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SOME OVERLOOKED VOICES IN THE SHALE GAS DEBATE

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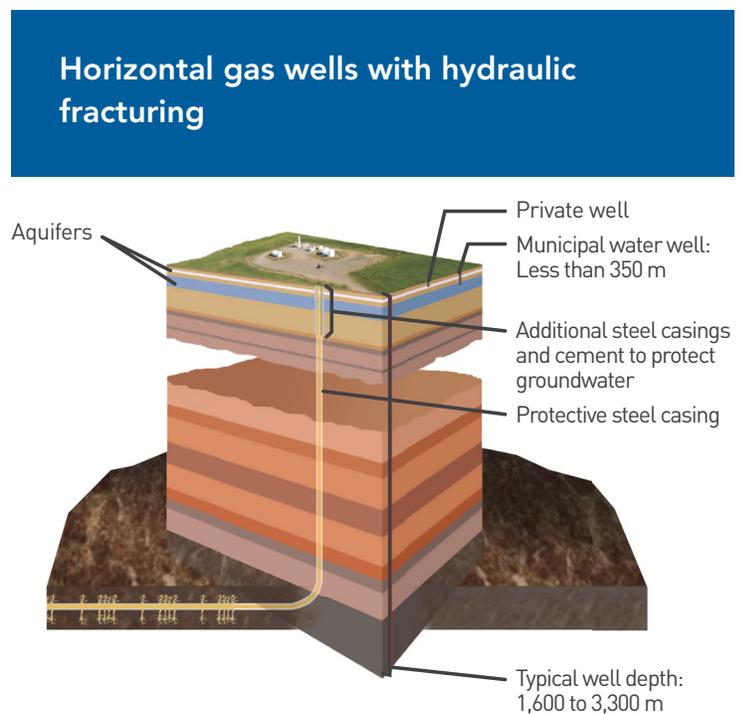
The possibility of developing shale gas in the St. Lawrence Lowlands caused quite a stir in Quebec between 2008 and 2012. In this debate, the projects put forward for developing this resource did not pass the test of social acceptability. The voices of environmentalist groups, well-organized and omnipresent in the media, carried further than those of industry promoters.

Between these two poles, there are also those who have natural gas wells on their land. This *Economic Note* presents, in the form of a report, an overview of the main issues in this debate, interspersed with testimony from actors who have often been overlooked in the media frenzy. Although not a representative sample from which one can draw general conclusions, those who agreed to speak to us were neither systematic opponents nor unconditional supporters of shale gas development.

THE ENVIRONMENTAL RISKS

The film *Gasland*, in which we see a man set fire to the water from his faucet, has made a strong impression and raised a lot of questions since its release in 2010.¹ Among farmers, however, this documentary elicited more smiles than worries. "I can do that for you at my place, set the water on fire," says Guy St-Pierre, Mayor of Mansereau in Central Quebec, even though no fracking has taken place near his home.²

Figure 1



Source: Adapted from U.S. Department of Energy, Office of Fossil Energy, *Natural Gas from Shale: Questions and Answers*, April 2013, p. 12.

The presence of methane in the ground has been known for a long time. In the 19th century, a religious congregation from Ste-Angèle-de-Laval was heated with gas rising to the surface that was collected from a nearby marsh. Indeed, the machinery used

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to dig artesian wells is equipped with safety features to prevent accidents when chancing upon a gas pocket while drilling.

Even if they are open to seeing projects developed on their land or in their communities, farmers remain concerned about environmental impacts. As pointed out by Robert,*³ the co-owner of a dairy farm, “When you’re a farmer, the goal is to pass on your farm.” Prudence is therefore entirely natural, since air and water quality can affect the harvest or the health of the herd, and in turn, the value of the farm.

Concerns are centred especially on the possible contamination of the groundwater or surface water that farmers draw upon. Hydraulic fracturing, or fracking, is a procedure by which a mixture of water and sand is injected into the ground under high pressure in order to fragment the rock formations in which natural gas is trapped. Additives are used to increase the effectiveness of the procedure, but never form more than 2% of the fracture fluids.⁴ Since certain additives can be hazardous to human health in sufficiently high concentrations, they must not find their way into the water table.

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According to the industry, the risk of a significant leak polluting water reserves is very low. Hydraulic fracturing generally happens at depths of at least 1,600 metres under the ground in Quebec. Gas wells have an additional layer of steel and cement casing to protect the groundwater in aquifers, which are located much closer to the surface (see Figure 1).

To date, the facts support this assessment. Out of a sample of 11,560 gas wells drilled since 2008 into a deposit in the northeastern United States, only 40 water-related incidents caused by hydraulic fracturing are listed.⁵ None of these incidents had any negative impact on human health.⁶

In Alberta, there are over 260,000 gas and oil wells, and hydraulic fracturing has been used in around two thirds of cases.⁷ In 2014, in all of these wells, there were a total of 91 leaks. Of these incidents, just one affected some trees (the flora), while three affected waterways (see Table 1). In none of these cases was public health endangered.⁸ There’s no such thing as zero risk, either for natural gas development or for any other industrial activity, but incidents are rare.

A FRACKING WELL ON ONE’S LAND

With the moratorium that is currently in effect, there is no more activity in the shale gas sector in Quebec. The province nonetheless has 34 wells, drilled between 2005 and 2010. Hydraulic fracturing was carried out in over half of these cases.⁹

One of these wells is located on a wood lot belonging to René Bérubé, near Bécancour. When he was visited by employees of Talisman Energy, he saw it as a business opportunity. It was not easy at first, since these were mostly unilingual anglophones from Western Canada. But Talisman ended up drilling a well on Mr. Bérubé’s wood lot, in exchange for which he received a 39-year financial compensation package, indexed and renewable.

Mr. Bérubé says he is satisfied with this agreement since it incorporates the demands he had, among other things regarding the use of felled trees, safety, and the government subsidies he was losing. The company’s documents were translated. Amused, he adds another example of cooperative cohabitation: “If they damaged the road during their work, they repaired it... and did a better job than the municipality.”

Today, Talisman Energy still inspects the state of the well each week, as it does for all of its wells. According to Vincent Perron, a Talisman employee, for all Quebec wells, there have been two occasions in two neighbouring wells where gas emissions exceeded the norms. Each time, corrective measures were implemented without these incidents leading to any unfortunate consequences.

The restoration of the site once the well is ultimately sealed is also covered by Mr. Bérubé’s contract—an important clause for him. He asked for the access road that was built on his land to be left intact, however, as it will be of use to him. It’s a very well-constructed road, since it is designed for heavy trucks. “A road like that is worth several thousand dollars.”

RARE IN QUEBEC, COMMONPLACE IN ALBERTA

René Bérubé’s situation is rather unique in Quebec. In Alberta, however, many farms and ranches are dotted with gas wells. Jim Culligan owns a ranch with 300 head of cattle... and 26 gas wells. Wells installed on dry or pasture land entitle landowners to annual compensation of between \$2,000 and \$3,500. On irrigated land, the amounts are between \$4,000 and \$7,500. This compensation, which he renegotiates every five years, will last between 10 and 40 years.¹⁰ “Don’t go to Vegas with it,” recommends the friendly rancher. Jim Culligan decided to invest in better equipment, better buildings, and better beasts in order to increase the profitability of his ranch.

Table 1

| Incidents having had an environmental impact in Alberta in 2014, and their consequences | | |
|---|---|---|
| DATE | CONTAMINATING PRODUCT | CONSEQUENCES |
| February 3, 2014 Near Fox Creek | Frac Oil | A 1 m ³ spill resulting in trees being sprayed. No public health risk. |
| March 14, 2014 Near Drayton Valley | Freshwater / Alcohol Additive | A 50 m ³ leak into two abandoned beaver ponds. No public health risk. |
| October 29, 2014 Near Bonnyville | Water containing various dissolved solids produced while the well is active | Spill of unknown volume. Presence of contaminants in aquifer, 15 km from the nearest water well. No public health risk. |
| November 21, 2014 Near Staplehurst | Water containing various dissolved solids produced while the well is active | Spill of unknown volume into a slough and groundwater. No public health risk. |

Source: Alberta Energy Regulator, Compliance Dashboard, May 2015, and direct communications with the Alberta Energy Regulator.

As the word suggests, the compensation paid by gas companies compensates for the inconvenience while a well is being drilled, as well as for the loss of an area that could have been cultivated—often an entire acre even if the fenced-in area around the wellhead is just 16 feet by 16 feet.¹¹

Peter Sprunger is part of a group of 20 farmers in southern Alberta who get together to negotiate with the gas companies and set compensation according to the value of harvests and other factors. This “collective negotiation” provides very useful guidelines, according to Mr. Sprunger, but that did not prevent him from renegotiating his compensation upward when he considered it too modest.

Now retired, for most of his life Peter Sprunger was a farmer near Rosemary, two hours east of Calgary, cultivating mainly alfalfa and canola. In 1980, when he immigrated to Canada from Switzerland, he started out working on farms, before buying his own in 1986. On the farm that he bought, there was already a gas well and a lease agreement stipulating annual revenues, which increased the value of the property and therefore the price he paid for it.

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Over the years, other wells were drilled and Mr. Sprunger bought other land with wells on it. However, his insurance premiums never increased as a function of price; there did not seem to be any extra risk in the eyes of the insurance company. To his knowledge, there have been no incidents in his area related to natural gas wells.

The procedure for installing a well always starts with a notice by mail informing the landowner of the interest of the company holding the exploration claim or claims. The person referred to as the company’s “landman” comes to sit down with the farmer, in his or her kitchen, to explain the company’s interest and negotiate compensation. These companies quickly learn to maintain harmonious relations with landowners, according to Peter Sprunger.

Jim Culligan, for his part, hit just one snag when a bankrupt gas company could no longer pay him his compensation. This well was sealed through the Orphan Well Association, financed by a levy on gas companies.¹²

SHARED COMMUNITIES

Quebec farmers who could sign agreements but who are prevented from doing so by the moratorium are missing out on substantial sums of money, revenues that would ensure the future of their farms for many years.

In some communities, bad experiences with certain companies have left a mark. Citizen protests proliferated in 2010 after the issuance of exploration permits to companies, often without consulting or even informing local populations, and when

information regarding environmental impact was lacking. Even people from the industry are ready to acknowledge that companies were acting like “cowboys” at first. That’s why the industry must be adequately regulated, according to Mayor St-Pierre.

In the opinion of Stéphane Gendron, the former mayor of Huntingdon, we did not have a very healthy public debate on the issue of gas development in Quebec. For his municipality, it represented an interesting business opportunity. Huntingdon offered the gas industry the services of its wastewater treatment plants, its facilities having been underutilized since the disappearance of the region’s textile industry. The single treatment contract for water used for fracking, under the control of the Department of the Environment, brought in around \$15,000. This kind of contract could have brought in nearly \$600,000 a year for the town of 2,500 inhabitants, increasing its budget considerably. When activities ceased, the government of Quebec offered Huntingdon no compensation.

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It’s not just politicians and farmers who are hoping for the moratorium to be lifted. “Entrepreneurs around here would really like it to start up again,” thinks René Bérubé in Bécancour. That’s the case with Max,* who was a service provider for exploratory wells a few years ago. This farmer’s son went out west to work for ten years after his technical studies before returning to Quebec when the industry was developing.

With the moratorium, Max thought he would lose everything. While his experience in Alberta convinced him that the techniques are safe, he understands the opposition of certain Quebecers. “In Alberta, they don’t like power lines,” he points out, whereas here we’re used to them. Max landed on his feet, but if gas exploration were to start up again, his circumstances would improve considerably.

The college in Thetford Mines could also benefit. Thanks to its mining industry expertise, the educational institution had developed a specialization in oil and gas based on its mineral technology program. This program, with a 100% placement rate and an average salary of \$64,000, could produce many more graduates. Taught primarily by geologists, these courses provide the right tools for ensuring that hydrocarbon development happens safely, according to Christine Demers, associate director of studies.

Certain communities, and many landowners, are wondering in all humility if we haven’t let a golden opportunity slip through our fingers with the moratorium. It is a perspective that should be given serious consideration when the debate over developing Quebec’s shale gas resumes.

REFERENCES

1. Josh Fox, *Gasland*, documentary, 2010.
2. Tests carried out by the U.S. Department of the Interior on 66 water wells far from any hydraulic fracturing in the state of New York revealed that 15% of these wells contained high concentrations of naturally occurring methane. See Paul M. Heisig and Tia-Marie Scott, *Occurrence of Methane in Groundwater of South-Central New York State, 2012—Systematic Evaluation of a Glaciated Region by Hydrogeologic Setting*, U.S. Department of the Interior, U.S. Geological Survey, Scientific Investigations Report 2013-5190, 2013.
3. Names followed by an asterisk are fictitious. Two people agreed to be interviewed only on condition of anonymity.
4. U.S. Department of Energy, Office of Fossil Energy, “Fracture Fluids,” *Natural Gas from Shale: Questions and Answers*.
5. These are wells drilled into the Marcellus Formation, a deposit found in the states of Pennsylvania, New York, West Virginia, Ohio, and Maryland.
6. Theodore F. Them, *Hydraulic Fracturing in the Marcellus Shale: Water and Health, Facts vs. Fiction*, American Council on Science and Health, May 2014, p. 26.
7. “Approximately 174,000 wells have been hydraulically fractured in Alberta since the technology was introduced more than 50 years ago.” See Alberta Energy, Shale Gas; Alberta Energy Regulator, *List of Wells in Alberta*, May 2015.
8. This refers only to reported incidents, which is to say those that exceed the thresholds set by the Alberta Energy Regulator. These are for all wells, for the extraction of both natural gas and oil, without distinguishing between environmental incidents resulting from hydraulic fracturing and horizontal drilling and those resulting from more conventional methods. Alberta Energy Regulator, Compliance Dashboard, May 2015, and direct communications with the Alberta Energy Regulator.
9. Bureau d’audiences publiques sur l’environnement, *Les enjeux liés à l’exploration et l’exploitation du gaz de schiste dans le shale d’Utica des basses-terres du Saint-Laurent*, November 2014, p. 37.
10. See Technical Annex on the MEI’s website.
11. The general term “compensation” actually designates different payment installments. See the Technical Annex.
12. Orphan Well Association, Frequently Asked Questions, Who Pays For This?

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