit three steps into each of the five key considerations listed below. Then try to identify one reason why that step is taken with every pipeline.

	<b>Pipeline Planning and Construction Activity</b>	<b>Reason</b>
<b>Technology</b>		
<b>Environment</b>		
<b>Economy</b>		
<b>Safety</b>		
<b>Society</b>		

**STUDENT HANDOUT EXAMPLE**

## Pipeline Planning and Construction

Think about all the steps in the pipeline planning and construction process. Fit three steps into each of the five key considerations listed below. Then try to identify one reason why that step is taken with every .

	<b>Pipeline Planning and Construction Activity</b>	<b>Reason</b>
<b>Technology</b>	Use aerial photographs, satellite imagery and sophisticated computer programs to plan the most appropriate pipeline route	Ensure environmental issues are addressed early in the planning stage
	Use automated welding techniques	Complete more accurate welds which are stronger and more leak-resistant
	Conduct ongoing pipeline inspections using X-ray or ultrasonic methods	Ensure pipeline is well made and that all welds are high-quality
	Monitor pipeline operations with SCADA (Supervisory Control and Data Acquisition)	Conduct round-the-clock testing and management of pipelines
<b>Environment</b>	Plan pipeline route to bypass environmentally-sensitive areas	Protect biodiversity of the region
	Clear and grade as little space as necessary	Reduce impact on vegetation
	Conserve top soils for reuse	Use original soil to speed up vegetation growth once the pipeline is complete
	Conduct ongoing environmental inspections	Identify any environmental issues so they can be acted upon immediately
<b>Economy</b>	Train and hire local residents to meet project employment needs	Make efficient use of available personnel resources
	Set up several construction teams at various sites along the route	Manage construction project efficiently
	Plan route carefully before beginning construction	Minimize personnel, energy and material costs
	Choose appropriate seasons for transportation of goods and for project construction	Reduce work slowdowns and environmental impact due to poor weather conditions
<b>Safety</b>	Train workers in safe operating procedures	Ensure everyone knows safety regulations so accidents do not occur
	Use highest quality epoxy pipe coatings	Prevent pipe corrosion
	Supply safety equipment like hard hats and gloves	Protect workers from potential hazards
	Keep equipment in good working order, meeting safety standards	Ensure all equipment and machines are safe and in good working order
<b>Society</b>	Hold a series of community open houses along the proposed pipeline route	Share information and gather input from local residents prior to submitting application for construction
	Consult local First Nations groups regarding pipeline location before finalizing pipeline route	Develop good working relationship with local First Nations groups, some of whom might also be potential employees and sources of traditional knowledge
	Obtain right-of-way agreements from landowners prior to beginning construction	Comply with all laws and conduct business professionally
	Pay a lump sum to landowners	Ensure landowners are compensated for use of land

## Bringing Oil and Gas to the People

### Learning Outcomes

- *SS 9:* Understand that technology has affected our way of life and will continue to influence our future.
- *SS 9:* Understand that quality of life is affected by changes in technology.
- *SS 9:* Understand that in a mixed economy, decisions are made by both the public and private sectors.
- *SS 9:* Read and interpret maps to uncover relationships between geography and industrialization in Canada.
- *ELA 9:* Select information sources that will provide effective support, convincing argument or unique perspectives.
- *ELA 9:* Use own words to summarize and record information in a variety of forms; paraphrase and/or quote relevant facts and opinions; reference sources.
- *ICT 9:* Access, use and communicate information from a variety of technologies.
- *ICT 9:* Use organizational processes and tools to manage inquiry.
- *ICT 9:* Use electronic research techniques to construct personal knowledge and meaning.

### Activity

Form students into pairs. Have each pair choose two locations on a map of Canada. One location should be at or near a petroleum source. The second location should be a town or city that uses oil or natural gas (any town or city in Canada will do). The two locations should not be in the same province or territory.

Once they have identified a petroleum supply (source) and a demand (city), have pairs imagine they are responsible for planning a pipeline to run in an efficient line from the petroleum supply to their chosen city or town. Ask students what they think the next step in their planning process might be. After some discussion, explain that because all the land and water in Canada is already owned or managed by individuals, groups or government bodies, pipeline planners have to talk to a lot of people before they can even think about beginning the construction of their pipeline.

Have each pair of students look carefully at a map to see what lies in between their two locations. Then ask them to use the map and other sources of information to make a list of the people they would have to talk to before they could plan and build their pipeline. Have them consider individuals (e.g. landowners, local residents, elected officials, tourists, etc.), groups (e.g. First Nations, environmentalists, unions, religious groups, companies, etc.) and government bodies (e.g. municipal councils, provincial/territorial regulators, federal agencies, First Nations self-governments, etc.). Challenge students to put at least 20 names on their lists. Then beside each name, have students write one or two reasons why those people should be involved in the pipeline project. The list might look something like this:

Who to contact	Why
Private landowners	<ul style="list-style-type: none"> <li>• Pipeline route may cross land owned by individuals so they must be compensated.</li> <li>• Need to identify exactly where on the land the pipeline would go, to avoid homes, irrigation systems, agricultural activities and other concerns.</li> </ul>
Local construction company	<ul style="list-style-type: none"> <li>• Project will require construction of temporary housing and other facilities en route.</li> <li>• Should try to use local companies as much as possible.</li> </ul>
First Nations self-governments	<ul style="list-style-type: none"> <li>• Route may trespass on traditional lands.</li> <li>• First Nations may have ability to tax projects that cross their land.</li> </ul>

When student pairs have compiled their lists, have each pair work with another team, sharing their lists and discussing what each team highlighted or missed. Ask each group of four students to think about who they would approach first for their pipeline, and why. Have each group share their decision and reasoning with the rest of the class.

### Did you know?

The strip of land containing a pipeline is called the pipeline right-of-way (ROW). The National Energy Board states that a 30-metre safety zone must be allowed on both sides of a pipeline ROW, to protect the pipeline, the environment and people.

*Source: National Energy Board*

## Pipeline Perspectives

### Learning Outcomes

- *SS 9:* Understand that technology has affected our way of life and will continue to influence our future.
- *SS 9:* Understand that quality of life is affected by changes in technology.
- *SS 9:* Understand that in a mixed economy, decisions are made by both the public and private sectors.
- *SS 9:* Make notes (jottings, point form, webbing) that outline the main and related ideas from reading and while listening and observing.
- *SS 9:* Identify and evaluate alternative answers, conclusions, solutions, or decisions regarding questions and issues used for inquiry and research on responding to change.
- *SS 9:* Develop increased facility in communicating with others in more formal situations such as interviews and panel discussions.
- *SS 9:* Contribute to the group (leader, recorder, member) and group processes – staying on topic, extending the ideas of others, paraphrasing, and working toward a consensus or a decision.
- *SS 9:* Develop a concern for issues of significance to the future of Canada and themselves.
- *SS 9:* Develop a willingness to participate responsibly in the resolution of issues.
- *SS 9:* Develop an appreciation that social issues are complex and may take time to resolve.
- *ELA 9:* Synthesize ideas and information from a variety of sources to develop own opinions, points of view and general impressions.
- *ELA 9:* Select information sources that will provide effective support, convincing argument or unique perspectives.
- *ELA 9:* Evaluate sources for currency, reliability and possible bias of information for a particular research project.
- *ELA 9:* Use own words to summarize and record information in a variety of forms; paraphrase and/or quote relevant fact and opinions; reference sources.

- *ELA 9:* Select and record ideas and information that will support an opinion or point of view, appeal to the audience, and suit the tone and length of the chosen form of oral, print or other media text.
- *ELA 9:* Chose specific vocabulary, and use conventions accurately and effectively to enhance credibility.
- *ELA 9:* Integrate appropriate visual, print and/or media to reinforce overall impression or point of view and engage the audience.
- *ICT 9:* Compose, revise and edit text.
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- *ICT 9:* Use organizational processes and tools to manage inquiry.
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### Introduction

The role-play exercise takes the form of a public hearing. Under discussion is a pipeline company's application to build a pipeline to bring natural gas from a new field in northern Canada to markets in southern Canada and the United States. Students play roles of various interest groups and present their arguments before a fictitious hearing board. The board then makes its decision about the project and explains its reasoning and stipulations to all groups. This activity takes up to three class periods to complete.

### Materials

- Background information, role outline, and Fort Courage map for each group of students (photocopy the handouts on pages 18 to 31).
- Reference books and articles on northern wildlife; natural resources; First Nations culture, traditions and land claims; petroleum industry; hearing board processes; etc.
- Access to the Internet.

### HINT

Some useful websites for background information on similar hearings include:

- Information on Canada's role in pipeline planning and development projects, the public hearing process, how to participate in a public hearing, upcoming public hearings and decisions from past hearings from the National Energy Board: [www.neb.gc.ca](http://www.neb.gc.ca)
- Background on the value and components of an environmental impact assessment from the Canadian Environmental Assessment Agency: [www.ceaa-acee.gc.ca](http://www.ceaa-acee.gc.ca)
- Teacher resources on the Mackenzie Valley Pipeline Inquiry, known as the "Berger Inquiry"; from the CBC: [http://archives.cbc.ca/for\\_teachers/295/](http://archives.cbc.ca/for_teachers/295/)

## Activity

*FIRST CLASS PERIOD*

### Introduce Background and Roles

Form nine student groups – one for each role. Eight of the groups will represent various local interests. The ninth group will act as the hearing board itself. Try to assign each group a role they might not usually choose to help them learn to evaluate both sides of an issue. Give each group the background information, map and role description. Explain that they will participate in a hearing to decide whether a pipeline should be constructed past a town in a northern region of Canada.

Tell students they will be playing the roles of interest groups debating before the board. Explain that the process students will go through in this activity is very similar to that of real hearings organized by the National Energy Board (NEB) or the Alberta Energy and Utilities Board (AEUB).

Briefly outline the hearing board process and time allocation, as described on the next page.

### Hold Role Group Meeting

Instruct the groups to read the background information and their own role sheet, and identify points that support their position. Take a few minutes to answer any questions about the role-play situation or process. Specific questions about the group's role, position or individual responsibilities must be resolved with the group.

Once all questions have been answered, give the groups time to meet and discuss their position. In this initial meeting, each interest group should:

- Define their issues and desired outcomes.
- Develop a position for their application.
- Develop strategies that could convince the hearing board to understand and support their position.
- Decide which other groups share their interests, and consider aligning themselves with them .
- Assign specific duties to each member, such as research, preparation of written submission, exhibits, spokesperson(s), etc.

## HINT

The reading level of some of the roles may be challenging for some students. Teachers may need to help students with some of the vocabulary, or have one student read out the role to the group to ensure all students fully understand their role.

At the same time, members of the hearing board should:

- Research their role.
- Determine the criteria by which they will evaluate the groups' presentations and on which they will base their final decision.

Students who are part of the hearing board will need less time to prepare for the hearing. The majority of their work will be done after the presentations are complete.

Following the initial in-class meeting, student groups should be given time to research and prepare their presentations, create visuals such as graphs and maps, gather props, and practise their presentations. Direct students to appropriate resources, but try not to lead them to any particular point of view. The Internet, current news stories and the resources listed in this guide are excellent sources of information for this activity.

#### SECOND CLASS PERIOD

#### **Make Presentations to the Hearing Board**

Each group makes a five-minute presentation before the board and other groups. Presentations can be made by one spokesperson or by several members. The board members may ask questions for clarification. The following schedule is suggested:

1. Opening remarks by board chairperson (teacher) 5 minutes.
  - Outline the process and order of appearance.
  - Introduce each group at the beginning of its presentation .
2. Group presentations (Kanu Pipelines should go first) 5 minutes each.
3. Final question period 10 minutes.

After the presentations, the hearing board members should be given time outside of class to discuss and judge the value of each group's arguments. They must come to an agreement on whether or not to support the pipeline project proposal, be prepared to explain the reasons behind their decisions and describe any conditions that may be attached if they agree the project may go ahead.

#### **TIP**

As board chairperson, the teacher may also request a written submission from each group.

#### **Did you know?**

The Berger Inquiry, completed in 1977, examined proposals for a pipeline to be built through the Mackenzie Valley in the Northwest Territories.

Justice Thomas Berger conducted his inquiry by travelling along the Mackenzie River and talking with local residents about their concerns. His final recommendation was that no pipelines be built for 10 years so that more time could be spent addressing land claims and protected areas.

#### **TIP**

A video camera could be used to tape the hearing procedure. Videotaping is a fun exercise for students and may help the board in evaluating the arguments. It also allows for an analysis of the process after it is completed.

*THIRD CLASS PERIOD***Present Hearing Board's Recommendations**

In class, the board should present its decision and rationale to all role groups. Group members should be allowed to ask questions.

**Follow-up**

As a class, examine the role play experience critically. Lead a discussion with the following questions:

- What were the key issues in the Fort Courage situation?
- Which group(s) proved most convincing? Why?
- Were there winners and losers as a result of the board's decision?
- Was the matter resolved to your group's satisfaction? Why or why not?
- What options might be available to any group that believes the board's decision harms its interests?

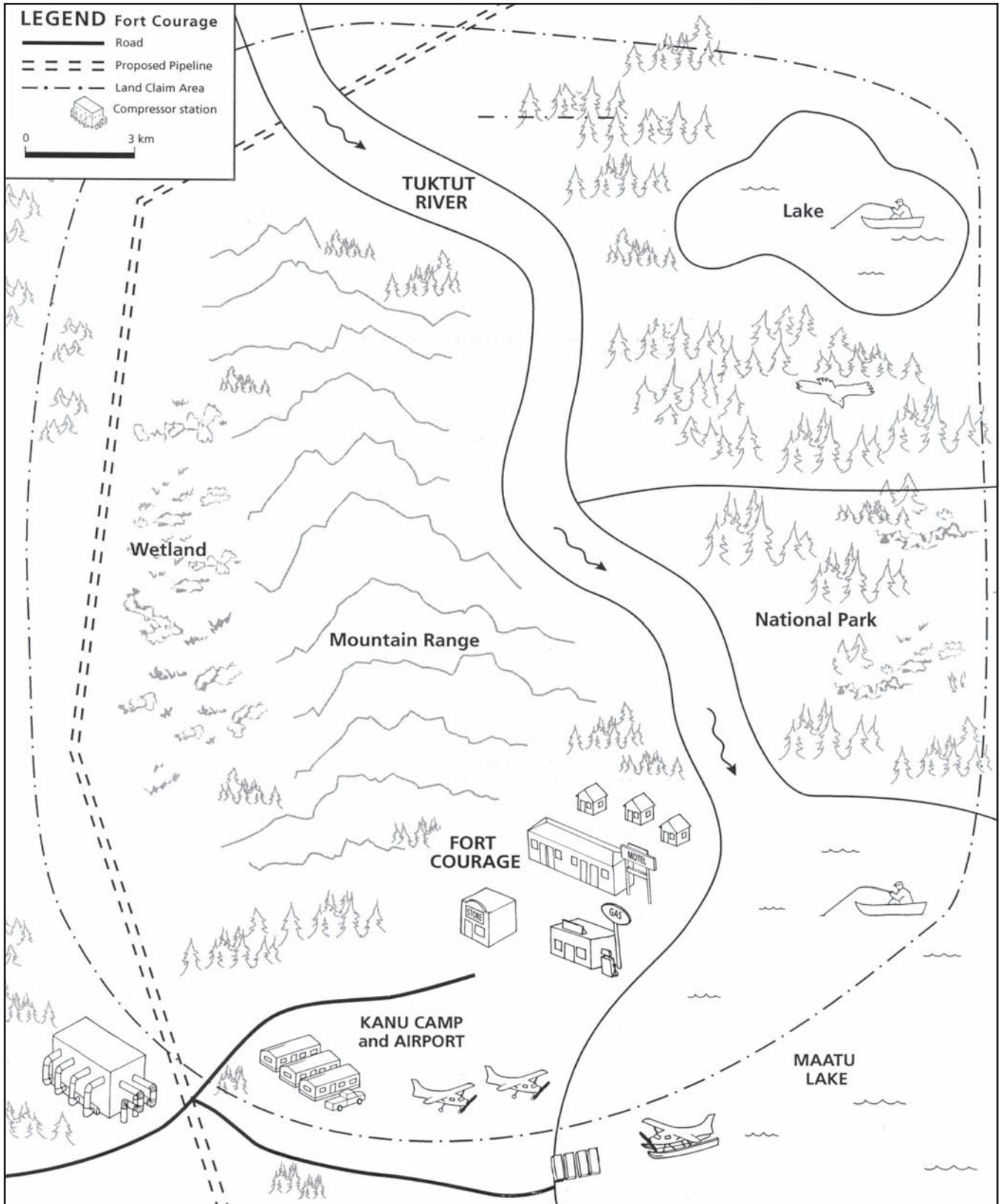
**TIP**

This analysis could be assigned and marked, rather than conducted as a class discussion.

**Did you know?**

When granting approval for a pipeline project, a hearing board almost always stipulates the terms and conditions required to ensure that the facility is constructed in a safe and environmentally-sound manner and that the project benefits local residents. These conditions are binding on the company and on all contractors participating in the project planning, construction and operations.

STUDENT HANDOUT



## **All Groups: Background Information**

### *HEARING BOARD PROCESS*

Imagine that a company named Kanu Pipelines wants to build an underground pipeline from a northern natural gas field past Fort Courage to deliver natural gas to people in other parts of Canada. The proposed route is shown on the map handout.

As is often the case with projects like this one, not everyone agrees whether or not the project should go ahead. For example, the local First Nations people are currently negotiating a land claim with the federal government, relating to the area outlined on the map. Until this agreement is finalized, they do not have any decision-making or veto powers about what happens in and around their community. However Kanu Pipelines must still pay the local First Nations (and other landowners) for use of their land and for any damage that happens to it. Some First Nations people support the project, others do not, but they are all interested in protecting their traditional lifestyle while enhancing their community.

Other groups want to protect their interests as well. Representatives from the following groups will be participating in this hearing: Kanu Pipelines, federal and provincial governments, Fort Courage town council, First Nations people opposed, First Nations people in favour, environmentalists, scientists and the tourism industry. Environmentalists have concerns about the project's impact on the land and wildlife, tourism groups want to protect and increase the local tourism industry and government representatives are looking to the project to provide money, jobs and training for local people while protecting the environment and respecting the community's culture.

As with any large petroleum industry project, interested groups are invited to make presentations about the proposed development to a hearing board. It is important to recognize that this hearing is designed as a cooperative approach to problem solving. The goals of the various parties are all interdependent. In other words, no one can get everything they want without the support of the other groups. After the hearing, the board decides whether or not Kanu Pipelines will be allowed to build a natural gas pipeline past Fort Courage. Your teacher will act as the board's chairperson.

The board's decision will be very important for the area. Canada's use of natural gas is increasing because new environmental regulations require industries to reduce their emissions of carbon dioxide. Because natural gas emits less carbon dioxide than other fossil fuels, many industries may start using it for energy instead of coal or crude oil. This increased demand will put great pressure on Canada to find and develop more natural gas supplies, especially in the North. If the board decides the project should not go ahead, this could hold back further exploration for natural gas and slow economic development in the region. If the board decides to let the project go ahead, this would speed up regional petroleum activity but could damage the environment and cause social problems in the area.

### **Town of Fort Courage**

Fort Courage, with a population of about 800, is small and isolated. The majority of the population consists of First Nations people but also includes non-Aboriginals. The town's labour force is around 250 people. The town can be reached year-round by airplane, in summer by boat and in winter by roads packed with snow or ice. The roads cannot handle heavy construction equipment or increased traffic. The town has a medical centre, post office, school, library, RCMP post and a few stores. There are also barge and floatplane facilities, an old fishing lodge and a few motel rooms for visitors. Many supplies, including some food, must be shipped in from Southern Canada. Propane to heat homes and businesses during the cold winter months must also be hauled in. These are some of the reasons why the cost of living is 25 percent higher in Fort Courage than in major Canadian cities.

Until recently, the local First Nations people have been able to provide for themselves by relying on their extensive traditional ecological knowledge. After generations of living with, observing and interpreting regional wildlife and plants, they have developed a vast base of knowledge about the local environment, what it offers and how to sustain it. With this knowledge, the local First Nations people have been able to provide food, clothing, shelter, tools and household goods for themselves and their families. Based on their traditional knowledge, the local First Nations people have developed the laws, customs and traditions that continue to guide the way they live today.

Traditional ecological knowledge remains very important to the local First Nations people, but at the same time, they recognize that formal schooling is needed to get a wage-earning job. Because of their focus on developing traditional knowledge, many First Nations people have not had much formal schooling. Very few have gone beyond high school. Due to a lack of formal schooling, some of the local families are facing social and economic problems because of limited opportunities to make money to pay for heat and other necessities.

Recently, the nature of the local economy has been changing. Several decades ago, the region's economy and everyone's survival was based on hunting and fishing, so locals did not need to import expensive food or other goods. Over the past few years, however, the human population has grown faster than the local game and fish populations, so people can no longer rely on hunting and fishing as their only source of food. Although most families still take part in hunting and fishing activities as part of a healthy lifestyle, these traditional activities are losing their economic importance. Most families now support themselves with a mixture of paid employment, bartering, fishing and hunting. If the proposed project goes ahead, the trend toward formal paid employment will likely speed up.

In Fort Courage, there are two main sources of employment: seasonal work in construction and tourism, and full-time work in government and community services. Unemployment is high in the winter, but low in the summer when visitors to the region increase the demand for local goods and services, such as accommodation, meals, tours and souvenirs. A few people make clothing and handicrafts, and some work as nature, fishing and hunting guides in the summer. Others sell processed wild meat, like smoked fish.

**Proposed Development**

In total, the underground pipeline project would cost about \$2 billion. Millions of dollars would be paid in taxes to the government every year.

The main development phase near Fort Courage would last three years. About 600 workers would be needed to work on the pipeline, facilities, housing and roads. Employment would change with the seasons: during the winter, hundreds of people would work but in the warmer months, when many areas are inaccessible, most of these workers would be laid off.

Kanu Pipelines would have to bring in many construction workers from other parts of Canada, since Fort Courage would not have enough workers, or workers with the right specialized skills, to complete the pipeline. The project would not use many local construction firms, material suppliers or other companies since their experience is mostly in carpentry work. But for construction companies and workers willing to learn new skills, there would be many construction jobs available. Local companies could also be hired to build other housing facilities.

Permanent employment opportunities in Fort Courage would be limited because most pipeline maintenance demands a high level of formal education, specific technical skills and solid experience not normally found locally. Since most local people lack the education, skills and experience Kanu requires for the project, initially at least, most permanent operating jobs would be filled by people from outside the local community. Long-term employment prospects for residents would depend on them increasing their education and skills, and on company/government agreements to train the local workforce in needed skills.

### **Group #1: Representatives of Kanu Pipelines**

You are part of the Kanu Pipelines team, which includes an engineer, environmental scientist, accountant and others. Your company could make a good profit from this project, but there are risks. You would have to invest (and likely borrow) a lot of money up front to build the pipeline and you wouldn't make any money until the pipeline was finished. If the project were to go ahead, you would have to reinvest a portion of your profits to operate and maintain the pipeline. Over the long term, if you didn't make enough money to pay back the principal and interest on money borrowed for the pipeline, Kanu might go bankrupt and you might lose any personal investment you made in the project.

For this pipeline project, you must consider:

1. Planning the pipeline route and securing appropriate approvals.
2. Reducing and managing social and environmental impacts.
3. Hiring and training employees.
4. Building and improving local facilities like roads, docks, warehouses, houses and an airport.
5. Building and maintaining the pipeline.

#### *1. PLANNING THE ROUTE AND SECURING APPROVALS*

This is the stage you are in currently. You know it's critical to achieve agreement on the pipeline route and the rest of the project's details. You have already done extensive economic, environmental and social studies in the region. From that data, you have selected what you consider to be the best pipeline route past Fort Courage.

#### *2. REDUCING SOCIAL AND ENVIRONMENTAL IMPACTS*

Kanu has been building pipelines in the North for about 20 years and has a good environmental and safety record. In fact, other companies in different regions of Canada have copied your methods. You believe your company's experience would reduce environmental and other risks while offering huge benefits to the people of Fort Courage.

As well as providing local people with jobs and upgrading skills, you think the project would have a positive effect on school dropout rates. If young people knew an education would help them get good jobs in the area, they might stay in school.

The region around Fort Courage has long been home to a great variety of wildlife, including caribou, bears and smaller animals, fish and migratory birds. You realize the pipeline would affect hunting and fishing. But studies show these activities are already declining so you think the project would have little actual effect on the traditional economy and lifestyle.

#### *3. HIRING AND TRAINING EMPLOYEES*

To start the project, Kanu pipelines would need financial and staff support from the provincial and federal governments. In order to get government funds, you would have to provide a certain number of jobs to local First Nations people. The project's labour force would include 70 per cent skilled, 15 per cent semi-skilled and 15 per cent unskilled workers. The local First Nations people would have to be trained to do the jobs specific to the project. Most of the supervisory staff would come from other parts of Canada.

Kanu pipelines plans two different kinds of employee training programs: one to help northern people upgrade their skills with the goal of short-term and permanent employment, and the other to teach current Kanu employees, especially supervisors, about the northern environment and culture. These programs would be expensive, but some of the costs might be shared with local, regional or national governments. You have to decide what emphasis you would place on short-term training programs for construction workers versus long-term apprentice-type programs for operation and maintenance workers.

#### 4. BUILDING AND IMPROVING FACILITIES

You would need to bring in tonnes of supplies by river which would be stored nearby, then moved to work sites by land or air. At or near Fort Courage, you would need to:

- build an airstrip and airport
- improve the existing wharf
- build several docks
- improve roads and build new ones
- build worker housing
- build helipads
- build a communications tower

These facilities would be very useful for Fort Courage, benefiting local residents and tourists. Just outside of town, you would build a large camp for workers. Other temporary work camps would be built in well drilling areas and along the pipeline route. In Fort Courage itself, you would build some housing for permanent staff and a workers' recreation centre, which could also be used by the townspeople. You would also upgrade the town's medical and dental facilities, and improve emergency services. If you could be sure of prompt service and product quality, you would use some local materials and construction firms for the wharf, housing and storage projects. This would boost the local economy.

Site clearing for these various facilities, plus forest clearing along the pipeline route, would be done during the summer and fall. Building the wharf, docks, storage and camp near Fort Courage would also be done during the warm months. All other construction would be done in winter, after the ground is frozen, so heavy construction equipment would cause minimal damage to the land.

#### 5. BUILDING AND MAINTAINING THE PIPELINE

The pipeline would be buried in winter after freeze-up. If your route is approved, the pipeline would cross under the Tuktut River. This crossing would be made in the winter to reduce erosion that could affect fish spawning beds at the mouth of the river.

Along the pipeline route, Kanu Pipelines would build several compressor stations. One of these would be located just outside of Fort Courage. As the pipeline is built, it would be pressure tested by filling the line with a water-methanol mixture. After the pipeline is finished, helicopters and low-flying planes would spread seed and fertilizer to restore the land and ground cover. Once natural gas is flowing through the pipeline, it would be cooled below 0° Celsius to protect the permafrost.

## **Group #2: Government Representatives**

Your group represents both the federal and provincial governments. The federal government oversees Crown (federally-owned) property such as lands, forests, water and energy resources such as natural gas. It is also responsible for environmental protection, First Nations affairs, northern development, transportation, communication and research. The provincial government is responsible for education, health, welfare, municipal works and housing.

If the project goes ahead, the federal government would be paid fees for the pipeline crossing Crown lands and tariffs on the natural gas that runs through the pipeline. In the long term, both levels of government would take in higher personal and corporate income taxes. Each year, government would receive millions of dollars in income tax from the project.

Kanu Pipelines, however, is asking the federal and provincial governments to commit funds and staff to get the project started and provide employee training programs. If the project goes ahead, there would be other government costs. The provincial government would have to expand the police and medical staff in Fort Courage to deal with any problems from rapid growth in population and earnings. On the other hand, the steady jobs and income this project would bring might help reduce social and economic stresses in the community.

In return for government support, you would want Kanu Pipelines to:

- Guarantee a certain dollar value in contracts to local First Nations construction companies, suppliers and other firms.
- Provide First Nations companies with business management training to help them stay profitable after the project is finished.
- Ensure the project would not harm tourism in the region. Both the provincial and federal governments are already providing grants, loans, staff training programs, advertising and facilities construction to the tourism industry.

As government representatives, you must consider how the general public might react to the development. Federal and provincial elections will be held before much income can be expected from this project. In recent years, your governments have been trying to project an environmentally-friendly image. Since natural gas is the cleanest-burning fossil fuel, this development might help maintain that image. On the other hand, Kanu Pipelines is proposing a large project that would change the Fort Courage area dramatically. If your governments agree to the project, you would have to promise tough enforcement of environmental safeguards.

### **Group #3: Fort Courage Town Council**

Your group includes the mayor of Fort Courage, who is of First Nations descent, and a few long-serving councillors who are a mix of First Nations and non-Aboriginal people.

Many of the people you represent earn low incomes. Currently, unemployment is quite high, especially in the winter when tourism, hunting and fishing are limited. Many residents do not own property and pay no property taxes. If approved, Kanu Pipelines' development would cause great social and economic changes in your community. The effects would be both positive and negative.

Many workers, mostly single men from other parts of Canada, would come to the area. You are worried that these workers, who would get paid good wages, would add to the town's social problems. Although they would have money to spend, they might not put much money into Fort Courage's economy other than for entertainment and day-to-day items. Fort Courage would face a trade-off of money being put into the town's economy versus many visitors and temporary residents potentially disrupting the town and local environment.

On the other hand, local businesses might benefit from the project. With steady jobs, residents would have more money to spend. As well, improved roads and services might help tourism. The result could be higher demand for local goods and services, such as bakery products, transportation, clothing and handicrafts.

If the town's economy expands and diversifies, a greater flow of money and increased competition could lead to lower prices. On the other hand, local businesses might have to pay their employees more to compete with the high wages offered by Kanu Pipelines, and as a result, would have to increase the price of the goods they sell. If this happens, imported goods might become cheaper than those produced locally so local suppliers might lose the business.

To protect community interests, you want Kanu Pipelines to:

- Guarantee an inexpensive, reliable and sustainable supply of natural gas to the community.
- Guarantee a minimum number of jobs for local people.
- Improve and staff a small, modern medical facility that would attract health professionals to the region.
- Coordinate all emergency services to deal with major accidents or environmental threats.
- Share the cost of maintaining community services after the project is finished.
- Make some commitments as to how their workers will interact with the local community, such as specific behaviour restrictions.

#### **Group #4: First Nations People Opposed**

Your group includes a teacher, construction worker, store owner, elders and others. You are concerned that the project would further threaten the traditional First Nations economy and culture which is based on living with and off the land. For this reason, you are completely opposed to the project. You are very concerned that the fragile northern environment could be badly damaged. In your opinion, activities like clearing the forest or digging a trench along the pipeline route could cause serious damage to the land and wildlife your people have relied upon for generations.

You have spent many years negotiating a claim to the land around and to the north of Fort Courage. Now much of the proposed pipeline route, as well as some roads and compressor stations, would be located on what you claim as your traditional territory. You are worried that if the Kanu Pipelines project goes ahead, the land you claimed will no longer be useful for your traditional activities. Wildlife could be harmed. In addition, people who now fish and hunt to meet some of their food and cash needs may give up those activities in favour of a regular wage. Although many First Nations people might get regular incomes from the pipeline project, you think any jobs would be short-lived. Also, if not enough people continue to get their food from hunting and fishing, the community will be forced to import more expensive food from southern Canada.

If First Nations people give up their traditional ways, social problems may also increase. You are concerned about First Nations workers returning home during off-work periods with extra cash to spend. If more money in the area leads to local price increases, this could cause problems for other First Nations people on low, fixed incomes.

Your group is also unsure about the promise of job training programs. Most First Nations people in Fort Courage have little formal education, therefore, they may not qualify to be trained for the skilled or semi-skilled positions this particular project offers. You think your people would be trained only for unskilled work. All the high-paying jobs would go to workers from other parts of Canada. You are also worried that First Nations students in formal school would quit school to work full-time at Kanu Pipelines.

Even though Kanu Pipelines seems to have a good reputation as a company that lives up to its promises, you are not sure that the company's promises in training, work and income will come true. In your meetings with First Nations people in other communities, you have heard that the other companies have not done what they promised. For example, one elder told of great damage done to the local river when a company built a bridge over it. Other First Nations people told you of how one company did not hire a single local person for the work done in their community and didn't use any local services. You are concerned this type of thing could happen in Fort Courage.

You therefore have several concerns about the Kanu Pipelines project. First, you are worried about possible damage to the local environment, which you and the wildlife have relied on for centuries. Construction could destroy the land and wildlife resources you claim as your historical right. Second, you know the project is planned to intrude on your traditional hunting grounds, which are important for your history and culture, and are a source of food for your families. Third, you are not convinced that local First Nations would benefit in the long term from training or jobs, since you think any work will be short-lived. You are also concerned that the extra money flowing into Fort Courage could increase prices and cause social and financial difficulties for locals. Finally, you don't believe all the promises Kanu Pipelines is making, because other companies have not always followed through on their promises.

You believe First Nations people should be able to make money while protecting their land and culture. You want to promote local tourism projects. For example, your group wants to build a large fishing and hunting lodge in your land claim area, right where the proposed pipeline would run.

### **Group #5: First Nations People In Favour**

Your group includes a lawyer, wood worker, tour guide, government employee, accountant and others. You represent First Nations people who think this project would bring many opportunities.

While the project would no doubt bring change, you feel First Nations culture has already changed a lot. Fewer First Nations people hunt and fish today, especially young people. Also, the human population is growing faster than the wildlife population. Hunting and fishing can no longer provide enough food and cash for the whole community. Kanu Pipelines would pay good wages and provide many jobs. If full-time jobs were not available, people could add to their income with seasonal work. For example, people could work in pipeline construction in the winter and in tourism in the summer. In addition, you know that in other projects like this, experienced First Nations hunters and guides have been hired to help biologists and other project workers study and protect the land.

Improved roads and facilities may bring more tourists to the region. First Nations people could build businesses for tourists and pipeline workers. For example, they could run hunting and fishing lodges, work as guides, and open restaurants, motels or outdoor equipment stores. You think steady jobs and money might ease the economic stress and social problems in the community. As well, the project could have a positive effect on school dropout rates. If a formal education would help First Nations children get good jobs in the region, they might stay in school longer.

To ensure long-term benefits for First Nations people, you want Kanu pipelines to:

- Provide the community with a reliable supply of natural gas, because hauling in propane is very expensive and some of your people cannot afford to heat their homes properly.
- Guarantee a certain number of jobs to First Nations people and offer them skills training.
- Send First Nations workers back to Fort Courage for their time off, so they can hunt and fish. (In the petroleum industry, field employees typically work long hours for a couple weeks then get a week or more off.) Workers would also be able to hunt and fish during the summer, when project construction is slack. This would help ensure the traditional ways aren't lost.
- Guarantee a certain dollar value of contracts to First Nations construction companies, suppliers and other businesses.
- Offer business management training to First Nations companies to help them stay profitable after the project is completed.
- Establish scholarships for First Nations students, as well as training programs for supervisory and management positions.
- Make a commitment to provide long-term training and apprenticeship opportunities for ongoing operations, so Fort Courage residents who have sufficient education and a willingness to work hard can hold permanent positions with Kanu.

If Kanu Pipelines does all these things, you think it would help your people's future. You know these conditions would be costly to Kanu Pipelines, but they are important for everyone. First Nations people could be wage earners while still following traditional customs, and Kanu Pipelines could complete their pipeline project efficiently and in harmony with the local people, land and traditions. You know of other companies that have worked successfully with First Nations people and local communities, and you think the same positive working relationship and benefits could happen in Fort Courage.

### **Group #6: Environmental Group**

You are a group of environmentalists. Your group includes an environmental scientist, lawyer, professional lobbyist and others.

In your opinion, northern ecosystems have not been studied well enough to understand the potential effects of this development. Some of your concerns include:

- Construction itself could affect fish and wildlife. Clearing for construction sites and the pipeline route would destroy the wildlife habitat of eagles, bears, moose and other local animals and disrupt the caribou migration routes.
- The northern land surface is very fragile. If Kanu's pipeline route is approved, the pipeline would be placed under the Tukut River. This would be done in winter but there would still be unfrozen fine-grained soil. Improper construction techniques could melt permafrost and cause erosion, upsetting fish migration and spawning. Erosion and drainage problems could also occur from road building and other construction. This erosion may continue even after land restoration is completed.
- During construction, the pipeline would be pressure tested by filling the line with a water-methanol mixture. A leak could spill methanol, which would destroy plant life nearby.
- As well, animals and birds might be disturbed by noise from construction machinery, low-flying planes or helicopters. No one really knows what effect this stress has on animals.
- Even routine operations could damage the environment. For example, sanitary facilities at work camps would have to be carefully controlled to avoid pollution.
- An accident at a natural gas plant compressor station could cause an explosion and fire. Although accidents like this are extremely rare, it is possible.

You are completely against developing energy resources in the region because you think the ecosystem could be damaged beyond repair. You are also concerned about petroleum development projects in general. You know that natural gas is the cleanest-burning fossil fuel, but believe society must greatly reduce its dependence on all fossil fuels because of the threat of global warming and other serious environmental problems. You think developing inexpensive, secure supplies of natural gas only encourages energy waste. Instead of developing petroleum fields, you think government and industry should concentrate on finding new, renewable, non-polluting forms of energy.

### Group #7: Scientists

You are a group of scientists who have conducted research into the environmental risks of energy projects like this one. You recognize the project's environmental risks, but you also know all human activity has risks. In your opinion, people must weigh the risks against the benefits. You believe the potential benefits of the project are large, while the risks can be minimized.

Protection of permafrost regions is very important. Kanu Pipelines has studied local soil, permafrost and ground ice conditions. The pipeline would be buried and the natural gas would be cooled below 0° to avoid thawing the permafrost. It may even be possible to match the pipe temperature to the ground temperature.

Road and helipad construction can preserve permafrost soil by using a thick insulating layer of fill under roads and helipads to make sure thawing doesn't reach the permafrost below. Trees and shrubs are usually cleared by machines, but hand clearing could be done where the ground has not frozen, making the time between land clearing and construction as short as possible would minimize erosion and silt problems.

Tests show that the amount of silt in the Tuktut River varies a lot from season to season so the extra silt caused by construction may have little harmful effect. The pipeline could be laid beneath the Tuktut River during winter at a stretch where the river runs straight. There, the riverbanks would suffer minimum erosion. Construction near the river could be avoided during fish spawning periods from early September to mid-November, and during May and June.

As the pipeline is built, it would be pressure-tested to ensure it would not leak. In non-permafrost areas, this could be done by filling the line with water. Where the ground is frozen, a water-methanol mixture would be used. Almost all of the methanol could be recovered by distillation and used again. If a pipe leak occurred, the liquid would form a pond, which could be pumped into storage tanks for treatment.

Where land gets cleared, erosion could be minimized by replacing ground cover as soon as possible. This would be done by spreading local grass seed and fertilizer from helicopters and low-flying planes. Hand seeding could be done near waterways. Natural drainage could be preserved as much as possible to reduce erosion.

The pipeline route avoids areas where there are unstable slopes – potential sites of pipe breaks. Methane is less dense than air, so even if a pipe leak did occur in an open area the methane would quickly disperse into the atmosphere. This reduces the chance of an explosion or fire. Each compressor station and valve site would be equipped with pressure-shutdown valves to close the pipe if ever a leak should occur. Because the pipeline would be buried one to two metres deep, a forest fire would not be an immediate danger to the pipeline.

You believe that scientific studies and advancements prove that the Kanu pipeline could be constructed and managed in an environmentally-friendly way. However, for you to fully support the project, Kanu Pipelines would have to:

- Design the pipeline route to follow a path well away from the major spring and fall caribou migration routes.
- Require aircraft to fly at least 350 metres high to avoid disrupting migrating herds.
- Follow all industry and government safety and environmental regulations.
- Conduct ongoing studies to identify any impacts on water, air, land, wildlife and people.
- Spend money on project maintenance or upgrading as necessary.

You recognize these actions may be expensive, but you trust that Kanu Pipelines will operate in an environmentally-friendly manner, despite the extra costs.

### **Group #8: Tourism Industry Representatives**

Your group includes tour guides, motel, restaurant and storeowners, craftspeople, and others. Despite the area's great natural beauty, tourism has been quite limited because the region is so isolated. Right now only the less scenic southern parts of the region can be reached by road. Even though the area is hard to get to, tourism has been strongly promoted for about the last 10 years. In recent years, the government has helped the tourism industry with grants, loans, staff training, advertising and facilities construction.

The area has a national park nearby, that was created to preserve the natural features and landscapes. Big game hunting in the mountains also attracts tourists. Animals hunted include buffalo, Dall's sheep, caribou, moose, wolf and goat. Other tourists come for sports fishing on the area's lakes and rivers. Trout, grayling, pike, pickerel and Arctic char are some of the region's species.

Any damage to wildlife or pollution of the land or water could badly harm your industry. However, you expect that there may be growth in tourism if the project goes ahead because of improved facilities such as roads, docks, motels, and communications. The main tourist season is in the summer, when project construction would be slack. Local people could work in construction in the winter and in tourism in the summer. If more tourists come, businesses involved with sport fishing and hunting would probably also expand. For example, there would be more demand for fish and game lodges, guides, outdoor clothing and equipment stores, restaurants and entertainment services. This demand would also come from Kanu employees on leave.

The effects of the project may be short-lived, however. There could be rapid growth in the building and use of lodges, restaurants, stores and entertainment facilities during the main pipeline construction phases, followed by a decline in tourism activity once the pipeline project is completed. If tourism businesses invest a lot of money, they could go bankrupt after the construction workers leave. However, with improved access to the area via better roads and an airport, tourism would benefit in the long term.

You are in favour of the Kanu project, but only if the following conditions are met:

- Permanent infrastructure, such as roads, airport, medical facilities, is developed and funds are provided for maintenance.
- Project construction and maintenance cause minimal damage to the local environment.
- Photos and descriptions of the area are posted on the Kanu Pipelines' web site and in their corporate brochures and annual reports.

### Group #9: Hearing Board

Your group – the hearing board – has the greatest responsibility of all. You must make the final decision as to whether or not the Kanu pipeline project will go ahead. In energy projects like this one, public consultation always takes place before a company can apply for development work. In the first stage of consultation, companies must identify and contact those who may be directly affected by the project. That has already been done for the Kanu pipeline.

Representatives from the following groups will be participating in this hearing: Kanu Pipelines, federal and provincial governments, Fort Courage town council, First Nations people opposed, First Nations people in favour, environmentalists, scientists and the tourism industry. Your job is to ensure that everyone has the chance to share their views in an open and honest manner. Remember that you are representing a government agency and as such, you are required by law to treat all parties fairly.

As hearing board members, you have four responsibilities:

1. Determine how you will evaluate the groups' presentations and what criteria you will use to develop your final decision. You might want to think in terms of costs and benefits. For example, if one group presents information on environmental costs and one presents arguments about financial benefits, you must decide how you are going to weigh the costs against the benefits.

Your criteria should be based on the guiding principles of Alberta's real hearing board, the Alberta Energy and Utilities Board. Its purpose is: "to ensure that the discovery, development, and delivery of Alberta's resources take place in a manner that is fair, responsible, and in the public interest." You should all agree on your chosen criteria before the date of the presentations.

2. Listen carefully to each group's presentation and take notes. Make sure you understand the arguments everyone is presenting. Ask questions if necessary.
3. After the presentations, get together to discuss and judge the value of each group's arguments. Decide whether to reject the proposal outright, or to approve it with specific conditions. Once again, you should all agree on your final decision. Make note of how you came to your decision.
4. Present your decision to the class. Make sure you explain the reasons behind your decision. Be prepared to answer any question the groups have.

Hearing boards like yours receive hundreds of energy development applications every year. For the most part, these applications are approved because all site and environmental requirements have been met, public concerns have been resolved, and landowners and community members have agreed to the project. However, sometimes local concerns are not resolved. In those cases, the hearing board does not grant approval until all issues are addressed to everyone's satisfaction.

For more information on your role, visit these web sites:

- National Energy Board: [www.neb.gc.ca](http://www.neb.gc.ca)
- Canadian Centre For Energy Information: [www.centreforenergy.com](http://www.centreforenergy.com)



Canadian Centre  
for Energy Information

## Pipelines – Our Invisible Highway Resource Review

Please help us improve this resource by providing feedback on the following areas. You may complete and fax this review form to the Centre for Energy at 403-237-6286, or by mail to 1600, 800 6th Avenue SW, Calgary, AB T2P 3G3. You may also e-mail your comments to [infoservices@centreforenergy.com](mailto:infoservices@centreforenergy.com)

**Did you find this resource useful for your class?**

Yes    No

**Would you use it again and/or recommend it to other teachers?**

Yes    No

**Which of the activities did you and your students complete?**

- #1. Invisible Highway
- #2. Pipeline Planning and Construction
- #3. Bringing Oil and Gas to the People
- #4. Pipeline Perspectives

**Of the activities you completed, which ones did you and your students find the most interesting? Please list your top three:**

<i>TEACHER</i>	<i>STUDENTS</i>
1	1
2	2
3	3

**Please rate this resource in the following categories:**

- |                   |                                      |                                     |                                     |
|-------------------|--------------------------------------|-------------------------------------|-------------------------------------|
| Curriculum fit    | <input type="checkbox"/> Good fit    | <input type="checkbox"/> Some fit   | <input type="checkbox"/> No fit     |
| Age level         | <input type="checkbox"/> Too old     | <input type="checkbox"/> Too young  | <input type="checkbox"/> Just right |
| Activities        | <input type="checkbox"/> Too many    | <input type="checkbox"/> Too few    | <input type="checkbox"/> Just right |
| Time required     | <input type="checkbox"/> Too long    | <input type="checkbox"/> Too short  | <input type="checkbox"/> Just right |
| Support materials | <input type="checkbox"/> Appropriate | <input type="checkbox"/> Not needed |                                     |

(i.e. student handouts)

**Other support materials needed:**

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**Please offer your suggestions for improving this resource. Feel free to expand on your responses given above and/or continue on a separate page if necessary.**

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**Thank you! Your input is appreciated. We invite you to complete the following information so we can send you a token of our appreciation.**

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