

Escaping Mandatory Oil Exports:

Why Canada needs to dump NAFTA's energy proportionality rule

by Gordon Laxer



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Introduction

When Donald Trump approved the proposed Keystone XL oil pipeline to bring Alberta bitumen to U.S. Gulf Coast refineries he said it would “reduce our dependence on foreign oil.” Given that the pipeline, if built, would mainly ship Canadian oil to U.S. Gulf coast refineries, Trump showed, perhaps inadvertently, that he considers Canadian oil to be American. Unfortunately, his assumption is based on fact.

The North American Free Trade Agreement’s (NAFTA’s) energy proportionality rule (Article 605) gives the U.S. virtually unlimited first access to most of Canada’s oil and natural gas. According to the NAFTA rule, Ottawa must not reduce oil exports to the U.S. like it did during international oil shortages in the 1970s to divert these supplies to Eastern Canadians who relied on imported oil then, as they still do now. Under NAFTA Article 605, Ottawa must continue to export the same proportion of oil (and natural gas and electricity) as it has in the past three years even if eastern Canadians are running short and freezing in the dark.

The proportionality rule will likely hinder, postpone, or even prevent Ottawa and the provinces from phasing out the production of oil and natural gas in Canada’s transition to a low-carbon future. This is a serious impediment because the production of oil and natural gas, mainly undertaken for export to the U.S., is Canada’s largest and fastest growing source of greenhouse gas emissions. It is also a major cause of habitat destruction and the trampling of Indigenous rights.

It’s unlikely that Canadians can be convinced to seriously reduce their carbon energy use if their efforts do not result in cutting Canada’s carbon emissions. Unfortunately, NAFTA’s proportionality rule means that the more oil Canadians conserve, the more Big Oil can, and almost certainly will, export the same amount Canadians save. If that oil is sent to the U.S., as almost all of Canadian oil currently is, our oil export obligation under NAFTA’s proportionality rule will grow.

NAFTA’s proportionality rule is unique in the world’s treaties. According to Cyndee Todgham Cherniak, a Toronto trade lawyer, no other agreements have NAFTA-like proportionality clauses.¹ It’s unclear how many other countries the U.S. has tried to impose an energy proportional sharing obligation on, but none have bitten. Richard Heinberg, a noted California energy expert, wrote that Canada has every reason to repudiate the proportionality rule, and to do so unilaterally and immediately.² The reach of energy proportionality clauses in “trade” agreements will grow if the current round of NAFTA talks ends Mexico’s exemption from it. As well, energy proportionality could be inserted into a Canada-China trade agreement, currently in the early stages of rather secretive negotiations.³

This report examines NAFTA’s energy proportionality rule in light of the urgent need to drastically reduce carbon emissions and ensure that all Canadians have access to a sufficient amount of energy as a human right in a post-carbon, energy-constrained future.⁴



Article 605 in NAFTA forces Ottawa to maintain energy exports to the United States.

Popular national sovereignty and mutual interdependence

NAFTA and other “free trade” deals lower costs and reduce regulations for giant corporations doing business across borders. The deals, though, do not protect Indigenous rights, local habitats, or the world’s climate, and they undermine real democracy by increasing corporate power over people power.

Although proponents of international trade agreements, including NAFTA, use the venerable term “free trade,” their goal differs greatly from the original free traders like Richard Cobden, leader of the Anti-Corn Law League in England in the 1840s. He campaigned for free trade in food and against state-created monopolies because: “We believe it to be the foster-parent of all other monopolies.” The Corn-Law [tariffs on grain imports] is “an injustice to the labourers of this and every other country”, he said. This was a far cry from the pro-monopoly, anti-worker intent of current “free trade” agreements.

Current “free trade” agreements are more about corporate rights than about free trade in the original sense. Tariff barriers between Canada and the U.S. were very low before the Canada-U.S. Free Trade Agreement (CUFTA) and NAFTA were signed and have fallen since under most-favoured-nation rules of the World Trade Organization.⁵

U.S. President Donald Trump demands that North America operate in the interest of “America first.” On the contrary, NAFTA should be renegotiated on the basis of three independent countries coming together around common goals, including increasing economic security, economic opportunity and well-being for everyone and ensuring their environmental security.

Gilberto Gil, a famous Afro-Brazilian singer and Brazil’s former Minister of Culture, envisioned countries working together to uphold two seemingly contradictory principles – popular national sovereignties and mutual interdependence on all humanity.⁶ This report is written in that spirit.

Preserving loved natural areas is often the strongest motivator for Indigenous and non-Indigenous people to resist new oil and natural gas projects, pipelines,

and ships carrying oil and liquified natural gas (LNG). The success of local actions against such devastations often depends as much on their country’s degree of effective sovereignty as on the extent of local support. Does their country have enough sovereignty to defend the autonomy of local communities to protect their habitats, or is it hindered from doing so like Canada is by NAFTA’s energy proportionality rule?

The term “globalization” was coined to neutralize the powerful appeal of resource nationalisms that rose in the 1970s in countries newly liberated from Western imperial rule. The post-colonial countries were determined to regain control over their resources that had long been plundered by Western powers and corporations. In the 1970s, the United Nations General Assembly recognized each country’s right to safeguard its resources. “Each state is entitled to exercise effective control over them ... including the right to nationalize or transfer ownership of such resources to its nationals, this right being an expression of the full permanent sovereignty of the state.”⁷

“Climate justice” is a current version of that principle. It links global warming with struggles for equality, human rights and collective rights. In 2008, 160 environmental organizations from around the world declared: “We will not be able to stop climate change if we don’t change the neo-liberal and corporate-based economy which stops us from achieving sustainable societies.” This shared vision includes food and energy sovereignty, and resource conservation rooted in peoples’ sovereignty and public ownership.⁸

Herman Daly, a former senior ecological-economist at the World Bank, explained why national sovereignty is necessary for environmental protection: “To globalize the economy by erasure of national economic boundaries through free trade, free capital mobility, and free – or at least uncontrolled – migration is to wound fatally the major unit of community capable of carrying out any policies for the common good.”⁹

The energy proportionality rule (NAFTA 605)

How many governments dream that a policy they make today cannot be undone by the government voters choose tomorrow? Only a few governments get to live the dream.

Brian Mulroney's Conservative government got to do it when, at the behest of Washington, Alberta and Big Oil, it inserted the energy proportionality rule into the 1989 Canada-U.S. Free Trade Agreement (CUFTA). Putting this policy, or any policy, into an international trade agreement is like constitutionalizing it. It's hard for the next government to undo it no matter how much it and the voters may wish to do so.

Mulroney's aim was to prevent the next Liberal government from implementing another National Energy Program (1980) and the self-reliance policy of the 1970s that the Liberal government of Pierre Trudeau adopted. Those policies cut oil exports to the U.S. in the west so the oil could be supplied to eastern Canadians instead. The latter relied on oil imports, putting them at risk during international oil supply crises that roiled the 1970s.

In 1994, NAFTA built upon and superseded CUFTA, but its energy proportionality rule remained. The energy-exporting obligation depends on the level of energy exports in the past three years. In a major international oil supply disruption caused by war or natural disaster, Canada must currently make three-quarters (74%) of its daily oil production available for export to the U.S. For natural gas, it's 52%, and for electricity, it's 11% (Box 1). That's true even if it leaves eastern Canadians freezing in the dark.

Box 1. Canada's current proportionality obligation to make available for export to the U.S.¹⁰

- 74% of its oil production
- 52% of its natural gas production
- 11% of its electricity generation

At the G8 meetings in Italy in 2009, Canada and the other countries promised to cut their greenhouse gases (GHGs) by 80 per cent by 2050. The countries squabbled over whether the reductions should be based on their 1990 or 2005 emission level. Emissions had grown considerably by 2005 in Canada, the U.S. and Japan. Their governments favoured the 2005 date, while the others wanted to stick with 1990. We chose the 1990 baseline because it was the date set in the 2008 bill in the House of Commons (but rejected by the unelected Senate) that called for an 80 per cent cut by 2050.¹¹

“Canada is very unlikely to meet its 2030 Paris target unless it tackles oil and gas emissions. It can't do that unless it abandons energy proportionality in NAFTA.”

Climatologists insist on going farther for the world to have a good chance of remaining below a two degree Celsius global temperature rise above pre-industrial levels. There is a near consensus among them and environmentalists that countries must cut net emissions to zero by 2050. Consequently, this report examines both the 80 and 100 per cent reduction goals.

NAFTA's energy proportionality rule greatly hinders Canada from winding down oil and natural gas exports to the U.S. as a key part of its transition to a low carbon (80 per cent cuts) future or a net-zero carbon future by 2050. According to the Ministry of Environment and Climate Change, emissions from transportation are expected to fall by eight per cent and from electricity by over 70 per cent from 2005 to 2030. Meanwhile, emissions from producing oil and gas are projected to rise by 47 per cent to reach 31 per cent of Canada's total emissions. The emissions rise from producing of oil and gas almost entirely wipe out reductions in electricity and transportation.¹² Canada is very unlikely to meet its 2030 Paris target unless it tackles oil and gas

emissions. It can't do that unless it abandons energy proportionality in NAFTA.

Almost all of Canada's transportation is currently fuelled by oil. Canadians will continue to rely on it, at continually diminishing levels during the transition period, even as more and more vehicles are electrically powered. Canada could throw off proportionality's straitjacket and phase out the tar sands and hydraulically-fractured (fracked) conventional oil and fracked natural gas, as well as end all oil and gas exports well before 2050. A rapid version would see all those phase-outs by 2030. If Canada took these measures, it would likely meet its Paris climate targets. In a slower version, the phase-outs would conclude by 2040. After that, in both versions, Canadians would use domestic, non-fracked, conventional oil as a transition fuel to get us to either 80 per cent below Canada's 1990 emissions level or to net-zero emissions by 2050. Both proportionality-free versions would have the added benefit of quickly ending oil imports. All Canadians would gain energy security.

If combined with a robust conservation plan to lower Canadians oil use, domestic conventional oil and natural gas liquids could supply all Canadians until carbon fuel production would end in 2050.¹³ If Canada does not end oil exports, it will not have enough non-fracked conventional oil and natural gas liquids to meet Canadian needs.

What would happen if Canada tried to reach the 2050 targets while maintaining NAFTA's proportionality rule? It could gradually wind down conventional oil, bitumen, and fracked oil and fracked natural gas by 80

or 100 per cent by 2050. During the whole transition, Canada would produce and export bitumen, maintain fracking, and import a higher proportion of oil.

“If Canada does not end oil exports, it will not have enough non-fracked conventional oil and natural gas liquids to meet Canadian needs.”

Currently Canada produces almost four and a half million barrels of oil a day (4.486 mbd).¹⁴ Two-thirds of that is bitumen. Most oil production is for export, almost entirely (99 per cent) going to the U.S. Yet Canada imports about three-quarters of a million barrels of oil a day (0.759 mbd), to meet 43 per cent of Canadians' use. Within 12 years, if Ottawa had a serious conservation plan, Canadians could reduce oil demand (1.749 mbd) enough to live entirely on domestic non-fracked, conventional oil production of 1.055 million barrels per day (mbd) by 2034.¹⁵ That would reduce Canadian oil consumption by 40 per cent. (See Box 2).

Conservation could be done through robust measures, including a rapid switch to electric vehicles, building high-speed intercity trains, more subways and LRT lines, cheaper or free public transit and raising gasoline prices a lot.

Box 2. Canada's 2016 production of conventional oil (mbd=millions of barrels of oil a day)¹⁶

- 1.400 mbd Canada production of conventional oil.
- 0.345 mbd of conventional oil was tight, mainly fracked oil.
- 1.055 mbd was mainly non-fracked, conventional oil (and condensates).
- 1.749 mbd Canadian consumption of refined oil

Box 3. proportionality-free vs proportionality scenarios

Rapid proportionality-free scenario:

Reduce bitumen production and all oil exports each year until they reach zero by **2030**. Replace all oil imports with Canadian oil.

Slower proportionality-free scenario:

Reduce bitumen production and all oil exports each year until they reach zero by **2040**. Replace oil imports.

In both proportionality-free scenarios, Canadians will steadily use less conventional oil between 2031 and 2050 (rapid version) or between 2041 and 2050 (slower version) until production of oil for use as a fuel ceases in **2050**.

Proportionality reduction scenario:

Reduce all oil and natural gas production from current levels at a steady pace to reach either 20 per cent of the 1990 level or zero by 2050. Canada would continue to export high proportions of oil and natural gas of the diminishing output throughout the period and rely on a rising level of oil imports.

The National Energy Board (NEB) forecasts conventional, non-fracked Canadian oil will rise by 28 per cent from 2016 (747,000 barrels per day (b/d) until 2024 (957,000 b/d) and then drop to 805,000 b/d by 2030 and 641,000 b/d by 2040. After 2030 in the rapid reduction, off-proportionality scenario and after 2040 in the slower version conventional oil production will fall as a result of government policy until it reaches either 20 per cent or zero by 2050.¹⁷

The proportionality rule virtually prevents Canada from providing domestic oil to all its residents during international oil shortages. No other developed, democratic country is forbidden from guaranteeing its people first access to their own resources.

Supplying eastern Canadians with domestic oil in a supply crisis

Although there's been a glut of oil on world markets since 2014, we should plan for international oil supply crises because tensions in the Middle East between Sunni and Shia denominations of Islam are high. There already are wars in Yemen, Syria and Iraq. Flashpoints in Qatar and elsewhere can easily escalate into oil embargoes or wider wars. If attacked, Iran has threatened to block the very narrow Straits of Hormuz in the Persian Gulf, through which 35 per cent of the world's seaborne oil exports flow.¹⁸ If temporarily blockaded, there would quickly be an unprecedented international oil supply crisis and sharp oil price spikes. People everywhere would be negatively affected. Atlantic Canadians rely primarily on imported oil, while oil imports to Quebec are also high. With Canada's cold winters, eastern Canadians could be left to shiver in the dark.

In looking at supplying domestic oil to eastern Canadians during an emergency, this section ignores the greenhouse gas (GHG) emissions and environmental impacts involved in meeting eastern Canadians' oil security.

During a major international oil shortage, there are several ways Canada can ensure that eastern Canadians have a sufficient amount of oil. First, Canada could order oil producers to make a sufficient amount of domestically produced oil that is presently exported to the U.S. be sent to Atlantic Canada, Quebec and Ontario. It would replace all oil imports of 0.759 mb/d. That would divert 26 per cent of Canada's net oil exports of 2.93 mb/d of oil to the U.S. to eastern Canadians.¹⁹ Western Canadians use domestic oil almost exclusively, so there would be no need to divert oil to them.²⁰ Second, Ottawa could try to buy scarce supplies of oil on the international market. Third, Ottawa can impose temporary oil rationing on eastern Canadians or on all Canadians. All three options face obstacles.

The first alternative is to direct domestic oil to Canadians. Currently, over 80 per cent of Newfoundland and Labrador's offshore oil production – all conventional oil – is exported.²¹ If all the 210,000 barrels b/d (in 2016) were diverted to meet the 153,000 b/d total demand of Atlantic Canadians, there would be a

surplus of 57,000 b/d. That could be sent to eastern Quebecers to meet 17 per cent of Quebec's total 2016 oil demand.²² It would replace 27 per cent of Quebec's 2016 oil imports.²³ That would leave 157,000 b/d of oil imports into Quebec to replace.

“If Canada cut all oil exports to the U.S. during an international oil crisis, Washington could retaliate by stopping the flow of oil from Western Canada to Ontario and Quebec.”

Enbridge's Line 9's capacity of 300,000 b/d of oil is sufficient to bring enough oil from Western Canada to Montreal to replace those imports. In 2016, Quebecers consumed 336,000 barrels of oil a day, 214,000 b/d (or 64 per cent) of which was imported.²⁴ Much of the oil on Line 9 is from Western Canada and includes refined bitumen oil (synthetic crude and synbit), fracked oil and conventional oil. There are no public statistics on how much of the oil on Line 9 is imported from the U.S., but it's a safe bet that a good portion of it is. Overall, U.S. oil made up 91,000 b/d, or 43 per cent, of Quebec's oil imports in 2016.²⁵ The federal government would have to end oil exports from Line 9 and ensure that the pipeline carry enough domestic oil to replace all oil imports.

Adopting the first alternative is fraught with political obstacles. If Canada cut all oil exports to the U.S. during an international oil crisis, Washington could retaliate by stopping the flow of oil from Western Canada to Ontario and Quebec. It flows through U.S. great lakes states south of Lake Superior. There is no oil pipeline linking western Canadian oil with eastern Canadian oil markets that passes over Canadian soil like Trans-Canada's mainline does for natural gas. So, without a backup plan, it would not be wise for Canada to insist that Line 9 carry only Canadian oil. A medium range solution would be for Canada to build strategic

oil reserves that Quebecers could access in a supply crisis.²⁶ Atlantic Canadians would be secure living on Newfoundland oil.

Searching out new sources of oil imports is a second way to get oil for eastern Canadians in an international oil supply crisis. It too is fraught with obstacles. Supply crises spark fierce international competition for scarce supplies. Under such conditions, Ottawa would have to scramble to secure enough foreign oil to replace some of the three-quarters of a million barrels a day Eastern Canada imports and people rely on. Imports supply 43 per cent of Canadian oil use.²⁷ Many Atlantic Canadians heat their homes with oil and would be severely impacted if an international oil supply crisis hits during a cold snap. Oil rationing, the third option, would be very short term and very unpopular.

In an oil supply crisis, Canada would be greatly handicapped because unlike 27 of the other 28 countries in the International Energy Agency (IEA), Ottawa does not have national strategic petroleum reserves (SPRs) to supply oil in emergencies.²⁸

The proportionality rule says that if any government (federal, provincial or state) takes measures that reduce the availability of an energy good or a basic petrochemical for export to another NAFTA country, it must make available for export the same proportion of the total supply of that energy good as it has in the past three years.²⁹ The exporting country is allowed to reduce energy exports to another NAFTA country, but it must cut such supplies to its own people in equal proportions. The NAFTA rule prevents the exporting country from reducing energy exports in order to redirect those supplies to its own residents.

Proportionality is based on total “supply,” not “production.” The distinction matters and shows the rule’s bizarre logic. Supply includes oil and natural gas imports as well as domestically produced supplies.³⁰ For example, the three-quarters of a million barrels of oil a day (mbd) that Canada imported in 2016 are added to Canada’s domestic oil production (4.056 mb/d) to form NAFTA’s peculiar definition of Canadian oil “supply.”³¹

Table 1: Crude oil production, supply and proportionality obligation³²

	Output	Imports	Total supply	Domestic demand ³³	Exports to U.S. ³⁴	Exports as % of output	Exports as % of supply
2014	3,886 mbd	0.637 mbd	4,523 mbd	2,110 mbd	2,775 mbd	71.4%	61.3%
2015	4,020 mbd	0.750 mbd	4,770 mbd	2,093 mbd	3,020 mbd	75.1%	63.3%
2016	4,056 mbd	0.759 mbd	4,815 mbd	2,117 mbd	3,059 mbd	75.4%	63.5%
3 yr avg.	3,987 mbd	0.715 mbd	4,703 mbd	2,107 mbd	2,951 mbd	74.0%	62.7%



Canada’s refineries process imported as well as domestic oil.

It is strange to add oil imports to Canadian “supply” during an international supply drought because that is when such imports would almost certainly fall substantially. But if we include oil imports in Canadian “supply,” the proportion of oil Canada is obliged to export to the U.S. falls to 65 per cent.³⁵ But that would still be 74 per cent of Canadian oil production. In a major international oil supply crisis, oil suppliers in Canada would not likely be able to make available for export, much, or any of the oil imports they get.

NAFTA’s energy proportionality rule differs greatly from the IEA’s oil sharing provision. Canada and 28 other mainly developed countries belong to the IEA. The IEA’s emergency sharing system requires members to share oil supplies in the event of major shortages, defined as a seven per cent cut in international supplies. As a net exporter, Canada is obliged to share supplies, while as a net importer, the U.S. would have access to other IEA member countries’ stocks. In practice it would mean Canada sending more oil to the U.S. very temporarily.³⁶

The IEA’s system has never been tested because there has not been an international oil supply cut large enough to trigger it since the IEA’s founding in 1974. After Hurricane Katrina, the Europeans and Canadians supplied the U.S. with oil products for 60 days, but there was not a general sharing among net exporting and net importing IEA members. It is unclear whether all members would comply with their IEA obligations during an oil shortage, since unlike NAFTA and other trade agreements, the IEA has no enforcement mechanism. As well, the IEA obligation is very short term, whereas NAFTA’s proportionality rules last as long as NAFTA or the proportionality rule in NAFTA survives.

Canada imports much less of its natural gas (15 per cent) than of its oil (43 per cent). When imports are subtracted from Canada’s natural gas exports, Canada sends just under half of its net natural gas output to the U.S.

All of Canada’s natural gas exports currently go to the U.S. They have been declining since 2007 because of the rise in shale natural gas in the northeast region of the U.S.

At the same time, U.S. natural gas imports into Canada rose from 2007 until they peaked in 2011. Imports from the U.S. make up about two-thirds of Ontario’s natural gas use.³⁷

It is more problematic to forecast the future of net natural gas exports to the U.S. than it is for oil. Net natural gas exports could fall as low as zero in a few years as gas imports from the U.S. just about equal Canadian gas exports to the U.S.

“If Canada cut all oil exports to the U.S. during an international oil crisis, Washington could retaliate by stopping the flow of oil from Western Canada to Ontario and Quebec.”

However, a growing amount of domestic natural gas is used to produce bitumen. In 2016, nearly one-third (29 per cent) of Canada’s natural gas was used this way.³⁸ Bitumen is mainly produced for export. When Canada exports it, Canada is in effect exporting a lot of natural gas embedded in the bitumen.

NAFTA’s article 605 throws in another curveball. Exporters can’t disrupt “normal channels of supply” or “normal proportions among specific energy” goods by, for example, substituting heavy crude for a lighter variety.

Proportional sharing clauses appear twice in NAFTA, once in a general way in Chapter Three on Market Access for Goods (Article 315) and again in Chapter Six on Energy and Basic Petrochemicals (Article 605). They also occur twice in CUFTA (articles 409 and 904).

In contrast to NAFTA’s restrictions on reducing energy exports to member countries, Canada could easily end the export of liquefied natural gas or crude oil to non-NAFTA countries such as those in Asia, for environmental, energy security, or other reasons. Doing so would not violate a treaty. (Currently Canada exports only negligible amounts of oil to Asia.) Ottawa could

then redirect the previously exported energy to Canadians instead. In the current renegotiation talks, Canada must demand the same freedom within NAFTA by ending proportionality.

NAFTA's proportionality rule has never been invoked because no Canadian government – federal or provincial – has tried to limit carbon energy exports to the U.S. since NAFTA began in 1994. The rule's very existence though deters governments from thinking outside proportionality's parameters and asserting greater Canadian control over energy supplies and its sources of greenhouse gas emissions.

Under proportionality, corporations may make decisions that cut energy exports, but governments are restricted from doing so even though they are the ones that are democratically elected. If, for example, Trans-Canada or Enbridge decides to ship more western Canadian crude oil to eastern Canadians it would not violate proportionality. But if Ottawa orders the pipeline corporations to do the same on any grounds, including environmental or energy security ones, it would almost certainly violate proportionality.³⁹

“Under proportionality, corporations may make decisions that cut energy exports, but governments are restricted from doing so.”

Proportionality restricts the range of government actions in Canada much more than the General Agreement on Tariffs and Trade (GATT) that was incorporated into the World Trade Organization (WTO). If Canada wins an exemption from the proportionality rule or quits NAFTA altogether, Canada would revert to WTO rules. Under them, Canada could reduce carbon energy exports under GATT Article XI or Article XX. Article XI lays out conditions under which export quotas are allowed. Furthermore, the GATT permits export taxes on energy products, while such taxes are prohibited by NAFTA article 604.⁴⁰



A pumping station on the Keystone pipeline, which transports Alberta tar sands oil to the United States.

Mexico's formal exemption and the U.S.'s informal exemption

The proportionality rule is written generically as if it applies equally to all three NAFTA countries, but it really only applies to Canada and should be renamed “the Canada rule.” With an eye on domestic opinion, Mexico resisted strong U.S. pressure to sign on to proportionality in the original NAFTA talks in the early 1990s. Thus, Mexico is a full NAFTA member, but is exempt from proportionality's energy export requirements.

“Mexico is a full NAFTA member, but is exempt from proportionality's energy export requirements.”

Mexico got an exemption on national sovereignty grounds. Guaranteeing Mexican oil exports to the U.S. contravened Article 27 of Mexico's constitution.⁴¹ Sovereignty over Mexico's energy resources was, and still is, a revered part of Mexico's heritage and identity. Acceding to proportionality would have violated a proud chapter in Mexican history. Every March 18, Mexicans celebrate Energy Independence Day to mark the day in 1938 when Mexico expropriated all foreign-controlled oil corporations. Publicly, Mexican governments portray themselves as the nation's resolute defenders, but they have increasingly opened Mexico's carbon energy resources to foreign transnational corporations.

In 2013-2014, President Peña Nieto's government amended Mexico's constitution to allow private ownership of electricity and petroleum resources and ended the 75-year-old monopolies enjoyed by CFE and Pemex. They had been wholly government-owned.⁴²

It is not yet clear how NAFTA 2.0 will attempt to lock in President Nieto's privatization changes, but it has been reported that the governments of all three NAFTA countries agree to do so. There is fear among elites in all three countries that Andrés Manuel López Obrador (AMLO), a former mayor of Mexico City, could win Mexico's July 2018 presidential election. AMLO called for the suspension of talks on NAFTA until after those

elections. He warned that if he wins the presidency he would renegotiate any deal that harms Mexico's interests.⁴³

Kenneth Smith, Mexico's chief trade negotiator, said they are analyzing all of the elements that need to be included to preserve Mexico's recent energy reforms.

Getting Mexico to sign onto proportionality could be one element used, but it is not likely the only one.⁴⁴ The proportionality clause was conceived and used at a different time for a different purpose. It was included in CUFTA in 1989 to block Canada from substantially reducing the export of oil to the U.S., something the Liberal government of Pierre Trudeau (1968-1979, 1980-1984) had done, in order to redirect those oil supplies to eastern Canadians during international oil supply crises. The neoliberal framers of the 2017-2018 NAFTA renegotiations are concerned about what they see as today's threat – an AMLO presidency that will likely attempt to renationalize the oil and electricity sectors.

To head off this possibility, new clauses could be added to the energy chapter or to NAFTA's Chapter 3, the goods chapter that includes the proportionality rule. As well, Chapter 11, NAFTA's investment chapter, could be strengthened to obstruct re-nationalization. Compensation rules if nationalization occurs could be toughened. Other measures that have not yet been made public may be added elsewhere in a revamped NAFTA.

For practical purposes, proportionality doesn't have much impact on the U.S. regarding oil because the U.S. imports much more oil than it exports. At its peak level of imported oil in 2007, the U.S. imported about 60 per cent of the oil it consumed.⁴⁵ That figure has fallen to 25 per cent.⁴⁶

While the surge in fracked shale oil and reduced oil consumption have cut U.S. oil imports considerably, the U.S. Energy Information Administration (EIA) forecasts that between now and 2035, the U.S. will continue to import, on a net basis, one-quarter to one-third of the oil it uses. At 38 per cent of U.S. oil imports, Canada is by

far America's largest foreign source. At the same time, the U.S. is the largest supplier of foreign oil into Canada (54 per cent). But the scales are very different. Canada exports seven times as much oil to the U.S. (2.9 million b/d) as it imports from the U.S. (410,000 b/d).

In effect, the U.S. re-exports to Canada a small portion of the oil it imports from Canada.

Because of the spectacular growth of fracking in North Dakota and other U.S. states, Americans no longer need Canadian oil to gain energy security. But eastern Canadians need Canadian oil for their energy security. To ensure it complies with environmental security, the domestic oil sent to eastern Canadians should be limited to conventional, non-fracked supplies. This would exclude bitumen oil (a form of non-conventional oil) because of the excessive greenhouse gases emitted in its production and extensive local environmental damage.⁴⁷

Asked what would happen to U.S. oil shipments to Ontario and Quebec in an international oil supply crisis, Matt Simmons replied, "It's pretty simple. We'd shut you off." Simmons was an energy advisor to George W. Bush and headed Houston-based Simmons International, one of the world's largest energy investment banks. Washington would undoubtedly stop U.S. oil exports to anywhere else, too, as they did for 40 years after the first international oil supply crisis in the 1970s.⁴⁸ Donald Trump's America-first stance makes such actions that much more certain.

Because the U.S. was a major net importer of natural gas whose foreign supplies came mainly from Canada, NAFTA's proportionality rule did not really apply to the U.S. regarding natural gas either. That is rapidly changing. The U.S. became a natural gas net-exporter in 2017.⁴⁹ In 2007, when the U.S. reached its peak of importing natural gas, Canada supplied 83 per cent of it.⁵⁰ U.S. dependency on natural gas imports at their height –15 per cent –never matched their import level of oil dependency – 60 per cent.

“Because of the spectacular growth of fracking in North Dakota and other U.S. states, Americans no longer need Canadian oil to gain energy security. But eastern Canadians need Canadian oil for their energy security.”

For much of NAFTA's history, the proportionality rule also had little application to U.S. natural gas. However, fracking in the Barnett shale play near the U.S. Gulf Coast and the Marcellus and Utica shale fields in New York, Pennsylvania, Ohio and West Virginia is spectacularly boosting U.S. natural gas output. It is also displacing some natural gas imports from Canada. Natural gas exports to Ontario and Quebec from nearby Pennsylvania and New York states are now significant. Imports of natural gas from the U.S. to Canada are about one-quarter the level of Canadian exports.⁵¹ NAFTA's proportionality rule now formally obliges the U.S. to continue these natural gas exports even during an energy shortage.

Those are the formal rules, but would the U.S. abide by them in an international energy crisis? Not likely, and for the same reasons Washington would almost certainly end oil exports to Canada in an international energy supply crisis.

The threat of oil supply crises

American leaders frequently pledge to promote national energy independence by ending U.S. reliance on Middle East oil. We don't hear that kind of talk in Canada and we should. Canadians are nearly as dependent on imported oil (43 per cent) as Americans are (51 per cent). The U.S. imports twice as much oil as it exports, so that net oil imports account for 25 per cent of U.S. petroleum consumption.⁵² Canada exports four times as much oil (3.1 mb/d) as it imports (759,000 mb/d).⁵³

Until 2014, most Canadian oil imports came from OPEC countries (Organization of Petroleum Exporting Countries) as well as from Norway and the U.K. This is no longer true. The U.S. now supplies 54 per cent of Canadian oil imports as well as substantial amounts of refined oil, including gasoline. The train that tragically blew up at Lac Mégantic, Quebec, killing 47 people in 2013, carried shale oil from North Dakota.

Nick Schultz, vice-president of the Canadian Association of Petroleum Producers, contends that NAFTA's proportionality rule protects energy consumers on both sides of the border. As more U.S. oil products and natural gas supplies replace western Canadian and offshore supplies in Eastern Canada, NAFTA's

“Those who think reliance on U.S. oil rather than Middle East oil gives Canadians greater energy security should think again.”

proportionality clause will protect Canadian importers from arbitrary U.S. export cuts, he claims.⁵⁴

His argument is misleading. Those who think reliance on U.S. oil rather than Middle East oil gives Canadians greater energy security should think again. We should be under no illusion that just because NAFTA obligates Canada to send the U.S. a lot of oil and natural gas that the U.S. would reciprocate during an energy crisis. Washington has repeatedly ignored NAFTA rulings on Canadian softwood lumber exports. Wouldn't they do the same on oil, that after all, is still the world's most strategic resource? National security always eclipses anything else in the U.S.



U.S. energy exports to Canada are unlikely to continue in the event of a supply crisis.

An ingenious way to get around mandatory energy exports

The proportionality rule has an odd weakness that could be exploited by a government intent on circumventing it. Cyndee Todgham Cherniak elaborated on an ingenious way to reduce the proportion of energy exports Canada must make available to the U.S. while still staying in NAFTA. Its advantage is that it would not require Canada to give up something really major in the current NAFTA renegotiations if Washington agrees to let Canada out of its proportionality obligations. Cherniak wants Canada to play the same hardball game the U.S. has used repeatedly against Canada on softwood lumber.

Cherniak's scenario is as follows: Canada should make a case for reducing Canada's energy exports on energy security or climate action grounds and then delay a U.S. proportionality challenge by dragging out the process for selecting the NAFTA panel to hear

the case. Selecting a mutually agreed-upon chair can take a long time. If Canada draws out the process beyond three years and then loses, it still wins. Canada's required energy exports are based on their share in the past three years. The clock keeps ticking while the panel is being set up. When proportionality is re-determined after Canada loses the hypothetical panel case, the energy share Canada must make available for export to the U.S. would have dropped a lot. When Canada loses the case "Canada can say 'We made a mistake, sorry, bad Canada.' But, in the meantime, we protected our people for three or four years. Canada should play the U.S. game. Why shouldn't we do it?" Cherniak asks.⁵⁵



Canada may be able to reduce proportional exports without having to leave NAFTA.

How Canada got stuck with mandatory carbon fuel exporting

Canada got stuck with the energy proportionality rule because Canada's and Alberta's Conservative governments, Washington and Big Oil all insisted on the rule to prevent another Canadian National Energy Program (NEP) from happening again.⁵⁶ Just ending the NEP, as the Mulroney Conservative government had done, was not enough. A new government could easily overturn it. So Big Oil and its political allies placed the proportionality blockage in an international treaty (CUFTA) to, in effect, constitutionalize it so Canada could not easily annul it.

Alberta's Conservative governments insisted on inserting the proportionality rule in CUFTA as a separate chapter to make explicit the non-energy specific proportionality rule in the goods chapter. They worked hand in glove with Big Oil on a policy of selling Alberta's carbon fuels as quickly as possible and charging very low taxes and royalties. The policy harkened back to Canada's colonial past, with businesses, often foreign-controlled, exporting Canada's raw resources and taking the lion's share of the unearned profits from Canada's natural bounty.

In hundreds of "free trade" agreements signed over the past 25 years, no other industrial country has signed away to another country first access to its energy resources.⁵⁷ By making the export of energy virtually mandatory in a treaty with the world's greatest power, Big Oil and its Conservative allies assumed future Canadian governments would not alter it. So far they have been right. Justin Trudeau's federal Liberal government and Rachel Notley's NDP government in Alberta are enthusiastic supporters of massive carbon energy exports.

Pat Carney, Canada's Energy Minister during the 1985 to 1988 CUFTA talks, stated that "critics say the problem with [CUFTA] is that under its terms Canada can never impose another NEP on the country. The critics are right," she continued. "That was our objective ... If the Americans promise not to block our energy exports, we promise in turn not to turn off the tap on energy supplies."⁵⁸

"This was a dream scenario for petro-corporations. They got what was best for their continental operations – export Canadian oil in the west and import oil into Canada's east."

Carney accurately articulates the premises behind proportionality: give the U.S. priority access to Canadian oil and natural gas and in return, the U.S. will refrain from limiting energy imports from Canada. This was a dream scenario for petro-corporations. They got what was best for their continental operations – export Canadian oil in the west and import oil into Canada's east. It made corporate sense, but it did not and does not serve Canadians and it thwarts serious action on climate change.

The NEP (1980 to 1985) of the government of Pierre Trudeau had daringly taken on Washington, sloughed off Canada's resource-exporting, colonial past and asserted Canadian control over Canadian energy resources. The NEP aimed to gain Canadian ownership and control over oil that had been 90 per cent foreign controlled in the early 1970s, maintain a lower Canadian oil price after a decade in which the international price of oil had risen tenfold, and significantly shift energy revenues from Alberta to the federal government. By 1981, the NEP and the policies of Pierre Trudeau's government that preceded the NEP, reduced Canadian oil exports to the U.S. to 14 per cent of their 1973 level. That this was done during two international oil supply crises and by Canada, then and now the number one U.S. supplier of foreign oil, showed how bold and effective the NEP was.

Ottawa's actions provided oil security to eastern Canadians by cutting oil imports to less than 30 per cent of their 1973 level.⁵⁹

Democratic and Republican presidents have insisted that Canada could not have a national energy program, but that was what the U.S. has had for itself since the first international oil crisis in 1973. The U.S. codified a National Energy Policy (NEP) in 2001 and revised it in 2007. It boldly proclaimed national “energy security,” “self-sufficiency,” national ownership and control of petro-corporations.⁶⁰ The U.S. House of Representatives set up a committee on “Energy Independence and Global Warming” to focus on weaning America off Middle Eastern oil, reducing oil consumption, raising domestic output and cutting carbon emissions. In 2008, Barack Obama campaigned around “energy independence,” reducing “dependence on foreign oil,” increasing “national [energy] security” and “pulling the six-months trigger” to end NAFTA.

President Trump’s rhetoric goes one step further. Rather than just gaining energy independence, he wants America to become “energy dominant.” Energy Secretary Rick Perry explained energy dominance this way: “An energy dominant America means self-reliant. It means a secure nation, free from the geopolitical turmoil of other nations who seek to use energy as an economic weapon.” All of this has been U.S. policy since 1973. But a second part is new. “An energy dominant America will export to markets around the world, increasing our global leadership and our influence.”⁶¹ Framing energy policy “around the idea of dominance is a thinly-veiled attempt to justify unfettered development of fossil fuels and rollbacks of environmental protections,” said David Konisky, associate professor at Indiana University’s School of Public and Environmental Affairs.

“Democratic and Republican presidents have insisted that Canada could not have a national energy program, but that was what the U.S. has had for itself since the first international oil crisis in 1973.”

Canada should dare to reduce and then end carbon fuel exports, but this time for a different purpose – to dramatically curb Canada’s greenhouse gas emissions and the destruction of so many habitats that the production of oil and natural gas inevitably entails. The federal and provincial governments should also agree on a plan to secure sufficient energy for each Canadian resident within a framework of steadily reducing carbon emissions and preventing further destruction of indigenous and local lands and waters.

The proportionality rule likely raised Canadian oil and natural gas exports to the U.S., but it’s difficult to determine by how much because NAFTA’s proportionality rule has never been invoked.

Will proportionality live if NAFTA dies?

President Trump has threatened to kill NAFTA, a deal he often derides as the “worst trade agreement in history.” Can he do it, simply by giving notice to withdraw? Gary Clyde Hufbauer, a distinguished professor of international financial diplomacy at Georgetown University, thinks not. Terminating NAFTA would not by itself, change the U.S. legislation that implements NAFTA, he states. The U.S. constitution is unclear whether the president has the power to end treaties by himself, or whether withdrawal would also need the approval of Congress. The U.S. Supreme Court might have to rule on a unilateral withdrawal by Trump.

If Trump somehow manages to outmanoeuvre Congress and the Supreme Court, and actually kills NAFTA, like a zombie, proportionality could still live. Hufbauer asserts that the Canada-U.S. Free Trade Agreement of 1989 “remains in force, though largely suspended by NAFTA. Presumably [CUFTA] would spring back to life” unless it too was separately terminated.⁶²

For its part, Canada’s implementing legislation for NAFTA, Bill C-115, was designed to ensure that proportionality survives NAFTA’s demise. When Mulroney’s government introduced Bill C-2 to implement CUFTA, it included amendments to the National Energy Board Act. Section 142 of Bill C-2 specifically gives the NEB the power to implement proportionality.⁶³

When Chrétien’s government wrote NAFTA’s implementing legislation, they took care to include provisions saying that Section 142 of Bill C-2 is merely “suspended” as long as NAFTA remains in force. Bill C-115 adds new amendments to the NEB Act implementing all the energy provisions of NAFTA.⁶⁴ Thus, if NAFTA were ended, the proportionality provisions of the FTA would automatically snap back into place unless Bill C-2 were also amended or repealed.

Even if NAFTA survives, Washington’s negotiators have said that Chapter 6, the energy chapter, should be expunged from NAFTA 2.0. Proportionality had been put in CUFTA in a separate chapter on energy at the insistence of Alberta, which had recently conclud-

“Of course, the real issue is political and not narrowly legal. It matters whether many citizens are informed and put pressure on their governments to end proportionality once and for all.”

ed a battle with Ottawa over the self-reliant National Energy Program. NAFTA Chapter three Annex 315 covers proportionality, though not explicitly on energy trade. So an energy chapter is probably superfluous. Annex 315 says that a NAFTA member may restrict exports to another NAFTA member only “if the restriction does not reduce the proportion of the total export shipments of the specific good made available to that other Party” in the past three years. That would cover energy.

Of course, the real issue is political and not narrowly legal. It matters whether many citizens are informed and put pressure on their governments to end proportionality once and for all. Governments will need enormous policy room to make a myriad of changes to usher in a low carbon future.

Raising the production of carbon fuels, mainly for export, has accelerated Canada’s emissions of greenhouse gases. The next section of this report explores how much oil and gas production has contributed to Canada’s emissions. It focusses on Alberta because it produces 81 per cent of Canada’s oil, including all of its tar sands oil, and 67 per cent of Canada’s natural gas.⁶⁵

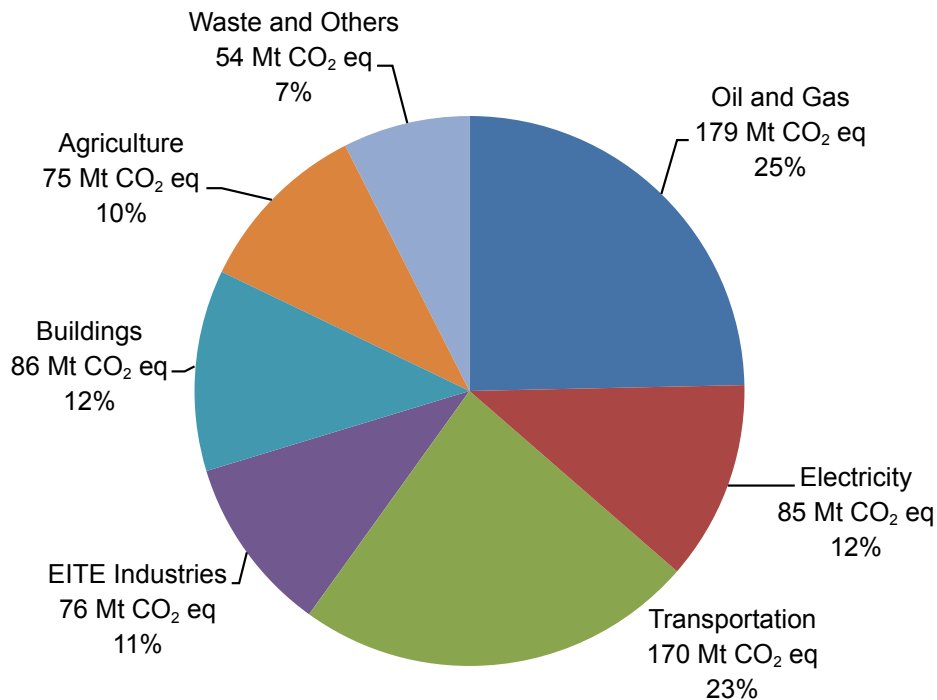
Production of oil and gas, Canada's largest GHG emitters

The production of natural gas and oil in Canada, including from Alberta's tar sands, is Canada's largest source of greenhouse gas (GHG) emissions, comprising 26 per cent, 192 megatonnes (Mt) of the country's

total (732 Mt) in 2016. The Alberta tar sands are Canada's fastest growing source of GHGs, rising more than fourfold since 1990, and more than doubling from 34Mt in 2005 to 71 Mt in 2015.⁶⁶

Figure 1. Economic Sectors 2013

Source: <https://www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/second-biennial-report.html>



Natural gas and oil production is Canada's largest source of greenhouse gas (GHG) emissions.

“Norway produces 3.5 times as much oil per person as Canada and yet its per capita GHG emissions are substantially lower.”

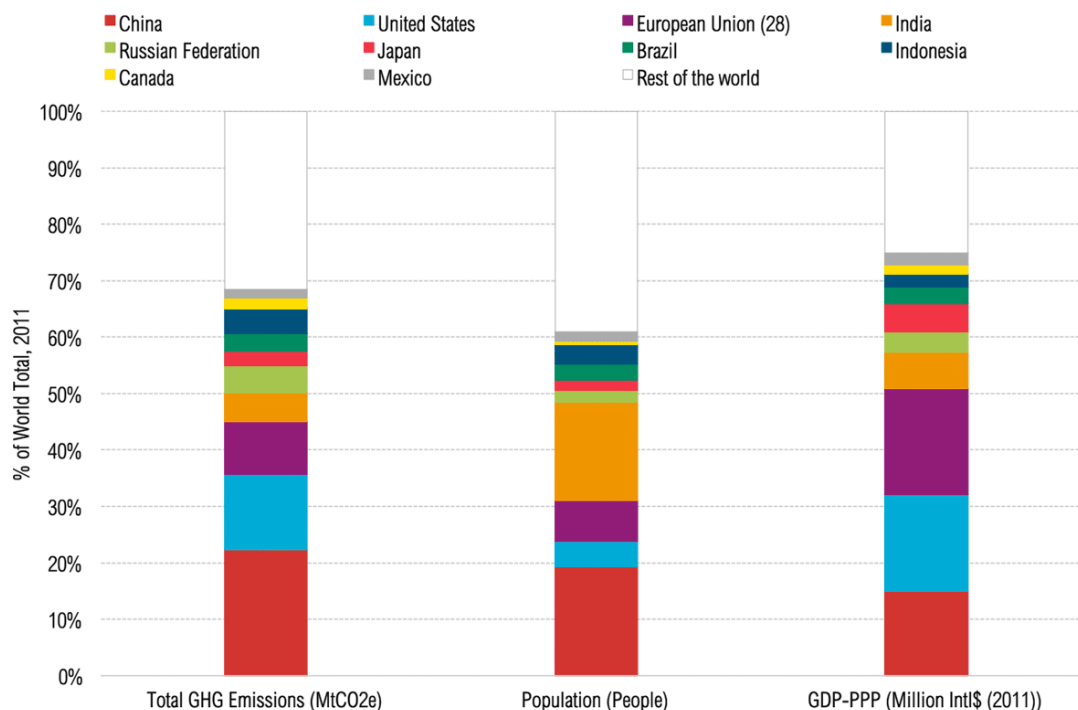
Canada ranks 38th in the world by population but ninth by absolute GHG emissions. With 0.5 per cent of the world’s people, Canada has historically released two per cent of global GHGs and currently emits 1.6 per cent. (See figure 2) What gives Canada the right to foul humanity’s common atmosphere at three times

the global, per capita average? To get Canada’s GHG releases down to its 0.5 per cent fair share, the federal and provincial governments need to go well beyond the pan-Canadian climate framework they agreed to in December 2016.⁶⁷

There is no good reason for Canadians’ per capita CO₂ emissions to be 14.7 tons, or 25 per cent, more than Norway’s 11.7 tons. Norway produces 3.5 times as much oil per person as Canada and yet its per capita GHG emissions are substantially lower.⁶⁸ Like Canada, Norway is a cold, sparsely populated country with a comparable standard of living. Norway plans to end the sale of gasoline-powered vehicles by 2025 and is debating limiting oil exploration. Canada should follow Norway’s example.

Figure 2. Annual emissions of top 10 emitters in 2011. World Resources Institute

Source: World Resource Institute, <http://www.wri.org/blog/2014/11/6-graphs-explain-world%E2%80%99s-top-10-emitters>



<http://bit.ly/11SMpjA>

WORLD RESOURCES INSTITUTE

“Alberta’s ‘climate leadership plan’ received widespread applause. It should not have. It will likely prevent Canada from reaching its Paris climate promises.”

Flanked by the CEOs of four Big Sands Oil corporations, Alberta Premier Rachel Notley announced the province’s climate plan in 2015. The plan will curb some of the province’s GHG emissions, but will not reduce them overall by 2030. Its most prominent features are a low, broadly-based carbon tax that started in 2017, reducing methane emissions by 45 per cent

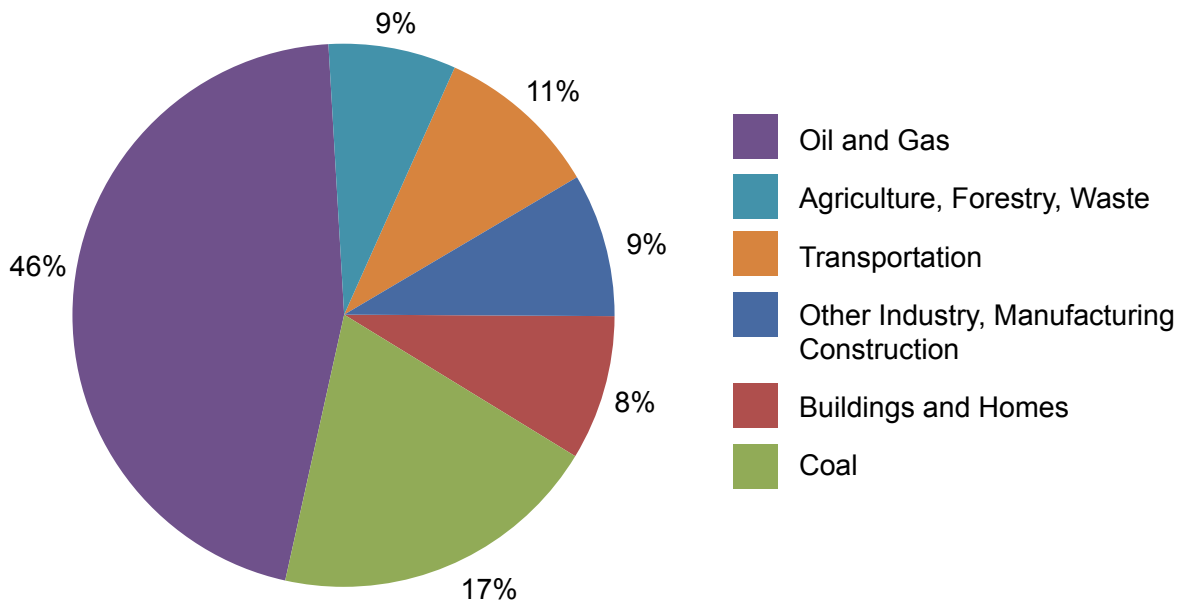
by 2025, advancing the closing of all of Alberta’s coal power units to 2030 to be replaced mainly by natural gas generation, and capping GHG emissions from the tar sands at 100 megatonnes.⁶⁹ The latter is a 41 per cent rise from the 2015 level. Growing emissions from the production of oil will entirely cancel out Alberta’s reductions in electricity, vehicles and methane by 2030.

Alberta’s “climate leadership plan” received widespread applause. It should not have. It will likely prevent Canada from reaching its Paris climate promises.

Alberta’s plan targets Alberta’s greenhouse gases from coal, mainly from coal-generated electricity (17 per cent), and transportation (11 per cent). It leaves almost scot-free the 46 per cent of releases from the production of oil and natural gas.

Figure 3. Alberta’s emissions by sector 2013 (267 Mt)

Source: Alberta Government, <http://www.alberta.ca/climate-current-emissions.cfm> (Broken link - need source for data)

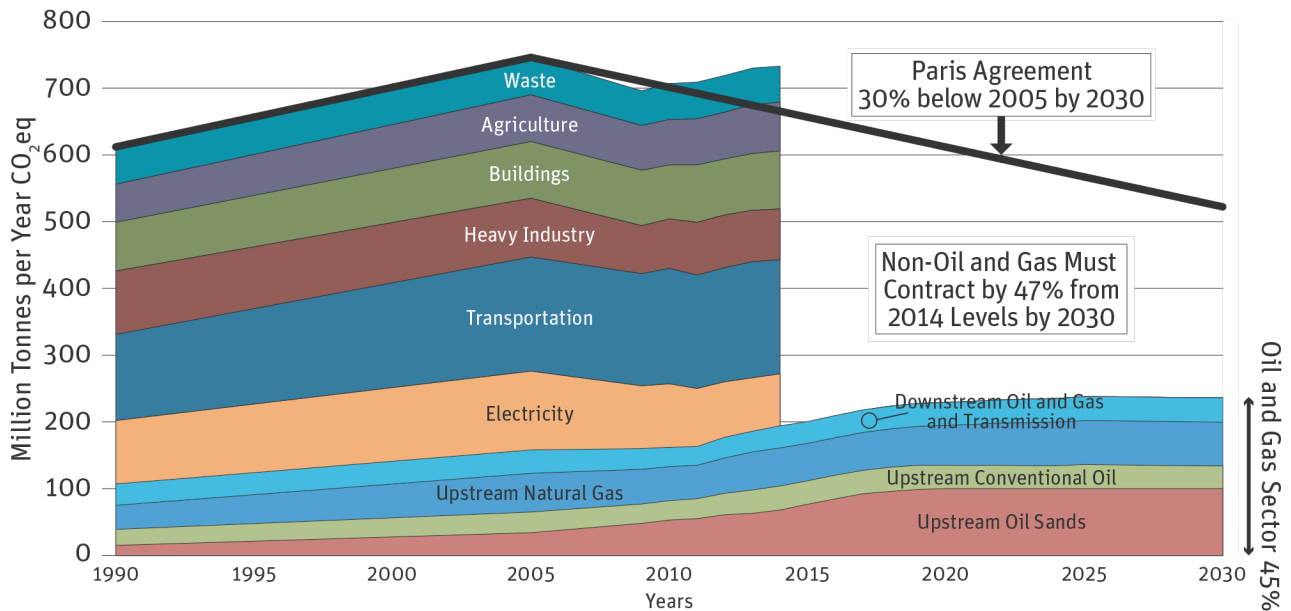


Allowing tar sands GHGs to grow and emit 100 Mt of carbon will almost certainly prevent Canada from reaching its 2030 Paris target, and if allowed to stay that high, will preclude Canada from hitting its 2050 target.⁷⁰ In 2009, all G8 countries, including Canada, promised to cut GHG emissions by 80 per cent by 2050.⁷¹ That would leave Canada with a total GHG allowance of 123 Mt, only 23 Mt above Alberta's tar

sands cap of 100 Mt. If allowed to rise to 100 Mt and stay that high, Alberta's tar sands will take up 81 per cent of Canada's emissions in 2050. All other carbon energy uses, including driving and heating homes, would have to just about end. Meanwhile, Ottawa is facilitating the expansion of bitumen-exporting pipelines.

Figure 4. Canada's greenhouse gas emissions by sector, 1990-2014, and projections to 2030

Source: Source: J. David Hughes, *Can Canada Expand Oil and Gas Production, Build Pipelines and Keep Its Climate Change Commitments?*, based on National Energy Board (2016) reference case, a 100 Mt/year emissions cap on Sands and one (of five proposed) liquefied natural gas terminals in BC (the NEB reference case), www.parklandinstitute.ca/can_canada_expand



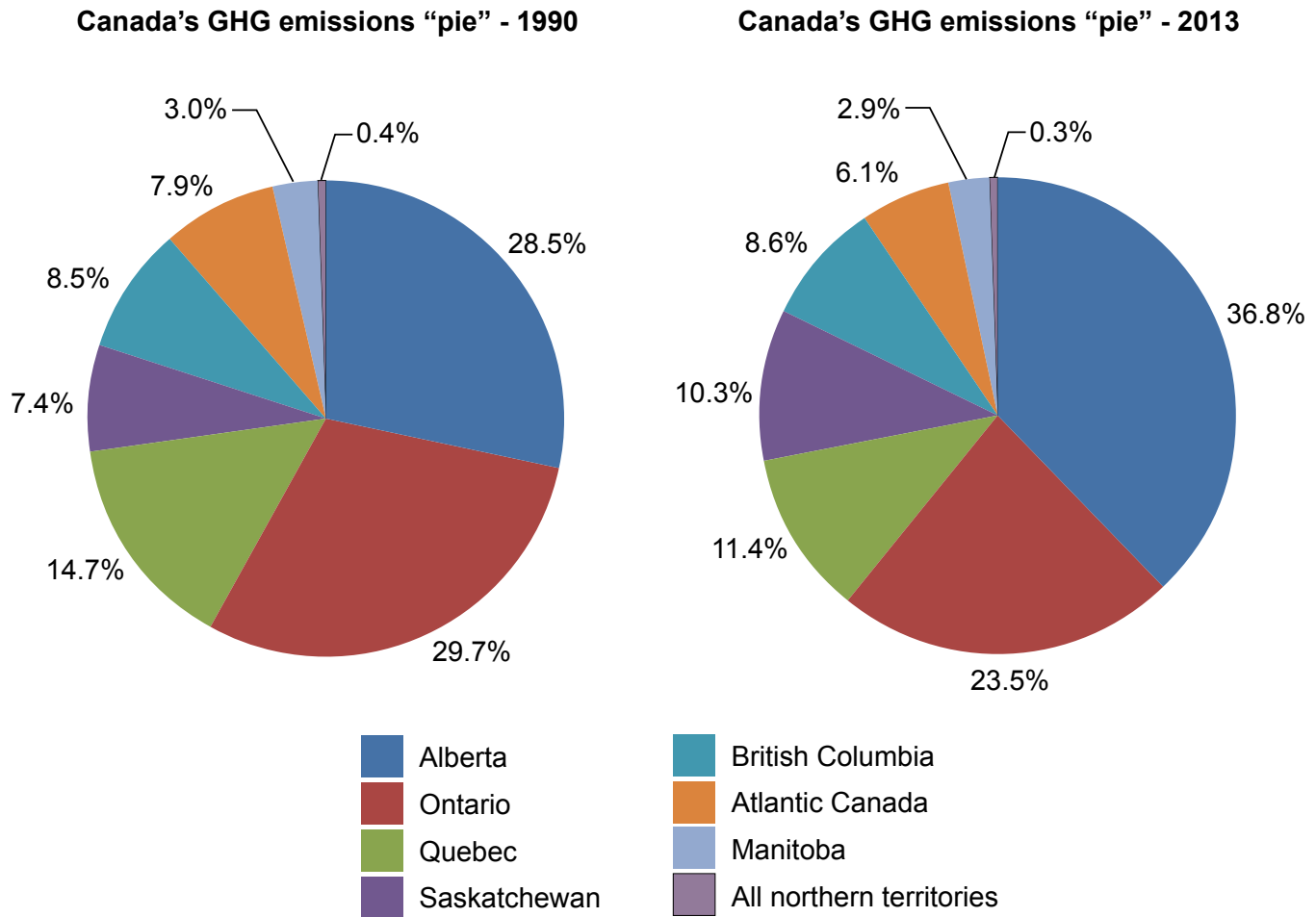
Despite the need to reduce greenhouse gas emissions, tar sands operations continue to expand.

Alberta has 12 per cent of Canada's population, but accounts for 37 per cent of its GHGs. This shows the immense impact of the tar sands and other carbon fuel production sources in Alberta. With 4.2 million people, Alberta produces eight per cent more GHGs (274 Mt to 253 Mt) than Ontario and Quebec, which have a

combined population of 22 million people. Alberta's per capita emissions are almost six times as much as theirs. The emissions gap is not caused by Albertans' driving habits. Transportation accounts for only 11 per cent of Alberta's GHGs.

Figure 5. Canada's GHG emissions by province 1990 and 2013

Source: Environment Canada, Canada's Greenhouse Gas Inventory, <http://www.ec.gc.ca/ges-ghg>



Between 1990 and 2013:	
• Alberta's emissions went up 53%	• Ontario went down 6%
• Saskatchewan up 66%	• Quebec and Atlantic Canada went down 8%
• B.C. up 21%	• Canada's total emissions went up 18.5%
• Manitoba up 14%	

Conclusion

Most Canadians assume that Canadian energy supplies will be there when they need them. It likely has not occurred to most Canadians that their country has signed away their right to have first access to their own energy supplies. When an energy supply crisis hits and Canadians are trying to cope under difficult conditions, the outcry to override NAFTA's proportionality clause will be deafening. Instead of waiting for such an outcry, the time to act is now when NAFTA talks are underway.

Canada has a choice. If it sticks with proportionality, and adopts the same demand reduction as the rapid, off-proportionality scenario, it will foul the air with substantially higher GHGs than going proportionality-free. That is due to proportionality's inflexibility in ramping down bitumen and its requirement to continue oil exports. Thus, proportionality locks in GHG emissions even amid aggressive reduction demands.

As well, if Canada remains tethered by proportionality, it will fail to produce enough oil to meet domestic needs. In fact, Canada will have to import rising rates of oil. Thus Canada can aggressively reduce emissions while meeting domestic demand only if it is not constrained by proportionality.⁷²

This report shows that NAFTA's proportionality clause stands in the way of Canada developing an effective ecological and energy security plan. Whatever the merits were of energy proportionality in 1988 and 1993, when CUFTA and NAFTA were signed, energy proportionality is now unduly restrictive for Canada and must end.

Canada must demand a Mexican-style exemption on proportionality during the current talks to revamp NAFTA. Getting out of proportionality should be among Canada's top goals in these talks. We must be willing, as Barack Obama threatened in 2008, to "use the hammer of a potential opt-out [of NAFTA] as leverage to ensure we actually get ... " what we demand.

The proportionality rule has a chilling effect that narrows Canadians' collective imagination about greatly cutting greenhouse gas emissions. We can – and must – reduce, and then end the production of tar sands oil and all carbon fuel exports in order to get to a socially-just, low carbon future for Canada. We cannot assert greater control over Canadian energy supplies and sources of greenhouse gas emissions with NAFTA's proportionality rule in place.



Protesters demand an end to NAFTA's most harmful rules, including energy proportionality.

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62. Gary Hufbauer, "Can Trump Terminate NAFTA?" Peterson Institute for International Economics" 10Oct 2017.
63. Section 142 of Bill C-2 amended sections 119.1 through 119.6 of the NEB Act effectively implementing Article 904 (the proportional sharing clause) of the FTA.
64. Section 192 of Bill C-15 says "The operation of sections 119.1 to 119.6 [of the NEB Act] is suspended during the period in which Division III.1 is in force." Then follows Division III.1 which adds new clauses 120 through to 120.5 to the NEB Act implementing not just the proportional sharing clause (Article 605) but also Articles 602, 603, and 606 of NAFTA.
65. Alberta. ST98:2017 Alberta's Energy Reserves and Supply / Demand Outlook. The 81% figure is for "oil and equivalent."
66. CAPP. "Basic Statistics." Accessed Sept. 1 2017.
67. Governments of Canada, Provinces and Territories, Pan-Canadian Framework on Clean Growth and Climate Change, 2016. p. 11. <https://www.canada.ca/content/dam/themes/environment/documents/weather1/20161209-1-en.pdf>.
68. Canada has 36.6 million people and produces 3.9 million bpd of oil. Norway has 5.3 million people and produces 1.9 million bpd. Index Mundi, "Oil Production Top 20," Accessed Jan. 29 2017. <http://www.indexmundi.com/g/r.aspx?v=88&t=20>.
69. Alberta Government. Climate Leadership Plan. <https://www.alberta.ca/climate-leadership-plan.aspx>.
70. Unless Canada passes off its responsibilities and buys costly carbon credits from abroad.
71. The G8 countries squabbled over whether the reductions should be based on their 1990 or 2005 emissions levels.
72. Correspondence with Ben Beachy 20 December, 2017.



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