

DISCUSSION PAPER ON THE TENURE PROVISIONS OF THE *PETROLEUM AND NATURAL GAS ACT* AND REGULATIONS



September 15, 2011

To whom it may concern:

Re: Discussion Paper on the Tenure Provisions of the *Petroleum and Natural Gas Act* and Regulations

The Ministry of Energy and Mines (Ministry) is undertaking a review of the tenure provisions of the *Petroleum and Natural Gas Act* (PNG Act) and its regulations, which provide the statutory framework for the administration of rights to Crown-owned subsurface petroleum and natural gas resources. Surface activities associated with the development of PNG resources are conducted under the *Oil and Gas Activities Act*, which is not part of this review.

To facilitate a coordinated and wide-reaching review of British Columbia's petroleum and natural gas subsurface tenure system, the Ministry has developed a discussion paper describing the three tenure types: permits, drilling licences and leases.

Through a series of questions in the discussion paper, we invite your comments regarding what changes to the PNG Act and regulations would help to improve British Columbia's petroleum and natural gas subsurface tenure system. If you are responding on behalf of a company or an organization, we request that you coordinate your responses internally so that only one response is submitted per company or organization.

The deadline for comments is **October 17, 2011**. Please send comments via email to **PNG.PolicyComments@gov.bc.ca** or fax to **250-952-0331**.

If you have any questions or require clarification, please feel free to contact me or Cordelia Tryon via email to **Cordelia.Tryon@gov.bc.ca** or phone at **250-387-7549**.

Sincerely,



Laurel Nash
Executive Lead
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Ministry of Energy and Mines
<http://www.gov.bc.ca/ener>



Contents

SECTION 1 INTRODUCTION	4
SECTION 2 GOVERNMENT GOALS & OBJECTIVES	8
The BC Energy Plan	8
Ministry of Energy Service Plan	8
SECTION 3 PNG Tenure System Overview	10
Tenure Dispositions	10
Tenure Configuration	12
SECTION 4 PNG TENURES	14
Permits	14
Drilling Licences	16
Leases	18
Summary of Tenure Types	21
SECTION 5 QUESTIONS	23

Section 1 | Introduction

British Columbia has numerous sedimentary basins, which contain petroleum and natural gas (PNG) resources. Most PNG resources in British Columbia are owned by the Crown, with small percentages privately owned or held by the federal government. The *Petroleum and Natural Gas Act (PNG Act)* and its regulations provide the framework for the administration of Crown-owned subsurface PNG rights. The Ministry of Energy and Mines (Ministry) is responsible for the management of these resources through the development of legislative and regulatory policies.

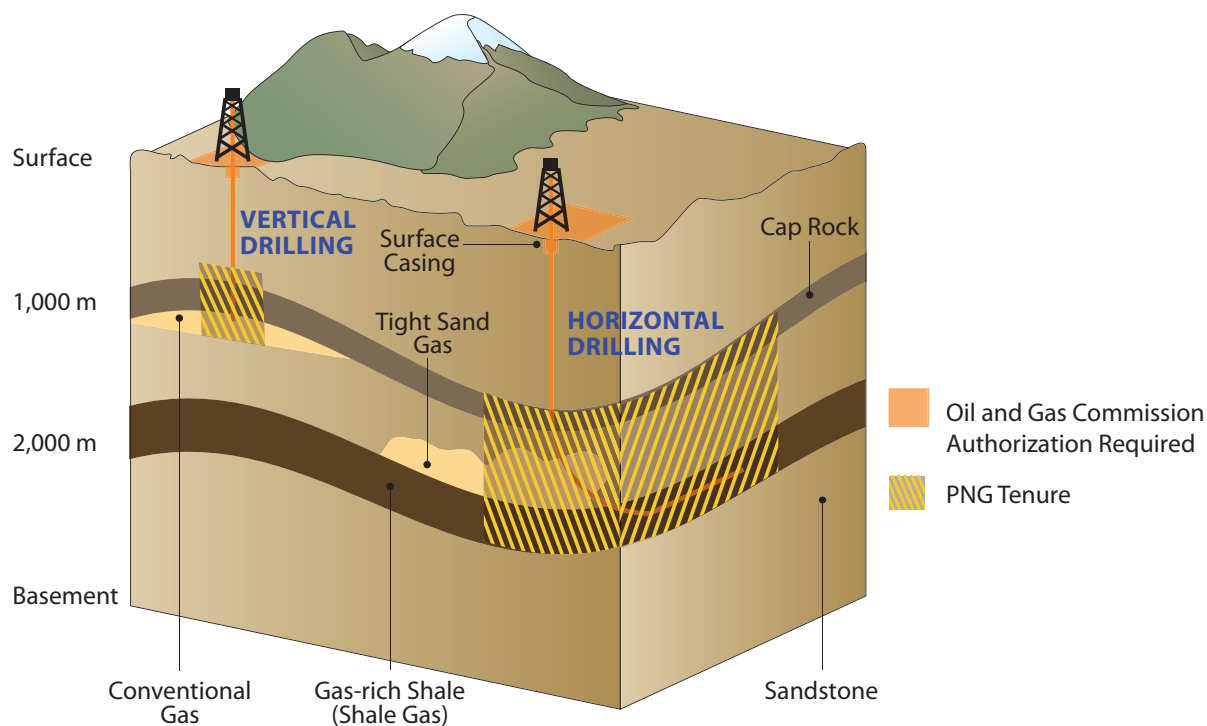
Crown-owned PNG rights are granted through three forms of tenure under the *PNG Act*: permits, drilling licences and leases. Permits and drilling licences are exploratory forms of tenure; leases are the only form of tenure giving a right of production. Each form of PNG tenure is discussed in detail in this paper. Provincial revenue from PNG resources is garnered from industry through the payment of bonus bids for the acquisition of tenure, annual rent for the holding of tenure, and payment of royalties on PNG resources produced.

While PNG tenures issued under the *PNG Act* provide the right to the subsurface PNG resources, all exploration and development activities conducted on PNG tenure, including well drilling, pipeline, facility or road construction, are authorized and regulated by the Oil and Gas Commission under the *Oil and Gas Activities Act (OGAA)* and its regulations (Figure 1). The permitting and regulation of PNG exploration and development activities by the Oil and Gas Commission are not discussed in this paper.

The most developed basin in British Columbia is the portion of the Western Canada Sedimentary Basin that underlies the northeastern part of the province, where natural gas, not oil, is the predominant form of hydrocarbon resources. From the 1950's to the turn of the twenty-first century, the exploration and development of conventional PNG resources in British Columbia's portion of the Western Canada Sedimentary Basin occurred at a steady rate. PNG resources produced from reservoirs primarily composed of sandstone, limestone and other similar rocks with good permeability are known as "conventional oil and gas".

Around the turn of the twenty-first century, the Montney zone became recognized as a profitable unconventional resource play. "Unconventional" gas reservoir is a term commonly used to refer to a low permeability reservoir that produces mainly dry natural gas. In unconventional resource play areas, natural gas is expected to exist fairly uniformly beneath large tracts of land. New technologies in the PNG sector have made the exploration and development of unconventional oil and gas reservoirs economically feasible.

FIGURE 1 | SUBSURFACE PNG RESOURCES IN RELATION TO SURFACE ACTIVITIES



Basement

The rock layer below which economic hydrocarbon reservoirs are not expected to be found.

Cap Rock

Seals in hydrocarbon accumulations and prevents any movement or escape of the hydrocarbon resource.

Conventional Gas

Produced from a reservoir predominantly composed of porous rock capable of flowing hydrocarbons at economic rates.

Horizontal Drilling

A subset of the more general term “directional drilling” used where the departure of the wellbore from the vertical portion exceeds 80 degrees; used for the production of unconventional oil and natural gas.

Gas-rich Shale

Extremely fine-grained sedimentary rock formed of clay and silt sized particles containing organic matter that has generated and retained natural gas.

Shale Gas

A form of unconventional natural gas (see definition) produced from gas-rich shale formations through the use of specialized well technology.

Surface

The top of the ground.

Surface Casing

A large diameter pipe that runs from surface to a shallow but solid formation that is below potable water levels in order to protect potable water and prevent blowouts.

Tight Sand Gas

A form of unconventional natural gas produced from a tight sand reservoir (see below) through the use of specialized well technology.

Tight Sand Reservoir

Sand with such little natural permeability, or with the pore space so filled with clay or cementing material, that oil and water cannot pass through.

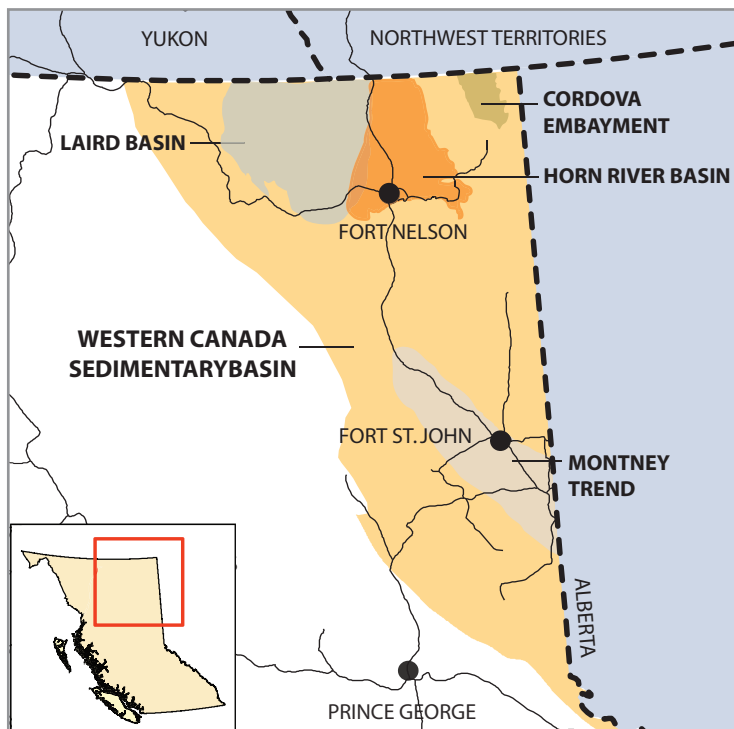
Unconventional Natural Gas

Produced from a formation of unusually low permeability that requires specialized technological procedures in order to obtain commercial levels of production.

Vertical Drilling

Typically used for the production of conventional oil and natural gas.

FIGURE 2 | SHALE GAS PLAY AREAS IN NORTHEAST B.C.



In the past six years (2005 to present) the interest in developing the unconventional (shale and tight) gas resources in British Columbia, such as the Montney, Cordova Embayment, Liard Basin and Horn River Basin, has significantly expanded (Figure 2). The Horn River Basin is touted by many as being the largest shale gas play in Canada¹. By the end of 2011, it is expected that unconventional gas production will be 50% or more of the total natural gas production in British Columbia.

The province is committed to continuous improvement of its regulatory regime and environmental management of PNG resources². In 2008, the Ministry established the PNG Tenure Working Group, a committee of British Columbia government staff and industry representatives who meet on a regular basis to share information and discuss ways of improving the PNG tenure system.

In October 2010, OGAA was brought into force and includes a revised statutory framework governing all PNG activities in the province. OGAA is a modernization and consolidation of the former *Oil and Gas Commission Act*,

the *Pipeline Act* and regulatory provisions formerly found in the *PNG Act*. OGAA better defines and clarifies the role of the Oil and Gas Commission as the regulatory agency responsible for overseeing PNG operations. The Oil and Gas Commission now has stronger compliance and enforcement powers to govern a modern industry. Comprehensive environmental requirements are a key part of the new regulatory framework, with stronger, more consistent environmental guidelines and standards for industry.

In December 2010, Energy Ministers from British Columbia, Alberta and Saskatchewan signed an Energy Memorandum of Understanding (MOU), arising from the New West Partnership created in the spring of 2010. The MOU will combine and build on the existing strengths of all three provinces to expand the region's energy sector, attracting new investment, stimulating job creation and strengthening the region's economy.

¹ 2009 BC Energy Plan Report of Progress, p. 11

² The BC Energy Plan: A Vision for Clean Energy Leadership, p. 34

Due to significant technological advances allowing the development of unconventional PNG resources, the implementation of the *Oil and Gas Activities Act* and emergent environmental issues, the Ministry has decided that a full review of the PNG tenure system within the *PNG Act* and regulations is warranted at this time.

The purpose of this discussion paper is to seek input from interested parties regarding what changes to the tenure provisions of the *PNG Act* and regulations are required to improve the PNG tenure system. Any changes to the *PNG Act* and tenure system will have to maintain the right balance of economic, environmental and social priorities to allow a thriving and competitive energy sector, while protecting the environment, and providing benefits to the citizens of British Columbia.

Comments on the PNG tenure system can be submitted to:

PNG.PolicyComments@gov.bc.ca



There is a list of targeted questions provided at the end of the paper to help guide your response. Comments outside the scope of the questions will also be considered by the Ministry so long as they are relevant to the PNG tenure system.

Comments received in response to this discussion paper will be used to help inform the proposal for future amendments to the *PNG Act* and regulations. The Ministry will assess any proposed changes in relation to how they help meet the provincial government's direction and the Ministry's objectives for British Columbia's energy sector, outlined in the following section. Submissions may range from a letter, to a substantial document with relevant data or evidence included.

Your submission is a public document and will become a government record, subject to the provisions of the *Freedom of Information and Protection of Privacy Act (FOIPPA)*. Consequently, your submission may be subject to an access request under *FOIPPA* and may be disclosed by publication or on a public website.

The Ministry has posted responses to potential questions regarding this discussion paper, which can be accessed at:

<http://www.empr.gov.bc.ca/Titles/OGTitles/OtherPublications/Pages/default.aspx>



Other questions on the discussion paper may be directed to:

PNG.PolicyComments@gov.bc.ca



Section 2 | Government Goals & Objectives

THE BC ENERGY PLAN

The BC Energy Plan: A Vision for Clean Energy Leadership is British Columbia's plan to make the province energy self-sufficient while taking responsibility for our natural environment and climate³. Appendix A of The BC Energy Plan provides a detailed list of policy actions for the plan. Policy actions relevant to the review of the PNG tenure system are listed below.

Policy Action 37

Establish policies and measures to reduce air emissions in coordination with the Ministry of Environment.

Policy Action 44

Pursue regulatory and fiscal competitiveness in support of being among the most competitive oil and gas jurisdiction in North America.

Policy Action 46

Encourage the development of conventional and unconventional resources.

Policy Action 55

Examine oil and gas tenure policies and develop guidelines to determine areas that require special consideration prior to tenure approval.



http://www.energyplan.gov.British Columbia.ca/PDF/BC_Energy_Plan.pdf

MINISTRY OF ENERGY SERVICE PLAN

The Service Plan outlines the Ministry's strategies to facilitate thriving, safe, environmentally responsible and competitive energy and mining sectors. It is through these initiatives that the Ministry will continue to contribute to the economic growth and development of communities throughout British Columbia⁴. The following goals, objectives and strategies relate specifically to the review and improvement of British Columbia's PNG tenure system.

³The BC Energy Plan: A Vision for Clean Energy Leadership, p. 1

⁴Ministry of Energy and Mines Revised 2011/12-2013/14 Service Plan, p. 6

Service Plan Goal 1

A thriving and competitive energy and mining sector.

Objective 1.1: Increased energy sector investment, revenue generation and job creation for the long term benefit of all British Columbians.

Strategy: Support unconventional petroleum and natural gas development and exploration by modernizing the petroleum and natural gas rights disposition process.

Objective 1.3: Efficient and effective fiscal, legislative and regulatory frameworks and services that reflect the public interest, and enhanced social and economic benefits for all British Columbians.

Strategy: In cooperation with other levels of government, continue to review regulations to ensure British Columbia remains competitive, while maintaining the integrity of environmental, health and safety standards.

Service Plan Goal 3

The Ministry, stakeholders, First Nations and industry working cooperatively for the responsible development and use of British Columbia's energy and mineral resources.

Objective 3.1: A continued strong commitment to environmentally and socially responsible development through appropriate and timely engagement of First Nations, the public and stakeholders in energy and mineral resource development.

Strategy: Continually examine tenure policies and legislation, and, with the engagement of stakeholders and other ministries, develop new regulations in response to technological or societal changes.

Strategy: Work with industry, the Oil and Gas Commission and the public to manage the Horn River Basin and other shale gas plays in a manner that establishes leading North American standards for unconventional gas resources.

<http://www.bcbudget.gov.bc.ca/2011/sp/pdf/ministry/mem.pdf>



Section 3 | PNG Tenure System Overview

The *PNG Act* was first given Royal Assent and brought into force in 1944. Preceding the *PNG Act*, several exploration ventures were undertaken across the province under the *Coal and Petroleum Act* which resulted in the drilling of numerous PNG wells.

The foundation for the current PNG tenure system was developed in the 1940's and 1950's. It is under this system that British Columbia's PNG sector has operated for several decades and experienced significant growth. PNG tenures provide time-limited rights to subsurface resources within a tenure system that facilitates the responsible and efficient development of PNG resources for the long-term economic benefit of the citizens of British Columbia. The Ministry currently manages more than 14,700 PNG tenures covering just over 9.5 million hectares.

PNG tenures are issued and managed in accordance with the *PNG Act* and the following regulations:

- Petroleum and Natural Gas Grid Regulation
- Petroleum and Natural Gas Drilling Licence Regulation
- *Petroleum and Natural Gas Act* Fee, Rental and Work Requirement Regulation

The *PNG Act* and its associated regulations can be accessed at:

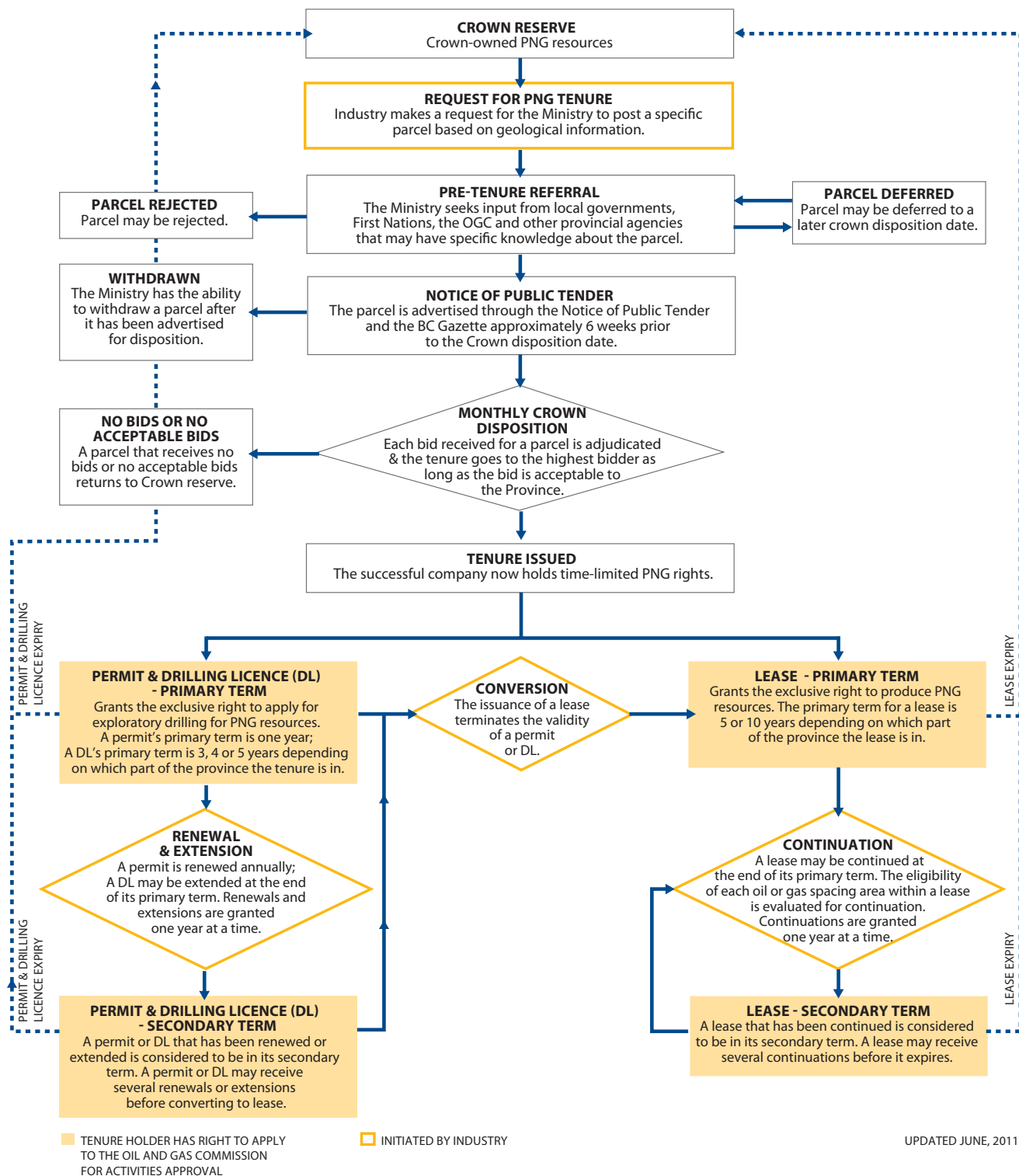
http://www.bclaws.ca/EPLibraries/bclaws_new/content?xsl=/templates/toc.xsl/group=P/lastsearch=/.

TENURE DISPOSITIONS

Provincial PNG rights are acquired by industry through Crown dispositions, which are monthly scheduled competitive auctions (*PNG Act*, sec. 71). The offering of specific PNG rights is typically requested by industry, but the decision to dispose of PNG rights is at the discretion of the Ministry.

All tenure requests are subject to a pre-tenure review, which involves a referral process where the Ministry seeks input from local governments, First Nations, the Oil and Gas Commission and other provincial government agencies that may have specific knowledge about the parcel area. The purpose of this referral process is to identify environmental, community and First Nations' considerations which the Ministry takes into account in determining whether the parcel should be made available for disposition. Considerations identified as part of the pre-tenure review may be included as caveats (i.e., conditions) of the tenure when it is advertised for disposition and in any tenure documents subsequently issued to a company. The referral process may result in some parcels not being put forward, being reconfigured, or being "deferred" for disposition until a later date if more time is required to address an issue. The latter is done through further consultations with the respective provincial government agencies, First Nations or local governments.

FIGURE 3 | FLOWCHART OF THE PNG TENURE PROCESS



Once the referral process is complete, the Ministry will determine which parcels will be offered for disposition and publishes the descriptions of offered parcels in a Notice of Public Tender and the BC Gazette.

The Landowner Notification (LON) Program was implemented in March 2008 to provide private landowners notification of an upcoming auction of provincial PNG rights below their property as well as information on surface lease agreements. The program is the first of its kind in North America.

On the day of the disposition, bids are received that include fees, rent, and a bonus bid. Bonus bids are the portion of a bid that is in addition to the payment of the first year's rent and fees. An adjudication panel reviews all bids to ensure the highest bid received is sufficient for the rights being offered, and is in the public interest to dispose. The Minister of Energy and Mines reserves the right to reject any or all bids received.

Once tenure has been issued, the tenure holder does not have the authority to conduct any activities on the land (e.g., well drilling). However, the tenure holder does have the exclusive right to the subsurface resource and the right to apply to the Oil and Gas Commission for well drilling permits and other surface activities related to the exploration and development of PNG resources, such as road and pipeline construction.

TENURE CONFIGURATION

Petroleum Titles On-Line (PTO) is the Ministry's online mapping tool that provides information about provincial PNG rights and tenures. Industry can use PTO to submit requests for Crown PNG rights to be offered at one of the Ministry's monthly PNG tenure dispositions.

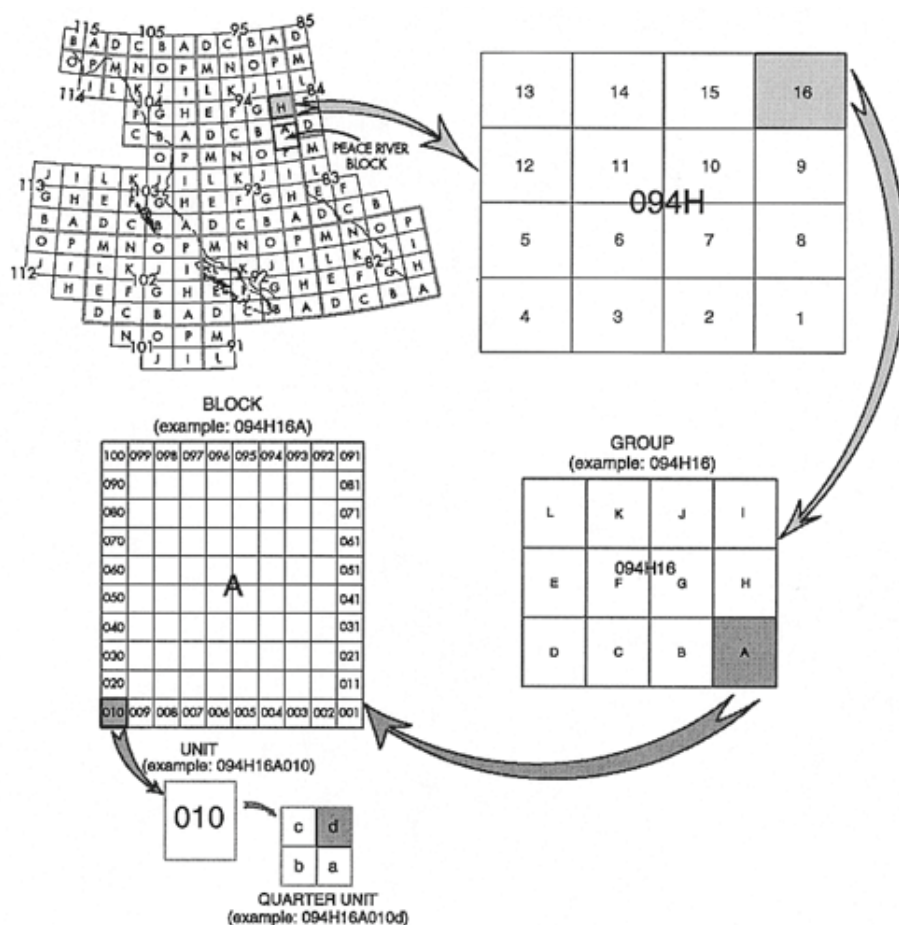
In British Columbia, tenure parcel descriptions are based on the Petroleum and Natural Gas Grid, which is similar to the National Topographic System (NTS) of mapping, except for lands located within a geographic area referred to as the Peace River Block, where parcel descriptions are based on the Dominion Land Survey (DLS) Township/Range system (PNG Grid Regulation).

PNG tenures are administered according to gas spacing areas or oil spacing areas depending on whether they are in a natural gas or oil bearing zone. Most PNG tenure in British Columbia is administered according to gas spacing areas. A gas spacing area is composed of four NTS units; an oil spacing area is defined as one

NTS unit (Figure 4). In the northeast region of British Columbia, one gas spacing area ranges from approximately 260 to 305 hectares in size. The purpose of oil and gas spacing areas is to space wells to prevent PNG resources beneath one tenure from being drained by a well on an adjacent tenure and to ensure that PNG is produced in an orderly and efficient manner.

PNG tenures may contain rights to all PNG resources from the surface to the basement that are located within the tenure's parcel description, or tenures may convey the right to specific geological zones only. In British Columbia, PNG zones are packages of one or more geological formations believed to contain PNG resources. As a result, an area of land at its surface may have two or more overlapping subsurface PNG tenures with rights to different geological zones.

FIGURE 4 | PNG GRID COMPONENTS: GROUPS, BLOCKS, UNITS⁵



⁵ Petroleum and Natural Gas Grid Regulation, Schedule 3

Section 4: PNG Tenures

PERMITS

The purpose of permits is to encourage exploration in relatively unknown areas. Permits are acquired through Crown dispositions and convey the exclusive right to explore for PNG in a defined area (*PNG Act*, sec. 38(1)). They are the original form of exploratory tenure in the *PNG Act*. They carry annual exploration spending requirements and are, in part, convertible to lease. Upon completion of a permit's work requirements, permittees may convert up to half of their permit to a lease; the remainder of the rights revert to the Crown (*PNG Act*, sec. 52(2)).

Permits are rarely requested for disposition at the monthly PNG Crown dispositions. The last permit issued through a Crown disposition was in 2006. One permit was requested in 2007 and received no bids. Four permits were requested in 2009, but were withdrawn from the disposition when the Ministry was informed by the requester that they were not going to bid on the permits. There are currently no active permits in the province.

Permits are expected to have value in areas of the province that, to date, have had little to no exploration. Permits would be suitable for these areas because of the low rent and low work requirements, which can be met through a program of exploratory work that does not necessarily include drilling.

Permits are issued as one of four classes: A, B, C or D. The class of a permit is not determined by an administrative boundary, such as with drilling licences and leases. Rather, permits are classified by the Ministry's Director of Petroleum Lands with regard for the comparative accessibility of the location and the terrain within the permit area. Permits classified as A are those with the highest level of accessibility and most traversable terrain and permits classified as D have three quarters or more of their area covered by water (*PNG Act*, sec. 42). For example, permits that have been issued within the Rocky Mountains have been issued as Class B permits.

All permits have a term of one year. Beyond their initial (one year) term, a permit may be renewed annually contingent on the completion of the work requirements. Class A & B permits may be renewed annually up to four times (five year term in total) and after this may be renewed for one year or less up to three times on approval by the Minister (possibility for an eight year term in total). Class C & D permits may be renewed annually up to seven times (eight year term in total) and, beyond this, may receive any number of ministerial approvals for a further renewal of one year or less (*PNG Act*, sec. 47). Permits have annual renewals, rather than a single-multi-year term, to ensure that tenure holders are conducting exploration work and not "holding" the lands.

Permittees earn the right to convert a portion of a permit to a lease by completing exploration work equal to a set monetary value. The class of a permit determines its annual work requirements. Work is defined in the *PNG Act* Fee, Rental and Work Requirement Regulation as geological work, geophysical exploration or exploratory drilling to the satisfaction of the Director of Petroleum Lands (PNG Rental and Work Requirement Regulation, sec. 4). Work requirements for each class of permit are listed in Table 1 below. In order to conduct work on a permit, the tenure holder must apply for and receive the necessary authorizations from the Oil and Gas Commission.

TABLE 1: ANNUAL WORK REQUIREMENTS FOR PERMITS (\$/HA)⁶.

YEAR	CLASS A	CLASS B	CLASS C	CLASS D
1	\$1	\$1	\$1	\$0.5
2	\$2	\$1.50	\$1	\$0.5
3	\$4	\$3	\$2	\$1
4	\$5	\$4	\$2.50	\$2.50
5	\$5	\$4	\$3	\$3
6	\$7.50	\$6	\$5	\$5
7	\$15	\$10	\$7.50	\$7.50
8	\$20	\$15	\$7.50	\$7.50

If a permittee is unable to complete the work requirement for the year, they may pay an amount equal to the value of the work not done in order to have their permit renewed. Alternatively, they may undertake in writing to do the work required the following year, as long as the written undertaking is accompanied by a deposit of money or security equal to the work not done (*PNG Act*, sec. 44(1)).

If a permittee has conducted work in excess of what is required under the regulation, the excess work is applied to the work requirements for one or more of the following three years (*PNG Act*, sec. 48). Alternatively, if a permit holder knows that they will be conducting work that will exceed the value required under the regulation, they can apply to the Ministry to group the permit with one or more of their other permits as long as the grouped permits are contiguous and the grouping does not exceed 30 blocks in area (750 gas spacing areas), or the other permits lie within a radius of 80 km of the permit (*PNG Act*, sec. 46(1)).

⁶ Petroleum and Natural Gas Act Fee, Rental and Work Requirement Regulation, Section 4

Upon completion of a permit's associated work requirements, a portion of a permit may be converted to a lease. A lease issued from a permit has several location restrictions. These are:

- The lease cannot cover more than half the area of the permit and must be within the boundaries of the permit location (*PNG Act*, sec. 52(1)).
- The lease must coincide with the boundaries of the natural gas spacing areas (*PNG Act*, sec. 55(2)).
- Two or more leases issued from the same permit can only be located corner to corner or must be separated from each other by at least two units (*PNG Act*, sec. 55(3)).
- The shape of a lease issued from a permit must have four boundaries and the dimensions must be: 2x2, 2x4, 4x4, 4x6, 4x8, or 6x6 units. If it is not possible for a permittee to select a lease under these dimension restrictions, a lease of a different shape may be granted but must not exceed fifty percent of the size of the permit it is selected from (*PNG Act*, sec. 55(1)).

DRILLING LICENCES

Drilling licences are the second form of tenure conveying the right to explore for PNG in a defined area (*PNG Drilling Licence Regulation*, sec. 1). Drilling licences are acquired through the monthly Crown dispositions and are convertible to lease in proportion to a licensee's exploratory drilling effort.

Drilling licences were introduced into the *PNG Act* in 1982 and are administered under the Petroleum and Natural Gas Drilling Licence Regulation. Drilling licences stimulate exploration and infrastructure investment through the requirement to drill "earning wells", which provide credits towards converting the drilling licence to a lease. Prior to drilling licences, permits were the only exploratory form of tenure. Today, the drilling licence is the primary form of exploration tenure held in the province.

The size of a drilling licence cannot be larger than 144 units (approximately 36 gas spacing areas) (*PNG Drilling Licence Regulation*, sec. 2(7)).

Drilling licences do not have annual work requirements. However, to convert a drilling licence to a lease, the licensee is required to drill one or more wells that, in the opinion of the Director of Petroleum Lands, evaluate a zone that has not previously been evaluated by another well drilled on the licence or is drilled at least 150 metres into a gas spacing area that has not been drilled into by another well. These wells are called 'earning wells' (*PNG Drilling Licence Regulation*, sec.1 and sec. 4(1)(b)).

Prior to drilling a well, licensees must apply for and receive a well permit from the Oil and Gas Commission.

The length of the earning well drilled determines the number of gas spacing areas that can be converted to lease (as shown in Table 2) and the deepest zone evaluated by the earning well determines the deepest rights that can be converted to lease (PNG Drilling Licence Regulation, sec. 4(2)). Horizontal wells are typically drilled up to a total of 5,000 metres in Canada, with the vertical portion of the wellbore extending 2,000 to 3,000 metres deep and the horizontal portion of the wellbore extending 1,000 to 2,000 metres laterally.

TABLE 2: LEASE ENTITLEMENTS PER EARNING WELL⁷.

LENGTH OF WELL BORE (METRES)	AREA 1 (EARN GAS SPACING AREAS)	AREA 2 (EARN GAS SPACING AREAS)	AREA 3 (EARN GAS SPACING AREAS)
less than 1 001	2	2	3
1 001 to 1 300	3	3	4
1 301 to 1 500	4	5	6
1 501 to 1 800	5	6	8
1 801 to 2 100	6	7	9
2 101 to 2 400	7	8	10
2 401 to 2 600	8	9	11
2 601 to 2 800	9	10	12
2 801 to 3 000	10	12	14
3 001 to 3 200	11	13	16
3 201 to 3 400	12	14	18
3 401 to 3 600	13	15	20
3 601 to 3 800	14	16	22
3 801 to 4 000	15	18	24
4 001 to 4 200	16	20	26
4 201 to 4 400	17	22	28
over 4 400	18	24	30

⁷ Petroleum and Natural Gas Drilling Licence Regulation, Schedule 1

Multiple wells on a single drilling licence can be used to create one or more leases from a drilling licence. The total area of the lease or leases converted from a single drilling licence can never exceed the size of that drilling licence (PNG Drilling Licence Regulation, sec. 4(3)). A lease selected from a drilling licence does not have the same location restrictions as a lease selected from a permit. It can be any size and shape that the licensee requests as long as it is within the boundaries of the drilling licence it is selected from and issued on whole natural gas spacing areas, or oil spacing areas if a petroleum well is located on the drilling licence.

At the time of lease selection, if a licensee has earned more gas spacing areas from a well than they are able or want to use for converting all or part of their drilling licence to lease, the licensee can apply to the Ministry to group one other large drilling licence (defined as greater than four gas spacing areas in size) or multiple small drilling licences (defined as being no larger than four gas spacing areas in size) so that the earnings from the well can be used to convert gas spacing areas from the other drilling licence(s) to lease. A well can only be used for grouping licences once, and the distance between the locations of the drilling licences being grouped cannot exceed four kilometres at their closest points (PNG Drilling Licence Regulation, sec. 4.1).

A licensee may also split their drilling licence and convert only part of it to lease (PNG Drilling Licence Regulation, sec. 4(1)(b)). Any earned gas spacing areas not used for converting part of the drilling licence to lease will remain with the unconverted part of the drilling licence and may be used to convert the rest of the drilling licence to lease up to the end of its term (PNG Drilling Licence Regulation, sec. 4(2)(d)). This is referred to as deferring earnings. The Drilling Licence Regulation was amended in 2009 to allow for deferred earnings and the grouping of multiple small drilling licences. At the end of a drilling licence's term, any spacing areas that have not been earned and any stratigraphic zones that have not been evaluated by a well revert to the Crown.

LEASES

A lease is the only form of tenure giving a right of production (*PNG Act*, sec. 50(2) (a)). Leases are acquired either directly through the competitive auction process or by conversion from permits or drilling licences. They convey the exclusive right to explore and produce PNG in the defined area.

A lease acquired through a Crown disposition must coincide with the boundaries of the natural gas spacing area grid, but does not have restrictions on its size or shape. Ministry policy previously limited leases acquired from a Crown disposition to a maximum size of one gas spacing area. However, the Ministry recently revised this policy to allow for the Crown disposition of larger leases. The ability to acquire larger leases from a Crown disposition will allow industry more flexibility in its planning and will allow for surface activities (including drilling) to occur in a staged and orderly manner. For more information, please review Information Letter TACRD 11-01 at:

<http://www.empr.gov.bc.ca/Titles/OGTitles/InfoLetters/IssueDate/Pages/TACRD-11-01.aspx>.



The initial term of a lease is five or ten years. Leases have a term of five years if they are converted from a Class A permit or from a drilling licence situated wholly or partially within Area 1 (described in Schedule 2 of the Drilling Licence Regulation), or if they are issued through Crown disposition and are located wholly or partially within Area 1. Leases have a term of ten years if they are converted from Class B, C and D permits or from drilling licences located in Areas 2 or 3, or if they are issued through Crown disposition and are located in Areas 2 or 3 (*PNG Act*, sec. 58(2)). The difference in lease terms reflects the varying degree of PNG infrastructure, access to market and ease of accessibility found across the province. For example, leases issued in Area 1 or from Class A permits are in a region of the province with the highest degree of PNG infrastructure, access to market, and/or ease of accessibility.

There are no annual work requirements for a lease. However, the lessee is required to have proven the resource in order to continue a lease past its initial term. Continuation is the term used to refer to extension of leases. Once the resource is proven, the lessee has the right to continue on a yearly basis any gas spacing area within the lease that contains a pool of PNG until the resource is depleted. Prior to conducting exploration and development activities on a lease, the lessee must apply for and receive the required authorizations from the Oil and Gas Commission.

Beyond the initial 5 year or 10 year term, continuation of gas spacing areas within a lease are provided for one year at a time, if an application for continuation is received up to 60 days after the expiry date of the lease, for the following reasons:

- A petroleum or gas well is located on the spacing area (*PNG Act*, sec. 58(3)(a)).
- The spacing area is part of a special project under section 75 of OGAA (*PNG Act*, sec. 58(3)(a)).
- At least half of the spacing area covers a delimited pool recognized by the Director of Petroleum Lands (*PNG Act*, sec. 58(3)(a)).
- The Director of Petroleum Lands believes that the spacing area may be adequately drained by a well situated on a contiguous spacing area (*PNG Act*, sec. 58(3)(a)).
- The spacing area is subject to a unitization or royalty agreement (*PNG Act*, sec. 58(3)(b)).
- The division head approves an exploratory program of work that includes the spacing area (*PNG Act*, sec. 58(3)(c)).
- The drilling of a well is incomplete but the Director of Petroleum Lands is satisfied that the work will continue (*PNG Act*, sec. 58(3)(d)).
- The spacing area, and the zones within it, are being used or are planned to be used for the purpose of water disposal, carbon dioxide disposal, or other waste fluids disposal associated with PNG exploration, production or processing (*PNG Act*, sec. 61.1(2)).

In addition, all gas spacing areas in a lease must be continued if the lessee, prior to the lease's expiry date, undertakes in writing to drill a well on the lease.

A ten year lease can be continued for a maximum of three years on payment of a penalty without proof of a resource pool (*PNG Act*, sec. 62(2)). Five year leases do not have this option because they are issued in areas of improved infrastructure and, thus, are expected to be able to reach production in a shorter period of time.

TABLE 3: SUMMARY OF TENURE TYPES

	PERMITS	DRILLING LICENCES	LEASES
Purpose	To incent exploration	To incent exploration in the form of drilling	Exploration and production
Location/Size	Issued on whole gas spacing areas; no size restrictions	Issued on whole gas spacing areas; cannot be larger than 144 units (approx. 36 gas spacing areas)	Issued on whole gas spacing areas; no size restrictions, unless it is selected from a permit or DL (see Lease Selection Restrictions)
Annual Work Requirements	Yes	No	No
Requires Separate Approval for PNG Activities	Yes (Oil and Gas Commission)	Yes (Oil and Gas Commission)	Yes (Oil and Gas Commission)
Initial Term	One year plus four renewals (five years) for Class A & B permits One year plus seven renewals (eight years) for Class C & D permits	Three years in Area 1 Four years in Area 2 Five years in Area 3	Five years in Area 1 Ten years in Areas 2 & 3
Renewals/ Extensions/ Continuations	Four renewals plus possibility for three ministerial renewals for Class A & B permits and seven renewals plus possibility of one or more ministerial renewals for Class C & D permits	Extension by payment of penalty (one year only); Extension for completion of drilling; Special extensions to address specific delays to drilling (up to one year at a time); Extensions for the purposes of coalbed gas projects (one year at a time)	Continuation by payment of penalty (three years) – for ten year leases only; Continuation of eligible spacing areas (one year at a time); Continuation for program of work (one year at a time); Continuation for completion of drilling (one year at a time); Continuation for a royalty agreement or unitization agreement (one year and limitless)

Grouping	Yes (within 80 km radius)	Yes (within 4 km of the drilling licence boundary)	N/A
Requirements for Conversion to Lease	Fulfillment of work requirements for years one to five for Class A & B permits & years one to eight for Class C&D permits	Drilling of an earning well as defined under the Drilling Licence Regulation	N/A
Lease Selection Restrictions	Size: cannot exceed 50% of the permit; Dimension: must have four sides and be 2x2, 2x4, 4x4, 4x6, 4x8 or 6x6 units; Location: must be within the boundaries of the permit and be issued on whole gas spacing areas. Two leases issued from the same permit cannot be located corner to corner and must be separated by at least two units	Size: cannot exceed the size of the drilling licence; Dimension: no restrictions; Location: must be within the boundaries of the drilling licence and be issued on whole oil or gas spacing areas.	N/A
Annual Rental	\$1.05/ha for years one through five & \$1.75/ha for each subsequent year	\$3.50/ha; \$7.00/ha for extension with penalty	\$7.50/ha; \$22.50/ha for the first year of continuation with penalty; \$32.50/ha for the second and third year of continuation with penalty
Issuance and Renewal/ Extension/Continuation Fees	\$500	\$500	\$500

Section 5: Questions

You may use the following questions to guide your response to the Discussion Paper. These pages can be printed and filled out manually. Responses can be scanned and emailed to PNG.PolicyComments@gov.bc.ca or faxed to 250-952-0331.



The submission deadline for responses is **October 17, 2011**. Additional comments outside the scope of the questions will also be considered by the Ministry as long as they are relevant to the PNG tenure system. Thank you!

1. What is your association or interest in the PNG sector in British Columbia?

[illegible]

- i. any issue(s) that you have experienced and why it arose;
- ii. what parts of the *PNG Act* and tenure system you would propose to change;
- iii. how the proposed changes would resolve the issue(s) you have identified; and
- iv. how the proposed changes align with government's objectives, strategies or policy actions for its energy sector, as described in Section 2 of this paper.

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In British Columbia there are two forms of exploration tenure: permits and drilling licences. Unlike drilling licences, permits do not require well drilling in order to convert to lease. The purpose of permits is to collect information about relatively unexplored basins.

3. Are you aware of any issues with permits under the current tenure system and, if so, what do you propose needs to be changed and why?

This image shows a full page of blank, lined paper. It features approximately 20 horizontal blue lines spaced evenly across the page, typical of notebook or legal stationery. The lines are thin and light blue, set against a plain white background. There is no handwriting, printed text, or other markings on the page.

4. Have you experienced issues with the drilling licence under the current tenure system and, if so, what do you propose needs to be changed and why?

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5. In your opinion are the current well drilling requirements, earning schedule, and grouping rules for drilling licences appropriate for conventional resource development? Are they appropriate for unconventional resource development?

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6. In your opinion, does the three year term in Area 1, four year term in Area 2 or five year term in Area 3, plus the one year optional extension, provide enough time to explore for conventional PNG resources by way of well drilling? Do the same terms provide enough time to explore for unconventional resources by way of well drilling?

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The lease is the only form of tenure from which PNG resources can be produced for commercial purposes. Lessees have five or ten years, depending on what part of the Province the lease is in, to prove that a PNG resource exists within their lease area. Once a pool of PNG is proven to exist within a lease, each oil or gas spacing area that is within the delineated pool is eligible to be continued on a year-by-year basis, until that pool is depleted.

7. Have you experienced any issues with leases under the current tenure system and, if so, what do you propose needs to be changed and why?

[illegible]

8. In your opinion does the five year term in Area 1 and ten year term in Areas 2 and 3 provide enough time for orderly development of a lease in conventional resource areas? In unconventional resource areas?

[illegible]

9. Are the current continuation opportunities for leases appropriate?

[illegible]

10. Do you have any additional comments on the PNG tenure system?

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