

# **Questions and Answers**

## **Coalbed Gas**

Coalbed Gas (CBG) is a significant resource in B.C. and can provide some of the natural gas we need to heat our homes, cook our food and for other energy uses.

CBG can also provide key benefits – including providing much-needed energy as well as revenue to the province supporting health care, education and jobs to communities.

Since 2002, the Ministry of Energy, Mines, and Petroleum Resources (the Ministry) has had an active program to provide information to communities and First Nations on CBG development, the tenure process, regulation, management of environmental issues and economic opportunities.

The following includes some common questions about CBG. If you don't find your question answered here then please contact the Ministry directly (contact information listed below).

### **I. General CBG Questions**

#### **What is Coalbed Gas?**

- CBG is a natural gas that is found in coal seams. It is comprised of about 90 per cent to 100 per cent methane, other hydrocarbons, and traces of carbon dioxide and nitrogen. It can be found in almost every coalfield across the province. Coalbed gas contains little to no hydrogen sulphide. Once produced, coalbed gas is very similar to the conventional natural gas that is being produced and consumed today.

#### **Who owns the CBG in B.C.?**

- With the exception of areas included in early land grants, the Province owns the majority of petroleum and natural gas rights in B.C.

#### **Who is responsible for administration and management of petroleum and natural gas rights?**

- The Ministry of Energy, Mines and Petroleum Resources is responsible for administering and managing petroleum and natural gas rights in B.C. The petroleum and natural gas rights are normally leased to companies through a monthly auction process.

### **Why is government interested in the development of CBG?**

- As the owner of natural resources on behalf of the people of British Columbia, the Province has an obligation to make the most of these resources, both in terms of providing energy sources and revenue.
- CBG is an important part of B.C.'s energy mix that includes other conventional natural gases, oil, hydro-electricity and alternative energy sources.
- Development of CBG has the potential to diversify B.C.'s energy supply and boost economic activity in the province.
- Local and regional economies stand to benefit from increased economic activity and new direct and indirect job opportunities.
- The sale of CBG rights (petroleum and natural gas rights) generated more than \$25 million in provincial revenue in the last five years.

### **How much CBG development is there in B.C.?**

- There is no full scale commercial production of CBG in the province yet.
- As of August 2006 there have been about 75 CBG wells and test holes drilled in B.C.

### **How much CBG is estimated to be in the Telkwa Coalfield?**

- The Telkwa coalfield has a resource potential of 130 million cubic feet. An average northern home uses approximately 150 thousand cubic feet per year. If 10 per cent of this resource (13 million cubic feet) was recovered it would be enough to heat about 2500 northern homes for at least 25 years.

### **Why is CBG considered a clean energy source?**

- The natural gas found in coal seams is "sweet," not "sour," and generally has few impurities. Unlike conventional natural gas, CBG is produced at low pressures and does not contain hydrogen sulfide. The gas is of near-pipeline quality when produced and typically does not require extensive processing.

## **II. Resource Development**

### **What is the role of the Oil and Gas Commission (OGC)?**

- In B.C., the Oil and Gas Commission regulates oil and gas industry activities, CBG development. This regulatory agent works closely with other agencies, such as the Ministry of Environment, to ensure that oil and gas activity is conducted responsibly.
- The regulatory roles of the OGC are to:
  1. Assess oil and gas applications
  2. Ensure compliance with, and enforcement of, regulations for all oil and gas activities, and
  3. Consult with First Nations on oil and gas applications.
- Prior to each phase of exploration or development, a company must submit an application to the OGC. CBG Evaluation, Feasibility & Production plans identify how environmental and social impacts will be minimized or avoided.
- The OGC applies specific terms and conditions to each exploration/development phase approval to which the company must comply.

### **How is CBG produced?**

- CBG is normally produced by drilling vertically into the coal seam. Water is pumped out of the seam reducing pressure and releasing the gas. Many companies produce CBG from 200 meters to two kilometres below the surface.

### **Are chemicals used to stimulate CBG production?**

- Under normal circumstances, during drilling, fresh water is typically used in combination with drilling mud, which is a naturally occurring clay. Other organic additives may be included to condition the mud. During the stimulation process, various fluids are pumped into the coal seams under pressure to increase water and gas flow. The fluids are biodegradable organic materials, a mixture of nitrogen and water to create thick foam -- simply water with a small amount of biodegradable gel. Clean sand can be mixed with these liquids to help hold open the small fractures created.

### **What is “fracking”?**

- Producers may use hydraulic fracturing to create or “frac” channels in the coal if few natural fractures exist. This will allow natural gas trapped in coal seams to move freely and flow into the well bore.

### **Will CBG development result in new roads?**

- New roads may be required; however existing roads and trails would be used whenever possible to minimize new road construction. Roads and trails, when no longer used, are deactivated and/or reclaimed.

### **What is the lifespan of a CBG well?**

- The lifespan of a CBG well varies from project to project, depending on geological factors and technology used to produce the gas. Generally, the lifespan of each CBG well ranges from six to 25 years.

### **What is the spacing for CBG wells?**

- Well spacing required to produce CBG is determined based on a variety of factors, including geology and completion technology, and can only become known during exploration, evaluation or development.
- CBG wells typically require closer spacing than conventional oil and gas wells to optimize gas recovery. Commercial CBG production can require up to eight wells per square mile.
- Land that is not part of the agricultural land reserve is assessed on a case-by-case basis, taking into account the resource itself, community concerns, the equipment used and the local environment and wildlife.

## **III. Benefits/Costs**

### **What benefits can the community expect from CBG?**

- Economic impact of individual projects is unknown until the company completes exploration activities and feasibility studies. A typical CBG field in other jurisdictions have created 150 jobs in its two-to-five year development phase and 25 jobs in ongoing production.
- A commercial operation can provide stable employment for many decades.

### **Is CBG used within the local communities?**

- Natural gas is a "commodity." The gas you are using at home is "mixed" in the pipeline so except for when you actually buy from the producer, you cannot determine the actual origin of that gas.
- It is difficult to determine the actual origin of a particular volume of gas a region might be using. British Columbia produces a total of approximately 1 Tcf of natural gas per year. From that total, 25% is consumed within the province, 26% is sent to Alberta and the rest is exported to the United States. British Columbia also imports small amounts from Alberta, Northwest Territories and Yukon.

### **How are prices set?**

- Any increase of supply should help reduce prices - if all other variables remain constant. However, in reality, demand also changes, so the final result in prices can vary according to the relative movements of the supply curve (gas available for consumption) and the demand curve (natural gas that people want to buy).

### **What might the impacts on tourism and tourism industry suppliers be? Will it affect our other major industries; forestry, mining and guide outfitting?**

- Throughout B.C., there are many examples of resource development (forestry, mining, oil and gas development) successfully co-existing with commercial tourism operations on the same land base.
- For example, the mining and tourism industries have signed a Memorandum of Understanding that guides their co-existence in many areas.

### **Will the regional community receive direct financial benefits?**

- Municipal governments can financially benefit directly from any businesses or related activity within municipal boundaries through taxes. The Province receives industrial taxes from activities conducted outside municipal borders, taxes that help support province-wide programs like health and education.
- Municipalities can benefit indirectly from any businesses or related activity paying taxes (i.e. service sector business - hotels, restaurants, contactors, and consultants) registered within municipal boundaries, and through the increased activity in the area in general.

### **What about financial benefits such as the Fair Share agreement?**

- The Peace River Regional District (PRRD) and its local governments signed a Memorandum of Understanding (MOU) with the Provincial Government. The MOU stipulates the Province provide payment to the PRRD, which is then distributed to each municipality and the regional district under a special funding formula in lieu of property taxes. The Fair Share MOU was designed specifically to address the situation in northeastern B.C. where such a large amount of activity related to the oil and gas industry takes place and where the PRRD has limited access to the industry tax base.
- Areas of northwest B.C. are not in the same situation in terms of volume of activity.

### **Will the value of our properties go up or down?**

- There are many factors that affect property values, only one of which might be local resource development.

### **What happens if the community says 'no' to CBG?**

- It is important to point out that this is not a policy discussion on whether CBG should be developed in the province of B.C., but rather how to develop this important resource in a manner that is environmentally responsible and contributes to the local and provincial economy.
- Community input will be compiled, documented and, where appropriate, referred to in establishing conditions on the tenure and on exploration permits.
- A community engagement report is drafted - summarizing input received from both the Ministry's community engagement and referral processes. This report is provided to government decision makers, the public, and provides guidance to the proponent and the Oil and Gas Commission (OGC).

## **IV. Water Protection**

### **Why do CBG wells produce water?**

- CBG is a natural gas "attached" to the coal and kept in place by the pressure of naturally occurring water in the coal seam. Extracting CBG normally involves pumping water from the coal seam in order to

release the pressure and allow the gas to flow. Any water removed from underground is considered “produced” water.

### **Is “produced water” considered safe?**

- Produced water from CBG operations can vary in composition and quantity depending on geology. Produced water has varying amounts of sodium bicarbonate (baking soda) and sodium chloride (table salt). It is usually anaerobic (no dissolved oxygen) and warmer than surface water. At times there are also traces of inorganic and organic elements and compounds in produced water, such as iron and barium.

### **Does the government know enough about CBG to move forward safely or should the precautionary principle of not advancing until all information is known be applied?**

- The B.C. government is committed to responsible development and our regulators have a good track record that embodies principles of environmental sustainability, public discussion, science-based decision making, and adaptive management.

### **How does the Province ensure that groundwater is protected?**

- The OGC requires companies to carry out water well testing within a one kilometre radius of a CBG well. Samples are taken before and after drilling to ensure that drilling does not affect groundwater wells.
- The OGC requires that surface casing must be set below the base of all strata, known or reasonably expected to serve as a source of drinking water; surface casing must be set at least 25 metres into a competent formation.

## **IV. Environmental Protection; Water, Air, Wildlife**

### **At what point will a CBG project initiate the Environmental Assessment process?**

- All oil and gas activity (including CBG wells) undergo an environmental assessment, as regulated by the Oil and Gas Commission.
- The OGC requires companies to undertake assessments specific to an issue and appropriate to the phase of development.

### **How does CBG production affect the air quality?**

- In terms of air quality, gas flaring -- burning the gas to dispose of it -- is minimal and limited to short-term testing periods in new areas to prove commercial viability. All flaring activities require approval from the OGC.
- Since CBG is a pure or "sweet" gas, it usually requires little processing before entering the pipeline that takes it to your home. This means that emissions can be significantly lower than those produced during the processing of conventional oil and gas.

### **Why doesn't B.C. complete all environmental baseline studies before tenure disposition and development?**

- Most coalfield regions of B.C. have a tremendous number of existing environmental, wildlife, water, agricultural and other land use studies. The ministry's Environmental Resource Information Project (ERIP) has compiled over 2000 public sources of information on past studies in B.C. coalfields.
- Since CBG development usually takes several years from exploration to natural gas production, there are opportunities to identify and address baseline inventory issues parallel with regulated activity.
- Tenure disposition and collecting baseline environmental information are two separate processes.

### **How will visual and noise impacts be minimized to ensure quality of life is maintained?**

- During the application review process, the Oil and Gas Commission considers all information, making decisions in the public interest, considering environmental, economic and social outcomes.
- The OGC considers residents concerns in its decision making process, and in many cases will work with the company to mitigate the issues and may recommend or impose restrictions on company operations.
- The OGC may require the use of natural visual barriers employed to conceal CBG operations, and can require a company to plant more shrubs and trees if the level of concealment is inadequate for neighbours.



- In addition, residents are strongly encouraged to consult with the company requesting tenure during the pre-construction and planning stages to communicate concerns and find solutions that work for both parties.

### **What is the Environmental Resource Information Project (ERIP)?**

- The Environmental Resource Information Project was initiated in 2003 to improve the availability and accessibility of environmental baseline information in the areas with CBG resource potential.
- ERIP compiles and distributes known environmental information, and undertakes select new scientific baseline studies.
- ERIP projects are delivered in partnership with other agencies, industry, communities and First Nations.
- In 2005/06, ERIP focussed on expanding the project by launching a Website with additional information and research tools and acquiring new environmental data in key coalfields.  
(<http://www.em.gov.B.C.ca/subwebs/coalbedgas/ERIP/default.htm>)
- In the Telkwa coalfield, over 190 environmental studies have been identified, and surface water samples from six local streams have been collected and analyzed since May 2006. In addition, the MEMPR in partnership with Ministry of Environment is planning to initiate a domestic water well sampling program this year.

### **Can you provide some more information about the surface water sampling program the Ministry has initiated in Telkwa for example?**

- Baseline water quality information gathering will be completed in advance of commercial development of CBG.
  - **Where will the sampling be done?** Samples will be taken at the mouths of Pine Creek, Goat Horn Creek, Tenas Creek, Telkwa River, and on the Bulkley River downstream of Telkwa (east shore) and, on Canyon Creek at the Babine Lake Road Bridge. We may add Driftwood and Power Creeks.
  - **What will be sampled?** Total dissolved solids, conductivity, turbidity, total suspended solids, total dissolved solids, major cations and anions, nutrients and 23 trace elements analyzed with a low-level analytical detection method.

### **Will drinking water from resident's wells be tested?**

- The Ministry is initiating a pilot project to sample domestic water wells throughout the Telkwa coalfield to improve the understanding of existing groundwater quality.
- This program will establish current water quality and dissolved gas content in the water supply aquifers in the Telkwa coalfield. This data will serve as baseline conditions for any future CBG, or indeed other developments, that could potentially affect groundwater quality.

### **How will species at risk (red and blue-listed species) be protected?**

- CBG exploration and development will need to accommodate and manage for species at risk in accordance with applicable statutes and regulations, best practises, and government approved land use plan direction.

## **V. Safety**

### **What has been done to ensure that CBG development is safe?**

- CBG is a natural gas similar to the gas already used to heat homes, cook food and generate electricity.
- Safety is a top priority of the provincial government as well as for the companies and individuals working in the CBG industry. There is a large body of regulation with the OGC, WorkSafe B.C., and other agencies to protect workers and the public.
- In British Columbia, the OGC and the WorkSafe B.C. hold regulatory authority over the industry's safety standards. Before being granted permission to operate, companies are required by the Pipeline Act and Pipeline Regulation to have an emergency response plan (ERP). Provincial authorities must approve this plan. With an ERP and the required safety devices in place, emergency situations can be readily detected.

### **What will happen to hunting, fishing and outdoor recreation?**

- Outdoor recreation can co-exist with CBG exploration, although hunting restrictions around industrial sites may be necessary for safety reasons.

## **VII. Tenuring**

### **What is tenure?**

- Tenure is time-limited ownership of a specific parcel of subsurface petroleum and natural gas rights. Tenure grants the right to apply to the OGC to access, explore and develop petroleum and natural gas in accordance with applicable statutory regulations. Tenure is not required to drill test holes or conduct geophysical exploration; however, industry must obtain permission from the OGC for these activities.

### **What lands will be considered for CBG development?**

- CBG development can only proceed in areas where significant coal deposits exist. It is not allowed in designated parks or other protected areas. Existing and future land use plans also guide area-specific activities.

### **What is the Ministry's referral process normally?**

- Referral letters are sent out to the organizations of the nature below:
  - Ministry of Forests
  - Ministry of Environment
  - Ministry of Transportation
  - Ministry of Agriculture and Lands
  - Integrated Land Management Bureau
  - Integrated Registry Branch
  - Oil and Gas Commission
  - Local Governments
  - First Nations
- The Ministry also considers existing land use plans in its decisions on tenures.

### **Besides Crown sales, is there any other way tenure is awarded?**

- Yes, for example, in December 2003, the Ministry released a Call for Proposals to develop potential CBG resources. In January 2004, the successful proponent for the right to explore and develop natural gas in the Telkwa coalfield area was identified as Norwest Corporation, partnered with Outrider Energy.

### **How is the tenure decision made and by whom?**

- In advance of making a decision on a tenure, the Ministry refers tenure requests to local governments, First Nations and provincial agencies

which have either a legislated responsibility to provide comment or other government to government links to the process.

- In northeast British Columbia, where the majority of oil and gas exploration and development takes place, responses are generally requested within a 30 day period.
- In Telkwa, for example, as local governments, First Nations and other government agencies are unfamiliar with oil and gas issues, the initial referral response date was established at 60 days to ensure there was ample opportunity for the referral participants to evaluate the proposal and provide comments.
- The end of the referral is not a decision date, but a timeframe by which the Ministry seeks to receive advice from those referral agencies which have legal or jurisdictional interests in the proposed tenure area. Following the receipt of all information, the Ministry undergoes a thorough review and analysis prior to the development of caveats and recommending a decision.
- Before a tenure agreement can be finalized the parcel must be removed from Crown Reserve designation. This is accomplished by a Minister's Order under Section 71 of the Petroleum and Natural Gas (PN&G) Act
- The final decision to issue tenure rests with the Lieutenant Governor and Council to approve through an Order-in-Council under Section 72 of the Petroleum and Natural Gas Act.

### **What is the process to initiate CBG activity?**

- Applicants must apply for a Petroleum and Natural Gas (PNG) tenure.
- Prior to receiving tenure, proponents may apply to the OGC for approvals to conduct geophysical activities or drill test holes, but may not produce any gas.
- After securing tenure, the company must get approval from the OGC for ground activities such as drilling, acquiring seismic surveys and roads. This involves working collaboratively with local First Nations and securing landowner permission if the operation requires access on private land.

## **What rights do landowners have during CBG activity?**

- Companies seeking tenure must explain the details of proposed CBG activity to landowners before work starts on private land. The two parties must negotiate a surface-use agreement detailing how they will work together and how compensation will be paid.
- Proponents must reclaim the land in a reasonable amount of time and/or compensate the landowner for damages or permanent alterations based on fair market value of existing land use.

## **VII. Community Engagement**

### **What is difference between "Community Engagement" and "Community Consultation"?**

- These words are often used interchangeably, but they generally describe a process of obtaining public feedback in order to make an informed decision.
- For example, in the Telkwa area, In February 2006 the Ministry initiated a pre-tenure engagement process with First Nations, local governments and community organizations; public discussions commenced in mid-May and will continue into the fall.
- For example, the Ministry undertakes activities such as:
  - hosting CBG Workshops;
  - responding to community inquiries;
  - ongoing discussions with environmental organizations;
  - meeting with residents and surface land users (guide outfitters, anglers, outdoor recreation leaders); and,
  - meeting with local community groups and neighbourhood associations;
  - returning to the community to report back how community input was addressed in the tenuring process.

### **What does Ministry do with the community input?**

- Community input is compiled, documented and, where appropriate, referred to in establishing conditions on the tenure and on exploration permits.
- A community engagement report is drafted - summarizing input received from both the Ministry's community engagement and referral processes. This report is provided to government decision makers, the public, and provides guidance to the proponent.

- The Ministry returns to the community to report back how community input was addressed and incorporated into the tenure decision.

### **Are you consulting with First Nations?**

- Yes, the Ministry has an obligation to consult with First Nations.

### **At which point does the public have the opportunity to decide if we want it or not?**

- It is important to point out that this is not a policy discussion on whether CBG should be developed in the province of B.C., but rather how to develop this important resource in a manner that is environmentally responsible and contributes to the local and provincial economy.

### **We welcome your comments, in person, at workshops or events, or contact us at:**

Marketing and Community Relations Branch  
Ministry of Energy, Mines and Petroleum Resources  
P.O. Box 9332 Stn Prov Govt  
Victoria, B.C.  
V8W 9N3  
Attn: Manager, Community Relations  
(Telkwa Community Engagement)

[CBGInfo@gov.bc.ca](mailto:CBGInfo@gov.bc.ca)

Phone Enquiry B.C.  
1-800-663-7867 (ask for the Ministry of Energy, Mines and  
Petroleum Resources Marketing and Community Relations  
Branch)

## **VIII. Coalbed Gas Activity Throughout B.C.**

### **What is happening with CBG Development in B.C.?**

Coalbed gas is still in the early exploratory stage in British Columbia. Companies have drilled a total of 89 test holes and wells to explore for coalbed gas since 1984 – 58 of these from 2001 to the present.

The Ministry of Energy, Mines and Petroleum Resources leases the Crown oil and gas rights to companies interested in exploring for coalbed gas. Since 2002, the rights to over 542, 110 hectares have been leased in areas where

geologists estimate that coalbed gas may be produced. These tenures have brought more than \$26 million to the government.

### **In what areas of BC are companies exploring for CBG?**

**Northeast BC.** A large number of test holes and wells have been drilled in northeast BC, west of Fort St. John and near the District of Hudson's Hope. Before 2000, 13 wells were drilled to test various formations near Hudson's Hope. In the past five years, two companies have been active and have drilled a total of 9 test holes and wells. Most tenures leased by the government are also for properties in the northeast.

**Northwest BC.** In the Klappan coalfield, the Government leased a large parcel of oil and gas rights in 2004. The company drilled 3 test holes.

**Southeast BC.** Further exploration is planned in the Elk Valley, which has had 13 wells drilled over the past five years. Over 20 other test holes and wells have been drilled in the area since 1985. The Government is working with the owners of private rights to negotiate tenure agreements to allow them to explore for coalbed gas in this area.

**Southern BC.** Near Princeton, one well was drilled in 2004/5 and the company is considering further exploration. A small number of tenures are found in the region.

**Vancouver Island.** There were 14 test holes drilled in 1984. One well was drilled in 2001/2, but is inactive. The Government is working with the owners of private rights to negotiate tenure agreements to allow them to explore for coalbed gas in this area.