the PEMBINA institute

Land Disposition

Environment & Energy in the North

A PRIMER

About the Pembina Institute

The **Pembina Institute** is an independent non-profit research, education and advocacy organization. It promotes environmental, social and economic sustainability through the development of practical solutions for businesses, governments, individuals and communities. The Pembina Institute provides policy research leadership on climate change, energy policy, green economics, renewable energy, and environmental governance, as well as extensive formal and public education programs. More information about the **Pembina Institute** is available at **www.pembina.org** or by contacting

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Contents

About the Primers

The Pembina Institute's Energy Watch program has developed a series of eight primers to help northern communities understand the potential environmental and, where applicable, human health impacts of oil and gas development. The primers also aim to help these communities effectively take part in managing these risks, ensuring that governments and oil and gas developers are using the best environmental practices available.

Each of the first six primers focuses on a different phase of oil and gas development. There are four parts to each of these primers:

1. A basic description of the activities of that phase
2. The potential environmental and human health risks of that phase
3. The best practices available to reduce those risks
4. Opportunities for citizens to get involved in deciding how developers carry out the activity.

The following are the six phases of oil and gas development addressed by the primers:

Seismic Exploration — industry activities to create a picture or map of the geology below the Earth's surface to find oil and gas reserves.

Land Disposition — the actions companies need to take to get the rights to explore for and produce oil and gas reserves.

Exploration and Production Drilling — the activities companies perform to first locate oil and gas, then to find out the size and usability of an oil and gas reservoir, and finally to reach the oil and gas using intensive production drilling.

Well Site Operation — industry practices to remove oil and gas from underground reservoirs and transport them to the surface.

Oil and Gas Processing — actions companies take to process oil and gas to prepare it for sale.

Pipeline Construction and Operation — industry activity to set up pipelines that carry oil and gas from the place it comes out of the ground to the places where consumers will use it.

The last two primers focus specifically on citizens' rights around oil and gas development projects:

Citizens' Rights and Oil and Gas Development: Northwest Territories explains the rights that citizens have related to oil and gas development in the Northwest Territories.

Citizens' Rights and Oil and Gas Development: Yukon Territory explains the rights that citizens have related to oil and gas development in the Yukon Territory.

To produce these primers, the authors reviewed the limited oil and gas development already under way in Canada's North. They also researched the current issues and practices in Alberta, northeast British Columbia, and the Alaskan North Slope, where intensive oil and gas development is already occurring.

Introduction

Just as they were about twenty years ago, companies are once again actively exploring for oil and gas reserves in the frontier regions of the Northwest Territories and the Yukon Territory. If developers decide to develop these resources, they will have to build a large capacity (or large diameter) pipeline to export the oil and gas from the far North to other regions. Once developers make a final decision to build one or more pipelines, and once regulators approve the plans, oil and gas exploration and production activity in the North will quickly increase.

Developing the oil and gas resources of the North would offer the people living there many opportunities for economic development. But it is important that companies developing oil and gas reserves, and governments and other regulators overseeing the work, make sure they do not damage the cold, slow-growing and sensitive northern ecosystems. While there will be unavoidable environmental impacts because of oil and gas exploration, developers and regulators can reduce impacts with careful planning and by using the best available technologies and practices.

Since it is the people of the North who will experience the most direct impacts, it is important that they play a strong role in setting the terms and conditions of such development. When deciding on the actions they will take, industry and various levels of government need to be respectful of and consider the needs and wishes of Northern communities.

During the past few decades, the oil and gas industry has become more aware of the environmental impacts associated with its work. Technologies and practices have become much less environmentally damaging than they were in the past. And most, though not all, companies have responded to social and environmental concerns. Despite these improvements, there are still negative environmental impacts associated with oil and gas development and production. This is especially true in areas where the activity is intensive.

When the public shares their questions, concerns and expectations about this work — directly to companies, through the media, and through regulators that inspect the work and enforce regulations — this helps to uphold and improve industry performance. When the public is able to take part in effectively influencing decisions around oil and gas exploration, this pushes companies to higher levels of performance. When the public gives their input they tend to examine all companies equally; their participation ensures that all developers follow the best practices possible.

When companies involve local people and their concerns for the long-term health of their communities and environment they can build positive relationships, increase certainty and decrease conflicts around the project, and lower their investment risk.

This primer, ***Land Disposition*** focuses on the actions companies need to take to get the rights to explore for and produce oil and gas reserves and the role of governments in deciding on which lands they will allow oil and gas development to take place.

There are four sections in this primer:

- Part 1 provides a general description of land disposition
- Part 2 outlines the potential environmental impacts associated with land disposition
- Part 3 describes technologies and practices that can help to reduce environmental risks
- Part 4 offers information on citizen rights and opportunities to influence decisions on land disposition practices.

What is Land Disposition?

The regulatory process through which companies obtain the rights to explore for and produce oil and gas reserves is the first step in oil and gas development. When the government gives a company the rights to subsurface oil and gas resources in an area this is referred to as a "land disposition" or "land sales."

The first step in land disposition is for companies to tell the government in which areas they are most interested in exploring for oil and gas. The government then issues a "call for nominations" that defines the areas that any company can place bids on. Companies place bids on blocks of land within the call for nominations area. The government then conducts an auction-type process to assess the bids submitted by companies. Companies get the exclusive right to explore those blocks that they "win" in the auction.

The government can prohibit oil and gas development on land that it wishes to preserve for its ecological, historical, or cultural value by simply not auctioning the subsurface rights that underlie those areas.

Once they have the rights to explore in a particular area, companies begin by carrying out seismic exploration to determine whether the area has the type of deep underground rock formations that could contain oil and gas reserves.[1] If it does, they next determine the best location to drill exploratory wells to look for oil and gas.

Once companies find areas with potential reserves they would like to further explore or develop, they then go to the proper governmental authority to get approval to do more exploration and to remove the oil or gas.[2]

DISPOSITION

*A **disposition** is a legal instrument (such as a sale, lease, license or permit) that allows a government to give a benefit from public land to any person or company.*

The land disposition process in the Northwest Territories is different from that in the Yukon Territory. However, in both areas the outcome is similar:

- In the Northwest Territories companies must first get a disposition in the form of an "Exploration License." This license gives the company the exclusive right to drill and test for oil and gas in a given area. If companies are successful in finding oil and gas reserves, they can then apply for a "Production License" to produce oil and gas in a given area.

1 See the second primer in this series, Seismic Exploration: A Primer, for a detailed explanation of this step.
2 See the third primer in this series, Exploration and Production Drilling: A Primer, for a detailed explanation of this step.

- In the Yukon Territory companies must first get a disposition in the form of a "permit." This gives the company the exclusive right to drill and test for oil and gas in a given area. If companies are successful in finding oil and gas reserves, they can convert their permit to a "lease," which gives them the exclusive right to produce oil and gas in a given area.

Land Disposition in the Northwest Territories

In the NWT, the Minister of Indian and Northern Affairs Canada (INAC) issues land dispositions. There are six basic steps to the process:

1. A company expresses interest in developing the oil and gas resources of an area.
2. INAC begins a community consultation with affected communities. It often looks for written support for the proposed project from the local Aboriginal community.
3. The Minister of INAC issues a Call for Nominations. The Minister invites developers to select, or nominate, blocks of land they would like to the government to consider for exploration. The call gives details of the terms and conditions for potential development projects.
4. Industry nominates blocks of land it would like to see posted for bidding. INAC considers all nominations and decides on the areas it will consider for development.
5. INAC issues a Call for Bids, inviting developers to bid on the opportunity to develop the oil and gas resources of an area.
6. Companies put in their bids. To the companies that give the highest bid for developing an area, governments grant them an Exploration License. When a company makes a discovery (finds oil or gas resources) it can apply for a Production License, which will give it the rights to produce oil or gas.

Land Disposition in the Yukon Territory

In the Yukon, the Yukon Territorial Government Oil and Gas Branch issues land dispositions. There are six basic steps to the process:

1. The Yukon Government proposes potential areas for oil and gas development. For each area, it prepares maps and background information and consults First Nation governments, the federal government, territorial government departments, renewable resource councils, other land claim bodies and non-government organizations.[3] Each of these stakeholders is invited to submit information on the ecological, cultural and tourism values that could be impacted by oil and gas development in an area.
2. The Yukon Government considers the information provided by all of the stakeholders and drafts a map with "call for nomination" boundaries. The territorial government consults First Nation governments regarding the proposed Call for Nomination Boundaries.

3. The government publishes a "call for nomination areas" and invites companies to propose specific locations on which they want to bid for development. They also give industry a map and information on the ecological, cultural and tourism values found within the call for nomination areas.
4. The government reviews the suggested locations. It uses the Oil and Gas Disposition Regulations to identify environmental, socio-economic, and surface access concerns that could arise from oil and gas development if it issued land dispositions. The public may provide input in writing at this stage. A formal consultation is carried out with the First Nations whose land is affected.
5. The government reviews all submissions from the public and First Nations, decides whether to issue a Call for Bids and to auction off the nominations areas. The government may attach specific conditions on certain areas to address concerns.
6. The Yukon government issues a Call for Bids, inviting developers to bid on the opportunity to develop the oil and gas resources of a specific location. Companies put in their bids. The government grants exploration permits to the companies with the highest bids. When a company makes a discovery (finds oil or gas resources) it can apply for a lease, which will give it the rights to produce oil or gas.

Land Disposition Fees and Rights

The developer that bids the highest gets the rights to develop a particular parcel of land. This developer then pays the government the winning bid price as well as annual fees. If the developer later removes oil and gas from the land, they will also give the government a royalty payment.

With these payments, companies gain subsurface oil and gas rights — the rights to work beneath the land surface. Normally, however, they do not have rights to the land surface itself.

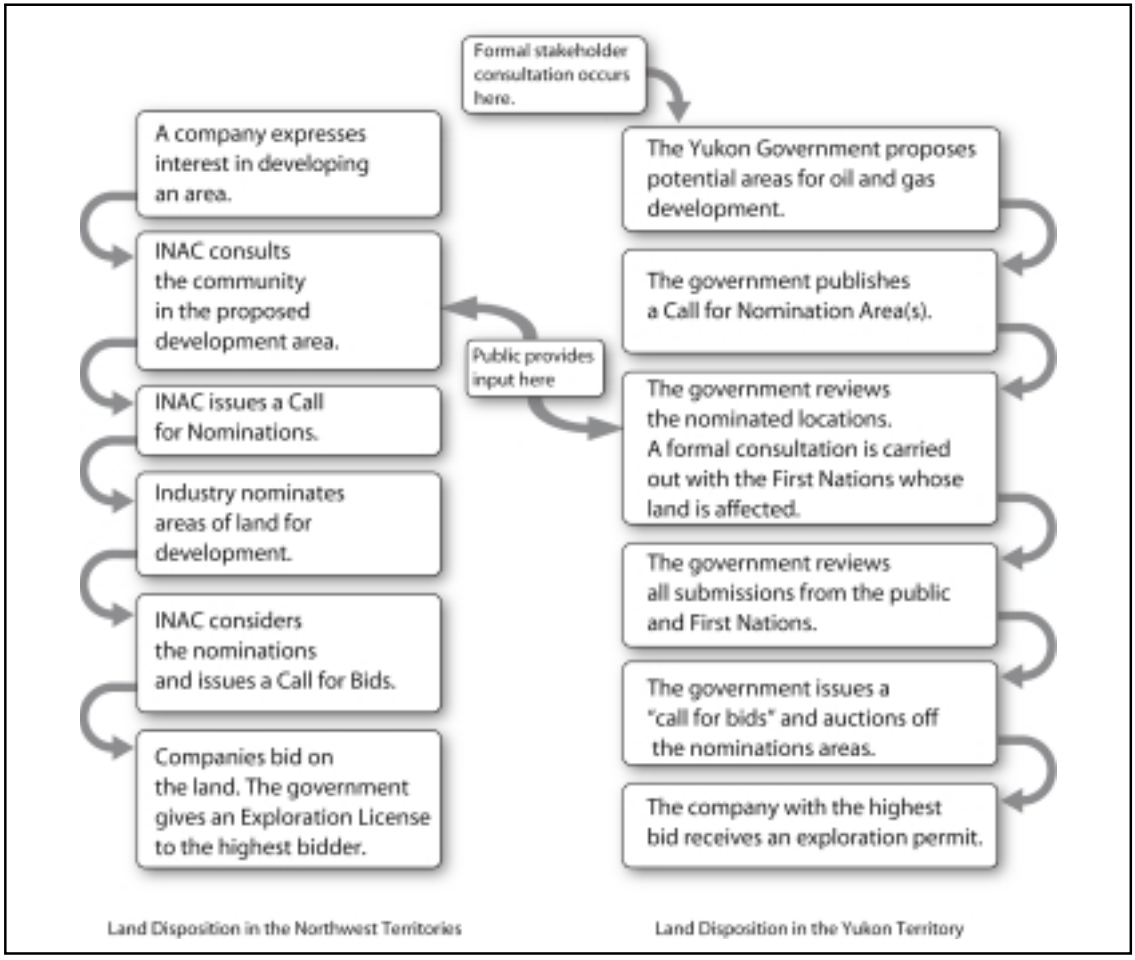
Permits, Leases and Licenses

After they win the rights to develop a piece of land (a "permit" in the Yukon and an "exploration license" in the Northwest Territories) companies must next get land and water approvals before they can begin any exploration or production drilling. Once companies find oil or gas reserves they want to extract, they must get further land and water approvals and also a lease (Yukon Territory) or production license (Northwest Territories). Companies must also get permits or licenses to carry out specific activities like drilling wells, and building and operating well sites, processing facilities and pipelines.

Sub-surface resource rights (in the form of permits, leases and licenses) will often specify time limits within which developers must begin

3 Yukon Territorial Government. 2002. Yukon Oil and Gas Disposition Process.

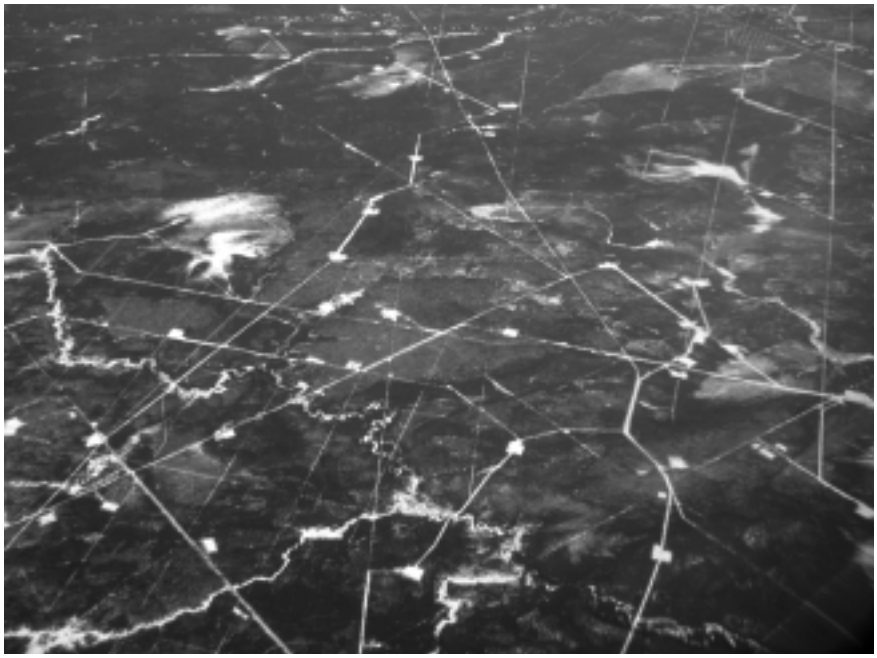
exploration and development. There may be other conditions in the lease rights, such as a requirement for the developer to spend a certain amount of money and to complete specific types of work (for example, complete a seismic program, drill a well). For example, in the NWT the money the company has to spend and the activities it must complete are referred to as a company's work commitment on an exploration license (EL). If the company wants to renew its license for a second term, it has to meet the conditions outlined in the EL.



4 Yukon Oil and Gas Disposition Process, Yukon Territorial Government, www.emr.gov.yk.ca/Oil_and_Gas/Dispositions/process.htm (June 2002)

Environmental Impacts

Companies buy the rights from governments to explore for oil and gas on a piece of land in a process called land disposition. Once they have obtained the rights, the government allow the company to have access to the land to explore and develop any potential reserves. This means the land disposition process controls the most probable location, timing, and extent of oil and gas development in a region.



Well pads and roads near Grande Prairie, Alberta.

SOURCE: WAYNE SAWCHUK

When regulators include an area in the disposition process, they are giving developers the opportunity to affect the area with a series of activities and impacts linked to exploring for oil and gas. These impacts include construction and maintenance of seismic cutlines,[5] roads, water crossings, pipelines, power lines, drilling pads and processing equipment. Regulators normally exclude protected areas from the disposition process. The impacts associated with oil and gas development are often not compatible with the preservation goals of areas of ecological, cultural, or historic significance.

Before they award oil and gas dispositions, regulators must consider land use planning for the long term. Ideally, all protected areas

5 Companies conduct seismic exploration repeatedly. Sometimes they conduct seismic exploration if they want more data before they pick their drilling location. If they find resources, they may do more seismic exploration before drilling the production wells. See the first primer in this series, *Seismic Exploration*: A Primer, for a detailed discussion of this issue.

should be excluded from the land disposition process upfront. Even if they later decide to protect a land area, it is difficult for a government to take subsurface rights back from oil and gas companies. This has been a problem in areas like Alberta where land use priorities have shifted after regulators have given oil and gas rights to companies.

Oil and gas development often occurs slowly in a given region until developers find out the size of the reserve and until key economic barriers (such as lack of pipeline access) are removed. Once this happens, full-scale development can increase rapidly. Such expansion can place significant pressure on the ecological integrity of a region. As a result, regulators may not be able to ensure that they are protecting the area over the long term.

Most oil and gas development happens in small incremental stages. Whether developers advance to the next stage of development often depends on how successful they were at the previous stage. It also depends on market conditions such as the price of gas or oil. Developers may advance through some of the stages of development and then, when unsuccessful, suddenly stop the work. Or the work may be put on hold for some time and then started again when economic conditions improve.

In many areas of the Western Canadian Sedimentary Basin, this incremental oil and gas development over time has severely damaged the landscape. Developers have created linear disturbances by changing land formations,

Wellhead.

SOURCE: PEMBINA INSTITUTE

EXAMPLES OF OIL & GAS INFRASTRUCTURE

Gas Plant.

SOURCE: WAYNE SAWCHUK

Oil battery.

SOURCE: PEMBINA INSTITUTE

fragmenting and separating areas by clearing all vegetation and creating paths between them, and by destroying wildlife habitat.[6]

The size of land disposition areas can vary significantly. Sometimes regulators decide they can make more money selling small blocks of land to multiple companies, rather than large blocks of land to a few companies.

This can result in competitive development activity as each company conducts its own seismic and exploration drilling activity. It can also result in "competitive drainage" where different companies each have wells that are competing to remove oil or gas from the same producing zones. To remove the most oil or gas as quickly as possible, companies in a competitive drainage situation often each develop their own oil or gas gathering systems and their own processing plants to access the same area. The redundant infrastructure results in greater environmental impacts.

6 See the second primer in this series, Seismic Exploration: A Primer, for a detailed discussion of this issue.

Using the Best Practices Available

Oil and gas exploration involves activities that will result in some environmental damage. Regulators and developers can minimize disruption of the environment by using "best practices and technologies" — the most environmentally effective standards, practices and technologies that have been proven to minimize environmental damage.

Overall, best practices aim to ensure community sustainability. When companies use best practices they take a "triple bottom line" approach, considering the economic, environmental, and social impacts on the community of any action they take. In each of these areas, regulators and developers design best practices to minimize damage to the community's well-being and to increase its viability. This document focuses primarily on environmental best practices.

In oil and gas development there are three types of best practices:

- those that apply to the principles of how the work is planned and carried out
- those that refer to the practices and standards used in the field
- those that have to do with the equipment that is used.

With land disposition, most of the best practices refer to actions that regulators, first, and industry, second, should take before the land disposition process begins. That is, regulators and industry should apply best practices in the steps leading up to land disposition. It is especially important that land use planning occurs before dispositions are sold to companies, and that potential protected areas are excluded from the disposition process.

At this stage of oil and gas exploration, regulators can use best practices to protect ecologically significant areas and to preserve the overall ecological health of an area over the long term. This includes considering immediate and future cumulative impacts of potential development.

Members of the public can review government calls for nominations to ensure that they have used best practices when deciding on which parcels of land are considered for development.

The following best practices are presented in the order they would be applied in the steps leading up to land disposition, beginning with land use planning. In general terms, they describe

- actions governments should take to protect certain areas from any development
- limits governments should place on land that is open for development
- actions industry should take to ensure they protect the land they propose to develop.

The most suitable best practices and measures for regulators and developers to use for specific land disposition cases will depend on local

circumstances of the area. Different circumstances call for different responses. Not all the best practices and measures listed below will be suitable in every case.

Conducting Integrated Land Use Planning

Governments should carry out as much land use planning as possible before the oil and gas disposition process occurs. Governments should identify and map the areas that are most important from an ecological and cultural perspective, as well as the important habitat areas and wildlife corridors that are needed to connect protected areas together in a way that preserves the overall ecological integrity of the region.

By designating regions as protected, regulators preserve wildlife habitat, sacred sites, areas of traditional use for travel, hunting and gathering, burial grounds, and other sites of deep cultural significance. More work is needed to establish a network of protected areas that is representative of Canada's natural regions. In 1992, federal, territorial and provincial governments in Canada committed to a plan to establish a national network of terrestrial protected areas by 2000. The goal was not achieved. By 2000 only one-third of Canada's 486 terrestrial natural regions were adequately or moderately represented.[7]

Protected Areas

One way regulators can ensure they protect a region from some of the impacts of oil and gas development is to designate a network of parcels of land as "protected areas." These are areas that are of ecological, historical or cultural importance. Ideally, protected areas should be allowed to continue to function naturally and without any disruption. They should be large enough to preserve existing natural relationships and to allow these relationships to cycle and change according to natural forces, and without the impacts of industrial development.

Protected areas can serve as important regions where regulators and developers can conduct scientific research. They can compare the health of ecosystems in areas where oil and gas development has taken place with the health of ecosystems in protected areas where regulators have not allowed any development to occur. By using protected areas as benchmarks, government and industry can also evaluate the performance of measures that are used to mitigate impacts in areas where oil and gas development is allowed.

Special Management Areas

Besides establishing protected areas, another way governments can protect regions from the impacts of oil and gas development is to set aside lands as "special management areas" — areas where, temporarily, they will not allow

7 World Wildlife Fund, 2003. Position Statement on Mackenzie Valley Natural Gas Pipeline and Associated Developments.

Muskwa-Kechika Management Area

SOURCE: GOVERNMENT OF BRITISH COLUMBIA / *(HTTP://SRMWWWLGOV.BC.CA/RMD/RMP/MK/MAPS/GENERAL/MK-OVER.HTM)* FEB 2004

any development to occur or where they will only certain types of development activity. The Muskwa-Kechika area of North Eastern British Columbia is an example of a special management area.

The Muskwa-Kechika Management Area was established in 1997. In 2001 it was enlarged to encompass a total area of 6.4 million hectares. Over one million hectares of the total area are parks and are therefore excluded from industrial development. Resource development including oil and gas is allowed in the rest of the Management Area in a manner that ensures protection of important wildlife and environmental values in the area.[8]

8 Background on the Northern Rockies/Muskwa-Kechika, Canadian Parks and Wilderness, *http://www.cpaws.org/northernrockies/background.html*, August 2003.

Special management areas must be large enough to preserve ecological integrity and to support biodiversity. They can also act as laboratories for scientific inquiry. Similar to protected areas, special management areas can include areas that serve as "ecological benchmarks" against which industry can measure the success of its reclamation efforts in the parts of the region open to development.

Many migratory bird species spend part of their life cycle in Canada's North.

SOURCE: KEN MADSEN

To preserve a healthy ecosystem, special management areas cannot exist by themselves. They must connect with other surrounding areas that are also excluded from development, including undisturbed corridors that allow for wildlife to move and wander, and wetland areas for migratory birds.

Special management areas may have restrictions on the total amount of industrial activity that occurs at one time. Once developers have finished their oil and gas work in an area, they may do work to reclaim those areas, restoring as much as possible the original ecological integrity and biodiversity. When regulators deem the reclamation work to be successful, developers can then begin to develop areas originally set aside as reserves. This approach ensures that a certain percentage of the land at any given time is non-developed and functioning as a natural ecosystem.

Limited Linear and Area Disturbance

After regulators have selected both protected areas and reserve areas, the remaining land may be available for sale and development. The land may thus be subject to all kinds of industry activity, including oil and gas exploration, forestry, mining, and other development. In these non-designated areas, regulators can help protect the land from the cumulative impacts of various industry activities by limiting the total linear disturbance that can occur there. Linear disturbances include roads, cutlines, and other clearings in forested areas that reduce wilderness

LAND USE PLANNING IN THE GWICH'IN COMMUNITY

In the Northwest Territories, residents of the Gwich'in First Nation Settlement Area developed a land use planning strategy. Out of this, the Gwich'in Land Use Planning Board issued a land use plan in 1999 entitled Nanh' Geenjit Gwitr'it T'lgwaa'in (Working for the Land). Under this plan, the government divided the entire Gwich'in Settlement Area into three zones: protected areas, special management areas, and general use areas.

Protected Areas

Of the whole settlement region, the Gwich'in have set aside about 10% of the land as protected areas. In Gwich'in Settlement Areas, the traditional knowledge and experience on the land of residents and communities were a key factor in the land use planning process. The Land Use Planning Board has identified four types of Gwich'in Protected Areas in the land use plan:

- *core areas communities would like to see protected based on a variety of values ranging from current and historical use, heritage resources, wildlife, fish, forests, vegetation and water resources;*
- *core areas the scientific community would like to see protected based on critical wildlife habitat and populations, outstanding heritage sites, unique land features and ecological processes;*
- *five out of the six ecoregions of the Gwich'in Settlement Area; and*
- *areas that do not unreasonably limit the ability of resource development to occur in the Gwich'in Settlement Area.*

SOURCE: NORTH YUKON RENEWABLE RESOURCE COUNCIL

SOURCE: NORTH YUKON RENEWABLE RESOURCE COUNCIL

LAND USE PLANNING IN THE GWICH'IN COMMUNITY

Caribou.

SOURCE: CPAWS YUKON CHAPTER

As well as these four types of areas, there are also another 13 smaller Gwich'in Heritage Areas. These are areas of outstanding historical or cultural significance in the Gwich'in Settlement Area. These areas have the same status as Gwich'in Conservation Areas. The Gwich'in identified these areas through community consultation and with the help of the Gwich'in Social and Cultural Institute.

Special Management Areas

Of the whole settlement region, the Gwich'in have set aside about 33% of the land as special management areas.

These are areas of special value to residents and communities of the Gwich'in Settlement Area where multiple uses may take place, provided potential developers meet the land use planning conditions of the particular Gwich'in Special Management Area.

General Use Area

Of the whole settlement region, the Gwich'in have set aside about 57% of the land as general use areas. These are areas that communities and other groups decided did not contain any specific resources needing special protection beyond what is available through the normal regulatory system.

Within the Gwich'in Settlement Area, all groups, including the Gwich'in, federal government, territorial government, co-management boards and business groups, must conform to the regulations Land Use Plan once it is approved. Regulators, like the Gwich'in Land and Water Board, cannot issue a license, permit or authorization until developers show that their proposed activities conform to the Land Use Plan.

LAND USE PLANNING IN THE DEH CHO COMMUNITY

In April 2003 the Deh Cho First Nations and the Government of Canada announced that, for a five-year period as part of a longer term land use planning process, it had formally withdrawn from development land totalling 10.1 million hectares[9] of northern boreal forest and wetland habitat in the Mackenzie Valley.[10] The temporary set aside of land in advance of proposed construction of a major natural gas pipeline along the Mackenzie Valley will allow the community to complete a Deh Cho land use plan. The plan will define how land will be managed in the Deh Cho territory.[11]

No development at all will be allowed on some of the lands withdrawn. In other cases only sub-surface development, such as oil and gas extraction, is excluded.

The land withdrawals process included consultations with Deh Cho community members, as well as third parties who have interests in the region like mining companies, oil and gas companies, and environmental groups. The decision to withdraw portions of the Deh Cho lands took account of the following criteria:

- *Lands harvested for food and medicinal purposes*
- *Culturally and spiritually significant lands*
- *Lands that are ecologically sensitive*
- *Watershed protection.*

areas in which wild animals are secure from noise, recreation and hunting pressure. Linear disturbances create openings that predators and parasites can use to gain easier access to their prey than would otherwise be the case.

When regulators limit the linear disturbance they will allow, it helps to protect wildlife habitat and increases the possibility the area can later be restored to full ecosystem health. Certain species, such as wolves and woodland caribou, can tolerate some disruption of their habitat. But if the linear disturbance exceeds their tolerance threshold, they will stop reproducing and their populations will begin to decrease and become unsustainable.

Regulators should carry out wildlife assessment work to determine the level of impact that can be allowed without damaging the area's ecological integrity. Ideally this work should be completed before regulators grant developers disposition rights, and, at a minimum, before developers begin any work.[12]

9 The Deh Cho region of the Northwest Territories encompasses 20.8 million hectares.
10 Gift to the Earth #84, World Wildlife Fund, 17 April, 2003.
11 Backgrounder. Deh Cho Process – Interim Land Withdrawals, *www.ainc-inac.gc.ca/nr/prs/j-a2003/02287bbk_e.html,* April 17, 2003.
12 One such modeling tool is the Alberta Landscape Cumulative Effects Simulator (ALCES). This tool has been used to model the impacts of conventional oil and gas activity on Alberta Pacific's Forest Management Agreement area. The model showed that 90,000 ha of this area are already covered by roads, pipelines, powerlines, and land sale lines. A further 13,640 ha are currently under well sites and other processing facilities, an area equivalent to approximately one year's annual allowable cut. The model predicted that, given the predicted frequency of fire, and based on conservative estimates for energy sector development, within 30 years ALPAC will no longer be able to harvest at the present rate of 2.4 million cubic metres per year required to keep their mill at full production. This tool is presently being used in the Alberta Chamber of Resource's Integrated Landscape Management (ILM) initiative (discussed briefly later in this section).

Oil and gas, forestry, mining, and other industries using an area could work together and with government to stay within disturbance limits that protect the area's ecological integrity. They could coordinate their development and use of cutlines, roads, and pipelines, their access to certain areas, and their use of low-impact practices and technologies. Regulators could require such coordination as a condition of industry working in such areas.

Regulators could set the following disturbance limits:

- limits to the maximum acceptable habitat loss within a given area, represented as "km^2 disturbed area per km^2 total area"
- limits to the maximum acceptable linear disturbance density within a given area, represented as "km of linear disturbance per km^2"
- limits to access in an area, restricting who may enter an area and at what time.

Requiring Regional Development Planning

The incremental nature of oil and gas development (the fact that it occurs project by project) and competitive forces in the oil and gas industry often lead to unnecessary creation of roads, pipelines, and processing facilities.

At the land sale or exploration stages, before they grant approvals, regulators can require oil and gas companies to prepare conceptual regional development scenario plans. These plans provide information about potential drilling, pipelining and processing scenarios over time based on oil and gas lease holdings and current economic information. This can avoid unnecessary or redundant developments while also ensuring that developers take active measures, such as planning and building regional waste treatment facilities. For example, in Alberta companies that want to build a new gas plant must follow a specific process to prove that there is not enough current gas processing capacity in a given area and that

Wellpad and a Right of Way in the Sikanni. Regulators could require companies to share the use of roads to avoid more roads in the area.

SOURCE: WAYNE SAWCHUK

PUBLIC AND STAKEHOLDER CONSULTATION

To avoid possible land use conflicts in the future, communities, the public, and special interest groups must fully take part in the steps leading up to the land disposition stage. Regulators, developers and these groups must work together to identify any potential protected areas or locations slated for other uses so they can clearly decide whether oil and gas should occur in the area.

Effective consultation means that individuals, communities and groups have the opportunity to review and comment on proposed dispositions. For this to happen, the government must

- *provide enough notice of the proposed disposition*
- *give usable information and details about the disposition*
- *allow time and opportunity for the public to prepare and present their views on the disposition, either in person or in writing*
- *commit to fully and fairly considering the views put forward by all parties*
- *let interested parties know its decision on the disposition and, in its accompanying report, discuss the issues considered and the reasons it accepted or rejected particular views*
- *provide sufficient financial and human resource support to ensure that communities have the capacity to effectively participate in the process.*

Winter landscape.

SOURCE: CANADIAN PARKS AND WILDERNESS SOCIETY – YUKON CHAPTER

more is needed.[13] One of the reasons for developing this policy was public concern about air emissions and public safety associated with the increase in the number of small gas processing facilities in gas producing areas. Planning can also ensure that various industries evaluate and coordinate the combined impacts of their existing and future activities (including forestry, mining, and others).

Limiting Access by Other Users

When industry creates access into an area by setting up roads, pipeline corridors and seismic lines, the area becomes open to entry by other industries and by non-industry groups, including recreational users. The more users going into an area, the greater the impacts become. Repeat use of these corridors is often a barrier to effective reclamation.

13 AEUB Information Letter IL 91-1; Applications for Approval of Gas Processing Schemes – Policy on Plant Proliferation, and AEUB Guide 56, Volume 2; Energy Development Application Guide and Schedules.

ENVIRONMENTAL IMPACT ASSESSMENTS

Companies working in Alaska's North Slope region must carry out Environmental Impact Assessments and get regulatory approval before going ahead with exploration projects. If exploration is successful, industry must subject its production plan to a later environmental impact assessment and re-apply to the regulators before production can begin. Oil and gas companies must be willing to accept the risk of stopping or postponing development at any stage if the impact in an area becomes too great. This is especially applicable if more data become available that support ending the activity.

Exploration projects within the Inuvialuit Settlement Region go through two assessment processes. The National Energy Board is the lead agency for the Canadian Environmental Assessment Act process and the Environmental Impact Screening Committee assesses the project according to the conditions outlined in the Inuvialuit Final Agreement.

Working together, the public, regulators and industry could reduce impacts on an area by agreeing on ways to limit recreational use of these access corridors. They could set up these limits at the land disposition stage and outlined in a detailed access control policy.

A community level agreement to either not use the new access at all, or to limit access only to certain areas, is the only way to prevent the impacts caused when developments increase access into wilderness areas.

In addition to a community agreement (but not in place of), physical barriers can help keep defiant individuals out of newly accessed areas. Developers can put up gates, create barriers composed of trees and branches taken down during the clearing of cutlines (these are called "slash piles") and build other physical barriers at locations along cutlines. They can also erect gates and post signs along roads banning access to the cutlines and areas they are reclaiming.

Coordinating Industry Activity

When different industries working in the same area coordinate their activities, they can substantially reduce impacts. To maximize benefits, they should coordinate their work as early during industrial development as possible. When companies carefully plan and cooperate, trying to minimize the disruption they cause, they help to preserve normal ecosystem functioning and reduce the time needed to restore the area's ecological integrity.

In Alaska's North Slope, developers have made specific efforts to reduce environmental impacts associated with oil and gas operations. They have developed and carried out various practices and technologies to reduce the surface impacts of their work.[14, 15]

14 The economics of sub-surface waste disposal generally limits their use to regions that have moved from exploration to the intensive production stage and requires adequate knowledge and availability of suitable underground formations to store the waste.

15 Appendix B Stipulations, Record of Decision, Northeast National Petroleum Reserve — Alaska, Final Integrated Activity Plan/Environmental Impact Statement, October 1998.

BEST PRACTICES IN THE US

In the US, the Bureau of Land Management has developed a document that describes the steps governments and industry must take to reduce surface impacts of oil and gas activity in the tundra. Entitled Northeast National Petroleum Reserve Final Integrated Activity Plan/Environmental Impact Statement Record of Decision, 1998, the government prepared this document before any land sales took place.

With this plan, the government aims to set an acceptable level of development in these sensitive areas. It does this by laying out the regulations that will apply for all development activities. It analyzes a range of scenarios from no development to full development. It also discusses the general effects of multiple, small land sales versus few, large land sales. With this plan the government offers a detailed set of stipulations that regulators and industry must meet before any development can take place.

By making this available early in the development process, the government ensures that all companies and industries understand the regulations before they try to gain oil and gas rights in these environmentally sensitive areas.

The following best practices, and their results, are as outlined in the US Bureau of Land Management's plan:

- *Improved directional drilling technology has reduced the space needed between wellheads.*
- *Winter construction using ice roads and ice pads has removed the need for gravel access roads, including along pipeline rights-of-ways, and gravel pads, to drill exploratory wells.*
- *Shared use by companies of power generation plants, utility corridors, roads, and airport facilities has reduced total land use and the demand for mining, storage and transport of gravel.*
- *Injection of drilling wastes into deep disposal wells has removed the need for space for in-ground drilling sumps on drill pads.* [17]

Many of these practices and technologies have become industry best practices and regulators and industry could use them in the Yukon, Nunavut and the Northwest Territories.

The Cumulative Environmental Management Association (CEMA) is a multi-stakeholder initiative in the Athabasca oilsands region of north eastern Alberta (Canada). The CEMA is working to manage the cumulative environmental impacts of oilsands development in the region. CEMA has developed three initial management tools designed to be adopted by industry to minimize land disturbance and ecosystem fragmentation from industrial activities:[16]

16 BP Exploration (Alaska) Inc., Environmental Performance on Alaska's North Slope, February 1998.
17 *http://www3.gov.ab.ca/env/regions/neb/rsds/2002_10_newsletter.pdf* (January 2003)

- ***Minimal Impact Exploration (MIE):*** A set of best management practices designed to reduce the area of disturbance from oil, gas, and oilsands exploration activities.
- ***Integrated Landscape Management (ILM):*** A joint planning process whereby developers, particularly forestry companies and the oil and gas industry, seek to co-ordinate access, road building and site clearing. ILM is intended to reduce access, and land disturbance, and promote the better management of forest resources.
- ***Constraint Mapping:*** A computer-based tool that combines environmental, geological and cultural information for a lease/management area to see if there are any areas that are sensitive or unsuitable to certain project components such as plant sites, well-pads, and roads. Constraint maps will be used to plan future project designs and are expected to reduce impacts to sensitive areas in development zones.

Setting Regulations and Monitoring Compliance

Before land disposition begins, governments and regulators should set up all regulations and procedures for "compliance auditing." This is a process for ensuring that, during their work, companies comply with the conditions of the agreement they made when they received the land disposition rights.

Once regulations are in place, regulators need to actively oversee the industry's work to make sure they are complying with the rules. According to Environment Canada's Pacific and Yukon Region, industry often does not comply with the regulations when it is up to them to enforce the rules voluntarily.[18]

When overseeing industry activity and enforcing regulations, governments should focus on poor performers, sensitive areas, high risk activities and activities that have a high rate of non-compliance. Governments should carry out some base monitoring and enforcement in all areas of regulatory control.

The Alberta Energy and Utilities Board (EUB) has designed a monitoring and enforcement system called "Escalating Enforcement Ladders." With this system the government focuses its inspections on poor performers and risky or problematic activities; it also delivers increasing outcomes for companies that do not comply with EUB requirements.[19] For this system to be effective there must be enough trained staff to provide a minimum level of coverage for all areas of regulatory responsibility.

18 Enforcement vs. Voluntary Compliance: An Examination of the Strategic Enforcement Initiatives Implemented by the Pacific and Yukon Regional Office of Environment Canada 1983 to 1998, Peter K. Krahn, Inspections Division, Environment Canada, Pacific and Yukon Region, March 9, 1998.

19 AEUB Information Letter 99-4, Enforcement Process, Generic Enforcement Ladder and Field Surveillance Enforcement Ladder and IL 99-4 Clarification, February 24, 2000.

Area of Concern	Best Practice
LAND DISPOSITION SUMMARY	
Not enough protected areas	• Designate a network of parcels of land as "protected areas," which would be excluded from any form of industrial or commercial development areas.
Industrial encroachment and indirect impacts on protected areas	• Ensure that a buffer allowing only limited development surrounds all protected areas.
Simultaneous development in multiple areas	• Set up "special management areas," where development is temporarily excluded or where there are varying levels of restrictions on development activity while allowing development to continue elsewhere.
Unlimited development affecting ecological integrity of region	• Ensure that protected areas and special management areas are large enough to preserve ecological integrity and to support biodiversity.
No limit on linear disturbances	• Set regional limits on linear disturbances on a km/km^2 basis. If industry exceeds limits they cannot create any new linear disturbances until they have restored previous disturbed areas.

Area of Concern	Best Practice
LAND DISPOSITION SUMMARY	
Not enough public and stakeholder consultation at the land disposition stage	• Ensure that regulators hold a public consultation at the beginning of the land disposition stage.
Inadequate environmental impact assessment at land disposition stage	• Conduct a full environmental impact assessment of sensitive areas before the land disposition stage.
No regional development planning done at the land disposition stage	• Conduct regional development planning in concert with establishment of linear and area disturbance limits. • Set up guidelines for the growth and construction of facilities early in the development cycle, ideally before land disposition stage. • Engage in waste management planning before development activity.
Multiple small blocks of land assigned	• Assign larger land blocks to ensure less competition and fewer dual developments such as duplicate seismic programs, multiple smaller gas plants, and multiple pipelines.
Uncoordinated industrial development.	• Require industry cooperation to create regional development plans that call for the minimum amount of surface disturbance caused by roads, cut-lines, and utility corridors, and that maximize the use of processing and pipeline infrastructure.

Citizens' Rights

If you are concerned about oil and gas development and think that you may want to take part in government consultations in the land disposition process, this section gives you information and advice on how to go about it.

It explains how you can get information and summarizes the key issues associated with land disposition. It also gives advice on how to have a say in the government's decision-making process when granting land rights.

To conduct oil and gas exploration, companies have to get a permit or license from the government that will allow them to do the work. The way companies get these rights and permits and licenses varies between the NWT and the Yukon, and from region to region within each territory. The rules about public consultation and public intervention opportunities can also vary. You can find more details about the laws and procedures for each region of the Yukon and NWT in Citizens' Rights and Oil and Gas Development: Northwest Territories and Citizens' Rights and Oil and Gas Development Yukon Territory respectively.

Here is a summary review of the steps to follow if, as a member of the public, you wish to become involved in a land disposition process:

Find out about possible Land Disposition areas

The first thing you need to do is find out what areas are being considered for land dispositions.

Obtain copies of the maps and background information for the areas potential areas for oil and gas development in which you are interested from the appropriate government agency (The Yukon Territorial Government Oil and Gas Branch in the Yukon or the Department of Indian and Northern Affairs Canada (INAC) in NWT.

You can register yourself as an "interested party" by contacting the primary government agency responsible for oil and gas disposition process in your region and ask to be notified about land disposition processes and information about opportunities and timelines for public comment in your area.

Government agencies will usually give public notice of opportunities for public comment on potential land dispositions in local newspapers or other media.

Learn about Public Consultation Rules

Next, you need to find out the rules for public consultation in your area.

Contact the primary government agency responsible for issuing land dispositions for oil and gas in your region and get answers to the following questions:

- ❑ What does the government give notice of potential land dispositions? Who is the government required to consult? What form does the consultation have to take (meetings, open houses, etc.)?
- ❑ What does the government agency do with the public comments they receive?
- ❑ What is the deadline for public comments?
- ❑ What happens if the public objects to or wants conditions attached to land dispositions?
- ❑ What is the process for the government to decide whether or not to grant land dispositions?
- ❑ How can the public find out whether the government has granted a land disposition to a company?
- ❑ How can the public get a copy of the conditions of a land disposition?
- ❑ Can the public appeal an approval? If so, how?

Review the Potential Land Disposition Areas

Once you've received a copy of the proposed land disposition areas, and have learned about the rules for public consultation, you'll next want to review the maps and background information provided.

When you review the documents you may find that you are satisfied with the information presented or you may have questions or concerns about the potential land disposition areas.

If you have questions or concerns, make of list of these and call a meeting with the proper government agency to discuss them or plan to participate in a government consultation session.

Here are some key questions to ask when reviewing information regarding a proposed land disposition area (this is a general list only; not all questions will apply to your specific circumstances):

- ❑ Has the government completed a Land Use Plan for the call for the proposed areas?
- ❑ Are there unique ecosystems or critical wildlife regions within the proposed disposition area?
- ❑ Do the areas contain sacred sites, areas of traditional use for travel, hunting and gathering, and burial grounds or other sites of deep cultural significance?
- ❑ What types of conditions will the government place on successful bids by industry?
- ❑ What regulations has the government set up for industry if they discover oil and gas in economic quantities?
- ❑ What regulations has the government set up to manage cumulative impacts?
- ❑ Has the government assessed socio-economic benefits (for example, employment of local residents) and impacts?

If you can't resolve your concerns about the project directly with the company or government agency you may wish to call for a public hearing if such a legal avenue is available.

For More Information

For information on government agencies, industry associations, and further reading on this issue, please consult the companion publication entitled: **Resources and Contacts**.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