All Over the Map

A COMPARISON OF PROVINCIAL CLIMATE CHANGE PLANS

David
Suzuki
Foundation

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SOLUTIONS ARE IN OUR NATURE

All Over the Map:
A comparison of provincial climate change plans

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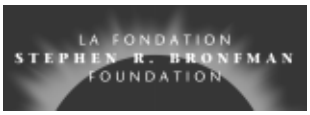

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Table of Contents

Introduction

Taking action on climate change involves a fundamental shift in the way we produce and use energy. That shift will require full participation from every corner of Canadian society, from industry, individuals and all levels of government.

While the federal government signed the Kyoto Protocol, the provinces and territories are responsible for delivering most climate change programs on the ground. This report takes a look at provincial and territorial action on climate change, compares their greenhouse gas (GHG) emissions, assesses their climate change plans, and evaluates their records.

The report finds that provincial and territorial performance on climate change is mixed, but generally poor. Many provinces are neither active nor involved in reducing the pollution that leads to climate change and smog. All provinces' greenhouse gas emissions are up since 1990, though some (New Brunswick, Alberta, Saskatchewan, and BC) have risen sharply and others (Quebec, PEI, Nova Scotia, and Manitoba) only moderately. The Yukon is the only jurisdiction where emissions have gone down.

Manitoba, Quebec, and PEI have developed and published reasonably strong, comprehensive climate change plans and implemented many of the policies contained within them. (However, Quebec and PEI's plans have expired and have not been renewed.) All these plans are proactive in the area of renewable electricity implementation and Quebec and Manitoba have acted effectively on improving energy efficiency in households and businesses.

Some, such as Alberta, Saskatchewan, Nova Scotia, and the Northwest Territories, took the opportunity to draft plans or papers that pushed back at the federal government, asserting provincial jurisdiction and advocating a "sharing of burden" while taking little responsibility themselves.

Ontario did something entirely different. It did not publish a climate change plan but has implemented some fairly strong policies to improve air quality and thereby reduce its greenhouse gas emissions.

Finally, there are others who have neither released plans nor put into place meaningful climate change policies. They include New Brunswick, Saskatchewan, the Yukon and Nunavut.

The first two sections of this report give a brief history of international and domestic

discussions on climate change and why provincial/territorial action is so important. The following section describes actions taken by Canadian and U.S. cities and by U.S. states on climate change. The last section evaluates all Canadian provinces and territories on their climate change records using common assessment criteria.

Kyoto, Canada, and the Provinces: A Brief History

Canada agreed to decrease its emissions of greenhouse gases at an historic meeting in Kyoto, Japan, in December 1997. The Kyoto agreement set binding emission reductions that became international law in February 2005. Under the terms of the Kyoto Protocol, Canada is obligated to cut its greenhouse gases six per cent below 1990 levels between 2008 and 2012.

In the months following the meeting in Kyoto, former prime minister Jean Chrétien created the National Climate Change Process, a joint federal-provincial-territorial undertaking to decide how to implement the Kyoto Protocol and to address the costs and benefits of that implementation. Alberta, the province most opposed to action on climate change, was named as co-chair.

Sixteen separate roundtables with experts from industry, government, and non-governmental organizations developed options to decrease emissions from Canada's different economic sectors. Some of the tables – transportation, buildings, and electricity for example – put forward strong solutions. Others, such as the industry table, were reluctant to propose anything very ambitious or significant. After some analysis and modeling work, the National Implementation Strategy and the National Business Plan were released in October 2000.[1] All provinces and territories except Ontario accepted the recommendations.

The intention of these actions was that Canada and its provinces and territories would implement 3-year rolling plans to address climate change. Some provinces took the opportunity to develop and publish climate change plans. Some of these plans, such as Manitoba's, were ambitious and comprehensive. Others, such as Alberta's, were weak or attempted to keep responsibility at the federal level. Other provinces did nothing.

More recent federal-provincial-territorial discussions on climate change have ended with vague commitments about cooperation. These discussions have led to Memoranda of Understanding (MOUs) signed between the federal government and five jurisdictions: Manitoba, Ontario, PEI, Newfoundland, and Nunavut. These agreements are relevant but represent only a symbolic step towards getting the provinces and territories to work with the federal government on reducing greenhouse gas emissions.

Until recently, the provinces and territories felt no political pressure to implement policies related to climate change or the Kyoto Protocol. Though climate change is

becoming an increasingly important public issue, meeting Kyoto commitments has been pinned exclusively on the federal government.

Why the Provinces Matter

Two significant events happened in 2005: the Kyoto Protocol on climate change became international law; and the federal government released its new climate change plan.

Absent from the debates and discussion that preceded and followed the release of the federal plan was any reference to provincial and territorial responsibility to cooperate with the federal government on climate change action. (The federal climate change plan had a so-called Partnership Fund to engage other levels of government, but it provoked little discussion at the time of its release.) Because the Canadian federal government had signed and ratified the Protocol, it was widely assumed that the responsibility for meeting Canadian targets rested on its shoulders alone.

However, there are several reasons why the provinces and territories need to be engaged and active when it comes to the Kyoto Protocol and climate change. The first is that action on climate change involves a fundamental shift in the way we produce and use energy. To be successful, full participation is needed from every corner of Canadian society, including the business and investment community, industry, individuals, and governments at all levels. Canadians overwhelmingly support the Kyoto Protocol and action on climate change.

Furthermore, the provinces have jurisdiction over important sectors relating to energy and greenhouse gas emissions. The provinces are directly responsible for managing Canada's natural resources, including oil, natural gas, and coal. The provinces also have jurisdiction over electricity management. (Canada's electricity and oil and gas sectors are responsible for the largest increase in greenhouse gas emissions since 1990.) In addition, the provinces have sole responsibility in regulatory areas such as building codes, which are crucial to improving the energy efficiency of Canada's residential and commercial building stock. Finally, provinces have jurisdiction over Canada's municipalities, where much of the on-the-ground emission reductions will have to happen.

The federal government's climate change plan, released in April 2005, acknowledged these important jurisdictional issues by including a $3-billion Partnership Fund to "strengthen its partnerships with provinces and territories" on climate change action. This type of partnership is essential, for reasons outlined above, and it requires provinces and territories to have active climate change strategies. Despite the urgency of reducing the threat of climate change and the compelling reasons for provinces to be active and involved in reducing emissions that lead to climate change, many provinces are neither active nor involved.

Action From States and Cities

The way the United States is dealing with climate change is markedly different from Canada's approach. Even though the U.S. federal government refused to sign on to the Kyoto Protocol, many states have already put ambitious climate change plans into action.

As of 2004, 28 states had developed or were developing strategies or action plans to reduce greenhouse gas emissions.[2] Several have set targets, including New Jersey, Massachusetts, New Hampshire, Oregon and Washington. Nine Northeast states have set up a cap-and-trade GHG program, while California, Oregon, and Washington have established a cooperative framework for collective action.[3] California Governor Arnold Schwarzenegger has signed an executive order mandating a reduction of GHG emissions to 1990 levels by 2020 and to 80% below 1990 levels by 2050.[4]

Many U.S. cities have gone even further. The Conference of Mayors, representing 132 U.S. cities, unanimously passed a resolution that requires their cities to meet the U.S. Kyoto target: 7% below 1990 levels by 2012.[5] The resolution also calls on states and the federal government to do the same.

Toronto is the North American leader on climate change. In 1992, it established the Toronto Atmospheric Fund (TAF).[6] The goal of this fund was to reduce the municipalities' GHG emissions 20% by 2005, a goal Toronto is on track to meet. In addition to TAF, the city's Better Building Partnership funded retrofits of commercial and institutional buildings in order to make them more efficient, while creating considerable employment in the building trades.[7] Energy savings paid back the initial investment.

Since then, Canada's next two largest cities have followed Toronto's lead. The city of Montreal has committed itself to reducing the city's GHG emissions in line with Kyoto targets.[8] In 2003, Vancouver set up the Cool Vancouver Task Force to reduce emissions from city operations 20% by 2010 and to reduce emissions from the wider community 6% by 2010.[9]

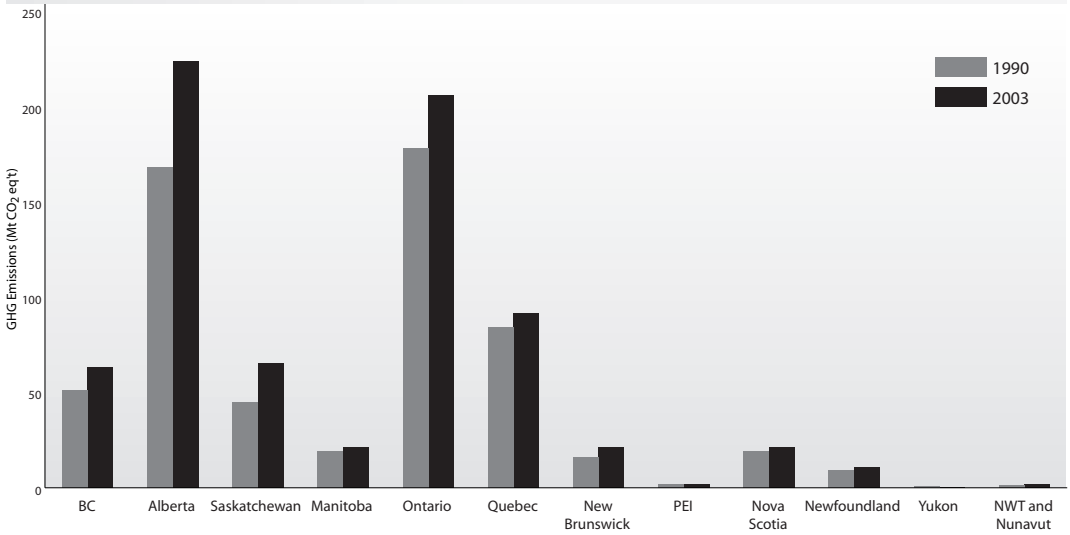
Many Canadian provinces and territories are lagging far behind municipal governments that are showing leadership and taking action on climate change.

Evaluating Provincial Action on Climate Change

Each province's climate change program can be evaluated on different levels. First, what has been its record with respect to greenhouse gas emissions? Historically, greenhouse gas emissions are tied to the economic make-up of each province. For example, provinces that used hydroelectricity as their electricity base – British Columbia, Manitoba, and Quebec – have lower greenhouse gas emissions than others, notably Alberta and Saskatchewan, which overwhelmingly rely on coal-fired power (Figure 1). Alberta and

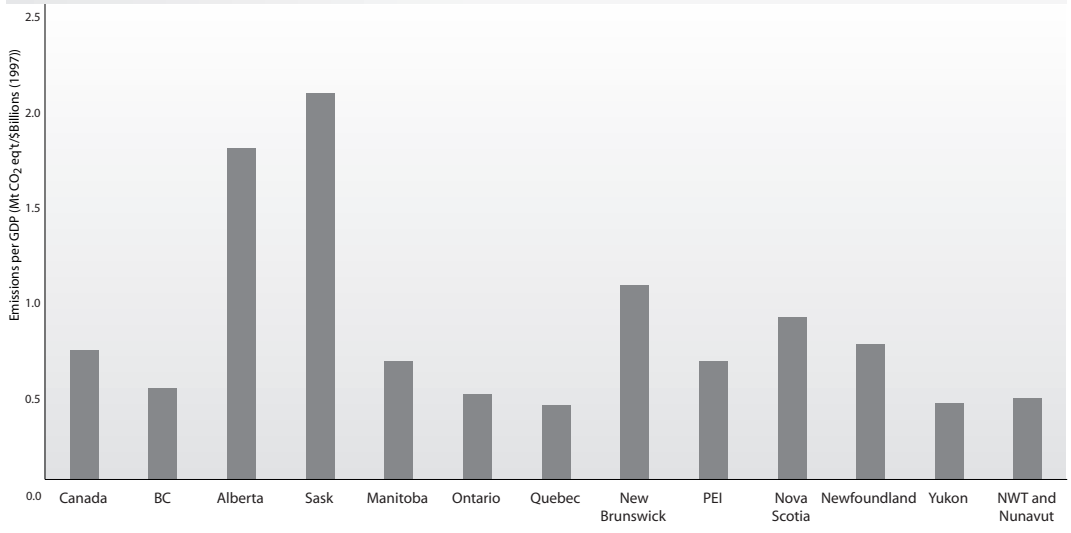
Saskatchewan are also large producers of oil and natural gas, activities that are GHG intensive. To a lesser degree, Nova Scotia, Newfoundland, BC, and the NWT are also oil and gas producers.

FIGURE 1 Greenhouse gas emissions in 1990 and 2003



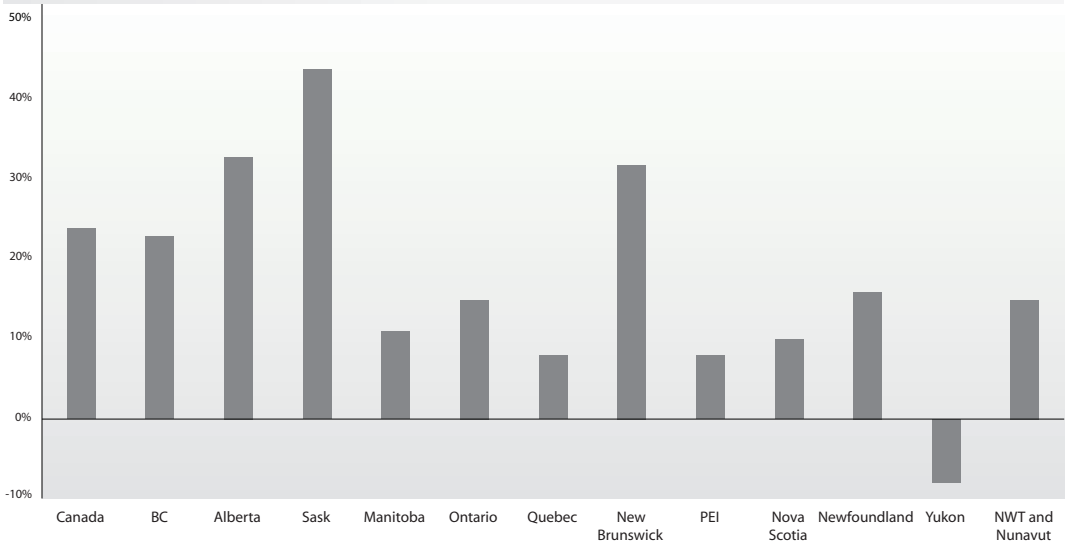
Using GHG emissions per capita or level of economic activity allows for a better comparison between provinces on their contribution to climate change. Saskatchewan has the highest emissions, i.e. contributes most to climate change per unit of GDP compared to all other provinces and territories, while Quebec is the least GHG-intensive (Figure 2).

FIGURE 2 Greenhouse gas emissions per GDP for 2003



Provinces have known since at least 1992, when Canada signed the United Nations Framework Convention on Climate Change (UNFCCC), that climate change was an issue that should be taken seriously and that the federal government was intent on doing so. And yet, provinces differ considerably on the growth of greenhouse gas emissions since 1990, the base year used for the UNFCCC and the Kyoto Protocol (Figure 3).

FIGURE 3 Growth in greenhouse gas emissions (1990–2003)



A second way to assess provinces and territories is based on cooperation with the federal government. While some provinces have ceased all discussions with the federal government on Kyoto and climate change, an increasing number (Manitoba, Ontario, PEI, Newfoundland, and the territory of Nunavut) have signed agreements with Ottawa that identify priority areas where cooperation is possible between the two senior levels of government.

A third consideration is more forward-looking: what are the types of plans, policies, and programs that each province and territory has put into place for addressing greenhouse gas emissions? Important elements of a strong climate change strategy include:

- Setting targets and timelines for greenhouse gas emission reductions: Without these guidelines, plans are merely vague promises that something will be done without any accountability to ensure timely success or report failure.
- Having a comprehensive set of policies: Because greenhouse gas emissions are produced by so many sectors, progressive climate change policies are required in a variety of key economic sectors. Provinces should at least tackle emissions from sectors responsible for the biggest or fastest growing share of their greenhouse gas

emissions. More comprehensively, climate change policies should address:

- Electricity consumption through energy efficiency, conservation, and renewable energy: Efficiency and conservation are often the least expensive options for dealing with electricity supply crunches, and renewable energy can both reduce the amount of electricity needed and reduce GHG emissions from the electricity that is used.
- Building design: There are tremendous gains to be made by building our residential and commercial spaces in a way that minimizes their energy needs. Over the short- to medium-term, retrofitting existing buildings is key to reducing emissions.
- Transportation: In many jurisdictions, transportation-related emissions are the fastest growing, so policies are needed that reduce transportation needs (through demand-side management), encourage less polluting forms of transportation, such as rail, and make vehicles and trains more efficient.
- Urban sprawl: Land use planning and policies to contain unfettered growth help protect wilderness and agricultural land but also curtail the inefficient use of energy and resources that is a hallmark of sprawl.
- Industry: In some cases, emissions from industry, such as fugitive emissions from oil and gas production, are the ones that can be reduced at the least cost.
- Government: Every level of government should show leadership by committing to emission reduction targets from their own operations.

• Using a variety of policy mechanisms: Canada has been rightly criticized for relying too heavily on volunteer programs and financial incentives. Provinces need to include regulatory mechanisms and financial disincentives in their policy options if they expect to be successful at addressing greenhouse gas emissions.

Canadian provinces and territories have a mixed record with respect to addressing climate change (Table 1). Some provinces have suggested that the federal government should shoulder all responsibility for addressing climate change. Others have drafted weak and vague climate change plans. A few, however, have acknowledged the considerable responsibility and power they have to take action on climate change and have taken significant steps to reduce emissions. So far, none has been able to reduce emissions below their 1990 levels, other than the Yukon.

[1] National Climate Change Process.
[2] Pew Center for Global Climate Change. p. 9.
[3] Ibid. p. 11.
[4] Office of the Governor of California.
[5] Caterinicchia.
[6] See TAF website: http://www.city.toronto.on.ca/taf
[7] Toronto Atmospheric Fund.
[8] See Ville de Montreal website: http://www2.ville.montreal.qc.ca/plan-urbanisme/plan_urbanisme/2_3/chap2/2_7/obj17/page4.shtm.
[9] See Cool Vancouver website: http://vancouver.ca/sustainability/coolvancouver/index.htm.

TABLE 1

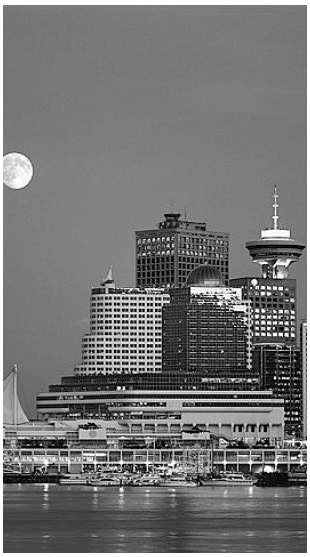
An Assesment of Provincial and Territorial Climate Change Policies

	Has a current climate change action plan?	Set emission reduction targets comparable to Kyoto?	Addressed emissions from sector with highest emissions?	Addressed emissions from sector with fastest-growing emissions?	Has meaningful energy efficiency, conservation and renewable energy policies?	Has set mandatory C-2000 and R-2000 standards for new buildings?	Has meaningful transportation policies?	Has policies that address urban sprawl?	Has meaningful policies to address emissions from industry?	Has a program to address emissions from government?	Uses the full suite of policy instruments?	Has signed an MOU with federal government?	Has reduced emissions since 1990?
BC	Y	N	N	N	Y	N	N	Y	N	N	N	N	N
Alberta	Y	N	N	N	N	N	N	N	N	Y	N	N	N
Sask	N	N	Y	N	Y	N	N	N	N	N	N	N	N
Manitoba	Y	Y	Y	N	Y	N	N	N	Y	Y	Y	Y	N
Ontaro	N	N	Y	Y	Y	N	Y	Y	N	N	Y	Y	N
Quebec	N	N	Y	Y	Y	N	N	N	Y	Y	Y	N	N
NB	N	Y*	N	N	Y	N	N	N	N	Y	Y	N	N
PEI	N	Y*	N	N	Y	N	N	N	N	N	Y	Y	N
NS	Y	Y*	N	N	N	N	N	N	N	N	N	N	N
Nfld	Y	Y*	N	N	N	N	N	N	N	N	N	Y	N
Yukon	N	N	N	N	Y	N	N	N	N	N	N	N	Y
NWT	Y	N	N	N	Y	N	N	N	N	Y	N	N	N
Nunavut	N	N	N	N	N	N	N	N	N	N	N	Y	N

*Indicates that the target was set through the New England Governors/Eastern Canadian Premiers agreement: stabilization at 1990 level by 2010 rather than 6% below 1990 for period 2008-2012.

Best	Fair	Poor	Worst
Manitoba	**Ontario**	**BC**	**Saskatchewan**
	Quebec	**Alberta**	
	PEI	**New Brunswick**	
		Nova Scotia	
		Newfoundland	
		Yukon	
		NWT	
		Nunavut	

British Columbia



BC's climate change plan has no GHG emission reduction target.

STRENGTHS:

- Agricultural Land Reserve, which protects agricultural land from development and helps to contain urban sprawl.
- A promise to improve the energy efficiency of appliances.

WEAKNESSES:

- No emission reduction targets.
- A plan to expand Highway 1 into Vancouver, thereby increasing sprawl, road traffic, air pollution, and GHG emissions.
- A focus on expanding oil and gas production, including offshore, rather than address increasing emissions.

MISSED OPPORTUNITY:

- BC has access to a variety of renewable energy resources, including a world-renowned wind resource, but not a single wind power project.

Emissions

BC's greenhouse gas emissions increased 23.6% between 1990 and 2003.[10] This figure may be higher, however, since it does not include emissions from a devastating forest fire season in 2003. BC's single greatest source of emissions is road transportation, mostly from personal vehicles. Those emissions have grown considerably due to a consumer shift from cars to SUVs and trucks. In fact, emissions from light-duty trucks have doubled since 1990.[11]

This growth is only surpassed by the growth in emissions from the oil and gas sector, which has added over 4 Mt per year to the province's emissions inventory.[12] Fugitive emissions – the inadvertent release of GHG from oil and gas production – are the greatest factor in this growth.

Though BC's electricity and heat sector (and the province as a whole) has had historically low emissions due to a large hydroelectricity base, these emissions have increased

substantially since 1990.[13] This is because the province has increased the share of power it gets using fossil fuels – mostly natural gas – rather than developing renewable sources of energy.

There is also increasing evidence that hydroelectric power may not be as climate change friendly as previously thought. Research has found that significant GHGs could be emitted from large-scale hydro dams due to the flooding of land and the creation of methane when vegetation decomposes.[14] In fact, the Intergovernmental Panel on Climate Change has begun considering whether these emissions should be included in various countries' GHG inventories.[15] This could have significant implications for BC and other provinces that have large hydro developments (Manitoba, Quebec, and Newfoundland and Labrador).

BC's Climate Change Plan

British Columbia has been slow to address climate change in any meaningful way. The province's current government released its climate change plan in December 2004, a full two years after releasing a broader energy plan. That energy plan focused on increasing the province's reliance on fossil fuels, including boosting the production of oil and gas, and opening up the electricity system to more private and fossil fuel-based electricity, including coal-fired power.[16]

BC's climate change plan is weak, most notably because it does not set emission reduction targets, considering them "neither feasible nor meaningful at this time."[17] Emission reduction targets are set for agriculture (8% reduction) and government operations (16% reduction), but these sectors are responsible for only 6% of the province's emissions.[18]

No targets were set for those sectors whose greenhouse gas emissions needed to be addressed, namely oil and gas, road transportation, and electricity. In fact, the climate change plan reiterates the energy plan's call to develop its "[v]ast hydrocarbon reserves," including coal, oil, and natural gas.[19]

In road transportation, promises are made for "strategic road infrastructure upgrades" and "strategic road improvements."[20] These vague terms were clarified in 2004 when the government announced its intention to twin the Port Mann Bridge and Highway 1 leading into Vancouver, a project that will greatly increase road traffic and air pollution in the Lower Mainland.

In 1973, the province established the Agricultural Land Reserve. The legislation is intended to protect agricultural land from development and keep urban sprawl from paving over land used to grow food. Though the legislation remains, the last two provincial governments have weakened and undermined it, using loopholes to remove important agricultural areas from protection.

As for electricity, the plan encourages a voluntary goal of having 50% of new electricity supply come from "clean" sources.[21] This is an increase from the previous government's goal of obtaining 10% from renewable power, but BC's definition of clean electricity includes natural gas and coal co-generation facilities and municipal solid waste incineration, all of which would be significant contributors to GHG emissions.[22]

Finally, though engagement with the federal government is a key policy objective of the plan, the BC government has yet to sign an agreement with the federal government.

The one area where the BC government's energy plan could be lauded is with respect to energy efficiency. BC has suggested that it will update its Energy Efficiency Act to include more products and higher standards.[23]

RECOMMENDATIONS:

- Develop a strong target for GHG emission reductions.
- Address GHGs from oil and gas production and transportation.
- Mandate that all new electricity come from low-impact renewables.

[10] Environment Canada. 2005. Annex 12.
[11] Ibid.
[12] Ibid. Annex 11.
[13] In BC, year-to-year variation in GHG emissions from electricity production is considerable, since differences in precipitation determine how much hydroelectricity generation is possible. Nonetheless, taking 4-year averages (1990-1993 vs. 2000-2003) shows a 38% increase in emissions.
[14] Graham-Rowe.
[15] Ibid.
[16] BC Ministry of Energy and Mines. 2002.
[17] BC Ministry of Water, Land and Air Protection. p. 10.
[18] Ibid. p. 27, 28, and 30.
[19] Ibid. p. 12.
[20] Ibid. p. 17 and 18.
[21] Ibid. p. 13.
[22] BC Ministry of Energy and Mines. 2004.
[23] BC Ministry of Energy and Mines. 2002.

Alberta has promised to buy 90% of government power from renewable sources.

Alberta

STRENGTHS:

- A promise to buy 90% of government power from renewable sources.
- Substantial emission reductions from government operations.

WEAKNESSES:

- GHG emissions are the highest of all the provinces.
- Climate change plan allows for emissions to rise 33% above 1990 levels by 2020.
- Continued reliance on coal-fired power for the majority of its electricity.

MISSED OPPORTUNITY:

- Petroleum Technology Alliance Canada has estimated that the oil and gas sector, concentrated in Alberta, could reduce emissions by 29 Mt per year and save itself over $1 billion per year.

Emissions

Alberta's greenhouse gas emissions grew 33.3% between 1990 and 2003, making it the province with the highest emissions.[24] The province is also second in emissions growth and emissions per GDP (behind Saskatchewan).[25] The sectors most responsible for Alberta's high emissions are the oil and gas and electricity/heat sectors.[26]

The province's electricity/heat and petroleum sectors have also experienced the greatest emissions growth. GHG emissions from the oil and gas sector alone have increased by 21 Mt since 1990, comparable to the total GHG emissions of the provinces of Manitoba, New Brunswick, or Nova Scotia.[27]

Emissions from Alberta's manufacturing sector have decreased slightly.[28]

Alberta's Climate Change Plan

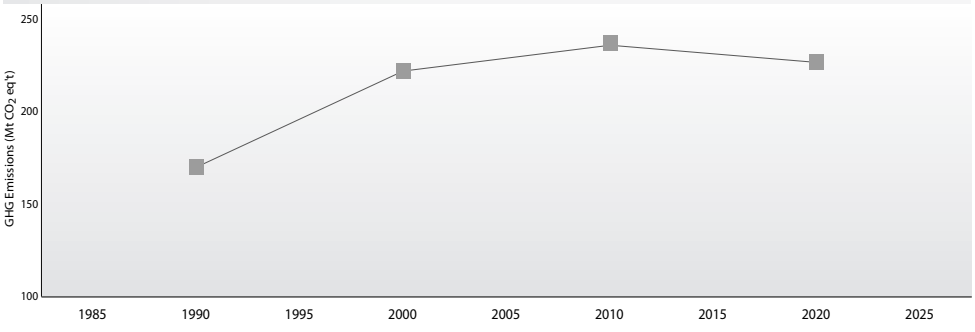
When former prime minister Jean Chrétien announced in 2002 that Canada would ratify the Kyoto Protocol before the end of the year, it sparked a national debate on climate change. Alberta's premier, Ralph Klein, was Kyoto's most vocal opponent. His two main objections were that the Kyoto timelines were too short and unrealistic, and that any federal climate change plan would infringe on provincial jurisdiction. This was the context within which Alberta's plan was released in October 2002.

Alberta's plan, unlike BC's plan, has a specific target that may sound impressive: 50% reduction in emissions intensity – emissions per GDP or level of economic activity – by 2020.[29] There are, however, two fundamental problems with that objective.

First of all, the timeline in the Alberta plan extends well beyond the Kyoto timeframe of 2008-2012. Climate change action needs to respect global agreements, especially now that the Kyoto Protocol is international law.

More fundamentally, a target based on emissions intensity creates a crucial problem. Climate science indicates that greenhouse gas emissions need to be reduced. Using emissions intensity allows greenhouse gas emissions to increase as long as economic growth continues. In fact, the Alberta plan's goals are for GHG emissions to be 33% above 1990 levels in 2020, eight years after the end of the Kyoto period (Figure 4). Essentially, Alberta's plan consists of a strategy to thwart federal action while doing nothing provincially.

FIGURE 4 Alberta's greenhouse gas emissions based on its climate change plan



This lack of decisiveness also becomes apparent in the policies put forward in the plan. Given high emissions and emissions growth from the oil and gas and electricity sectors, any credible plan would meaningfully address these sectors. However, the plan merely commits the government to "work with stakeholders" in the electricity sector and "begin negotiations" with the oil and gas sector.[30] Neither of these initiatives has led to an agreement. The electricity discussions are stalled because they could not reach consensus. The oil and gas negotiations have not even begun yet.[31]

One element of clear leadership in the Alberta plan that should be highlighted involves governmental action. The provincial government had originally committed itself to reducing its own GHG emissions by 14% below 1990 levels by 2000 (note that this is an absolute target, not an intensity target). The government surpassed that target, reaching a 22% reduction. This plan commits to a further reduction, to 26% below 1990 levels, by 2005.[32] Since then, the government has also committed itself to using alternative energy for 90% of its energy needs.[33] These targets are more ambitious than any other provincial government's and should be applauded.

Overall, the Alberta plan, though it acknowledges the reality of climate change, does not, as its title suggests, involve "Taking Action." The province also has not signed an MOU with the federal government.

RECOMMENDATIONS:

- Develop a climate change plan with a real emission reduction target.
- Implement strong policies to reduce emissions from sectors with the highest and fastest-growing emissions: electricity/heat generation and oil and gas.
- Play a constructive role in the provincial/territorial Council Committee on Energy in the development of an energy plan that includes an emission reduction target.

[24] Environment Canada. 2005. Annex 12.
[25] Environment Canada. 2005. Annex 12. GDP figures from Statistics Canada. 2004.
[26] Environment Canada. 2004. Annex 11.
[27] Ibid.
[28] Ibid.
[29] Alberta Environment. 2002. p. 11.
[30] Ibid. p. 2.
[31] Personal communication: Robert Moyles, Assistant Director of Communications, Environment Alberta. May 5, 2005.
[32] Ibid. p. 14 and 2.
[33] Government of Alberta. 2003.

Saskatchewan

Saskatchewan's fertile soil belt would be ideal for using agricultural residue to produce cellulosic ethanol.

STRENGTH:

- One of the only provinces to offer tax rebates for purchasing energy efficient appliances.

WEAKNESSES:

- GHG emissions are the highest of any province or territory on a per GDP basis.
- GHG emissions have grown more since 1990 than every other province and territory.
- No climate change plan or a GHG emission reduction target.
- Continued reliance on coal-fired power for the majority of its electricity.

MISSED OPPORTUNITY:

- Saskatchewan's fertile soil belt would be ideal for using agricultural residue to produce cellulosic ethanol, which has a much greater GHG benefit than grain-based ethanol.

Emissions

Saskatchewan's greenhouse gas emissions have risen 44.9% since 1990, greater than any other province or territory.[34] Saskatchewan also has the highest provincial emissions per level of economic activity (Figure 2) because it relies largely on coal-fired electricity and has an oil and gas sector with unregulated greenhouse gas emissions.

The same sectors are responsible for Saskatchewan's growth in emissions as Alberta's. The province's oil and gas companies have increased emissions by 6 Mt since 1990.[35] A 5 Mt increase in emissions has come from electricity and heat generation.[36]

Saskatchewan's Climate Change "Perspective"

Saskatchewan's climate change document is titled a "perspective" and not a "plan" for good reason: it does not plan to do anything. The document does not have any emission

reduction targets. It was released during Canada's climate change debate in the fall of 2002 and it follows Alberta's lead in pushing back against the federal government.

This document *is* more explicit than Alberta's by stating in the introduction that Saskatchewan "cannot yet support the Kyoto emissions reduction target and the Kyoto timeframe."[37] The largest section of the document lays out the conditions for cooperation with the federal government on Kyoto, with an emphasis on not imposing an unfair economic burden on Saskatchewan and respecting its provincial jurisdiction.

Saskatchewan's climate change document also lays out some actions it has taken in the areas of energy efficiency, renewable energy, and using agricultural soils as carbon sinks. The province, for example, has stated that all new electricity generation until 2010 should be from renewables and has put out various requests for proposals for wind, low-impact hydro, biomass, biogas, and solar power.[38] It also provides tax rebates for energy efficient appliances.

However, there are other Government of Saskatchewan projects that are unlikely to lead to emission reductions, such as funding for "clean coal" technology and carbon dioxide capture and storage. Both are prohibitively expensive, and neither has even been proven possible on a commercial scale. Truly sustainable energy options, such as renewable energy and energy efficiency, already exist and are much more cost-effective.

Legislating ethanol content in gasoline (1.5% starting in October 2005, rising to 7.5% in April 2006) will produce few emission reductions, because the ethanol is produced from grain, typically corn. One typical study found that, because of all the emissions from grain-based ethanol production, a 10% ethanol blend would only reduce emissions by 1%.[39]

RECOMMENDATIONS:

- Develop a climate change plan with a strong emission reduction target.
- Implement policies that address the oil and gas sector, which has the fastest-growing emissions.
- Implement a long-term plan to phase out coal power
- Shift funding from "clean coal" and carbon dioxide capture and storage to renewable and sustainable energy sources.
- Gradually phase in the requirement that the mandated ethanol content in gasoline come from cellulosic ethanol.

[34] Environment Canada. 2005. Annex 12.

[35] Ibid. Annex 11.

[36] This figure is as of 2002, since emissions from Saskatchewan's electricity sector are now classified as "Confidential."

[37] Government of Saskatchewan. 2002. p. 1.

[38] Pollution Probe.

[39] Wang et al.

Manitoba

Manitoba's climate change plan, which includes a commitment to reach Kyoto targets, is the best in the country.

STRENGTHS:

- A reasonably strong climate change plan that has the same GHG reduction target as Kyoto and that addresses most economic sectors.
- Encourages the installation and use of ground source heat pumps to reduce the reliance on fossil fuels for space heating.
- A commitment to clean energy production.

WEAKNESSES:

- No integrated plan to reduce emissions from the transportation sector, including personal vehicles and goods movement.
- Emissions from agriculture are rising and remain largely unaddressed.

MISSED OPPORTUNITY:

- Like Saskatchewan, Manitoba has a belt of fertile agricultural soil. Residues from agricultural production in this area could be used to produce cellulosic ethanol, which, when blended with gasoline, could reduce emissions from the province's personal vehicles. It could also create economic development opportunities in rural areas of the province.

Emissions

Manitoba's greenhouse gas emissions increased 11.5% between 1990 and 2003.[40] Though Manitoba's emissions are low compared to most, the province's agricultural soils are closely matched with road transportation for the title of largest emitter.[41]

Emissions from all agricultural sources have increased substantially since 1990, making this sector the one with the greatest growth.[42] This is largely due to increased production of non-dairy cattle and hogs, and emissions from the vast quantities of manure they produce. Transportation emissions have also increased, mostly due to a shift towards trucks and SUVs as personal vehicles.[43] A shift from rail to road for freight transport has also increased emissions.

Manitoba's Climate Change Plan

Manitoba's climate change plan is possibly the most ambitious of any Canadian province. According to the plan, the province could reduce emissions by up to 18% by 2010 and up to 23% by 2012, "provided the right conditions are in place."[44] Obviously, these targets are highly qualified, but the minimum target to be achieved matches Canada's: 6% below 1990 levels for the Kyoto period, 2008-2012.[45]

The plan highlights some actions to be undertaken in a variety of sectors, with the majority of the reductions coming from renewable electricity (mostly hydroelectricity but including 1,000MW of wind power[46]) and targeted measures in agriculture and other industrial sectors.[47] Also emphasized are energy efficiency and the use of ground source heat pumps – systems that use the earth's energy to heat and cool buildings, minimizing the use of fossil fuels for this purpose. Manitoba has become a Canadian leader in these areas.

Whether Manitoba meets and/or exceeds Kyoto targets is dependent on the level of support and cooperation it gets from the federal government. The plan frequently solicits federal assistance, for example with cost-sharing targeted measures and through receiving credit for half the emission reductions obtained through its renewable power exports.[48] Those credits are no longer available for exports to the U.S., a non-Kyoto country, but they could be a part of Manitoba's exports to other provinces. Since 2003, Manitoba has pursued an agreement to sell hydroelectricity to Ontario.[49] It has signed an MOU with Canada on climate change whose main priority is "to encourage increased generation and transmission capacity for hydro electricity and wind."[50] Although Manitoba is moving forward on climate change action, its dependence on other governments for assistance in achieving its targets is a weakness of the plan.

The other weakness concerns emissions from transportation. Only small, token approaches are suggested in Manitoba's plan to reduce emissions from this sector, such as research funding for transportation policy and technology and ethanol-blended gasoline (whose implementation seems to be on hold for now). Policies encouraging Manitobans to buy more fuel-efficient vehicles or making alternative transportation options more attractive could have a much bigger impact on reducing emissions. No policies are in place to address the growth in emissions from freight transportation.

Overall, however, Manitoba should be commended for at least committing to Kyoto targets and setting an ambitious climate change agenda. Cooperation with other governments could allow the province to go much further.

RECOMMENDATIONS:

- Ensure the most environmentally responsible route is chosen for power transmission into Ontario.
- Continue to play a leadership role with other provinces, territories, and the federal government on climate change.

[40] Environment Canada. 2005. Annex 12.
[41] Ibid.
[42] Ibid. Annex 11.
[43] Ibid.
[44] Manitoba Conservation. 2002. p. 10 and 11.
[45] Personal communication: Andrew Cowan, Manager of Policy and Community Programming, Manitoba Energy, Science & Technology, April 20, 2005.
[46] Pollution Probe.
[47] Manitoba Conservation. 2002. p. 10-11.
[48] Ibid. p. 10-12.
[49] Ontario Ministry of Energy. 2003.
[50] Government of Canada and Government of Manitoba.

Ontario will shut down its coal plants but still has no climate change plan.

Ontario

STRENGTHS:

- Low GHG emissions on a GDP basis.
- Commitment to close all five of the province's coal-fired power plants.

WEAKNESSES:

- No climate change plan or a GHG emission reduction target.
- A dramatic weakening of the election promise to reduce electricity demand by 5% by 2007.

MISSED OPPORTUNITY:

- Ontario is filling the electricity gap left by the closing of the coal plants by building new natural gas-fired power, refurbishing old nuclear generators, and possibly even building new nuclear generators rather than relying on truly sustainable energy options: conservation, energy efficiency, and renewables.

Emissions

Ontario's greenhouse gas emissions grew 15.7% between 1990 and 2003.[51] Although Ontario is second only to Alberta in total emissions, Canada's most populous province is second lowest (behind Quebec) in GHG emissions per GDP because of a strong manufacturing base that produces relatively fewer emissions (compared to natural resource industries, for example) for the same level of economic activity.[52]

The majority of Ontario's greenhouse gas emissions come from electricity and heat generation, followed closely by personal vehicles, which also represent the areas of highest growth.[53] Emissions from electricity generation have increased 15 Mt (55%) since 1990 as more coal- and gas-fired power replaced declining nuclear sources.[54] Emissions from SUVs and pick-ups have doubled and emissions from heavy-duty diesel vehicles, mostly transport trucks, have almost doubled over the same time period.[55] Increases in road related emissions are not surprising, considering the sprawling suburbs that have been built around Toronto and throughout much of southern Ontario. Meanwhile,

Ontario's adipic acid industry installed pollution-control technology to reduce its non-energy related GHG emissions by almost 10 Mt, a 90% reduction.[56]

No Climate Change Plan

Ontario does not have a climate change plan. The previous provincial government released a document in September 2001 – *Air Quality and Climate Change: Moving Forward* – that combines action on climate change and air quality and mostly highlights what Ontario was already doing.[57] The one significant action was the phasing out of coal at the Lakeview Generating Station, a power plant since closed by the current government.

The current Ontario government's approach, much like that of its predecessors, favours tackling air pollution and climate change together. Air pollution, however, is being taken more seriously than addressing climate change. The government has a plan to address air pollution but not one for climate change. Ontario has signed a MOU on climate change with the federal government, but the province has no targets for greenhouse gas emissions since "climate change is the federal government's responsibility."[58] On the day the Kyoto Protocol became international law, the province issued a statement saying it "will help Canada meet its targets."[59]

The Ontario government is implementing a fairly ambitious agenda that will tackle both air pollution and climate change. The government has promised to shut down all five of its coal-fired power plants by 2007, though it recently extended the deadline for closing the largest of the five, Nanticoke. Energy efficiency will replace only a small part of that power. The province initially vowed to reduce electricity demand by 5% by 2007, but then dramatically weakened that promise. It has also established a conservation bureau within the Ontario Power Authority and hired a Chief Energy Conservation Officer to head that bureau.[60] So far, the only concrete action on efficiency was a request for proposals for a mere 250MW of power savings.

The province is doing better with respect to renewable energy. Requests for proposals have been issued for about 1,600 MW of renewable power, mostly from wind. It has also proposed feed-in laws to guarantee that smaller wind projects – from farmers, cooperatives, individuals, or municipalities – have access to the grid. Unfortunately, new natural gas-fired power and refurbished nuclear reactors remain the dominant strategy for new electricity, despite several studies showing that energy efficiency and renewables would be sufficient to replace the coal-fired power.[61]

In transportation, the province has mandated 5% ethanol content in gasoline by 2007. However, as mentioned above, Ontario residents would be better served with incentives to purchase fuel-efficient vehicles (and fees on gas guzzlers) rather than using ethanol

fuels that have little or no climate change benefits. (A recent study found that a 10% ethanol blend would only reduce GHG emissions by 1%.[62])

Ontario is considering how to take more cars off the road through a policy to combat urban sprawl.[63] Critics of the plan, however, point out that 92% of urban development will be on agricultural land, leading to a 42% increase in GHG emissions from transportation.[64]

To summarize, Ontario's climate change policies may appear impressive, but fall short when closely scrutinized. An actual climate change plan with an ambitious target would confirm the province's resolve and likely stem much of that criticism.

RECOMMENDATIONS:

- Develop a climate change plan with ambitious GHG emission reduction targets.
- Rely entirely upon conservation, energy efficiency, and renewables for new power, rather than natural gas and nuclear power.
- Implement policies to encourage the purchase of fuel-efficient vehicles and discourage the purchase of gas guzzlers.

[51] Environment Canada. 2005. Annex 12.
[52] Environment Canada. 2005. Annex 12. GDP figures from Statistics Canada. 2004.
[53] Environment Canada. 2005. Annex 12.
[54] Ibid. Annex 11.
[55] Ibid.
[56] Ibid.
[57] Ontario Ministry of the Environment. 2001.
[58] Personal communication: Yvonne Baliwas, Policy Advisor, Air Policy and Climate Change Branch, Ontario Ministry of the Environment, May 9, 2005.
[59] Ontario Ministry of the Environment. 2005.
[60] Ontario Ministry of the Environment. 2005. and Ontario Ministry of Energy. 2005.
[61] Winfield et al. 2004; David Suzuki Foundation. 2004; Torrie and Parfett. 2003.
[62] Wang et al.
[63] Ontario Ministry of Public Infrastructure Renewal. 2005.
[64] Winfield. 2004.

Quebec

Quebec's commitment may make it Canada's leader in wind power, but it currently lacks a climate change plan.

STRENGTHS:

- Lowest GHG emissions per GDP.
- Impressive commitments on wind power and energy efficiency.

WEAKNESSES:

- Climate change plan has expired and not been updated.
- Plans to add a natural gas-fired power plant and more large hydroelectric dams, despite their environmental impact and mounting evidence that large dams are important GHG contributors.
- No concrete plans to address increased GHG emissions from transportation.

MISSED OPPORTUNITY:

- Like Manitoba, Quebec could use its hydroelectric base to rapidly increase the use of ground source heat pumps for heating/cooling needs.

Emissions

Quebec's greenhouse emissions are the lowest per GDP in the country, largely due to its broad hydroelectricity base.[65] Since 1990, its emissions growth (8.5%) is slightly greater than PEI's (8.3%), the province whose emissions have grown the least.[66]

Road transportation is by far the greatest source of GHG emissions, with buildings (commercial, institutional, and residential) edging out manufacturing for second and third place. [67] Road transport, from both light duty trucks (SUVs and pick-ups) and trucking, also constitute the greatest growth since 1990.[68] Growing emissions from commercial and institutional buildings (+4,790 Mt) have been partially offset by reductions from residential buildings (-1,200 Mt).[69] The greatest declines in emissions come from manufacturing industries (a 15% decrease), magnesium smelting, and aluminum production.

Quebec's Climate Change Plan

Quebec's climate change plan expired three years ago, and its last status report was released in 2001. A longer-term plan (2005-2020) is expected this year.

The now expired plan did not have any targets, though its objectives included: maintaining reductions already in effect; obtaining additional reductions from major emission sources; and stabilizing emissions from transportation.[70] If these were all accomplished, emissions in the province would decrease. Emissions did increase slightly over the period of the climate change plan (2000-2002) and then skyrocketed once the plan expired. Quebec's emissions went up 7.1% in 2003, despite one of the province's two magnesium producers shutting down that year.[71] Emissions from transportation and other sectors have also increased.

The plan, though outdated and without targets, is nonetheless comprehensive. It aims to reduce emissions from:

- Government operations (including buildings and vehicles)
- Large industries
- Transportation (personal vehicles, freight transport, public transit, sprawl)
- Electricity production (mostly with hydro, but also using wind and biomass)
- Refrigeration
- Landfills
- Carbon sinks

It also includes commitments to fund research in climate change, to encourage research and development for technological solutions, and to engage the public.[72] A variety of policy tools are suggested. The progress report from 2001 showed that, though progress seemed to be made in many areas, few programs were successfully completed.[73]

The provincial government is nonetheless implementing some policies that could significantly reduce emissions in Quebec. A new promise was made to add 2,000 MW of wind power by 2012, in addition to eight approved bids totaling 990 MW in October 2004.[74] This is an impressive commitment, given that Canada's total wind capacity at the end of 2004 was only 444MW.[75] If fulfilled, this would make Quebec the undisputed leader in implementing low-impact renewable electricity.

An ambitious energy efficiency program has also been initiated,[76] with Hydro Quebec and the private sector agreeing to invest $1.6 billion in reducing electricity demand in the province.[77] Quebec could follow the example of Manitoba and undertake an ambitious program to install ground source heat pumps, which are ideal for jurisdictions with large hydroelectric bases.

On the down side, in July 2004, the Quebec government approved the province's first major gas-fired generating facility, a co-generation plant in Becancour, near Trois Rivieres.

Hydro Quebec is also planning the construction of more large hydroelectric dams.[78] (As explained above, evidence shows that large-scale hydro development may result in significant GHG emissions,[79] something the Quebec government needs to consider before approving more hydro projects.)

Also, road transportation, the highest and fastest growing source of GHG emissions, has been left largely unaddressed. The province has instead been promoting the construction of new roads and bridges, which will encourage urban sprawl and increase air pollution and greenhouse gas emissions.

Though Quebec can be credited with implementing some good policies on energy, the lack of a plan, including an emissions reduction target, is a major gap in its approach to climate change.

RECOMMENDATIONS:

- Develop a new climate change plan with an ambitious GHG emission reduction target.
- Implement policies to address GHG emissions from transportation, including anti-sprawl legislation, incentives to purchase fuel-efficient vehicles, and disincentives to buy gas guzzlers.
- Implement a building code that mandates R-2000 and C-2000 high efficiency standards in residential and commercial buildings.

65 Environment Canada. 2005. Annex 12. GDP figures from Statistics Canada. 2004.
66 Environment Canada. 2005. Annex 12.
67 Ibid.
68 Environment Canada. 2005. Annex 11.
69 Ibid.
70 Government of Quebec. 2000. p. 27.
71 Environment Canada. 2005. Annex 11.
72 Government of Quebec. 2000.
73 Ministere de Developpement Durable, Environnement et Parcs. 2001.
74 Hydro Quebec. 2004.
75 Global Wind Energy Council.
76 Ministere des Ressources Naturelles et Faune du Quebec. 2004.
77 Kierans.
78 Ibid.
79 Graham-Rowe.

New Brunswick still has no climate change plan.

New Brunswick

STRENGTHS:

- A commitment to have 10% of its power delivered by low-impact renewables within ten years.
- Some energy efficiency initiatives, including the creation of an energy efficiency agency in 2006.

WEAKNESSES:

- No climate change plan and only a voluntary, weak GHG emission reduction target.
- Large increase in GHG emissions since 1990.
- No plans to reduce emissions from sectors with rising GHG emissions, including the fossil fuel sector and transportation.

MISSED OPPORTUNITY:

- Rather than refurbishing the aging nuclear power plant at Point Lepreau, New Brunswick had the opportunity to invest much more in cost-effective and sustainable power options, such as energy efficiency and renewables.

Emissions

New Brunswick has had the third highest provincial growth in emissions between 1990 and 2003 (32.9%, edged out by Saskatchewan, 44.9%, and Alberta's 33.3% growth), due to a rapid rise in emissions from the electricity/heat and fossil fuel sectors.[80] Since 1990, emissions have grown 39% in the electricity and heat sector and 186% in the fossil fuel sector.[81]

Emissions have also grown in many transportation sub-sectors. Meanwhile, a small decrease in emissions has occurred since 1990 in residential buildings.[82]

No Climate Change Plan

The province has promised to develop a climate change action plan: in its January 2001 energy policy paper;[83] as part of the New England Governors/Eastern Canadian Premiers conference in August 2001;[84] and in its January 2003 climate change discussion paper.[85] No climate change plan has been released to date, although the Ministry of Natural Resources and Energy states that one is forthcoming.[86]

There are other inconsistencies in New Brunswick's approach to climate change action. As a member of the New England Governors/Eastern Canadian Premiers, it agreed to reduce emissions to 1990 levels by 2010, but its discussion paper, published a year and a half later, asks, "Would a provincial target be effective in reducing emissions?"[87] The province has not even considered putting into action any of the recommendations put forward in that paper to reduce greenhouse gas emissions.[88]

If the province were to start addressing climate change, emissions from its electricity sector, which make up almost half of provincial emissions, would be an obvious place to start.[89] Electricity-based emissions – from coal-, oil-, and diesel-based power plants – explain why New Brunswick's GHG emissions remain above the Canadian average. Yet the discussion paper dismisses significant action on the electricity sector, citing "very large associated capital costs," "competitiveness," and "the affordability of services to the public."[90]

More recently, New Brunswick premier, Bernard Lord, decided to refurbish the Point Lepreau nuclear power plant without help from the federal government and the recommendation of New Brunswick's public utility board that refurbishment was against the public interest because of high economic risk.[91] High-cost power options such as nuclear energy squeeze out investments in more affordable and sustainable options, such as renewables and energy efficiency.

The New Brunswick energy policy paper outlines many energy efficiency opportunities that had been undertaken or were proposed for the future, including increasing the number of products that had regulated efficiency standards, increasing the efficiency of government operations, and funding retrofit programs for commercial and residential buildings.[92] A new energy efficiency agency, which New Brunswick plans to have in place by 2006, should be able to implement a variety of additional efficiency improvements in the province.

There were also some policies related to renewable energy implementation in New Brunswick's energy policy paper, but these were much less ambitious and mostly involved researching, monitoring, or reviewing policy or technology options. Since then, the province has implemented a renewable portfolio standard to have 10% of electricity sales come from low-impact renewables within ten years, including 400 MW from wind developers.

RECOMMENDATIONS:

- Develop a climate change plan with GHG emission reduction targets.
- Mothball Point Lepreau and invest instead in sustainable and renewable power options.
- Implement long-term plan to phase out power production from coal and bunker C fuel oil.

[80] Environment Canada. 2005. Annex 12 and Annex 11.

[81] The electricity and heat sector increase is for the period 1990-2002 (Environment Canada. 2004. Annex 9) since those emissions are now considered "confidential." The increase from the fossil fuel sector are for 2003 (Environment Canada. 2005. Annex 11).

[82] Environment Canada. 2005. Annex 11.

[83] New Brunswick Ministry of Natural Resources and Energy.

[84] New England Governors and the Eastern Canadian Premiers. 2001.

[85] Government of New Brunswick.

[86] Curtis.

[87] Ibid. p. 23.

[88] Ibid. p. 7.

[89] Ibid. p. 27.

[90] Ibid.

[91] New Brunswick Board of Commissioners of Public Utilities.

[92] Government of New Brunswick.

Prince Edward Island

PEI has set a target to have 15% of electricity to come from renewable sources by 2010.

STRENGTHS:

- Low growth in GHG emissions since 1990.
- Set target of 15% of electricity to come from renewable sources by 2010.
- Strong policy framework to support renewable energy development.

WEAKNESSES:

- Climate change plan has expired.
- No target for GHG emission reductions.
- Large increase in GHG emissions from transportation, but only timid policies to stem them.

MISSED OPPORTUNITY:

- When implementing a rebate for hybrid vehicles, the province could have included all vehicles with high fuel efficiency (not just hybrid cars) and also attached a fee on gas-guzzlers.

Emissions

PEI's GHG emissions grew 8.3% from 1990 to 2003, the lowest of all provinces.[93] Personal vehicles and buildings (commercial, institutional, and residential) are equally responsible for the greatest emissions.

Emissions from personal trucks and SUVs grew more than any other sector and are now slightly greater than those from cars.[94] Manufacturing industries and commercial and institutional buildings also increased their emissions, while emissions from residential building decreased the most.[95]

PEI's Climate Change Plan

Prince Edward Island published a climate change business plan in 2001 that was modeled on Canada's federal plan of 2000.[96] Though some of the sections – electricity and

transportation for example – included the goal of reducing greenhouse gas emissions, the plan as a whole did not have this objective nor did it set any targets for GHG emissions. A climate change consultation document was released in June 2003, which set reducing GHG emissions as a goal, but without using a target.[97] However, PEI is a signatory to the New England Governors/Eastern Canadian Premiers climate change agreement that includes a GHG emission target (as well as targets on energy efficiency and conservation and lowering emissions from the public sector).

PEI has taken the lead when it comes to renewable energy targets and implementation. This was the focus of its MOU with the Canadian government.[98] Its June 2004 energy framework had a large component dedicated to renewable energy, with wind power being the focus.[99] A significant reason for that is that the island presently has few other energy resources. Developing wind resources, and to a lesser extent, some agriculture-based biofuels, would increase PEI's energy independence – presently, 94% of its electricity and all of its oil and gas is produced off-island.[100]

Wind power currently makes up 5% of PEI's electricity[101] and the energy framework sets a target of 15% of electricity from renewable sources by 2010.[102] It also tentatively sets a target of having 100% of its electricity capacity powered by renewable energy by the year 2015.[103] By using policies such as feed-in laws (allowing all renewable power to access the grid) and net metering (reducing customers' bill if they supply renewable power), PEI also ensures that cooperative and community-based renewable projects will dominate. This creates economic development opportunities for the whole province, including rural areas, and fosters community support for renewable power projects.

Other than electricity (which contributes only 13% of PEI's total energy use), the province's approach to climate change is mixed. Its energy framework considers other renewable energy technologies – biomass energy, solar energy, and biofuels, for example – but does not propose policies to encourage their implementation.[104]

The same could be said for its approach to energy efficiency. The government required the Maritime Electric Company, the province's utility, to file an energy efficiency plan and demand-side management strategy.[105] It also proposed and has implemented some energy efficiency measures for government operations.[106] But otherwise, the government document shies away from mandatory building codes or other regulated efficiency standards.

Its record with respect to transportation-related emissions is somewhat better. It has committed to improving the fuel efficiency of the government vehicle fleet.[107] It provides a significant rebate of up to $3,000 for hybrid electric vehicles. And Charlottetown will have a public transit system in place by fall 2005, in part due to provincial contributions. However, it has much work to do to stem the significant growth in emissions from both personal trucks and SUVs (up 87%) and heavy-duty diesel vehicles (up 76%).[108]

RECOMMENDATIONS:

- Develop a new climate change plan with ambitious GHG emission reduction targets.
- Make the full commitment to have 100% of electricity come from low-impact renewable sources by 2015.
- Implement policies to address the growth in emissions from personal vehicles and goods transport.

[93] Environment Canada. 2005. Annex 12.
[94] Ibid. Annex 11.
[95] Ibid.
[96] Government of PEI. 2001.
[97] Government of PEI. 2003.
[98] Government of Canada and Government of PEI.
[99] Government of PEI. 2004.
[100] Ibid. p. 7 and 8.
[101] Pollution Probe.
[102] Government of PEI. 2004. p. 15.
[103] Ibid.
[104] Government of PEI. 2004.
[105] Ibid. p. 21.
[106] Government of PEI. 2005.
[107] Ibid.
[108] Environment Canada. 2005. Annex 11.

Nova Scotia is failing to take advatage of the great potential for wind power production along its coast.

Nova Scotia

STRENGTHS:

- Several significant measures to improve energy efficiency, including a program for low-income Nova Scotians.
- A small promise to have 5% of new electricity come from renewable sources by 2010.

WEAKNESSES:

- No climate change plan and only a voluntary, weak GHG emission reduction target.
- Progress reports on its energy strategy could not point to any significant accomplishments with respect to climate change.
- GHG emissions from sectors with highest emissions (electricity and heat) and fastest growing emissions (oil and gas) have not been addressed.

MISSED OPPORTUNITY:

- Nova Scotia has great potential for wind power production along its coast, but has implemented only a very small target for renewable power production.

Emissions

Another province with lower growth in GHG emissions – a 10.4% increase from 1990 to 2003 – is Nova Scotia.[109] The electricity/heat sector is by far the province's greatest source of emissions.

Emissions from Nova Scotia's fossil fuel industries – mostly offshore natural gas production – have more than doubled since 1990, representing the greatest growth of any sector in the province.[110] Emissions from the electricity/heat sector have also increased, as have emissions from pick-up trucks and SUVs (up 57%).[111] Fugitive emissions from coal mining dropped considerably, as the province shifted its energy production and use from coal to petroleum.[112] However, Premier John Hamm has discussed re-opening some coal mines in the province.

No Climate Change Plan

Nova Scotia's documents relating to energy use and climate change send mixed messages. Its energy strategy, released in December 2001, acknowledges that climate change is a serious problem yet the strategy includes only token "low-cost first steps to reduce GHG emissions" that have not been bolstered since then.[113] The strategy asserts that climate change is "everybody's problem," but also states "the federal government has the prime responsibility" for GHG reductions.[114] The strategy's first climate change objective is to "work with the federal and other provincial/territorial governments" on a climate change strategy, but the province has not signed an MOU with the federal government.[115]

It is clear that climate change is not a priority for Nova Scotia. The climate change section of its energy strategy focuses on ensuring that provinces and territories "equally share the burden" of implementation rather than developing a comprehensive action plan for the province.[116] In this respect, it has aligned itself with Alberta and Saskatchewan in obstructing action on climate change.

Nonetheless, the province has made small but positive commitments. Nova Scotia has no targets for greenhouse gas emission reductions, but the province has joined the New England Governors / Eastern Canadian Premiers coalition and its target to stabilize GHG emissions at 1990 levels by 2010. A promise to reduce GHG emissions from government (with no target) is embedded within several vague promises to "support, promote, and encourage" various activities.[117]

Small steps have been taken to install renewable energy as well. A voluntary target of 2.5% renewable electricity was set in the energy strategy. [118] This has been more recently increased to 5% renewables by 2010, but it includes only new power installed since the year 2000.[119] The result is that Nova Scotia has more than tripled the proportion of its electricity coming from renewable sources (including large hydro) since 1990, but the province is still second to last in this category compared to other provinces.[120]

Finally, improved energy efficiency is another area where Nova Scotia has made some gains. The energy strategy commits the government to improving the efficiency of government buildings, ensuring that all new government-funded buildings have increased efficiency (exceeding the targets of the model National Energy Code for Buildings by 25%), and supporting the R-2000 standard for residential buildings, a high efficiency building design.[121] A progress report on the energy strategy states that Nova Scotia leads all provinces in per capita construction of R-2000 homes.[122] There is also a provincial program to help low-income people access energy efficient technologies. However, like all other provinces, Nova Scotia has still not made R-2000 or C-2000 standards mandatory for residential and commercial buildings respectively.

Despite these accomplishments, the 2002 and 2003 progress reports on Nova Scotia's energy strategy could not point to one accomplishment in the area of climate change, other than the province playing "a lead role" in federal/provincial/territorial discussions.[123]

RECOMMENDATIONS:

- Develop a climate change plan with GHG emission reduction targets.
- Implement strong policies to address GHG emissions from the electricity/heat and oil and gas sectors.
- Implement a more ambitious target for renewable power production while decreasing dependency on coal power.

[109] Ibid. Annex 12.
[110] Ibid. Annex 11.
[111] Ibid.
[112] Ibid.
[113] Government of Nova Scotia. 2001. Vol. 2, Part VI, Section 1, p. 3 and Vol. 1, p. 35.
[114] Ibid. Vol. 2, Part VI, Section 1, p. 9 and 3.
[115] Ibid. Vol. 2, Part VI, Section 1, p. 3.
[116] Ibid. Vol. 2, Part VI, Section 1, p. 3.
[117] Ibid. Vol. 2, Part VI, Section 1, p. 4.
[118] Ibid. Vol. 2, Part IV, p. 4.
[119] Pollution Probe.
[120] Statistics Canada. 2002.
[121] Government of Nova Scotia. 2001. Vol. 2, Part VII, Section 1, p. 4.
[122] Nova Scotia Department of Energy. 2002.
[123] Nova Scotia Department of Energy. 2002; and Nova Scotia Department of Energy. 2003.

Newfoundland and Labrador

Newfoundland and Labrador's new climate change plan includes mostly voluntary and educational initiatives.

STRENGTHS:

- A decrease in GHG emissions from electricity/heat sector.
- A promise to include climate change considerations as a criterion for infrastructure projects seeking government funding.

WEAKNESSES:

- Climate change plan has no targets.
- Actions in the climate change plan include mostly voluntary and educational initiatives.
- No policies are included to address GHG emissions from the offshore oil sector.

MISSED OPPORTUNITY:

- Wind power is dismissed in Newfoundland's climate change plan, since it would produce at most 10% of the province's power. Setting this figure as an initial target would be an important step forward.

Emissions

All of Newfoundland's 16.7% growth in GHG emissions between 1990 and 2003 has come from the province's offshore oil activities (including fugitive emissions).[124] Emissions from oil production have increased 162%, making it the greatest source of GHGs.

By comparison, emissions from Newfoundland's second-largest source of greenhouse gases, road transportation, have increased 13%, while those from electricity and heat generation, also a major contributor, have declined.[125] Meanwhile, small emission reductions have occurred from Newfoundland and Labrador's domestic marine and residential sectors.

Newfoundland and Labrador's Climate Change Plan

In June 2003, Newfoundland and Labrador released a discussion paper with a variety of questions related to what should be included in a climate change plan.[126] Questions varied from how to engage the public to what policies would be appropriate for different sectors. Noticeably absent were any questions about whether Newfoundland should decrease emissions and, if so, by how much.

It is now clear that the province does not intend to reduce total emissions, since its climate change plan, released in July 2005, has no targets.[127] The only target mentioned in the plan is to reduce energy use in provincial buildings and that target still needs to be established. Since emissions from provincial buildings are minimal, it will have a negligible impact on the province's emissions, even if an ambitious target is chosen. (Newfoundland is part of the New England Governors/Eastern Canadian Premiers alliance, so it does have a voluntary GHG emission reduction target. This commitment was not mentioned in the climate change plan.)

Newfoundland and Labrador's climate change plan, though it contains 40 "actions," is full of promises to study, examine, promote, encourage, educate, and inform.[128] In other words, it is virtually absent of meaningful policies that will reduce GHG emissions. For example, none of the actions address growing emissions from the oil and gas sector, though the plan includes a commitment to develop natural gas reserves, which will increase the province's emissions further.

The section on electricity commits only to using electricity for provincial consumption first, but says nothing about emissions. In fact, it acknowledges that the province has "a strong wind regime," but quickly dismisses this option since it will amount to "less than 10 per cent" of the island's electricity due to intermittency. The percentage is questionable, since wind power can easily be paired with hydroelectric resources – which Newfoundland and Labrador has in abundance – to address the wind's intermittent nature.

The first priority in the MOU signed between the provincial and federal governments is the role that large hydro projects can play in reducing emissions in Newfoundland and elsewhere.[129] One project area put forward by the federal government as part of its Partnership Fund is an east-west power grid to carry electricity (mostly hydroelectricity) from provinces with surpluses to provinces with supply problems. This possibility is reiterated in Newfoundland and Labrador's climate change plan.[130] No consideration seems to be given here or elsewhere to the scientific evidence that large hydro projects produce significant levels of GHG emissions.[131] In addition, large hydro developments have considerable impacts on the land, wildlife, and rivers upstream and downstream of the dams.

Policies to address GHG emissions from road transportation, the third greatest source of emissions in Newfoundland and Labrador, include: developing a climate change

information campaign for motorists, establishing idle-free zones around public buildings, and studying the feasibility of park-and-ride facilities. These are meek, at best, and are unlikely to reduce emissions.

There is one action item that does hold significant potential if the province was serious about reducing GHG emissions – the promise to use climate change criteria to screen infrastructure projects that receive public funding. This could direct public money towards sustainable energy and transportation projects. However, the criteria are not included in the plan, so it remains to be seen whether these will be as weak as the rest of the plan.

Newfoundland and Labrador's climate change plan also appears to take the issue of adapting to climate change seriously. This is smart, given the province's dependence on natural resources and its vulnerability to rising sea levels and more frequent extreme weather.

However, the province doesn't take *avoiding* dangerous climate change as seriously. One priority listed in the Newfoundland-Canada MOU involves the reduction of greenhouse gas emissions through renewable energy, energy efficiency, transportation policy, municipal planning, and solid waste management.[132] Unfortunately, this ambitious agenda is not reflected in Newfoundland's climate change plan.

RECOMMENDATIONS:

- Set an ambitious GHG emission reduction target.
- Implement policies to address emissions from sectors with the fastest growing emissions: oil and gas and transportation.
- Set an ambitious target for the deployment of renewable power.
- Place a portion of offshore oil revenues into a permanent public fund to aid transition from fossil fuel-based economy to one based on jobs in renewable energy.

[124] Environment Canada. 2005. Annex 12.

[125] Emissions from electricity and heat generation are "confidential" in Canada's inventory, but Newfoundland's climate change plan states that emissions are about 1.5 Mt, a small decrease from the 1.6 Mt in 1990. Emissions for transportation were obtained from Environment Canada. 2005. Annex 12.

[126] Government of Newfoundland and Labrador. 2003.

[127] Government of Newfoundland and Labrador. 2005.

[128] Ibid.

[129] Government of Canada and Government of Newfoundland and Labrador.

[130] Government of Newfoundland and Labrador. 2005. p. 33.

[131] Graham-Rowe.

[132] Government of Canada and Government of Newfoundland and Labrador.

Yukon's GHG emissions have decreased since 1990 due to the closing of the Anvil Range mine.

Yukon

STRENGTH:

- The only jurisdiction in Canada whose GHG emissions have decreased since 1990, though this is due to the closing of the Anvil Range mine.

WEAKNESSES:

- Climate change document is simply an inventory of pre-existing projects, not a plan with GHG emission reduction targets.
- No policies address emissions from transportation (the sector with the highest emissions), or oil and gas production (the sector with the fastest growing emissions).

MISSED OPPORTUNITY:

- Like Alberta, the Yukon's oil and gas sector could reduce emissions while saving itself substantial money in lowered energy costs.

Emissions

The Yukon's GHG emissions have decreased 8.6% since 1990, mostly due to a sharp, 89% decrease in emissions from electricity/heat generation.[133] This decline is largely due to the closing of the Anvil Range mine, a lead/zinc mine that dominated Yukon's electricity use and required the extensive use of diesel generators.

Road transportation still contributes the greatest share of emissions.[134] These have increased 13% since 1990, mostly due to heavy-duty diesel vehicles.[135] Even greater increases have come from the oil and gas sector, both the burning of petroleum products and fugitive emissions from oil and gas operations.

Yukon's Climate Change Plan

Rather than a climate change plan, the Yukon government released an inventory of climate change initiatives in 2001.[136] The list looks impressively long, but it includes initiatives from municipal and federal governments as well as other Yukon non-governmental organizations. The list is broken down into various themes (public awareness, research and education, incentive programs, decreasing government emissions, and technology), but the programs are mostly voluntary, educational, or involve small incentives. The Yukon government's website does have some useful "primers" on climate change and actions to combat it, but there are no regulatory measures, targets, or financial disincentives.[137]

The only program that is able to cite a small emission reduction is one that provides low-interest loans for homeowners to switch from low-efficiency electric heat to "alternative heating systems."[138] Other proposed programs that could be successful include one that provides home visits to share energy efficiency tips and low-cost technologies like compact fluorescent light bulbs, and one to connect the City of Dawson to the grid and eliminate its dependence on diesel generators.

However, this is not a plan. The document makes no commitments for future climate change programs or targets. The territory has not signed an MOU with the federal government.

RECOMMENDATIONS:

- Develop a climate change plan with further GHG emission reduction targets and an adaptation strategy.
- Implement policies to stem emissions from heavy duty diesel vehicles.
- Implement policies to reduce emissions from the oil and gas sector.

133 Environment Canada. 2004. Annex 12 and Annex 11.
134 Environment Canada. 2004. Annex 12.
135 Ibid. Annex 11.
136 Yukon Climate Change Coordinating Committee.
137 See Yukon Government website at http://www.environmentyukon.gov.yk.ca/epa/climate.html
138 Yukon Climate Change Coordinating Committee. p. 10.

A public review of the NWT climate change plan has called it ineffective.

Northwest Territories

STRENGTH:

- Relatively low GHG emissions on a per GDP basis.

WEAKNESSES:

- Climate change plan has mostly voluntary initiatives that will have very little effect on GHG emissions.
- A public review of the climate change plan dismissed every section as ineffective.
- Off-road vehicles, which have the highest and fastest growing GHG emissions, have not been addressed.

MISSED OPPORTUNITY:

- A public review of the NWT climate change plan gave concrete feedback and a timeline for updating it, but a new updated plan is now almost two years overdue.

Emissions

Even after their political split, GHG emissions data for the Northwest Territories (NWT) and Nunavut continue to be combined, making it hard to determine how each territory is doing individually. Available data show that their collective emissions have grown 15% between 1990 and 2003.[139]

NWT and Nunavut emissions from off-road vehicles have nearly doubled and they remain the greatest source of GHGs.[140] Emissions have also increased for heavy-duty vehicles (by 175%) and from the oil and gas sector (by 22%, mostly due to fugitive emissions).[141] These have been somewhat offset by decreased emissions from commercial, institutional, and residential buildings, which have been cut almost in half.

NWT Climate Change Plan

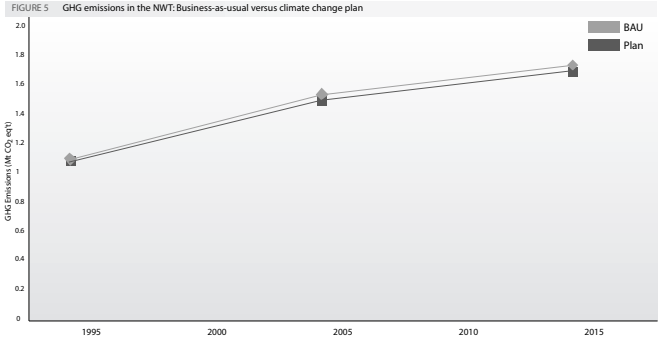
In March 2001, after stakeholder consultations, the government of the NWT released a greenhouse gas strategy.[142] Actions that made up the strategy were divided into five themes: increasing public awareness, reducing emissions from government, encouraging action in various sectors, promoting technology development, and investing in research.

The document did promote using a "precautionary approach" to climate change, calling it "one of the most serious environmental, economic, and political challenges of this century."[143] Otherwise, the document was very tentative in most respects. Rather than advocating emission reductions in the near term, the strategy's purpose was "to begin to control GHG emissions," with no elaboration on what "controlling" emissions means.[144] As can be seen from the way themes were worded – "encouraging" and "promoting" – all of the initiatives were voluntary. For example, one element of the plan was to "adopt energy efficiency building codes," but this code was voluntary even for projects funded by the NWT government.[145] The territorial government also has a voluntary target of having renewable energy supply 10% of total energy by 2010, though this target does not apply to industry, a large portion of energy usage.[146]

There was also a lot of hedging in the strategy. One section outlined all the reasons why decreasing emissions was difficult for the territory. The overall strategy was described as a "long-term, responsible" and "least net-cost" approach that "carefully considers sectoral and regional economies."[147] The territorial government seemed to imply that it might act over a long timeframe only if costs were low and there was no economic impact on any sectors.

The strategy did not set a numerical target for greenhouse gas emission reductions. It did estimate that the overall effect of the plan would be to reduce emissions from business-as-usual by 0.047 Mt (Figure 5).[148] Put another way, emissions in the NWT would rise 38% instead of 42% between 1996 and 2004, the timeframe for the strategy. (Emissions are projected to increase 56% by 2013, even if the original plan reached its expected emission reductions.[149]) Worse, the strategy was never brought to the NWT Cabinet for approval and the government continually referred to the strategy as a "draft."[150]

FIGURE 5 GHG emissions in the NWT: Business-as-usual versus climate change plan



One issue that was left unaddressed in the plan is that of the Mackenzie Valley Pipeline. The proposed pipeline would carry natural gas from the Mackenzie Valley through the Northwest Territories to Alberta. The project would increase emissions from both the production and transport of that natural gas.

In March 2005, a public review of the NWT greenhouse gas strategy was published, again based on stakeholder consultations.[151] Though the review agreed that the goals, objectives, and principles in the plan were good, assessment of the policies and how they had been implemented was scathing. Every theme in the plan was dismissed as ineffective and the government's overall approach was criticized for a lack of targets, an absence of an implementation plan, insufficient funding, and a lack of accountability.

The review recommended that the plan be updated by the NWT government, shared with stakeholders for feedback, and finalized.[152] The original plan suggested an update by January 2004, but this update is now expected in the fall of 2005.[153]

RECOMMENDATIONS:

- Develop an updated climate change plan with a GHG emission reduction target, using the recommendations from the public review.
- Implement policies to address emissions from off-road vehicles.
- Scrap the Mackenzie Valley Pipeline project and develop a sustainable energy and economic development strategy instead.

[139] Environment Canada. 2005. Annex 12.
[140] Ibid.
[141] Ibid.
[142] NWT Ministry of Resources, Wildlife and Economic Development.
[143] Ibid. p. 7 and 5.
[144] Ibid. p. 6.
[145] Ibid. p. 25.
[146] Pollution Probe.
[147] NWT Ministry of Resources, Wildlife and Economic Development. p. 7.
[148] Ibid. p. 10.
[149] NWT Ministry of Resources, Wildlife and Economic Development. p. 29-30.
[150] Terriplan Consultants. p. 1.
[151] Terriplan Consultants.
[152] Ibid.
[153] NWT Ministry of Environment and Natural Resources. p. 9.

Nunavut

Nunavut may face tremendous impacts from climate change.

STRENGTH:

- Relatively low GHG emissions on a GDP basis.

WEAKNESSES:

- No climate change plan and no GHG emission reduction target.
- High emissions and emissions growth from off-road vehicles.

MISSED OPPORTUNITY:

- Many remote Nunavut communities rely on expensive, decentralized diesel power. This could be complemented with renewable power to create a hybrid system, but few have undertaken such projects.

No Climate Change Plan

Determining Nunavut's plans for dealing with climate change is difficult, given the relatively few public documents developed by the territory on this matter. Canada and Nunavut signed an MOU on climate change action in October 2003, focusing mostly on mitigation, with only a few priority areas discussing impacts and adaptation.[154] This is somewhat surprising, given the wide-ranging impacts of climate change that have been documented in Canada's north. Most recently, these impacts were detailed in a comprehensive and well-publicized research project called the Arctic Climate Impact Assessment.[155]

Nonetheless, the territories' Northern Strategy may be a critical opportunity for Nunavut to develop a climate change plan, especially strategies related to coping with the considerable impacts of climate change.[156] The Northern Strategy is intended to address a broad range of issues and concerns of territorial people and governments, led by the federal Department of Indian Affairs and Northern Development. The three territorial premiers released a Northern Strategy framework in December 2004, with one of the environmental goals being "mitigation of, and adaptation to, climate change impacts."[157]

As part of the Northern Strategy, a roundtable was convened in Iqaluit in April 2005 to specifically discuss climate change. Overwhelmingly, the recommendations – under

the headings of "Traditional Lifestyles," "Wildlife," "Health," and "Infrastructure" – focused on adapting to the many impacts.[158] Only one recommendation addressed mitigation through alternative energy (the territory commissioned a small wind project of 1.3MW in 2003).[159] So far, the discussion seems to be at the "big picture," framework level.

RECOMMENDATIONS:

- Develop a climate change plan, with elements that address both GHG emission reductions and adaptation to climate change.
- Implement policies to address emissions from off-road vehicles, including working with the federal government to improve standards for these.

154 Government of Canada and Government of Nunavut.
155 Hassol.
156 See the Northern Strategy website at http://www.northernstrategy.ca/index_e.html.
157 Ibid.
158 The Canadian Arctic Resources Committee.
159 Pollution Probe.
160 Council of the Federation.

Conclusion and Recommendations

Provinces need to take more responsibility on climate change.

The Canadian government has been rightly criticized for its inability to implement meaningful climate change policies that would reduce the country's greenhouse gas emissions. Curiously, however, provinces and territories have largely escaped the same criticism despite considerable inaction on their part. Arguably, Canada's stalling on reducing greenhouse gas emissions (now 24% above 1990 levels) has as much to do with provincial opposition and intransigence as the federal government's lack of commitment or effectiveness.

Provinces and Territories

Provinces and territories need to act. Only Manitoba has set a GHG emission reduction target that is comparable to Canada's Kyoto target. Others have set targets that allow continued growth in emissions, while eastern provinces have set a voluntary target that is weaker than Kyoto's through their agreement with New England states. To be taken seriously, provinces and territories need to set ambitious, but achievable, longer-term targets and interim milestones to determine if they are on track. This can be done individually or collectively, through the Council of the Federation energy strategy, which is to be developed by provincial and territorial premiers.[160]

Experience has shown voluntary programs are insufficient to deliver on climate change. Yet, many provincial and territorial programs are filled with good intentions (e.g. educational initiatives, programs to "encourage" action, promises to "study" the problem) that are not backed up with regulatory measures and strong incentives and disincentives. Provinces and territories instead need to use the full suite of policy measures.

Many parallels exist among provinces and territories in the situations they face and the way they react:

- Emissions are rising rapidly from transportation. Policies should be put into place to address these, including legislation to contain urban sprawl, strong incentives and

disincentives to improve the fuel efficiency of personal vehicles, funding for public transit, and policies to reverse the trend of hauling more and more freight by road and less by rail.
- Building standards are woefully outdated. Most provinces encourage or promote using more efficient building codes, such as R-2000 and C-2000 for residential and commercial buildings. They should instead mandate their use.
- Unsustainable forms of electricity are still given priority in many places over conservation, energy efficiency, and renewable energy. Arguably, the federal government has done more to encourage clean energy development, through its production incentives, compared to provinces or territories. Sustainable energy options are often cheaper than large hydro, nuclear, natural gas, and coal power, especially when health and environmental costs are factored in.
- The oil and gas industry, and the provinces they reside within, are resistant to address the rapidly rising emissions from oil and gas production and petroleum refining. Eventually, provinces and territories will have to increasingly develop other economic sectors. They should begin now, by eliminating subsidies to the oil and gas industry, increasing royalties on production, and legislating reductions in GHG emissions from this sector.

Provinces have the ability to learn from one another. Some are already using progressive policies in certain areas, for example:

- BC's long-standing commitment to protect agricultural land and stem urban sprawl
- Alberta's commitment to having 90% of government electricity come from renewable sources
- Saskatchewan's policy of giving tax rebates on the purchase of energy-efficient appliances
- Manitoba's target for substantial emission reductions, partly through a comprehensive program to train technicians in installing ground source heat pumps
- Quebec's commitment to significantly invest in decreasing electricity demand and using renewable power for any additional electricity needs it might have
- PEI's commitment to have 100% of the province powered by renewable energy

Unfortunately, there are no comprehensive programs within and across provinces and territories. The provinces should expand their energy strategy development to consider adopting best practices in all policy areas related to climate change.

The Federal Government

The Canadian government, by using policy tools it has available to it, can and should help provinces to achieve reductions in their areas of jurisdiction. For example, a strong Large

Final Emitters (LFE) system – which includes the oil and gas sector, the electricity sector, and much of the manufacturing sector – would prompt companies in these sectors to engage in substantial climate change action. As it stands, the LFE program has set a target that is much too low: only 36 Mt or 13% of the total Canadian climate change plan.

The same can be said for the deal struck with automakers, whose voluntary deal is unlikely to provoke real reductions in GHG emissions from personal automobiles. At the very least, a regulated backdrop should be drafted by the federal government and be imposed if car manufacturers do not honour their agreement. This could complement other initiatives such as sprawl containment through smart urban planning at the municipal level and a provincial-territorial feebate system that encourages the purchase of fuel-efficient vehicles and discourages the purchase of gas guzzlers.

Cooperation

There are many opportunities where a cooperative federal-provincial-territorial approach could leverage real action. Complementary legislation can be used in areas that span federal-provincial jurisdiction.

The federal government can use financial resources through the Partnership Fund to leverage cooperation and action at the provincial/territorial level. The Fund should use strict criteria, as the Green Municipal Funds did, to ensure that funded projects are successful in getting Canada on track for emission reductions. Projects should deliver verifiable and additional emission reductions in the Kyoto period, be based on existing, proven technology, and place Canada on a path to much deeper greenhouse gas emission cuts beyond 2012.

Several opportunities for cooperation using funds from the Partnership Fund include:

- The implementation of aggressive demand-side management (DSM) and conservation programs for the electricity sector. These options are often the most cost-effective way for provinces to fill the present or future gap between electricity supply and demand while allowing significant, low-cost greenhouse gas emission reductions
- Country-wide legislation of strong building codes, developed by the federal government, to improve the energy efficiency of commercial, institutional, and residential buildings
- Collaborative funding for sustainable transportation infrastructure, including urban transit projects, bike and pedestrian investments, and rail infrastructure for the transport of passengers and goods
- The commercialization and use of cellulosic ethanol, whose lifecycle CO2 emissions are considerably below other fuels, including grain-based ethanol

Canada can draw on experience from past collaboration on environmental issues

between federal, provincial, territorial, and municipal governments. The federal government's Green Municipal Funds program has been very successful at creating sustainable projects in cities. Canada's Wind Power Production Incentive has played a key role in the considerable number of wind power projects that have been implemented or announced.

In the end, though, it is up to provinces and territories to take more responsibility for climate change action. Canadians overwhelmingly support the Kyoto Protocol. They expect the federal government, provinces, territories, and cities to act now to ensure that the country as a whole meets its international commitments. So far, provinces and territories have not done their part.

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Canada signed the Kyoto Protocol in 1998 and ratified in 2002. The federal government has also released several climate change plans, but it has limited jurisdiction for implementing climate change policies.

All Over the Map: A Comparison of Provincial Climate Change Plans assesses available climate change plans and analyzes the province's commitments to meet the challenges of climate change. The report finds that, though plans and results vary, the provinces and territories have generally not shown leadership in areas within their jurisdiction.

While there are pockets of innovation, the absence of a sustained, concerted effort at the provincial and territorial level has resulted in increased greenhouse gas emissions and missed opportunities in the development of sustainable energy and transportation technologies.

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