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CANADIAN CENTRE for POLICY ALTERNATIVES
CENTRE CANADIEN de POLITIQUES ALTERNATIVES
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IN Focus
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Fracking—Dollars and Sense

Introduction

A *Chronicle Herald* editorial [1] correctly summarised the Nova Scotia Hydraulic Fracturing (fracking) Review Panel Report[2] as calling for time—time to research the risks and benefits of the industry, to establish a regulatory regimen of the highest standard, and to allow communities to decide if they want shale development. However, as with so many recent editorials and commentaries[3], the editorial galloped off in all directions to condemn the government for not being "comfortable" with the shale gas industry. If the government acted in haste in announcing a ban on fracking, critics are doing the same thing by touting the advantages lost by the government's decision before the necessary research is done.

Politics & Diversion

The "quick" decision to "ban" fracking outraged some members of the panel, industry, and many commentators. But this was not a snap decision. Government had up to four months to read the report chapters and the online discussion, and more than two months to anticipate the recommendations, given the discussions at the public meetings in July. The criticism of government is based on the presumed benefits lost by discouraging investment in Nova Scotia. Yet the Government's decision is consistent with the report—not enough is known of either the benefits or costs of fracking and the royalties are relatively small (they peak 40 years after the industry starts and then quickly drop off).

One claim is that we need the royalty revenues to deal with our financial problem. Proponents of fracking present our dependence on federal transfers (especially equalization payments) as evidence of our dire financial situation. The local media carried claims that more than half of provincial revenues are from the federal government.

Looking at the most recent final estimates for 2013/14[4], Nova Scotia's "own source revenues" from personal income tax, provincial sales taxes, and corporate income taxes were estimated at $2.2, $1.7, and $ .5 billion, respectively, out of total provincial revenues of $9.2 billion. All federal transfers amounted to $3.3 billion, of which Equalization was $1.7 billion—the federal transfers, total and for equalization, were 35 and 19 per cent of provincial revenues, respectively.

The dependency argument ignores the other side of the coin—what Nova Scotians send to the federal government. After all, we pay federal taxes and fees—mainly personal and corporate income taxes and the federal sales tax. The federal sales tax revenues can be calculated from the 2013/14 budget data—half the provincial sales tax, $0.8 billion. Using 2010 Canada Revenue Agency income tax data, the

Personal[5] and Corporate[6] federal income taxes paid by Nova Scotians can be estimated at $2.7 and $ .6 billion, respectively, for 2013/14. Thus, the total federal income and sales taxes paid by Nova Scotians amounted to $ 4.1 billion, or 26 per cent *more* than all federal transfers to the Government of Nova Scotia and 2.4 *times* larger than the equalization payments received from the Government of Canada. The breast-beating about our dependency is unjustified—as are claims about the jobs and revenue benefits supposedly lost to the ban on fracking.

Assessing the Report

Economics is about how to use our resources efficiently to meet our needs. “Efficiently” means the benefits outweigh the costs. The primary benefit of fracking is to provide a local source of energy. The calculation of the costs of hydraulic fracturing must include all costs, including the potential environmental, health, and social costs of this energy source, costs that are “external” to the industry. The financial costs to the company are not the only costs to society—they will not necessarily benefit Nova Scotia.

In the third chapter of the report, the authors estimate the financial costs to the company for a well pad, and the proportion of those expenditures that might be spent locally to create jobs. These estimates are the basis of the scenarios to guesstimate jobs and royalty revenues for the province. The chapter also discusses some of the costs (the externalities) that would be borne by Nova Scotians, not the companies.

Net Benefits

A major problem with the Review Panel’s report is that the “benefits” are over-estimated and the costs under-estimated.

In Chapter Three, the authors note that the estimates are speculative. The expenditure figures per well are the least problematic figures, but the projection of the local impact is of limited use. It is important to note that these expenditure impacts do not necessarily represent “benefits”. A local expenditure (e.g. fuel) generates limited local spin-off as the fuel is imported. Second, a local expenditure may reflect a cost, not a benefit. If a fracking operation generates external damages and regulations make companies responsible for them, “mitigation” costs will be high. That may mean large payments to homeowners affected by the noise or traffic generated by the fracking operation, or repairs to local roads ripped up by the heavy equipment, or patching up environmental damage caused by a chemical spill. These are impacts, but not benefits.

Supporters of hydraulic fracturing cite job creation as one of one of the most significant benefits of shale gas exploration and extraction. Although shale gas is an energy source, it is a fossil fuel that would come on-stream just as the need to reduce fossil fuel consumption becomes imperative. If we undertake activities because they create jobs, then crime, wars, epidemics, or hurricanes could be seen as beneficial. A society with as many unmet needs as ours should not find it difficult to use its resources to meet those needs directly, rather than by undertaking activities primarily because they promise jobs.

If we look to fracking to create jobs, we can see that the job estimates in the report are even more speculative than the underlying financial data. If we accept the financial and job estimates as reasonable averages for the industry, are they reasonable for a new energy play, which will likely be quite small by industry standards? The authors note that many of the capital and labour needs are highly specialized and will be imported, especially in the early and most expensive stages of development. There will be limited opportunities for new firms to supply more than basic inputs. Even the sand for the fracking fluid will be imported. Thus, the local impacts are likely to be below industry average experience.

Moreover, we must be mindful of where this data comes from. Industries of all kinds are notorious for inflating the jobs they will create and the oil and gas industry is no exception. The references for the third chapter of the report include industry-funded research on job estimates. However, Mauro et al.'s 2013 article[7] (which showed how industry-funded or industry-generated estimates are often several times higher than independent estimates) was conspicuously absent. The fact that the Panel Report's estimates in Chapter 3 are in the middle of the range of seven industry-related predictions is no guarantee that they are realistic.

The Mauro article points out that one of the authors (Considine, with two articles referenced in Chapter 3) includes spin-off jobs by assuming that 95% of the royalty revenues will be spent locally by the people who lease lands to the fracking companies. This is a huge assumption; it does not seem to consider the taxes on royalty income or the fact that such windfall earnings may be disproportionately saved or else spent on imported big-ticket items. Considine's assumptions generate huge job spin-off as he estimates royalties at 50% of total company costs. In Nova Scotia, the royalties are only 10%, and if they were used to pay off our provincial debt, they would not stimulate the economy.

Other chapters in the report point out that there is also likely to be a "crowding out" effect—if the industry does create significant demand for local labour, existing businesses will have trouble competing for workers. To the extent that imported workers are new to the province, they will be sending much of their income to family back home. Even with workers returning home to Nova Scotia, the local spending effect will by diminished to the extent to which they were already sending income home from Alberta. Thus, the assumption of a jobs bonanza is even more speculative than the production estimates of the panel report.

Royalties accruing to the provincial government are the other major benefit touted. Here too, the figures are speculative, but even if we accept them, they are underwhelming. The peak royalties, 40 years after the industry becomes active here, would amount to a change of ¼ of one per cent[8] in the provincial sales tax rate. Thus, the royalties will not generate a significant source of revenue for the province even in the few peak years.

Moreover, in Nova Scotia, the current royalty rate is only 10%, and it kicks in after the first two years' production from a lease.

For most wells, *85 percent of production occurs in the first year of production—before royalty payments start*. Will the industry out-smart the government by the way it buys its leases? Finally, proponents claim that royalties are important for reducing our debt. However, if royalties are used for debt reduction they will not, as assumed in the U.S. estimates cited, be a source of additional spending in Nova Scotia.

Noted in the report is the asymmetrical or uneven distribution of the revenues and costs of fracking. The provincial government gets the royalties, while small towns bear the brunt of the infrastructure, social, and environmental costs, including the impacts of a boom and bust local economy. The costs and benefits are also likely to be unevenly distributed along income levels, with low income Nova Scotians disadvantaged on both counts. A change in the financing of municipalities through a refundable municipal income tax[9] would help, but most of the costs would be incurred before production begins and the royalties are delayed another two years. The Province would have to underwrite the areas with activity before production starts.

The elephant in the room in the Report's royalties prediction is related to the long lead time (40 years) before royalties peak. Before then, two significant things will happen. First, fossil fuels will be banned because of their impact on global warming, [10] leaving no market for our unconventional energy. Second, technological change is dramatically increasing the competitiveness of alternate sustainable energy, which will drive fossil fuels out of the market. If these two events do not occur, global warming will guarantee that few Nova Scotians remain to collect the royalties.

Costs

Chapter 3 contains short comments on the various social, health, and environmental costs imposed on society by fracking. These are expanded on in subsequent chapters. One of the problems in estimating social costs is they may be hard to identify and even harder to estimate, especially as some may not arise until decades after the energy companies have left. Moreover, Chapter 3 does not mention the significant costs of properly regulating a fracking industry—in terms of the research necessary to gather baseline data, the development of stringent regulations and their rigorous enforcement, as advocated by all members of the Panel. This will require constant monitoring at every stage of development and for an indefinite period after production ends.

Strengths

These criticisms do not diminish the importance of the Report's recommendations. It starts from the basic caveat of the Canadian College of Academies' report—that no evidence of harm *is not* evidence of no harm. The industry is too new, some potential impacts too delayed, and the baseline data base too limited for anyone to make a definitive statement. Therefore, a great deal of research is needed before a fracking industry could be properly regulated and its impacts satisfactorily predicted and assessed and damage avoided. To advocate for fracking without extensive research is to expect Nova Scotians to buy a pig in a poke.

A second important emphasis is on the need for community approval—"social licence"—before permits could be issued. How community is defined and approval assessed is left open. The Canadian Association of Petroleum Producers has already started its full-page ads to win the trust and consent of Nova Scotians. Communities need to continue to do their research and lead their own discussions.

Other Weaknesses

Many of the weaknesses of the Report are in the summary, not the chapters on the social, environmental, and legal issues around fracking.

The report's puffery of the benefits and its downplaying of the costs and the risks of fracking reflect a common bias in the analyses of "experts" who have great confidence in technology and its benefits. This extends to a faith in Canadian regulations and their enforcement, despite the chemical spills and trucking accidents that occurred even as the Panel worked. It is assumed that the regulations will be strong, the companies compliant, and the enforcement strict. The review of what happened at Lac Mégantic[11] and of the regulatory failures in the railway industry is a chilling reminder of the reality. Examples of noncompliance abound.[12] Note also that the Report's reference to the chemicals in the fracking fluid downplay their significance, as "around 1 per cent" of the fracking fluid—but the level of toxicity (in some cases the "safe" or "acceptable" level is set at parts per million) is not discussed.

While the inadequate regulation of the wastewater at Kennetcook is acknowledged in the Panel Report, other examples of improper reporting and inadequate follow-up of chemical spills in Alberta did not make it—they were dismissed as human error or shrugged off as anomalies. On the other hand, the final chapter has an extensive rehash of the factors that lead the public to over-estimate the risks involved but did not repeat an earlier warning that the same factors affect expert risk assessment, but in the opposite direction.

Thus, the report's emphasis on more time spent on "learning" (as opposed to research) is essentially to give the public time to understand the claimed benefits and minimal risks of fracking. The industry clearly picked up this message and Canadian Association of Petroleum Producers is now running full-page ads to tell us how economically important and environmentally sensitive fossil fuel companies are.

Another weakness of the report is its length. How many people are going to read it in depth, or compare it to the public submissions to see how much these submissions were reflected in the final report? Did the report need the technical details (often more than once) or the pristine pictures of fracking sites?

Conclusion

The fracking review is a solid report but needs to be read carefully and critically. The process of public consultation (both at meetings and the excellent on-line submissions and comments) made important contributions to the Panel's work and should not be forgotten in the ensuing discussions. The government needs to make its ban truly effective while it supports the independent research and public analyses needed to provide a more complete assessment of this industry. This reflects wisdom, not caution.

The above is an edited version of a talk, Fracking Fault Lines, given at The Thinkers' Lodge, Pugwash, on October 10, 2014. Michael Bradfield was a member of the Review Panel. He is a retired Professor of Economics (Dalhousie), a Research Associate of the CCPA-NS, and is involved in CCPA-NS' alternative provincial budget.

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[1] Bob Howse, Editorial: Venture out of comfy zone — now or never, *The Chronicle Herald*, September 26, 2014. http://thechronicleherald.ca/editorials/1239395-editorial-venture-out-of-comfy-zone-now-or-never

[2] Maurice Dusseault et al., *Report of the Independent Review of Hydraulic Fracturing*, Submitted to: The Province of Nova Scotia, Department of Energy, Minister; August 28, 2014. See: http://energy.novascotia.ca/oil-and-gas/onshore/hydraulic-fracturing-review

[3]See Editorial, "Beyond the fracking ban", *The Chronicle Herald*, October 8, 2014 http://thechronicleherald.ca/editorials/1242352-editorial-beyond-the-fracking-ban

[4] See Department of Finance, Budget, 2014/15, http://www.novascotia.ca/finance/en/home/budget/budgetdocuments/2014-2016.aspx

[5] The latest Canada Revenue Agency data (2010) ratios of federal/provincial personal income tax were applied to the 2013-2014 provincial estimates of income tax revenues to estimate the federal taxes paid by Nova Scotians in 2013-14.

[6] Federal corporate income tax raised in Nova Scotia is assumed to be equal to the provincial corporate income tax multiplied by the difference in tax rates, 15/12.5 per cent.

[7] Mauro, F.; Wood, M.; Mattingly, M.; Price, M.; Herzenberg, S, & Ward, S., "Exaggerating the employment impacts of shale drilling: How and why" (Harrisburg, PA: Multi-State Shale Research Collaborative, 2013). https://pennbpc.org/sites/pennbpc.org/files/MSSRC-Employment-Impact-11-21-2013.pdf

[8] This assumes economic growth will be similar to recent levels, about 3.6 % per year from the combination of output growth and inflation. This means that the value of production would double every 20 years and therefore quadruple in 40 years. It also accepts the assumption in Chapter3 that unconventional gas prices will stay constant, despite predictions of increased production and falling prices.

[9] See Canadian Centre of Policy Alternatives-NS, *Nova Scotia Alternative Budget 2012* (Halifax: CCPA-NS, 2012, p.26. https://www.policyalternatives.ca/sites/default/files/uploads/publications/Nova%20Scotia%20Office/2012/03/NSAB2012.pdf

[10] See Heather Mallick, "Where Mark Carney and Naomi Klein agree", *Toronto Star*, October 20, 2014 http://www.thestar.com/news/world/2014/10/17/where_mark_carney_and_naomi_klein_agree_mallick.html

[11]Bruce Campbell, *Willful Blindness: Regulatory failures behind the Lac-Mégantic disaster* (Ottawa: CCPA, August 18, 2013) https://www.policyalternatives.ca/newsroom/news-releases/new-report-chronicles-regulatory-failures-behind-lac-m%C3%A9gantic

[12] On October 9, it was reported that a major pipeline company is not permitted to reverse the flow of its pipeline. The company failed to comply with the requirement that the pipeline have shut-off valves on each side of any body of water it crosses – only 6 of 104 valves have been installed. See http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/neb-delays-enbridge-plan-to-ship-oil-through-reversed-line-9-pipeline/article21037016/

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