NATURAL GAS FROM COAL
IN ALBERTA

POSITION PAPER

prepared by

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PREFACE

Far from being a new resource, natural gas from coal (NGC) has been known to Industry for sometime as coalbed methane, coal seam methane, coal mine methane and, more recently, coalbed gas. A combination of market conditions in North America together with technological advancements has led to the evolution of NGC development to the point where it now comprises approximately 8% of natural gas production in the United States and has attracted significant attention in Canada. NGC has clearly taken on new importance.

The Canadian Association of Petroleum Producers (CAPP) established the Natural Gas from Coal Task Group to identify key issues regarding NGC development and to develop appropriate strategies to address them. The purpose of this Position Paper is to communicate the CAPP findings and recommendations to key stakeholders. The recommendations included in the Position Paper are divided into five categories: Ownership, Tenure, Regulatory Matters, Fiscal, and Communications.

NGC exploration and development is in its infancy in Alberta (and Canada). CAPP is committed to effective collaboration with key stakeholders as we seek to responsibly develop Alberta's energy resources.

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PART I – OWNERSHIP

The Energy Statutes Amendment Act, 2003 (the Act)

The Province of Alberta introduced the Act, in part, to clarify the ownership of NGC.[1] If proclaimed into force, one impact of the Act will be to explicitly state that a coal lease does not grant rights to any natural gas, including coalbed methane. It does not define "coalbed methane", nor does it amend the definition of "natural gas" to include coalbed methane, although the definition of "natural gas" in the *Mines and Minerals Act* is tied to a gas-oil ratio, which would effectively include coalbed methane. Similarly, the Act does not state that the provisions related to coalbed methane are retroactive. Consequently, it is open to lessees of existing Crown coal agreements to argue that the Act does not apply to them.

References to Natural Gas from Coal Instead of Coalbed Methane

In order to more accurately reflect the fact that coalbed methane is simply a form of natural gas and will be developed in a similar manner, CAPP recommends that "coalbed methane" be referred to as "natural gas from coal."

RECOMMENDATIONS:

1. The EUB, DOE, CAPP and Industry should adopt the phrase "natural gas from coal" instead of "coalbed methane;" the Act and the regulations should be amended by replacing the phrase "coalbed methane" with the phrase "natural gas from coal" and a definition of that term should be added to the Act.

2. The Act should be amended to declare that NGC is natural gas and should explicitly state that it is retroactive.

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[1] The *Energy Statutes Amendment Act, 2003* became law on May 16, 2003 but will have no effect until it is proclaimed into force. (S.A. 2003, c. 18)

PART II – TENURE

Tenure legislation in Alberta has been evolving since mineral rights were transferred from the Government of Canada to the Province in 1930. Over time, such legislative changes have recognized the need to stimulate long-range exploration for resources that were marginally economic as well as the requirement for Industry to realize an acceptable rate of return. The *Petroleum and Natural Gas Tenure Regulation* was drafted to address tenure issues in conventional oil and gas development. Its application to NGC has revealed several shortcomings. Although the *Technical Guidelines for Continuation* contemplate NGC development in several places, the recommendations set out below contemplate guidelines designed specifically to facilitate NGC development.

RECOMMENDATION:

3. CAPP will continue to work with the DOE Cross-Ministry Tenure Sub-Committee to develop a tenure system that facilitates NGC development.

Postings

CAPP notes that the DOE Cross-Ministry Tenure Sub-Committee raised the issue of whether the current posting rules were adequate for the development of NGC, with respect to both the size of the posting and the rights that may be posted. As for size, the infrastructure requirements associated with NGC development mean that large, contiguous blocks of land are required in order to achieve the economies of scale necessary for a sufficient rate of return. Current posting rules permit agreements to be issued covering a maximum area of 15 sections in the Plains Region, 32 sections in the Northern Region and 36 sections in the Foothills Region. CAPP's view is that the maximum area limitations are large enough to facilitate NGC development.

RECOMMENDATION:

4. CAPP recommends no change to rules regarding size of posting.

Non-Productive Rights Reversion/Zone Specific Leasing

Lands that are considered productive in an agreement are currently continued to the base of the deepest productive zone. This raises the issue of stagnation regarding the exploration of zones prospective of NGC, to the extent that there are some operators holding lease blocks by virtue of production from deeper zones that are not currently prepared to produce from the NGC zones.

One concept to consider for new agreements would be to continue only with respect to productive zones. The application of non-productive rights reversion to existing agreements beyond their primary term would be phased in, with a notice given to current lessees advising them that rights to zones which are neither producing nor capable of production by a given date would revert to the Crown. A follow-up notice would be issued closer to the reversion deadline whereby the Crown would identify the zones it would anticipate being reverted. A lessee would then have an opportunity to develop those parcels so that they would either be producing or capable of production by the reversion deadline.

The process described above may lead to the exploration of non-productive rights either by virtue of their reversion to the Crown and subsequent disposition or by current mineral owners entering into joint venture or other arrangements pursuant to which the non-productive rights would be explored by other parties. The non-productive rights reversion issue is complex and beyond the scope of this position paper.

Additionally, the DOE could implement a system of zone specific leasing, with the term "zone" understood to include all lithology within a specified stratigraphic interval. CAPP would collaborate with DOE regarding the logistics and cost of implementing such a system. It is anticipated that any increase in the cost of administration by government resulting from the implementation of such a system would be more than offset by an increase in royalty revenue and lease bonuses.

RECOMMENDATIONS:

5. CAPP will review and formulate recommendations regarding the issue of non-productive rights reversion, including the continuation of existing agreements and the reversion of rights in agreements beyond their primary term.

6. CAPP supports the investigation by DOE into a system of zone specific leasing; CAPP and DOE should collaborate regarding design and implementation of a new system in the event the foregoing investigation indicates support for zone specific leasing.

Term and Continuation

The terms of and process for continuing agreements should be re-considered where the development plan for NGC differs both technically and from a timing perspective from that of a conventional natural gas pool. NGC development rarely occurs on a well-by-well basis. Rather, pilots are typically conducted on relatively small tracts of land and, depending on test results, are expanded to include larger tracts. This process may require the depressuring of large tracts of land before wells can be sufficiently tested. Under these circumstances, CAPP recommends that the grouping concept of validating lands within several licenses based on the evaluation of a single well be maintained and adopted as a method for continuing leases beyond their primary terms. Consideration would have to be given to whether information previously acquired from abandoned or inactive wells, in addition to wells that have been re-entered, could be used to evaluate current prospects in order to validate lands. In addition, the five-year primary term itself could be extended to give a lessee additional time, as required.

If the concepts of "productive" and "capable of production" were carried forward as factors in lease continuations, what constitutes "productive" and "capable of production" in the NGC context would have to be re-considered. For example, the added infrastructure, lower production rates and longer payout periods associated with NGC wells, in addition to the depressuring process itself, would have an impact on the assessment of whether a particular well was "capable of production."

RECOMMENDATIONS:

7. DOE should utilize the grouping concept of validating lands within an agreement based on the evaluation of a single well, currently used to continue licenses, to continue groups of leases beyond their primary terms for NGC developments.

8. DOE should extend the primary term of an agreement, on an annual basis where warranted by the NGC operations.

9. DOE should re-consider concepts of "productive" and "capable of production" in the context of NGC; in particular, continue agreements based on "deemed production" when continuous water production is occurring as a result of depressuring coals, shale or other horizons to encourage gas production.

Separate Agreements for NGC and Natural Gas

Splitting rights to NGC and natural gas into separate agreements could lead to a number of proprietary and operational issues. For example, defining a NGC zone separately from other zones that may be embedded in it would be difficult and measuring production separately from such zones at the surface may well be impossible. As well, having to develop NGC separately from conventional natural gas would likely make it more difficult to achieve the scale of production required to make a project economic, would increase the risk of exploration by reducing the number of potential targets and could lead to problems related to competing interests similar to recent "gas over bitumen" disputes in Alberta. For these reasons CAPP recommends that rights to NGC continue to be included in natural gas agreements.

RECOMMENDATION:

10. CAPP recommends no change to rules regarding agreements for NGC and natural gas.

PART III – REGULATORY MATTERS

The guiding regulatory principle, as set out in EUB Information Letter 91-11 (IL 91-11), is that NGC is considered to be a form of natural gas. Certain parts of the standard regulatory regime should be adapted, however, to facilitate NGC development.

RECOMMENDATION:

11. CAPP encourages the government of Alberta to continue managing NGC using existing regulations for natural gas, subject to the changes recommended in this Position Paper.

Experimental Schemes and Holdings

Although IL 91-11 contemplates the use of experimental schemes, they have not been widely used by Industry because of the length of time required to obtain an approval. While Industry has been utilizing holdings, as set out in the *Oil and Gas Conservation Regulations*, an experimental scheme would be more appropriate under circumstances where a new concept or process is being used, or a conventional process is being applied to a significantly different reservoir situation. Under these circumstances, it would be beneficial for an operator to be able to take advantage of the five-year confidentiality period available in the *Oil and Gas Conservation Regulations* with respect to data pertaining to an experiment in any field, pool or well, including an application for an experimental scheme.

While the holding application process has worked reasonably well, CAPP considers NGC development to be at a stage where a well density of two to eight wells per section, with standard buffer zones, is routinely required. Furthermore, the information being supplied in applications to date as well as during the public consultation process seems to be sufficiently addressing the requirements of all relevant parties. With this in mind, CAPP recommends that the EUB adopt an expedited approval process for holding applications for up to eight wells per section, using standard buffer zones.

RECOMMENDATIONS:

12. EUB approval process for experimental schemes and holdings, from time of submission to approval (excluding consultation period), be reduced to 45 days.

13. EUB should adopt a default NGC holding pursuant to which an application for up to eight (8) wells per section, with standard buffer zones, would be approved within 30 to 45 days; further application would be required for increased well density.

Objections to Holding Applications

Under the current approval process for holdings, where an objection is received during the public consultation phase, the approval for the entire holding is held up until that objection has been sufficiently addressed. CAPP recommends that the EUB more rigorously enforce existing criteria when deciding whether to grant standing to a person purporting to be adversely affected by a particular application. In addition, where an objection is received but the party making it has a relatively small interest in the total area covered by the application, the EUB should permit the applicant to remove that party's lands from the application, without having to re-start the applicable timeline, so that any concerns may be dealt with separately without delaying the approval process with respect to the balance of the lands.

RECOMMENDATIONS:

14. EUB should be more critical in its assessment of whether a party will be directly or adversely affected in deciding whether the party should be given standing regarding a particular application; subject to standard buffer zone requirements, standing should not be granted to mineral lessees of land outside an NGC project area.

15. EUB should allow holding applications to be amended, without having to re-start the applicable timeline, such that concerns affecting relatively small amounts of land may be addressed separately without delaying the approval process for the balance of the lands.

Release of Technical Information in Holding Applications

Given the stage of NGC development and the sensitive nature of the information contained in a holding application, CAPP recommends that technical details within the holding application itself be kept confidential for two years. This recommendation only relates to information filed with the EUB and would not restrict the information shared with the public during the consultation process.

RECOMMENDATION:

16. EUB should allow the technical details within applications for holdings to be kept confidential for a period of two years.

Well Spacing

Although the regulations contemplate special drilling spacing units (DSUs) which differ in size, shape or target area from normal DSUs, when an order for reduced spacing is granted outside a holding, every DSU in an agreement must satisfy DOE requirements for continuation beyond the primary term. When DSUs are varied in conjunction with a holding, however, the DOE's evaluation is based on one well per section for natural gas wells, provided there was no order for reduced spacing in place prior to the holding being established. CAPP recommends that the DSU for wells producing from NGC pools be fixed at one well per section. If reduced spacing is required, an order for special spacing should be requested in conjunction with a holding.

RECOMMENDATION:

17. EUB should fix the DSU for wells completed in NGC pools at one well per section; if more than one well per section is required to optimize resource recovery, a holding should be used.

Pool Definition

A pool with respect to NGC, or any unconventional gas, should be defined over as broad a surface area as possible. To the extent that a well is located in a formation where both

conventional and NGC potential exists, pool definitions should distinguish between conventional and all unconventional natural gas horizons, including NGC horizons. Any orders to commingle both conventional pools and/or other designated natural gas horizons as pools should be granted on an areal basis, provided the ownership between pools is consistent. This should enhance the recovery potential of what might otherwise be marginally economic resources and minimize the number of wellbores required.

RECOMMENDATIONS:

18. EUB should define pools on an areal basis, making a distinction between conventional and unconventional natural gas pools, including NGC horizons. EUB should also grant commingling orders so as to allow commingling of conventional pools and other natural gas horizons defined as pools, encountered in a single wellbore, to optimize resource recovery and minimize wellbores.

19. CAPP and EUB should collaborate regarding the design and implementation of new system for defining pools.

Lahee Classifications

A Lahee classification, which is assigned to each well based on geological conditions and the known existence of hydrocarbons in the area, guides the EUB in determining the appropriate confidential status of new wells. Under circumstances where a well encounters unconventional natural gas horizon pools including NGC horizons in relatively close proximity, but shallower than a known conventional zone pool, a Lahee classification of New Pool Wildcat or Outpost should be assigned on the basis of the technical distinctions between the conventional pool and the geologic complexity of the unconventional natural gas horizon pool.

RECOMMENDATION:

20. EUB should allow for assignment of a Lahee classification of New Pool Wildcat or Outpost to wells licensed to test undeveloped unconventional natural gas pools, including NGC horizons.

Water Handling

CAPP recognizes that the handling and disposal of produced water, whether by treatment and release to the watershed or subsurface disposal, must be carefully planned. Water produced concurrently with NGC to date has, in most Alberta cases, been either practically negligible or saline and disposed of by subsurface re-injection.

If usable water is encountered, restrictions on its production and use are imposed by current Alberta Environment regulations for conservation purposes. For example, usable water production from an aquifer is limited to one producing formation (or coal seam) at a time and is subject to pressure drawdown restrictions. These limitations make it impractical to attempt to depressure a target coal group to achieve commercial volumes of NGC production.

CAPP recommends that under circumstances where usable water was intended to be produced for the purpose of depressuring coals to produce NGC, that a multi-ministry, "one–window" approach be developed for licensing and regulation through the EUB. This approach would allow responsible development of both the NGC and usable water resources while adhering to guidelines developed by Alberta Environment and the EUB. Any usable water produced under such guidelines would either be re-injected to an aquifer of the same water quality or diverted to an approved use.

RECOMMENDATIONS:

21. The government of Alberta should adopt a "one-window" approach pursuant to which all licenses required to operate an NGC development would be obtained from the EUB, accounting for the concerns of all ministries that currently have jurisdiction over the matter.

22. EUB should develop new guidelines, in consultation with industry, government and other key stakeholders, which would allow for concurrent production of usable water and NGC from multiple coal seams; guidelines should include procedures for either re-injecting this water into an aquifer of the same quality or to another approved use.

Regulatory Effectiveness

In the event that NGC development in Alberta undergoes a period of dramatic growth, the EUB should be prepared to add staff as required to keep pace with the number of approval applications. The level of analysis by EUB staff for each type of application should reflect the fact that NGC is merely a form of natural gas. Finally, the DOE should be prepared to hire additional people to handle the increased administration that will accompany NGC development.

RECOMMENDATION:

23. DOE and EUB should consider the impact of increased resource development activity within regulator staffing capacity plans.

PART IV – FISCAL

Because the DOE considers NGC to be a form of natural gas, the royalty is currently calculated pursuant to the *Natural Gas Royalty Regulation* under the *Mines and Minerals Act.* The calculation is based on the concept of economic rent and, as such, is sensitive to market price, classification of reserves and low productivity. The calculation does not, however, take into account the higher capital cost, longer lead time, technical uncertainty and the corresponding financial risks inherent in an NGC project, all of which impact its profitability and reduce the amount of available economic rent.

A number of items are being considered by CAPP in conjunction with the review by the DOE Royalty Review Subcommittee, including the appropriate threshold for a low productivity NGC well allowance, a royalty bank system to enable water handling charges to be carried forward and a royalty credit as an incentive for drilling NGC wells.

In the event that NGC development in Alberta realizes substantial growth and ultimately requires significant additional capital investment, it may be appropriate to consider a fiscal regime based on profitability instead of simply production. Possibilities include a payout or experimental status royalty regime, and/or a rapid-depreciation tax regime. For example, a regime could be modeled after the existing oil sands royalty regime. This provides for a minimum lower-rate royalty payable on all production until payout (i.e. a defined condition of payout being satisfied), followed by a royalty on production equivalent to a given percentage of net project revenues after recovery of all project costs, including research and development and a return on investment. This type of regime would extract economic rent coincident with a project's "ability to pay", while reducing risk by allowing producers to recoup their capital investment more quickly.

In order to avoid penalizing producers that faced the challenges of NGC development in a conventional framework, CAPP recommends that any changes to the existing royalty regime be applied to existing projects as well as expansions and new projects.

RECOMMENDATIONS:

24. DOE should permit increased water handling and compression capital and operating costs to be deducted from gas cost allowance.

25. CAPP will continue to work with the DOE Royalty Review Sub-Committee to evaluate the impact on project economics of other royalty and tax structure elements and apply as appropriate to ensure economic development of NGC.

26. DOE should apply royalty and tax regime changes to existing projects as well as expansions and new projects.

PART V – COMMUNICATIONS

There are an increasing number of stakeholders that have been raising questions and concerns about the development of NGC. Some public presentations have had little or no scientific basis and have downplayed the results of NGC development related to economic growth, stability, profitability, and socio-economic benefits. There also seems to be a misconception held by some people that the designation of a project as "experimental" means that it poses a higher risk to the public.

CAPP, along with other key government and community stakeholders (e.g. EUB, DOE, and the Alberta Departments of Sustainable Resource Development and Agriculture, Food and Rural Development) should develop a consolidated public education and consultation campaign to clarify the issues surrounding development of NGC. Such a campaign would have to engage community members and municipal governments that may be impacted by NGC development, as well as the media.

The challenge will be to create an awareness of the fact that NGC simply involves the exploration and production of natural gas in a different reservoir situation, namely a gas reservoir in a coal seam, and requires different production techniques. The procedures and operations that would be used, generally, are the same as those used for conventional gas operations throughout the Province and would not pose a higher risk to the public. As well, the environmental footprint and cumulative impact resulting from any NGC development would be regulated by existing Regulations as well as the desire of operators to utilize existing infrastructure for economic reasons.

RECOMMENDATION:

27. CAPP will develop and implement a consolidated public education and consultation campaign in coordination with the Canadian Society for Unconventional Gas (CSUG) and other key government and community stakeholders.

28. The government of Alberta should coordinate with the government of British Columbia regarding replacement of the phrase "experimental scheme" with something that more accurately reflects the nature of an experimental scheme, such as the innovative character of new technology or a unique application of conventional technology to a new reservoir situation.