

Fracking Up Our Water, Hydro Power and Climate

BC'S RECKLESS PURSUIT OF SHALE GAS

Summary

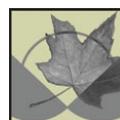
by Ben Parfitt
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IN OCTOBER 2011, CANADA'S NATIONAL ENERGY BOARD GRANTED three companies permission to export liquefied natural gas from a terminal near Kitimat on British Columbia's north coast.

If these exports materialize, there will be a major spike in natural gas production in BC's northeast corner, with big consequences for the province's water and hydroelectricity resources and greenhouse gas emissions. That's because much of the gas will originate from deeply buried shale formations.

BC's shale gas production is the natural gas equivalent of Alberta's tar sands oil. Both require tremendous amounts of water and energy to produce, which is why they are sometimes called "unconventional" fossil fuels. But while the tar sands have been a flashpoint for heated public debate, BC's shale gas developments have flown largely under the radar screen, due to a persistent lack of information-sharing and public consultation by the provincial government. The government's reluctance to discuss the potential for massive increases in water and hydro power usage by the shale gas industry is troubling to say the least, given the enormous potential for increases in greenhouse gas emissions as the shale gas industry expands its operations.

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Getting shale gas out of the ground and into pipelines requires far greater effort than is the case with gas or oil from more conventional sources—easier to access reservoirs and more porous geologic formations—which is but one reason for this fossil fuel’s heavy greenhouse gas footprint.

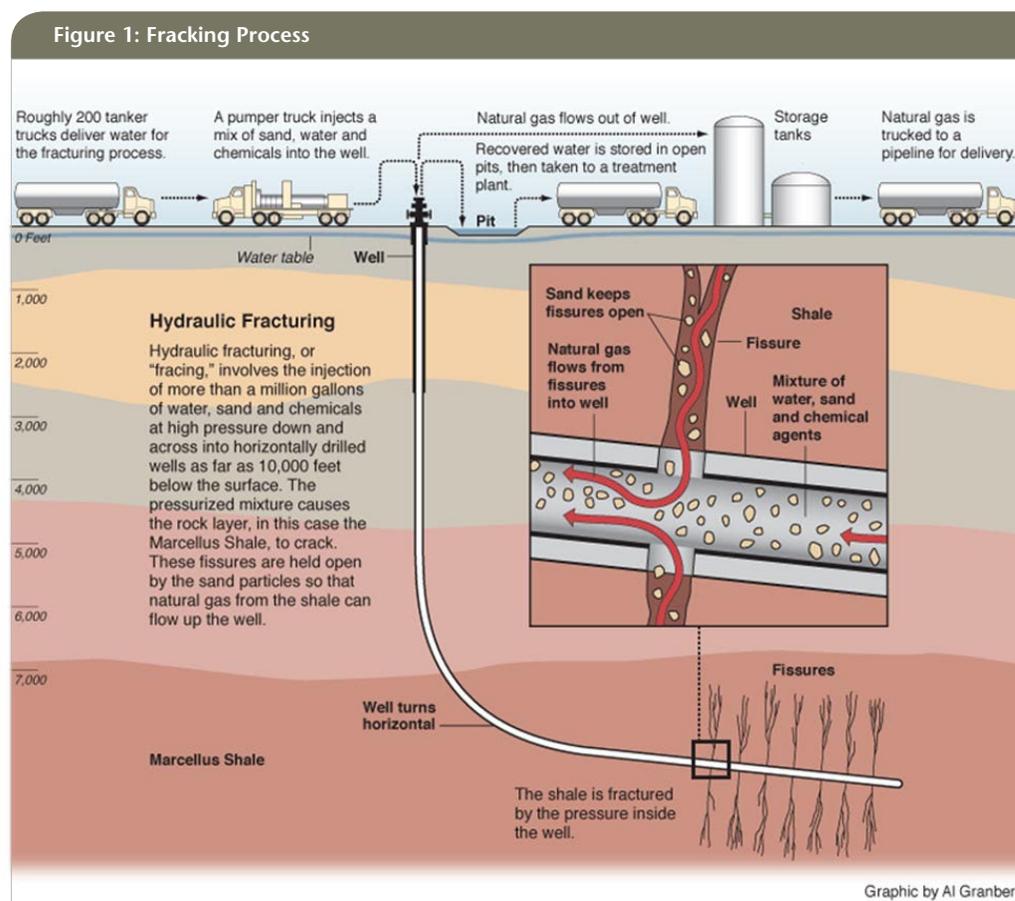
Industry and government promote natural gas as a “green” alternative to conventional fossil fuels that will bring much-needed jobs and revenue to BC. But this study reaches the opposite conclusion. Green resources in high volume—water and hydroelectricity—will be required to produce more and more dirty energy, in the form of a greenhouse gas emitting fuel.

Consider the following:

- Greenhouse gases associated with the production of BC shale gas are poised to double by 2020, meaning that every other sector in the provincial economy would have to cut their emissions by half for BC to meet its GHG emissions reduction targets.
- A recent BC Hydro assessment concluded that accommodating the projected power needs of BC’s shale gas sector would require two to three times the power produced at the proposed Site C dam on the Peace River.
- Shale gas industry records are being set for water usage and fracking at individual well pads in northeast BC, with up to 600 Olympic swimming pools worth of water used at some sites. Thousands of such sites could be developed in the decades ahead, in regions of the province where little meaningful data on water resources exists.



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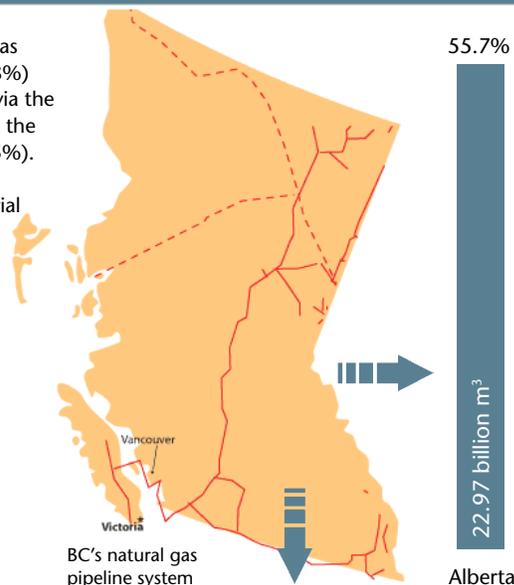
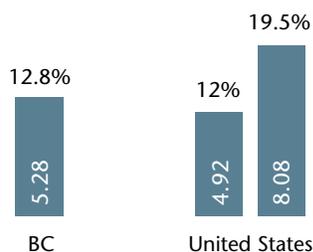


- Members of the general public and First Nations in whose territories shale gas projects occur are effectively out of the loop when it comes to being meaningfully consulted.
- BC is encouraging shale gas industry expansion through subsidies—which accelerate environmental degradation while simultaneously failing to capture maximum economic value from the resource—due to a glut of gas in North America and prevailing low prices.
- Regulation of industry activities, including controversial water withdrawals, is now largely in the hands of BC’s Oil and Gas Commission, whose primary mandate is to facilitate energy industry expansion, not to protect the environment.

A shale gas well pad under development in the Farrell Creek area near Hudson’s Hope is indicative of the large scale of fracking operations in northeast BC, where a lack of water regulation is a worry to local residents.

Figure 2: Markets for BC Gas 2010, Gas Volume (billions of cubic metres) and Percentage

Of the 41.25 billion cubic metres of natural gas produced in BC in 2010, only a fraction (12.8%) stayed in BC. About a third went to the U.S. via the Alliance pipeline through Chicago (12%) and the Westcoast pipeline through Huntington (19.5%). The lion’s share (55.7%) travelled the Nova pipeline to Alberta, where the biggest industrial user of natural gas is the tar sands industry.
 Source: BC Ministry of Energy, Mines and Petroleum Resources, *Supply and Distribution of Natural Gas in British Columbia*.



FRACKING AND GREENHOUSE GASES

Currently, much of the gas produced in BC moves by pipeline to Alberta, where the biggest industrial user of natural gas is the tar sands industry. We are literally exporting the world's most energy-intensive natural gas to help produce some of our planet's most energy-intensive oil.

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If liquefied natural gas (LNG) facilities materialize in BC, the scenario might change somewhat, in that a lot more gas would go by tanker to Asia. But it's possible that BC ends up shipping more shale gas to both Asia and Alberta's tar sands industry, and possibly more gas to Alberta for conversion to a range of liquid fuels, including diesel, naphtha and propane. Individually or collectively, these projects will dramatically increase GHGs in the jurisdictions that BC exports its gas to, while GHG emissions in BC will rise quickly as well.

Natural gas is often described as a greener alternative to coal and diesel, a “transitional” fossil fuel, because it creates fewer GHGs when burned. But gas production is another matter entirely. When all the emissions associated with fracking and its aftermath are factored in—including methane and CO₂ releases—shale gas may well be as dirty as coal. The BC government has scrupulously avoided discussing this, as well as avoiding regulations that would dramatically curb industry emissions.

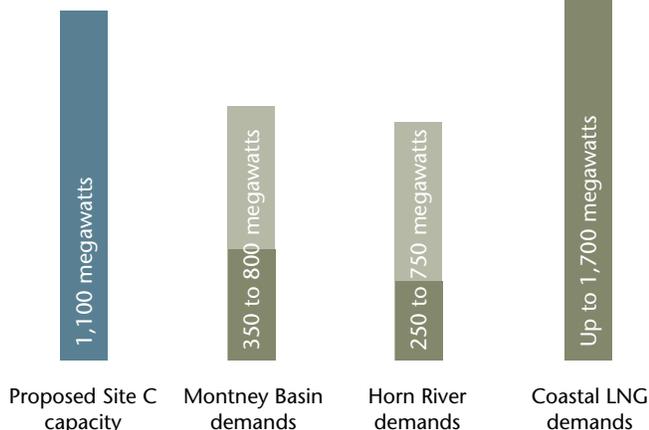
MORE SHALE GAS: MORE HYDRO POWER DEMANDS OR MORE GAS BURNED

With power demands in the shale gas industry steadily increasing, there is considerable pressure to dramatically expand the province's hydroelectric transmission grid. If this happens, the potential ripple effect could be enormous, ultimately influencing a decision on whether to proceed with a controversial proposal to build a third dam—Site C—on the Peace River. In fact, if the shale

Figure 3: Shale Gas Industry Development Projected Hydro Demands

The proposed Site C dam would provide 1,100 megawatts of additional hydroelectric capacity, less than half the low-end estimate of the shale gas industry's future power needs (2,300 to 3,250, assuming maximum LNG), and only about a third of high-end projections.

Source: Warren Bell, *Generate 2011* presentation





gas industry expands as it is projected to do, it will need the equivalent of more than two Site C dams' worth of power. The drive to increase hydroelectricity production is coming from industry, and yet has been used by BC Hydro as a justification for increasing residential rates, which are already much higher than industrial rates. As a result, British Columbians subsidize the oil and gas industry's hydro consumption.

In the absence of increased hydro power transmission and/or increased hydro production, the default position will be to burn more shale gas to generate power, with that power then being used to drive the production of more shale gas—a double climatic whammy.

LITTLE RETURN ON PUBLIC INVESTMENT

The BC government has focused on the oil and gas industry as a key source of employment and prosperity, which may leave the impression that significant economic benefits outweigh environmental concerns. However, in 2007, oil, gas and mining accounted for less than one per cent of provincial employment, but nearly one third of industrial GHG emissions.

As natural gas prices have dropped, so have public revenues from royalties. Yet in the face of persistently low gas prices (due in part to a glut of available gas in North America due to upward revisions in estimates of available shale gas) the government continues to offer royalty breaks and infrastructure credits to the industry, which actually serve to lower public returns. The province and industry are both banking on that changing, should gas exports proceed, because the prices paid for gas in Asian markets are substantially higher than in North America.

The short-term gains in future revenues and jobs, however, ought to be weighed against the considerable environmental costs, begging the question: Why is BC subsidizing a polluting industry instead of developing a true green jobs plan?

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FRACKING AND WATER REGULATION WOES

In the past 13 years, the BC government has reduced oversight of the oil and gas industry, thus enabling its rapid expansion. The fundamental change came in 1998, when BC established the Oil and Gas Commission (OGC) as a single regulatory body for the oil and gas industry.

Everything from logging and road-building approvals to the issuance of temporary water withdrawal authorizations is now handled by the OGC. This fundamental shift in industry oversight was followed in 2003 by the BC Oil and Gas Development Strategy, which included road infrastructure credits, royalty reductions, and regulatory “streamlining”—subsidies that saved the industry hundreds of millions of dollars.

Four years later, a short-lived provincial record for the sale of petroleum and natural gas rights (almost exclusively natural gas from shale deposits) was set.

When the OGC was created, it was also granted powers under the *Water Act* to assign to natural gas companies temporary rights of access to public waters, known as Section 8 permits. With this amendment, oil and gas companies became the only companies in BC to gain rights of access to water from an entity other than the provincial Water Stewardship Branch. Meanwhile, all other water users, from pulp and paper mills, to irrigation districts, to public utilities and municipalities, had to—and still must—receive approval from provincial water stewardship officials.

The regulations governing water use in BC remain hopelessly outdated, a fact highlighted by the current government’s commitment to modernizing the *Water Act*. With growing questions being raised about water usage by the industry, the OGC decided in March 2011 to require natural gas companies to report their water usage under Section 8 permits. Welcome as the initiative was, the resulting reports failed to capture substantial volumes of water accessed by natural gas companies and obtained from sources not requiring OGC approvals.

The need for tighter regulations governing how the shale gas industry and other industries use water is obvious as is the need to better monitor industry water uses. No more so than now, when climate change is having such a demonstrable impact on water resources. Now more than ever we need comprehensive changes in how water is assigned to the industry, how cumulative impacts on water resources are assessed, and how water resources are protected. Finally, we need changes in how water resources are priced to encourage water conservation and industry innovations.

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RECOMMENDATIONS FOR CHANGE

With clear signs that the shale gas industry could expand to become a major consumer of provincial water and hydro power resources as well as a formidable climatic liability, this report concludes with a number of key policy recommendations. To begin the necessary regulatory reforms, the provincial government should:

- Place caps on annual shale gas production.
- Declare no-go zones where shale gas industry activities are excluded, and a moratorium on shale gas developments in undeveloped watersheds pending an independent panel review.
- Launch an inquiry under the provincial *Health Act* to assess the public health and safety risks associated with fracking operations in sour gas zones.
- End government subsidies of the gas industry.
- Require that shale gas companies pay adequately for the public water and hydro power that they use.
- Require full, publicly-accessible reporting of all water use in the shale gas industry.
- Require that the province report on its progress in lowering GHGs and outline how it will meet its emissions reduction targets while promoting increased shale gas production.
- Require that shale gas companies submit five-year and possibly 10-year development plans. This will help to ensure that the industry does not unduly compromise water, land and air resources, and that members of the public and First Nations are fully consulted.

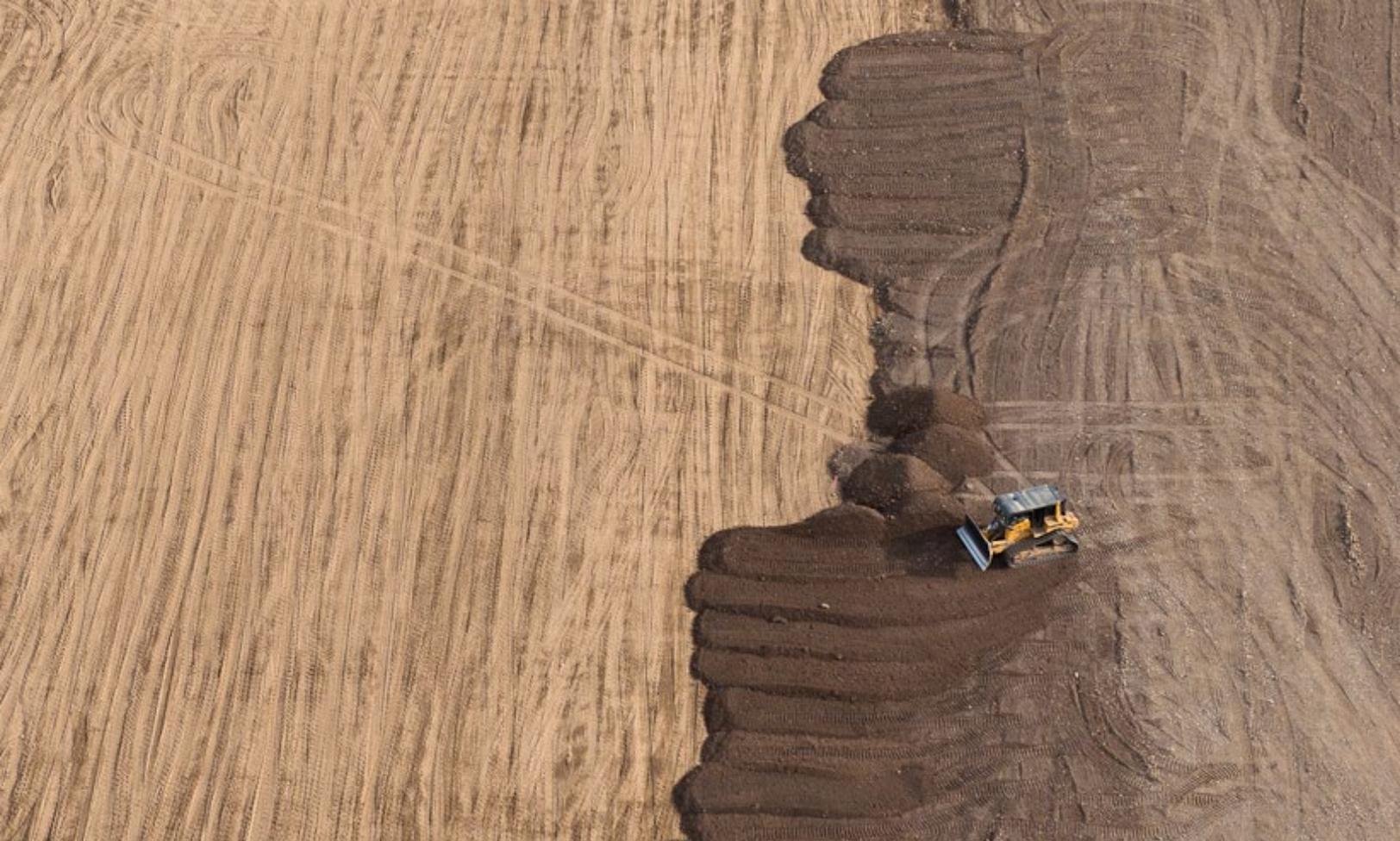
In all, the report makes 18 policy recommendations that would ensure greater protection of green resources in the face of an expanding brown industry.

However, a bigger task lies ahead. How will BC wean itself off of dependency on fossil fuels—a challenge the province shares with every other jurisdiction on earth?

Ultimately the province needs to enact policies that result in a steady ratcheting down in the use of non-renewable fossil fuels that are destabilizing the earth's climate, with a corresponding rise in the use of energy sources that do not pump ever more greenhouse gases into the atmosphere.

This is what ultimately makes environmental and economic sense. We cannot base our economy, or the funding of public programs like health care and education, on the steady depletion of non-renewable, polluting fuels.

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THE CLIMATE JUSTICE PROJECT

The Climate Justice Project is a multi-year initiative led by CCPA and the University of British Columbia in collaboration with a large team of academics and community groups from across BC. The project connects the two great “inconvenient truths” of our time: climate change and rising inequality. Its overarching aim is to develop a concrete policy strategy that would see BC meet its targets for reducing greenhouse gas emissions, while simultaneously ensuring that inequality is reduced, and that societal and industrial transitions are just and equitable.



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The Wilderness Committee is Canada’s largest membership-based, citizen-funded wilderness preservation organization. We work for the preservation of Canadian and international wilderness through research and grassroots education. The Wilderness Committee works on the ground to achieve ecologically sustainable communities.

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The opinions and recommendations in this report, and any errors, are those of the author, and do not necessarily reflect the views of the publishers or funders of this report.

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