



CANADA'S NEXT CLIMATE CRIME



LNG: A DIRTY SECRET ON THE WEST COAST



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Repeat a lie often enough and people will believe it. British Columbia's government tries to paint liquefied natural gas (LNG) as a better alternative to other dirty fossil fuels. Over and over we hear the same refrain: "LNG is clean energy. LNG will help Asia shift away from coal. LNG will be good for the climate." Nothing could be further from the truth. Taking lifetime greenhouse gas emissions into account, BC's LNG is some of the dirtiest fuel on the planet. In some cases, LNG may even be worse than coal for our climate.¹

Right now, British Columbia is planning to build an LNG industry that could rival the climate impact of the Alberta tar sands.

Of the thousands of world leaders at global climate talks in Paris in late 2015, only British Columbia's representatives were touting their government's carbon tax while also promoting an industry that will contribute to cooking the planet.

While Canada's new federal government was talking big on climate action, BC threw its climate goals to the wind. Just days before the Paris climate conference, the provincial government quietly acknowledged BC would miss its emissions reduction targets for 2020. At the same time, it said it would not increase its carbon tax without sheltering the LNG industry.²

The province is already on the wrong track, and LNG will only make things worse – much worse. In fact, if

just five of the more than 20 proposed LNG terminals on the west coast get built, BC could double its carbon emissions and erase any progress

the rest of the economy has made.³

Climate change puts BC – and Canada – at a crossroads. Together we can race towards a 21st century low-carbon economy, or we can waste another decade chasing a 19th century resource, as forest fires

and rising seas wreak havoc on our communities.

BC has staked its economic future on a resource and an industry that

has already passed its expiration date. Global prices for LNG are plummeting. Asia now has more LNG than it knows what to do with. The BC government has practically given away our gas to this industry and yet not a single terminal has secured final funding from its investors.

The Paris climate conference, despite its flaws, showed us that the world is ready to make the transition to renewable energy. To meet the vision set out in the Paris climate deal to limit global warming to 1.5°C, more than 80 per cent of our remaining fossil fuels must stay in the ground.

Canadians are already feeling the effects of climate change. Smoke fills our skies in summer as our forests are engulfed in flames. Floods regularly swamp our homes. Beyond our borders, vulnerable people suffer from climate change the most.

The LNG industry is incompatible with a safe climate – and in this report, you'll see why it's a pipe dream that we cannot afford.

What is LNG?

LNG, or liquefied natural gas, is primarily methane gas that has been cooled and condensed into a liquid so it can be stored and transported. It is a very high-emission fuel because it is burned or released into the atmosphere throughout the production process. In most cases, this process begins with the environmentally damaging and carbon-intensive extraction method known as fracking.



Photo top: Coastal Islands in Howe Sound, BC, along the tanker route associated with the proposed Woodfibre LNG terminal (Don Johnston),
below left: Illustration of proposed Kitimat LNG terminal on BC's north coast (Apache Canada),
below right: Pacific great blue heron (Natasha Meens).

LNG'S HIDDEN CLIMATE COSTS

Gas companies and their political cheerleaders tell us LNG is “clean-burning.” Advertising for the fuel shows its uses in the home, lighting stovetops and heating showers. These images are meant to be a stark contrast to the smoke stacks of dirty coal-fired power plants.

While it's true natural gas emits less carbon dioxide (CO₂) than coal when it's burned, LNG's true impact on the climate is much worse than the industry lets on.

Counting only the emissions from combustion obscures a whole polluting process to get the gas to Asian markets. **In all, about 20 per cent of the extracted gas is burned, vented or leaked into the air by the time it reaches the consumer.**⁴

In BC, it all starts in the northeast of the province. Here, the fracking process uses pressurized water, sand and toxic chemicals to shatter the shale rock bed deep underground and release methane stored inside. Fracking is so environmentally damaging that Quebec and New Brunswick have placed moratoriums on the process.

During fracking, methane gas leaks into our atmosphere and wreaks havoc on our climate – in the first 20 years

after it's released, methane does 86 times more damage to the climate than CO₂.⁵

After extraction, the methane needs to be separated from the rest of the gases in the mixture. CO₂ is vented directly to the atmosphere. Waste gas and excess methane is burned in flare stacks that illuminate the horizon. Meanwhile, these processing facilities burn their own products for power, doing even more climate damage.

Pipelines – which can often leak – cross hundreds of kilometres with gas-powered compressor stations to get the gas to terminals on the coast.

Liquefaction facilities at the terminals cool the gas down to below -160°C so it can be loaded onto tankers for transport across the Pacific Ocean. This process consumes an immense amount of energy.

Tankers pollute throughout their journey and may release large methane “burps” as the gas evaporates on turbulent seas.⁶ When it reaches Asia, the liquid is turned back into a gas and burned for power.

All these emissions really add up. **Compared with building a new coal plant, powering Chinese cities with BC LNG actually does 27 per cent**

more damage to the climate over 20 years.⁷

Coal is a well-known disaster for the climate, but LNG is not the solution. Thankfully, Asian countries are taking action to shift away from fossil fuels.

India plans to invest more in solar energy than coal by 2020.⁸ China has promised not to build any new coal plants for at least the next three years,⁹ and is aggressively moving toward renewables like solar power.



Photos: Gas flaring (Joe Foy), Fracking operation in northeast BC (Jeremy Sean Williams).

EARTHQUAKES AND FRACKING

The LNG industry has got us shaking in our boots... literally.



An investigation confirmed that fracking caused a 4.6-magnitude earthquake in BC in August 2015 – the largest one linked to the industry yet.¹⁰ Then an even bigger earthquake hit a fracking zone in Alberta in January 2016, registering 4.8 on the Richter scale.¹¹ Seismic events are becoming increasingly common in fracking areas, where regulators report hundreds – or even thousands – of earthquakes per year.

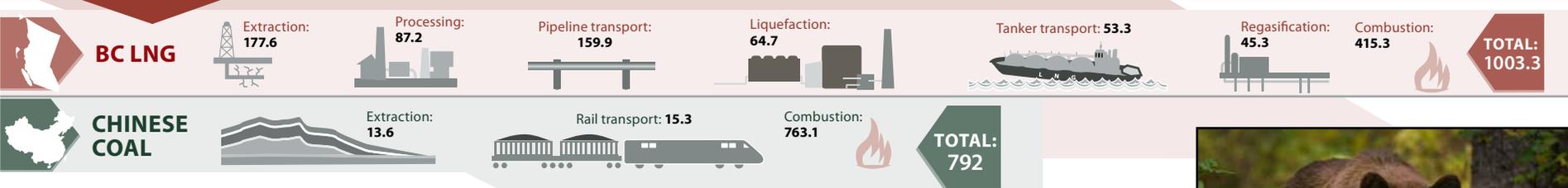
LNG AND FRACKING PROJECTS IN BC VIOLATE INDIGENOUS RIGHTS

The UN Declaration on the Rights of Indigenous Peoples (UNDRIP) guarantees a right to free, prior and informed consent for industrial projects on Indigenous lands. Several Indigenous groups in BC are asserting this right by occupying their territory in the path of LNG terminals and pipelines to protect traditional hunting and fishing grounds:

- Indigenous people on the Skeena River have declared Lelu Island, the site of the Pacific NorthWest LNG terminal, off limits. Lax Kw'alaams First Nation members have occupied the area, which supports 88 per cent of salmon in the Skeena watershed.¹²
- Unist'ot'en leaders built a camp in the path of Chevron's Pacific Trail gas pipeline.¹³
- Gitksan members constructed Camp Madii Lii on their territory to block TransCanada's proposed Prince Rupert Gas Transmission pipeline.¹⁴

From the fracking well to the consumer, LNG fuels climate change every step of the way.

The graphic below breaks down the damage that a new Chinese power plant would do to the climate in its first 20 years, running on BC LNG vs. domestic coal. Amounts are measured in kilograms of CO₂ equivalent per megawatt hour (Kg CO₂e/MWh).



RISKY BUSINESS

BC's LNG plans are a climate disaster and a huge risk to communities. But they're also a huge threat to the BC economy and its provincial coffers. One only has to look to neighbouring Alberta's current economic peril to see what lies down the fossil fuel path.

LNG was sold to British Columbians with promises of 100,000 jobs and a \$100 billion “prosperity fund.” Research from the Canadian Centre for Policy Alternatives (CCPA) shows that both claims are absurd.

Examining the government's claim of 100,000 jobs, their research shows that even the direct job claims are out of line with real-world experience. But when a faulty model is used to calculate indirect job creation – including jobs in industries that supply the LNG industry – it produces “a figure that is simply unbelievable and contrary to the dynamics of any industry anywhere.”¹⁵

Instead, data from the industry itself suggests an LNG terminal would create just 2,000 to 3,000 temporary jobs over three years, and employ only 200 to 300 workers once operational.

As for the \$100 billion prosperity fund after 30 years, CCPA research done in 2014 shows that figure is wildly unrealistic. Depending on the price BC LNG can demand in Asian markets, it could be as low as \$13 billion. It is important to note that since the 2014 study, the BC government cut taxes on LNG producers by half and guaranteed no increases for 25 years, making it highly unlikely that even those revenues would ever materialize.¹⁶

During Canada's 2015 federal election campaign, the Liberal Party promised to end fossil fuel subsidies. But just a few months after the election, the new federal government assured BC's Premier that it would not end the previous government's capital cost allowances for LNG facilities.¹⁷ This amounts to a \$50 million subsidy over five years, with more to come.¹⁸

Plummeting LNG prices in Asia raise serious doubts about the potential for any new terminals on the coast to move forward. When the BC government embarked on its push

for natural gas in 2012, Asian markets were paying as high as \$16 per million British Thermal Units (BTUs), more than triple North American prices.¹⁹

Now this price may sink as low as \$4 per million BTUs, and analysts say it won't rise above \$8 before 2020.²⁰ BC LNG producers need a price of \$12-13 to be viable, according to Deutsche Bank figures.²¹

Global economics just aren't there to support an LNG industry in British Columbia. Yet the government is fixated on getting this industry off the ground.

When governments promote the fossil fuel industry at all costs, the public interest suffers. Alberta is picking up the pieces after oil prices dropped and the bottom fell out of its dirty energy boom. Provincial coffers have little to show for the wholesale extraction of natural resources, Indigenous peoples are left with a poisoned landscape and the jobs have vanished as quickly as they appeared.

BC doesn't have to follow the same polluting path. We can reject this hollow, dirty industry and build an economy that works for the people and the planet.



Photos: Grizzly bear with cubs (Paul Burwell), Sockeye salmon (Isabelle Groc), LNG tanker (Creative Commons).

BC FEELS THE BURN

A five-alarm summer had British Columbians feeling the heat of climate change in 2015. Wildfires raged across the province torching over 300,000 hectares of forest, costing taxpayers \$287 million, destroying over 50 homes and claiming one firefighter's life.²²

Smoke and ash blanketed cities for days in July. Health officials warned vulnerable people to stay indoors as air quality in Metro Vancouver neared levels more commonly seen in smog-choked China.²³

Fires have always been a fact of life in the Pacific Northwest, but climate change is making them more frequent and more severe. A Natural Resources Canada study suggests that BC's fire season will be 50 days longer by 2040.²⁴

Not only were huge swaths of BC timber destroyed in the summer of 2015, the salmon fishery was at serious risk, too. Temperatures in the Fraser River were so high and water levels so low that salmon had trouble spawning. At 18° Celcius, salmon have difficulty swimming, and at 20°C there is a higher risk of disease outbreaks and fish begin to die in the river.²⁵

Last July, the Fraser River ran at a peak of 20.5°C near Hope, BC, while water levels were down to a 25-year low.²⁶ The Department of Fisheries and Oceans was forced to shut down all salmon fishing on the river below a certain area, which had a huge impact on local First Nations, anglers and the businesses they support.²⁷

Climate change is already costing British Columbians – its impacts are everywhere you look. Glaciers are melting, forests are burning and streams are running dry. Pursuing an LNG industry that will cook the climate is simply unacceptable when it puts the rest of our economy and our environment at risk.



Photo: Forest fire in Chilcotin region, BC (Chris Harris / All Canada Photos).



LNG in the Maritimes

Canada's east coast also has four proposed LNG terminals. Proposals in Goldboro, Point Tupper and Middle Melford, Nova Scotia and another in Saint John, New Brunswick threaten to export up to 48 million tonnes of LNG to Europe annually.²⁸

A TALE OF TWO TERMINALS

Twenty-one LNG terminals have been proposed so far on Canada's west coast. Most of them are in the north, near Kitimat and Prince Rupert, where some local First Nations stand defiant in opposition. There are three on Vancouver Island. And two of the proposals that pose the most immediate threat are the ones closest to the province's most heavily populated area.

Howe Sound is a stunning fjord just to the north of Vancouver where mountains rise out of the Pacific waters known as the Salish Sea. After a century of pollution, heavy industries in the sound either cleaned up or closed down.

Pacific herring are making a comeback in the area, bringing with them salmon, whales and dolphins. But in 2013, Woodfibre LNG bought the site of an old pulp and paper mill – a prime herring spawn area – with the intent to put an LNG terminal in its place.²⁹

Many Howe Sound residents are horrified that their newly recovering ecosystem is at risk. A cooling system for the plant would suck up 17,000 cubic metres of water every hour and return it at a warmer temperature, with serious impacts to fish. Its water intake

would be just 50 metres away from recorded herring spawn.³⁰ That's a far cry from guidelines from the Department of Fisheries and Oceans that require a distance of at least two kilometres.³¹

This cooling system poses an unacceptable risk to marine life in Howe Sound and the DFO must take action. Not only are fish at risk, but nearby communities

face the threat of a catastrophic spill from the LNG tankers travelling past their homes.

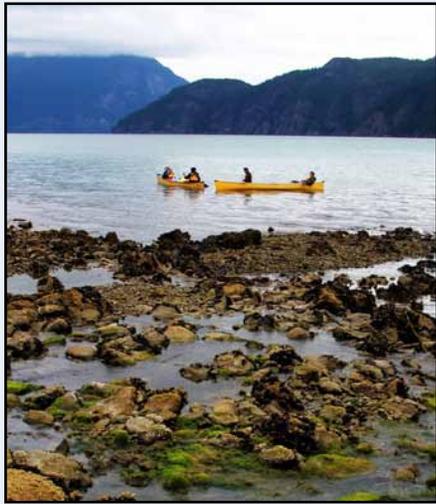


Photo: Howe Sound, BC (Joe Foy).



"The Woodfibre area is smack dab in the middle of herring spawn central."

– John Buchanan, citizen scientist and environmentalist in Squamish

Tilbury Island lies opposite the city of Richmond's bustling new Riverport community on the south arm of the Fraser River.

This small island is where an American company, WesPac Midstream, wants to build an LNG export terminal out of a small storage facility used by the local gas utility. Tankers as large as cruise ships would each load up to 60,000 tonnes of volatile LNG for shipment across the Pacific. The proposal is raising the alarm for residents along the river who fear a firestorm from a tanker spill could engulf their communities.

Their fear is not unfounded. A US military study into LNG tanker safety risks found that if ignited, the blast from a gas cloud released by an LNG carrier could reach between 1.6 and 2.5 kilometres.³² While a spill and resulting explosion is unlikely, the consequences to communities would be severe.

Clear design guidelines produced by the Society of International Gas Tanker and Terminal Operators

(SIGTTO) suggest that building an LNG plant at Tilbury Island is highly unwise. They recommend a short approach for tankers as opposed to long inshore routes, as well as the ability to halt surrounding marine traffic. They also say that terminals should be located at

a suitable distance from population centres.³³

Tankers departing from Tilbury Island would have to turn around and manoeuvre through the narrow and winding Fraser River. They would pass between the communities

of Steveston in Richmond and Ladner in Delta, among fishing boats, barges, shipping freighters and pleasure crafts.

Planning for an LNG terminal must take public safety concerns into account. Instead, WesPac appears to have chosen the site simply because it's convenient.

"It's more of a fireball than an explosion, because the gas – a white cloud – will spread over a populated area until it hits a spark."

– Eoin Finn, Director of Research for My Sea to Sky (myseatosky.org)



Photo: Fraser River and Tilbury Island (Flickrriver.com).

ONE MILLION CLIMATE JOBS

Climate change is already costing Canadians. Rising food prices, scorched forests and struggling salmon runs affect many families who are trying to make ends meet.

Every time extreme weather strikes, the economic cost is immense. When downtown Calgary was forced to shut down for nearly a week due to catastrophic flooding in June of 2013, Albertans lost 7.5 million hours of work, costing the provincial economy around \$485.3 million.³⁴

But it's not all doom and gloom – **Canada can boost its economy while fighting climate change.** By investing \$15 billion a year in renewable energy, energy efficiency, public transit and

high-speed rail, the government could reduce emissions by more than 25 per cent while creating one million jobs over the next five years.³⁵ These jobs could help pull the Canadian economy out of a recession and put us on track for a 21st century economy.

Fighting climate change requires mobilizing technology, resources and labour at a level not seen since World War II. Countries that make the transition away from fossil fuels first will have a head start.

Rather than clinging to our old extraction-based model, we can build a sustainable economy that safeguards our climate and Canada's natural resources, and puts our nation to work.



Photos: Installing solar panels (All Canada Photos), Wind farm in Quebec (Barrett MacKay / All Canada Photos).

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NEW BRUNSWICK FRACKING FIGHT LEADS TO MORATORIUM

Opposition to fracking for gas in New Brunswick was simmering for months before protests started ramping up. On October 1, 2013, Chief Arren Sock of the Elsipogtog First Nation issued an eviction notice to fracking company SWN Resources as members of his community blocked a road to prevent seismic testing.³⁶

Sixteen days later, the RCMP moved to clear the protesters and the issue was propelled to global headlines. By December, the company wrapped up its testing and gave no indication when it

would return.³⁷

The following year, the New Brunswick government announced it would place a moratorium on fracking. It would not be lifted until risks to the environment, health and water were understood, First Nations consultation had taken place and public support was clear.³⁸



Photo: Elsipogtog First Nation Resident Amanda Polchies is confronted by police during a protest against fracking in New Brunswick (APTN / Ossie Michelin, Reporter).

TAKE ACTION

Please write to the Premier of BC and urge the provincial government to:

- Reject proposed LNG terminals on the coast of BC
- Ban the harmful practice of fracking
- Support green economic initiatives like public transit, renewable energy and energy efficient buildings

Premier of BC

PO Box 9041, Stn Prov Govt
Victoria, BC V8W 9E1

Phone: 250-387-1715 Fax: 250-387-0087



Please write to the Prime Minister of Canada and urge the federal government to:

- End tax breaks for BC LNG producers
- Ensure all provincial climate plans reflect a national commitment to limit warming to 1.5°C
- Withhold federal environmental certificates for LNG terminals
- Respect the rights of Indigenous communities to withhold consent for LNG projects

Office of the Prime Minister

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