



BC GAS: BOOM OR BUST?



GAS INDUSTRY PUTS OUR CLIMATE AND WATER AT RISK



Eoin Madden
Climate Campaigner,
Wilderness Committee
@EoinWC

Recently there has been a lot of discussion around the potential for massive growth in the export of liquefied natural gas (LNG) from BC. British Columbians have been wooed with claims from the BC government and the gas industry about the promise of economic prosperity that would come from exporting these products. But what they aren't telling us is that this resource comes with serious risks. **That's because most of the gas that would feed the province's monster new LNG industry would be obtained using the hazardous extraction method known as hydraulic fracturing, or "fracking".**

Most of BC's conventional natural gas has already been extracted. The remaining gas is hard to get at since it's trapped deep below the ground in shale bedrock, so it is primarily sourced through the practice of fracking – injecting

huge amounts of chemical-laced water deep underground at high pressure. With fracking taking over the industry's production, natural gas isn't so natural anymore.

Earlier this year, we toured BC's southern interior region to host a series of public forums on gas exports and fracking. What brought British Columbians out to these forums was their love for the province's wild lands and clean waters – and these days, more and more of them are at risk of being swallowed up by fracking.

After the gas is fracked, LNG plants

create a whole new threat.

So far, two large LNG plants have been granted permits for our west coast.¹ At least another seven are being proposed by a variety of operators.

If they are built, the level of greenhouse gas emissions (GHGs) that would be produced by these plants would destroy any hope we have of controlling our impact on the climate. Even if only five of these plants go ahead, they would release up to 63 million tonnes of carbon into the atmosphere each year – more than the current emissions from

the Alberta tar sands and equal to the entire amount of GHGs produced in BC in 2010.²

In northern BC, where companies have found large deposits of gas trapped in shale bedrock, local communities have had to witness their precious freshwater supplies being commandeered by the gas industry. With a fracking well pad positioned every few kilometres, and new LNG plants needing even more fracked gas, the last remaining stretches of genuine wilderness could be left bleeding methane and lethal sour gas – both products of the fracking process.

The level to which the toxins and radioactive materials used in the process are harming local communities has not been examined or discussed, nor has the likelihood of earthquakes caused by drilling.

Fossil fuel pushers are asking us to bet our economic future – and our environment – on **Liquefied Fracked Gas**. We say the time has come to stand up and say NO! to Fracking and LNG.

WHAT IS FRACKING?
Hydraulic fracturing involves injecting thousands of gallons of water – mixed with sand and laced with hazardous chemicals like benzene – into small drilled wells at high pressure. This process "fractures" hard shale rock formations to release the trapped gas.



Photo top: **Moose in Muskwa-Kechika, BC** (John Marriott), left: **Pileated woodpecker family** (Gordon Court), **Gas well site** (Will Koop).

THE TROUBLE WITH FRACKING

Fracking, or "hydraulic fracturing", is the process of extracting gas by shattering shale bedrock. In order to produce fracked gas, an enormous amount of our freshwater is rendered toxic. Fracking fluid – a slurry of water, toxic chemicals, radioactive substances and hard materials like sand – is injected deep underground at very high pressure in order to force the gas out.

Companies use between 1.2 and 3.5 million gallons of water per well, with large projects using up to 5 million gallons.³

The effect of such enormous freshwater use by the gas industry in BC has been alarming at times. For instance, the beautiful Two Island Lake in northeastern BC dropped 15 centimetres in depth after one frack job by Apache Corporation. The job required almost 1 million cubic metres of water, which is the equivalent of about 400 swimming pools. As a result of Apache's activities, the lake is set to lose 130 million cubic metres of water by 2034.⁴

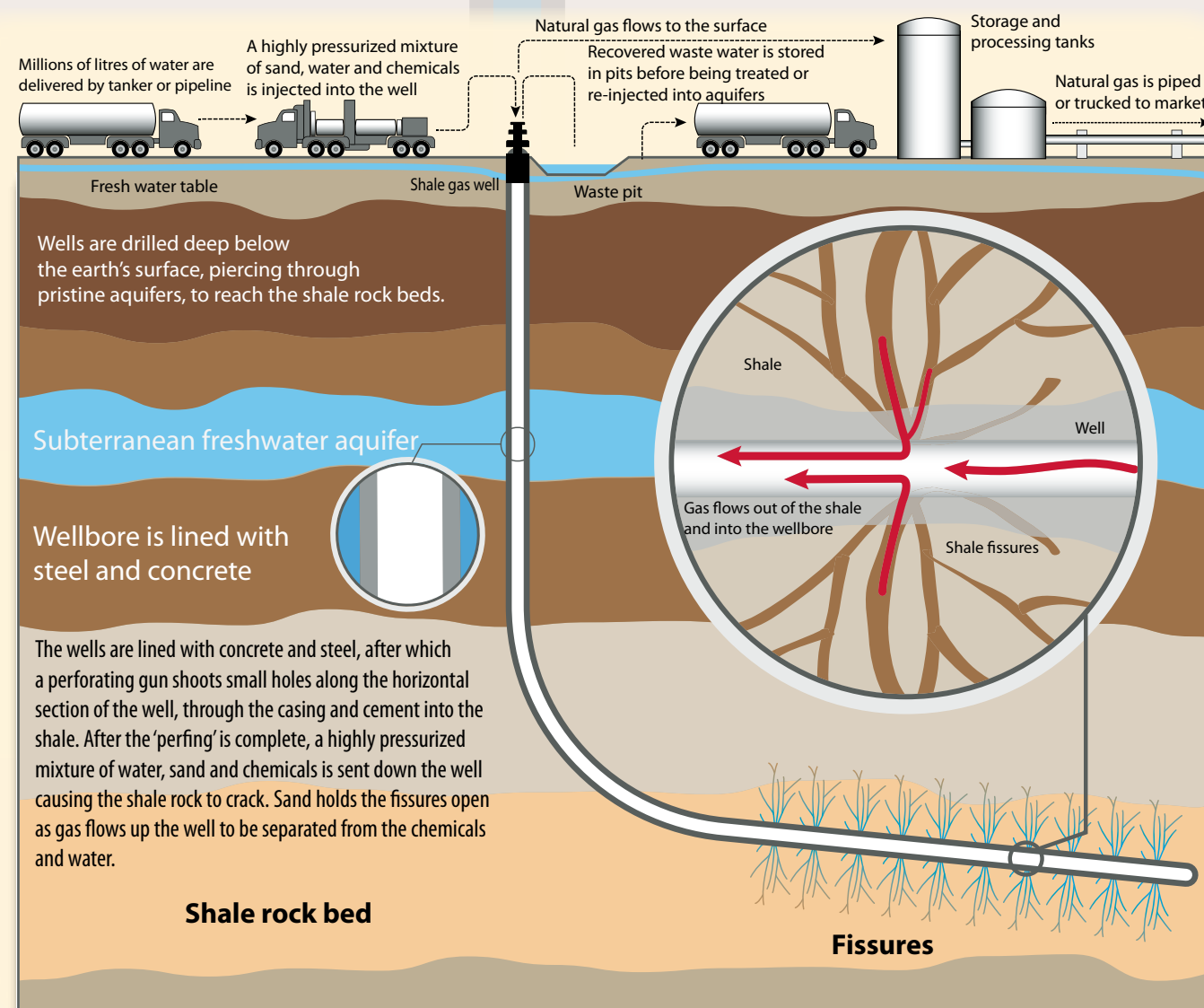
Fracking also results in harmful wastewater, which accounts for about 30 to 70 per cent of the total fluid originally forced into the well. In addition, natural groundwater often

flows to the well and needs treatment after fracking. Much of the wastewater from fracking operations is processed by public sewage treatment plants, which are not equipped to remove

toxic material and aren't required to test for it.

There are currently permits in BC gifting 60 million gallons of our freshwater per day to the gas

industry, from 540 of our precious creeks, rivers and lakes. That's twice the amount of water used daily by the entire city of Victoria!⁵



LOCAL IMPACTS ON WATER, LAND AND PEOPLE

Water Down the Drain

The process of getting permission for heavy water use is different for the gas industry than it is for any other freshwater users, such as farmers and hydropower producers. When there are competing demands over precious freshwater reserves, it is typically the BC government's Water Stewardship officials who are tasked with ensuring that no one user dominates our rivers.

However, since 1998 the gas industry in BC has gotten its water-take permits exclusively from a government office known as the Oil and Gas Commission.

This office grants companies a priority right over the rest of us, and ensures that they secure their interests in our freshwater before anyone else can stake a claim. There is no formal system for communities or First Nations to oppose the seizure of vital freshwater reserves, which are crucial to their survival.

As climate change takes effect, we will have less and less freshwater available to us in the future. Instead of handing it off to an industry that speeds up climate change, we need to challenge their priority position when it comes to our most precious resource.

Losing Ground

Regions targeted for fracking are subject to intense industrialization,

with hundreds or thousands of wells drilled annually, a well pad roughly every square mile and considerable additional infrastructure, not to mention inevitable accidents.

A 2012 study of the Peace Region – an enormous fertile chunk of northeastern BC – counted 16,267 oil and gas wells; 28,597 kilometres of pipeline; 45,293 kilometres of roads; and 1,163 kilometres of power lines associated with industrial development.⁶

More than 65 per cent of the region has already felt the impact of industrial activities and little intact wildlife habitat remains. We can no longer think of this region as a beautiful, wild landscape, as it is now becoming one of the most industrialized areas in the world.

Disturbed Homelands

One of the communities hardest hit by the fracking rush is the Fort Nelson First Nation. For decades, they have watched the gas industry take more and more freshwater from their territories – at last count, there were 1,400 different water withdrawal sites granted to the gas industry on their lands!

The reckless pursuit of fracked gas has impacted their ability to hunt and fish for food; many traditional staples such as beaver, moose and bottom-feeding fish have become harder to find.⁸

The community feels it has been backed into a corner, and was forced into a costly legal battle, winning the right to appeal against gas company Nexen's permit to take two billion litres of freshwater from the Nelson River. This small community of 800 has obtained 29,000 signatures on a petition to save their water from fracking.⁹ But with the discovery of more shale gas in the Liard Basin – just west of the Horn River Basin – it appears that the gas industry wants to continue its business as usual. The story of the Fort Nelson First Nation seems set to play out right across central and northern BC, as more land is slated for fracking and more pipelines are required to take the gas to the west coast.



Photo: Fracking operation, Northern BC (Creative commons).

EARTHQUAKES

Did you know that fracking caused 272 earthquakes in the Horn River Basin area of northeastern BC between 2009 and 2011?¹⁰ The likelihood of further and more serious earthquakes here in BC needs to be examined.

RADIOACTIVITY

Radioactivity created by fracking is only now starting to be researched. A recent report revealed that a cocktail of radioactive agents is set free by fracking operations.⁷ In order to track the location and success of fracking bore holes, it is sometimes necessary to inject radioactive tracers into the fracking fluid. The gas industry remains shrouded in secrecy, and does not release the information required to determine the level of public threat.



Photo: Fort Nelson First Nations hold a press conference about fracking shale gas (BCIT).



Photos: Gas flaring, right: Sour gas warning (Will Koop).



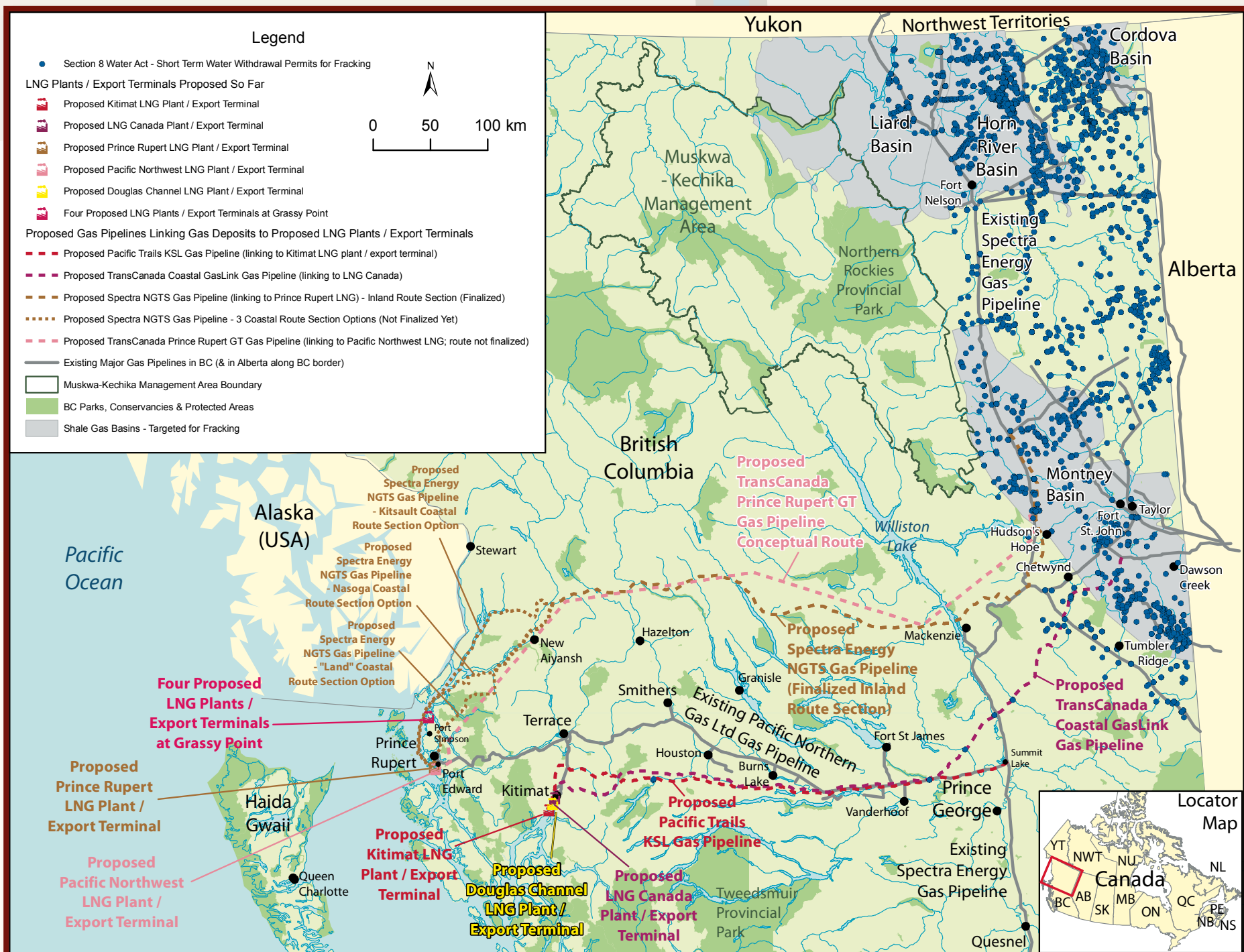
TOXIC CHEMICALS

A huge number of mysterious chemicals are used by the gas industry in the fracking process. A review of chemical use in fracking in New York listed 257 additives, some of which are carcinogenic chemicals.¹¹

Frighteningly, BC does not currently require disclosure of the chemicals used in the fracking process, as they are considered "industry secrets".



Photo: LNG tanker (Creative commons).



FREEZING THE GAS, COOKING THE PLANET

Once the gas is out of the ground, the industry's plan is to export the product to foreign markets by way of the Pacific Ocean. After extraction, the fracked gas will be piped to BC's west coast, where it will be converted to liquid form and transported to Asia in specifically designed cryogenic tankers (LNG carriers). This takes a lot of energy, as the liquefaction process involves cooling the gas to approximately -162 °C (-260 °F). As a liquid, natural gas is reduced to 1/600th of its original volume, which makes LNG more cost-efficient to transport over long distances

where pipelines do not exist.¹² While fracked gas has been touted as a clean-burning fuel that produces less carbon dioxide (CO2) than coal, a recent report says we should be more concerned about methane leaking into the atmosphere during the fracking process.¹³ Natural gas is mostly methane, which is a much more potent greenhouse gas than CO2 with up to three times more warming impact. In the long term, the combined extraction and processing of fracked gas is worse for our climate than conventional gas, oil or coal. To

make matters worse, each LNG plant – powered by burning its own gas – would produce 10 million tonnes of greenhouse gas every year.¹⁴ Back in 2007, the BC government set down in law the actions that citizens wanted to take on climate change. In BC's Greenhouse Gas Reduction Targets Act, the province stated it would reduce its greenhouse gas emissions (GHGs) to one-third of what they were in 2007 by 2020, and go all the way to an 80 per cent reduction by 2050!

By the end of 2010, BC had managed to reduce its GHGs by 4.5 per cent, and was on course to meet the goal of a 6 per cent reduction by 2012. However, our ability to deal with our GHGs is being severely affected by new growth in the gas industry. In order to accommodate the bloated gas industry, it will fall on the shoulders of British Columbians to work even harder to reduce personal GHGs (from transport, home heating and health services, for example) by up to 80 per cent.¹⁵



BROKEN PROMISES AND HEAVY COSTS

British Columbians were originally led to believe that the energy-intensive process of converting gas to LNG would be powered by low-carbon public energy sources such as hydropower. However, this myth was extinguished by BC Hydro in June 2012 when it confirmed that ratepayers like you and I would not be subsidizing the gas industry's hunger for cheap energy.¹⁶

Without subsidized rates, the industry would be forced to pay over \$100 per megawatt hour – making hydro energy an unattractive option. Instead, LNG producers will likely burn their own gas product to stay in operation, which is how it works everywhere else in the world. In response to this revelation, industry proponents began touting fracked gas as “clean” energy, with the BC government going so far as to change its legal definition of “clean energy” to include certain types of natural gas-powered plants.¹⁷

How much energy would it take to run all of the LNG plants proposed by government and industry? In 2010, BC

Hydro said that it expected an eight-fold increase in the power demanded by the oil and gas industry as a result of fracking and LNG development.¹⁸

The costs of climate change, if left unchecked, far outweigh the benefits of proceeding with these gas plans. Studies show that the cost of climate change in Canada will reach \$5 billion in 2020, and between \$21 and \$43 billion in 2050.¹⁹ This is far from the economic prosperity that British Columbians have been promised.

Given its contribution to climate change, and the comparatively low contribution to our economic and social well-being, we are all set to lose out if we bet the farm on the gas industry. As citizens, we have a responsibility to ourselves,



Photo: **Peace River** (Graham Osborne).

our country and our planet – if BC forges ahead with fracking and LNG, we'll be breaking our promises to reduce greenhouse gas emissions and abandoning efforts to address the most important issue of our time. We cannot go on basing our economy or the funding of public programs on the steady depletion of non-renewable polluting fuels such as fracked gas.



Photo: **Fracking protest** (Creative commons).

SOLUTIONS FOR A GREENER FUTURE

The emerging global economy is a green, sustainable one that incorporates the climate in its decision-making. If the enormous carbon infrastructure planned for our west coast is put in place, we will have bought into an economy that creates the wrong products for a generation at least!

Annual subsidization of the fossil fuel industry stands at \$1.4 billion nationally.²⁰ Instead, governments should be moving

away from industries that harm our clean air and water, and supporting more sustainable domestic industries such as value-added forestry, manufacturing and retrofits. Additionally, directing revenue from a smarter, more efficient carbon tax towards green initiatives like the expansion of electrified public transit and freight transport, and the construction of energy efficient buildings will help speed up BC's transition to a green economy.

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TAKE ACTION

It's time to reign in BC's out of control gas industry. Please write to the Premier of BC and insist that the province:

- Put a stop to BC's reckless LNG ambitions
- Enact a moratorium on hazardous fracking operations
- Recommit to emissions reduction targets and take meaningful action on climate change



Photo: **Western meadowlark** (Grambo Images).

BC Premier

Room 156, Parliament Buildings,
Victoria, BC, V8V 1X4
☎ 250-387-1715 Fax: 250-387-0087
@ premier@gov.bc.ca

BC Leader of the Official Opposition

Room 201, Parliament Buildings,
Victoria, BC, V8V 1X4
☎ 250-387-3655 Fax: 250-387-4680

More resources:

Canadian Centre for Policy Alternatives (CCPA)
www.policyalternatives.ca
Fractured Land Documentary
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Wilderness Committee
P.O. Box 2205,
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call

(604) 683-8220 in the
Lower Mainland
1-800-661-9453 toll-free
elsewhere in Canada

Credits

Writing: Eoin Madden.
Editing: Alexis Stoymenoff, Joe Foy.
Graphic Design and Layout: Perry Sky Jack, Sue Fox.
Mapping: Geoff Senichenko.

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Vancouver, BC, V6B 3W2
T: 604-683-8220 or 1-800-661-9453 F: 604-683-8229

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