

Mémoire soumis au Bureau d'audiences publiques
sur l'environnement (BAPE)
concernant le développement de l'industrie
des gaz de schiste au Québec

**Le piétinement de notre territoire agricole,
de ceux qui y habitent et qui en vivent**

**(addenda concernant la preuve déposée par
l'Association pétrolière et gazière du Québec (APGQ)
devant la Régie de l'Énergie du Québec, 30-09-2010)**

Comité Gare au gazoduc, Lévis

9 novembre 2010

Audiences devant la Régie de l'Énergie du Québec, tenues à Montréal du 9 au 12 novembre 2010

Preuve de l'Association Pétrolière et Gazière du Québec (APGQ), Régie de l'énergie, 30 septembre 2010

http://www.regie-energie.qc.ca/audiences/3732-10/PreuveInterv_3732-10/C-5-5_APGQ_Ppreuve_3732_30sept10.pdf

La preuve est annexée à l'addenda.

Certaines des questions et réponses ont été retenues par nous afin de documenter la vision de l'APGQ concernant l'exploitation de champs gaziers au Québec.

Éléments de réponse fournis par l'APGQ en preuve, concernant l'exploitation de champs gaziers au Québec :

- Les gisements non conventionnels de shales gaziers sont appelés «*resource plays*».
- L'exploitation réussie de ces gisements repose sur la capacité qu'auront les producteurs de gaz à en maximiser la productivité tout en diminuant les coûts reliés. Les économies et synergies avec d'autres producteurs en sont la clé, par exemple le partage des coûts reliés au réseau de distribution.
- Lorsque les méthodes de forage et de fracturation de la roche seront bien établies et maîtrisées pour un gisement, il s'agira d'appliquer ces méthodes en séquence pour les autres puits qui constitueront le champ gazier.
- Le développement d'un champ gazier s'effectuera progressivement et de façon méthodique, à partir des puits existants et des infrastructures déjà en place : gazoducs, réseaux collecteurs, stations de pressurisation.
- Les gisements de gaz conventionnels sont caractérisés par l'extraction des réserves gazières s'échelonnant sur une courte période de temps. Dans les cas des gisements de shales gaziers, la production s'effectuera sur plusieurs décennies. Présentement, l'industrie gazière au Québec commence l'évaluation des gisements de gaz afin d'en définir les réserves et le potentiel d'extraction. L'étape prochaine sera de faire des forages de puits multiples et de conduire des tests d'extraction. La reproductibilité des forages et la mesure du taux de déclin en gaz des puits permettront, en même temps, d'optimiser les coûts d'opération. Lorsqu'un puits entre en production, le contenu initial en gaz est élevé et sera suivi d'un déclin graduel de débit sur une période de temps prolongé. L'APGQ estime que le cycle de production d'un puits s'étendra sur une période variant de vingt à quarante ans.
- Lorsque la production de gaz ira en diminuant, de nouveaux puits seront forés et reliés au réseau. Ceci, afin de maximiser les infrastructures existantes ainsi que le réseau de transport.
- Selon le rythme des forages, la taille du champ gazier et le taux moyen de production, il est estimé par l'APGQ que la durée de vie d'un projet pourrait excéder cinquante ans.

**Audiences devant la Régie de l'Énergie du Québec,
tenues à Montréal du 9 au 12 novembre 2010-11-09
Extraits de la preuve de l'APGQ**

**Demande pour autoriser la création d'un tarif de réception,
pour énoncer les principes généraux pour la détermination et
l'application d'un tel tarif et pour approuver les méthodes
d'établissement et la fixation de certains taux R-3732-2010**

APGQ/QOGA Evidence
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Q.18 What is a "resource play"?

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A.18 **Unconventional natural gas plays are often referred to as "resource plays"**. Due to the
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high cost of extracting natural gas from an unconventional reservoir, resource play types
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of exploration and development projects are usually successful as a result of lower cost
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operational efficiencies and economy of scale type operations. The consistent nature of
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the natural gas reservoir shifts the risk from those related to geology to engineering and
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operational related risks. In resource plays, there is also a recognition that there will be
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both high volume and low volume producing wells. As a result, a Producer will rely on a
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statistical average to achieve an economic return on its project investment costs. **The**
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success of a resource play hinges upon the ability of the developing Producer to optimize
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productivity while lowering its full cycle development costs through economy of scale
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and synergies. The natural gas market is very competitive and each shale gas project has
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to be commercially competitive on a North American basis.

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Q.19 How does the development of a resource play differ from that of a conventional
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play?

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A.19 Compared to a conventional play, development costs for a resource play are high due to
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the requirement for extensive horizontal drilling and multi-stage hydraulic fracturing
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operations to access the natural gas. Each resource play is unique, requiring capital
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intensive exploration and experimentation to determine the geographical areas with the
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highest productive capacity and to optimize drilling and completion techniques. **Once**
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successful drilling and stimulation methods have been established, the remaining wells in
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the development area will be similar in design. To minimize surface impact numerous
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wells will be drilled from the same well pad covering a small surface area. Development
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will typically advance in a methodical manner from the existing wells and related
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infrastructure.
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Conventional plays revolve around attempting to find a reservoir trap that contains
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sufficient quantities of natural gas to generate a return on the investment. As compared
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with resource plays, conventional reserves are confined to smaller accumulations which
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usually restricts development to a very specific area. Unlike resource plays, conventional
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reserves have higher permeability, which allow the natural gas to flow much more readily
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to the wellbore thus requiring fewer wells to capture all of the natural gas in the targeted
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trap. Conventional natural gas accumulations generally will produce all the accumulated
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natural gas reserves over a relatively short period of time, whereas, unconventional
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natural gas reserves typically will produce natural gas for decades.
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Q.20 Does this mean that the risk is less for a resource play?

A.20 While the risk of a resource play is typically interpreted as being less than that of a
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conventional play, it should be more accurately classified as a different type of risk rather
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than less risky. In conventional plays, much of the risk is geologic in nature which is
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characterized by the ability to physically locate natural gas reservoirs of an economic
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size. In resource plays, the risk is characterized by the ability to produce economic
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volumes of natural gas from regionally pervasive accumulations of natural gas where the
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risk of finding a reservoir with a large amount of hydrocarbons in place is low. Resource
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play risks involve the timing of development, mechanical issues that impact completion
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efficiencies and the ability to implement cost saving strategies.
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Q.21 Describe the stages of exploration and development of a resource play.

A.21 There are typically six stages involved in the development of a resource play:
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- 22 • identification of the resource;
- 23 • exploration and early evaluation drilling;
- 24 • pilot project drilling;
- 25 • pilot production testing;
- 26 • commercial development; and
- 27 • project reclamation.

Q.22 Describe where the industry is at today in Quebec and what is required to get to the
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next step.

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A.22 Industry is currently in the exploration and early evaluation drilling stage of
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development. Work performed to-date has focused on: defining the source rock
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properties of the shale to determine how much natural gas may be present, defining
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reservoir properties to guide in the development of the fracture stimulation program and
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performing initial stimulation testing to quantify productivity and anticipated ultimate
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recoverable reserves expected per well . **Industry is starting to conduct extended**
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reservoir testing to determine decline rates and potential recoverable reserves. Industry
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will eventually move to the pilot project drilling and pilot production testing phases in
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certain areas of the basin by drilling multiple wells to determine reproducibility of results
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and to attempt to achieve reductions in cost.

Q.25 What is the typical production profile for a shale gas well?

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A.25 Shale gas well production performance is characterized by steep initial decline rates and a
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long period of transient flow. Due to the extremely low permeability and the creation of
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an extensive near wellbore fracture network, shale gas wells exhibit a unique production
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profile. When a shale gas well commences production, initial gas rates are
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characteristically high which is followed by a long term transient flow period. A shale
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gas well can theoretically produce for 20 to 40 years. At the current stage of
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development, QOGA members do not have enough information to determine exactly
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what initial production and decline rates the Utica shale in Quebec will exhibit, but there
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is enough analogous data from other shale basins in North America to know what the
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expected range could be. Below is a typical shale gas well production decline curve:
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Q.26 Given this production profile, what is the expected life of a shale gas play?

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A.26 As production from wells declines, new wells will be drilled and brought on-stream to
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fully utilize the facility and pipeline capacities. Depending on the pace of drilling, the
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size of the prospective acreage and the stabilized production rates achieved, it is expected
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that the life of a project could be in excess of 50 years.

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