

Managing the Risks of Hydraulic Fracturing, 2020

by Robert P. Murphy

The practice of hydraulic fracturing—or “fracking”—in conjunction with horizontal drilling techniques has allowed for an enormous increase in oil- and natural-gas production in Canada. The modern practices associated with fracking can allow for much more extensive development of natural gas and other hydrocarbons located in shale and “tight sand” formations. As Canada is blessed with some of the largest deposits of shale oil and gas resources in the world, continued use of fracking would foster a large flow of economic benefits to Canadians (and the rest of the world).

However, there are potential risks to fracking. In December 2014 the Fraser Institute released a comprehensive report by Kenneth P. Green, which summarized the findings of nine studies and reviews. Green’s 2014 study acknowledged that there “is no question that the technology poses risks to water quality, air quality, and ecosystem health” but concluded that “continuing to allow hydraulic fracturing while improving on the current system of governmental and industry self-regulation would seem to be indicated”. In December 2015, Green and co-author Taylor Jackson provided an update, incorporating the findings of five new studies and reviews, and argued that “[a]dditional research on the safety of hydraulic fracturing confirms that while there are indeed risks from this process ... they are for the most part readily managed with available technologies and best practices”.

The present update continues this process, evaluating new studies and reviews that have been published since the update provided in Green and Jackson (2015). The most significant review is the EPA’s final 2016 comprehensive report on fracking’s potential impact on drinking water. This update also summarizes the findings of nine additional studies and

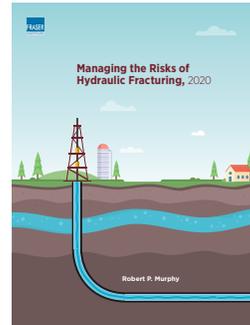
reviews, focusing on fracking’s potential impact on drinking water quality and availability, methane emissions, induced seismicity (earthquakes), and noise pollution.

Our conclusions mirror those of the previous publications published by the Fraser Institute. The scientific understanding of the mechanisms through which fracking may affect human welfare—specifically through impacts on drinking water and seismicity—has improved over time, and researchers may view these particular impacts as more serious now than was the case for the 2015 literature update. Even so, actual demonstrated harm to human welfare from fracking is still extremely modest, despite the enormous boom in fracking operations and the passage of many years to allow for an assessment of its effects.

In particular, the latest research shows that fracking actually reduces methane emissions once we adjust for the volume of natural gas produced, and especially if we consider the displacement of coal-fired power plants. The noise pollution from fracking on nearby residences has been documented, but appears to be comparable to the noise generated by a refrigerator.

More important, fracking's potential impacts on drinking water and seismicity are not the result of fracking in itself, but rather to certain procedures in wastewater storage and disposal. Amending operations (such as the lining of storage pits, and the depths to which wastewater is injected) can reduce these risks. The potential strain on water availability in some local communities can be ameliorated through the introduction of flexible pricing for water, to avoid waste and ensure that the available water supply is channelled to its high-valued uses.

Although there are some genuine risks associated with fracking, the existing research leads us to conclude that they are manageable. Explicit government bans (or moratoria) at this point are a gross overreaction to the actual concerns documented in the literature.



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Despite myths, the possible risks of hydraulic fracturing are modest and manageable

- Noise Pollution**: Indoor noise caused by nearby fracking is only slightly higher than the hum of a refrigerator (40 dB).
- Emissions**: Natural gas that's produced by fracking helps reduce greenhouse gas emissions when used to produce electricity.
- Earthquake Risk**: Proper wastewater disposal methods can reduce human-induced seismic impacts.
- Drinking Water**: Proper wastewater storage and disposal procedures can reduce the risks of contaminating drinking water.