TALKING WITHOUT WALKING: CANADA'S INEFFECTIVE CLIMATE EFFORT

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11 Talking without Walking: Canada's Ineffective Climate Effort

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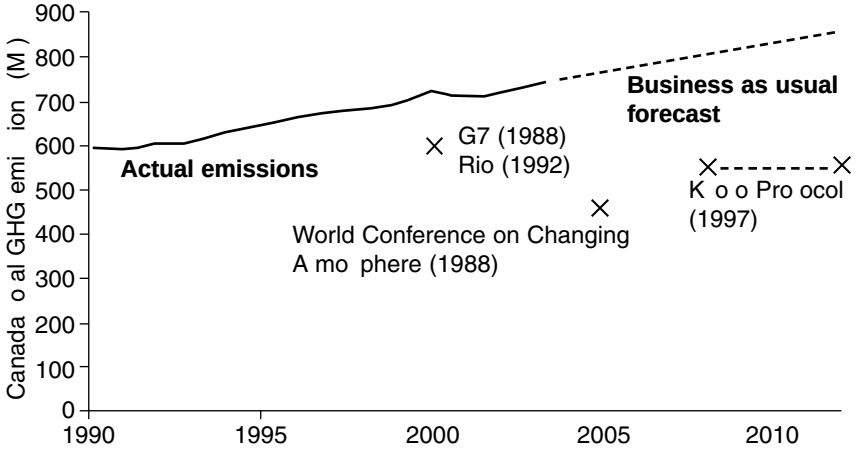
Since the late 1980s, Canada has been an active participant in international negotiations to limit emissions of greenhouse gases (GHG) in order to reduce the risk of human-induced climate change. In these processes it has made several commitments to decrease its domestic GHG emissions. To meet these commitments, the government's dominant policy approach has been to provide information and subsidies to encourage Canadian businesses and consumers to voluntarily shift to technologies and lifestyles that reduce GHG emissions.

As chapters 1 and 2 have shown, however, during this period domestic GHG emissions have continued to rise and the country's GHG trajectory shows no signs of deflecting downward. In fact, domestic emissions have risen more rapidly in the past fifteen years than in the preceding decade of 1980 to 1990 when government had no GHG policy.

In this chapter, we attempt to explain the reasons why Canada has done a lot of talking but not walking when it comes to GHG emissions reduction. Some of the reasons relate to complex forces of growth that governments are usually unable or unwilling to control in pursuit of environmental objectives: population growth, economic growth, and growth in the exploitation of valuable natural resources such as the oil sands of Alberta. Some of the reasons relate to reliance on ineffective policies, such as information and subsidies, to induce wide-scale voluntary actions by firms and households. These ineffective policies are explained in part by a poor understanding of the full costs of technological change. They are also explained by jurisdictional and regional divisions in Canada and, as Clarkson's analysis in chapter 4 has shown, by the country's close trading ties to the United States – a

country that has refused to make a national commitment to reduce GHGs.

Fig re 11.1 GHG emi ion in Canada, 1990 2003, and in erna ional commi men o red ce GHG emi ion



So rce: Canada Greenho e Ga In en or 2005 (En ironmen Canada 2006).

it has agreed to. Figure 11.1 compares Canada's international commitments to reduce GHG emissions with its actual emissions record from 1990 to 2003. Canada's emissions had risen to 24 per cent above 1990 levels by 2003, meaning that it has missed targets agreed to at the 1988 G7 meeting, the 1992 Earth Summit in Rio, and the 1988 World Conference on the Changing Atmosphere. In addition, Canada's domestic emissions will greatly exceed its Kyoto commitment in the 2008–2012 target period. Current estimates are that, in spite of domestic commitments and apparent policy efforts, Canada's emissions are on a path to exceed its Kyoto target to a very significant extent in 2010 (Government of Canada 2005).

Canada's record on GHG emission reduction appears to be more ineffective than that of other G7 countries, including the United States, even though the latter has refused to ratify the Kyoto Protocol. Figure 11.2 shows that Canada's high level of GHG emissions per capita in 1990 had increased by 2002, while that of the United States and most other countries declined. Japan and Italy saw some increase in per capita emissions, but their levels remain less than half that of Canada. At an aggregate level, Canada's increase of over 20 per cent

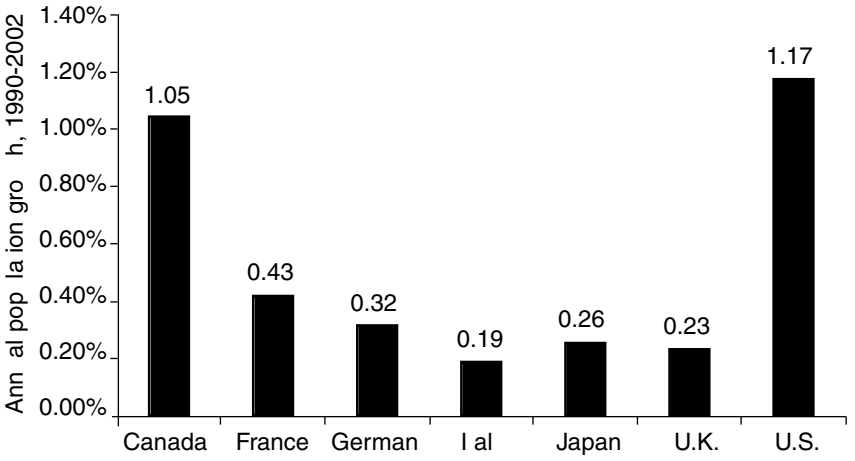
in its total emissions during this period far exceeds that of any other G7 country.

To understand why Canada's GHG emission abatement effort has been so ineffective in achieving, or even progressing toward, its international commitments, it can be helpful to distinguish between the different drivers of GHG emissions. The Kaya Identity (Kaya 1990) decomposes total GHG emissions into a series of explanatory factors:

$$GHG = \sum_{ij} Pop \cdot \quad \cdot \quad \cdot \quad \cdot \quad \cdot \frac{GHG_{ij}}{E_{ij}}$$

Pop is population, GDP is gross domestic product, and E is energy, and where the subscript i indexes subsectors of the economy and j indexes fuel types. The Kaya Identity shows that total GHG emissions in a country result from the size of the population, per capita income (GDP per capita), economic structure (relative size of different sectors

Figure 11.3 Population growth in G7 countries, 1990–2002



Source: Energy Information Administration 2003.

second only to that of the United States, it is Canada's high immigration rate that has contributed most to the relatively high population growth from 1990 to 2002. Canada had the highest immigration rate of the G7 countries during the period, about 17 per cent higher than the United States, and far higher still than European countries and Japan (Statistics Canada 2005).

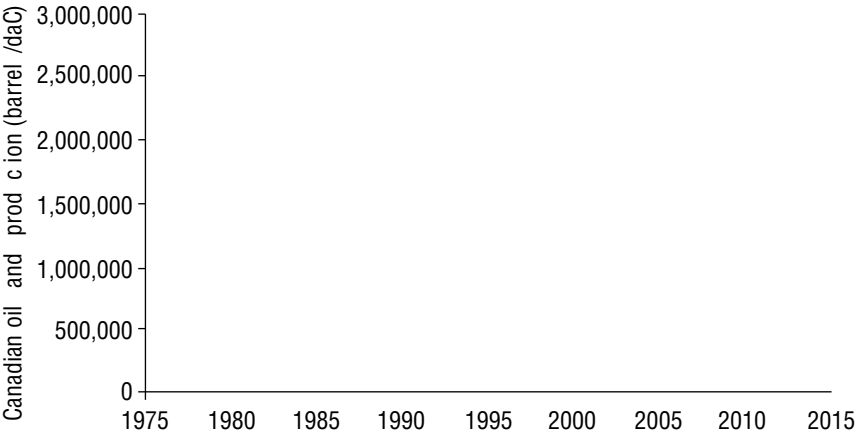
Canada's relatively fast growing population has been an important contributor to its increasing GHG emissions. Had its growth rate been 0.3 per cent per year, similar to that of the European countries and Japan, Canada's GHG emissions would have grown only by 10.6 per cent from 1990 to 2003, instead of 24 per cent.

Canada's population growth rate is likely to remain high, relative to that of other developed countries, for several decades to come. Because it has a higher birth rate and somewhat younger population than European countries, Canada's death rate is not expected to exceed its birth rate until about 2025 (Statistics Canada 2005). Further, there is no indication that Canada will attempt to lower its immigration rate in the near future. As a result, population growth will continue to exert a strong upward influence on overall GHG emissions in Canada for the foreseeable future.

Economic Growth

Canada's annual GDP growth (US$2000) from 1990 to 2002 was 2.9 per cent, equal to that of the United States and significantly greater than that of all other G7 countries (Energy Information Administration 2003). Economic growth in Canada surpassed that of Europe and

Fig re 11.5 Canadian oil and o p and foreca , 1975 2015



So rce: Hi orical oil and o p from Na ional Energ Board (2004). Foreca ed oil and o p from Canadian A ocia ion of Pe role m Prod cer (2005).

Canada's GDP will grow at an average rate of 2.6 per cent through 2025.

Oil Sands Growth

With 174 billion barrels of proven oil reserves, Alberta's oil sands make Canada the country with the second-largest oil reserves in the world after Saudi Arabia (Oil and Gas Journal 2002). Limited commercial development of the oil sands started in 1967, but engineering challenges and high extraction costs constrained output for several decades. However, since the mid-1990s, technological advances, and more recently higher world crude oil prices, have stimulated significant expansion of oil sands operations. Daily oil sands production has tripled in volume since 1990, and is projected by the National Energy Board to continue its rapid growth (figure 11.5).

Oil sands are extracted either by surface mining (and then washed to remove bitumen from sand, silt, and clay) or by injecting steam into deeper deposits, which frees oil from the sand and drives it to the

ated with greenhouse gas abatement, especially from the energy sector (Jaccard, Nyboer, Bataille, and Sadownik 2003). Researchers have historically fallen into two groups. Environmentalists and engineers have a good understanding of technologies, but a limited understanding of economics and human behaviour. They tend to see myriad technological opportunities throughout the economy for cost-effective reductions of greenhouse gas emissions. For example, their typical analysis of the transportation system shows simultaneous GHG benefits and financial cost savings for individuals that would accompany a wholesale switch from private automobiles to public transit. They call such examples no regrets opportunities for GHG reductions. Because they identify many no regrets opportunities, they conclude that the cost of major GHG reductions is small or even negative. Given this low cost, they often recommend that government use information and subsidies to convince households and firms to act on these GHG reduction opportunities for financial gain or for moral reasons.

The second group consists primarily of economists, who have a less developed understanding of technologies, but a more complex understanding of costs and economic feedback effects. Economists argue that market evidence shows that the financial cost identified by the engineers / environmentalists is only one factor that determines the full costs of adopting a particular technology or lifestyle. For various

cost produced by a conventional engineering costing approach and a conventional economics costing approach (Rivers and Jaccard forth-

Table 11.1 Primar policie for GHG red c ion nder Ac ion Plan 2000

Sec or	Ini ia i e	Polic pe
Tran por a ion	Par ner hip i h a omo i e man fac rer and e hanol prod cer	N/A
	Informa ion pro i ion hro gh EnerGuide for Vehicles	Informa ion
	Demon ra ion projec for h drogen di rib ion infra r c re and efficien rban ran por a ion	Informa ion
Energ ec or	Demon ra ion projec for carbon eq e ra ion	Informa ion
	Informa ion pro i ion and moral a ion hro gh he Canadian Ind r Program for Energ Con er a ion	Informa ion
	Vol n ar agreemen i h ind r	Vol n ar
	Financial incen i e for rene able energ	S b id
	P rcha e of green po er b go ernmen	N/A
Ind r	Informa ion ga hering and benchmarking	Informa ion
	Energ -efficienc a di for mall and medi m en erpri e	S b id
B ilding	Informa ion pro i ion o enco rage re rofi in commercial ec or	Informa ion
	Informa ion pro i ion hro gh EnerGuide for Houses	Informa ion

Source: Adap ed from Ac ion Plan 2000 on Clima e Change.

all on a voluntary basis. The NAPCC also included other policy measures at the non-compulsory end of the policy evaluation spectrum, including the Federal Buildings Initiative, whereby federal government buildings would be retrofitted for energy efficiency, and the National Communication Program would educate Canadians about climate change.

After signing the Kyoto Protocol in 1998, the federal government launched Action Plan 2000 on Climate Change, a set of initiatives designed to reduce annual domestic emissions of GHGs by 49 Mt CO_2e by 2010 (Government of Canada 1998). As table 11.1 shows, most of these initiatives continued the non-compulsory approach, including some limited subsidies for renewable energy and some financial assistance for energy audits in small businesses.

Prior to ratifying the Kyoto Protocol in 2002, the federal government released the Climate Change Plan for Canada, which outlined policies for reducing emissions by a further 100 Mt CO_2e by 2010 (Government of Canada 2002). The primary program proposed in the Climate

Change Plan, responsible for 55 Mt of emissions reductions, was a system of negotiated covenants with large industrial emitters (including electricity generators), including an emissions intensity cap for key sectors and a tradable permit system. If implemented, this policy would have deviated somewhat from the non-compulsory approach that had characterized the government's policy direction. However, the extent to which the proposed emissions cap-and-tradable permit system should be considered a compulsory policy depends on whether government negotiators had a political mandate for firm reductions, even were these to cause some costs to industry, or were instead constrained to negotiate only what industry was willing to accept.

Other policies in the Climate Change Plan continue the focus on voluntary action complemented with modest government subsidies. These programs include some financial support for public transit coupled with a voluntary target for increased transit use; encouraging high-efficiency insulation standards by commercial building developers; a voluntary target of 10 per cent renewables for new electricity generation; and a voluntary target for improved vehicle efficiency. Through a combination of these programs in concert with broader information programs, government expected that each Canadian would reduce average annual GHG emissions by one ton. It counts for 24 Mt of these reductions (assuming that over 75 per cent of Canada's 31 million citizens reduce GHG emissions by one ton) in forecasting the impact of its approach on emissions.

In early 2005, the government released Project Green: A Plan for Honouring Our Kyoto Commitment (Government of Canada 2005). While much of this new plan continues previous programs, there are some differences. The system of negotiated covenants with the large final emitters was eliminated, and the proposed target for the sector was adjusted from 55 down to 45 Mt. In addition, Project Green proposed that large final emitters be allowed to contribute to a government-administered research and development fund for greenhouse gas reduction technologies instead of reducing emissions or purchasing offset credits (contributions to this fund can count for only a maximum of 9 Mt of the large final emitter goal), effectively further reducing the large final emitter target to 36 Mt.

Other major thrusts in Project Green include expanded support for renewable energy through continued funding of the Wind Power Production Incentive and the start of the Renewable Power Production

Incentive, which both provide about $0.01/kwh for qualifying power generation projects; a Climate Fund, with initial funding of $1 billion, that aims to purchase domestic and international offset credits; a Partnership Fund to encourage provincial participation in climate change mitigation; and the One-Tonne Challenge to encourage voluntary action by Canadians.

Finally, in 2006 and 2007, the newly elected Conservative government launched a series of initiatives under its 'ecoACTION' banner, culminating in the release in April 2007 of its 'regulatory framework

and 2). Harrison and Antweiler (2003) find that voluntary policies have had limited success in controlling pollutants released by firms in Canada, and Harrison (1999) shows that the aggregate effect of voluntary policies is questionable. In a survey of voluntary approaches to environmental protection, Khanna (2001) noted that only a few empirical studies have tried to estimate the actual environmental impact of such programs, and found that these have not had much effect. Similarly, the OECD recently concluded that the 'environmental effectiveness of voluntary approaches is still questionable.' It added, 'The economic efficiency of voluntary approaches is generally low' (OECD 2003, 14). Studies have also specifically addressed the voluntary nature of Canada's GHG reduction program, and found them almost entirely ineffective (Bramley 2002; Takahashi, Nakamura, van Kooten, and Vertinsky 2001).

Similar criticism has been made of subsidy programs to encourage energy efficiency and reduced GHG emissions. It is difficult to design subsidy programs to exclude free-riders – participants who qualify for the subsidy even though they would have undertaken the action anyway. Presence of such participants significantly reduces the cost-effectiveness of a subsidy program. Sutherland (2000) conducted a simple analysis of subsidy programs, using comparative statistics, and found that most benefits of subsidy programs accrue to free-riders. He concluded, 'The simple, but unfortunate principle is that rebates (subsidies) have their greatest appeal to exactly the wrong participants. An implication of this principle is that rebates (subsidies) are unlikely to be cost-effective' (Sutherland, 2000, 91). There is empirical evidence to support this claim. Loughran and Kulick (2004) showed, in a survey of demand side management programs in the United States, that the cost of subsidy programs is often higher than expected. By comparing relative changes in electricity consumption over a decade in jurisdictions with demand side management (usually subsidy) programs to those without, they found that the benefits are systematically overestimated, often because the electric utilities ignore the effects of free-riders.

Subsidy programs also suffer from the unintended problem of encouraging a rebound effect in the demand for energy services. By subsidizing efficient technologies, government is effectively making the service provided by the technology less expensive. As a service become less

effect reduces the effectiveness of energy efficiency programs by about 10–35 per cent (Greening, Greene, and Difiglio 2000).

Act, giving itself greater jurisdictional authority to take actions under its environmental protection mandate. This will improve its ability to pursue compulsory policies.

Second, Canada's status as one of the most open economies in the world (it derives almost half of its GDP from trade) has also hindered its inherent capacity and ability to implement stringent GHG reduction policies, especially after its U.S. trading partner withdrew from the Kyoto Protocol in 2001. Industry and labour groups in Canada are concerned that implementation of policies that would reduce emissions substantially in Canada would slow economic growth and cause job losses. This opposition has constrained the ability of the federal government to pursue more stringent climate change abatement policies.

Canada's Exceptionally Unrealistic Kyoto Commitment

Even if Canada had applied effective, compulsory policies within two years of signing the Kyoto Protocol in 1997, it would have been extremely difficult to have achieved its Kyoto commitment in 2010. Its commitment is exceptionally aggressive, compared to the Kyoto commitments of other countries.

Canada has significantly missed past GHG emission targets, and with 2003 GHG emissions 24 per cent above the 1990 level, appears on track to dramatically exceed its Kyoto Protocol target. Canada's Kyoto Protocol target is shown in table 11.2 relative to all other Annex B signatories of the Kyoto Protocol.[2]

Increasingly, Canada's GHG commitments, particularly its Kyoto Protocol target, are recognized as the most challenging in the world. Canada's Kyoto Protocol target to reduce emissions to 6 per cent below the 1990 level by 2008–12 is at the more aggressive end of the range of targets negotiated by Annex B countries, although somewhat less aggressive than that of most European countries. However, even in the absence of climate change policies, GHG emissions in European countries would have decreased after 1990 as a result of two major economic changes. First, the dissolution of the Soviet Union caused a major economic downturn in countries that formerly comprised it, including, as the Weidner and Eberlein analysis of German climate change in chapter 12 shows, East Germany. This economic downturn was accompanied by a large decrease in GHG emissions in these coun-

Table 11.2 Co n rie incl ded in Anne ¸ B o he K o o Pro ocol, heir emi ion arge , and heir c rren emi ion

Co n r	Targe (1990[b]) 2008/2012)	Change in emi ion (1990 2003)[d]
EU-15,[a] B lgaria, C ech Rep blic, E onia, La ia, Liech en ein, Li h ania, Monaco, Romania, Slo akia, Slo enia, S i erland	-8%	EU-15 = -1.4% FSY co n rie = -25% o -60% e ¸cep Liech en ein = +5%
U.S.[c]	-7%	+13.3%
Canada, H ngar , Japan, Poland	-6%	Canada = +24.2%, Japan = +12.8%
Croa ia	-5%	-6.0%
Ne Zealand, R ian Federa ion, Ukraine	0	R ian Federa ion = -38.5%
Nor a	+1%	+9.3%
A ralia[c]	+8%	+23.3%
Iceland	+10%	-8.2%

[a]The EU-15 member ha e agreed o redi rib e heir arge among hem el e .
[b]Some economie -in- ran i ion ha e a ba eline o her han 1990.
[c]The Uni ed S a e and A ralia ha e indica ed ha he ill no ra if he K o o Pro- ocol.
[d]E ¸cl ding land- e, land- e change, and fore r .
Source: Uni ed Na ion Frame ork Con en ion on Clima e Change, Ke GHG Da a, 2005.

natural gas for power generation, primarily for economic reasons. This change reduced methane emissions from coal mining and GHG emissions from power generation significantly. Because of these changes, the Kyoto targets agreed to by European nations do not represent a large departure from business as usual trends. In contrast, because of a fast-growing economy and population, as well as rising oil sands output, GHG emissions have increased quickly in Canada since 1990. In other words, the factors beyond government control acted to reduce GHG emissions in the European countries, while they exerted the opposite pressure in Canada.

Table 11.2 shows that the United States negotiated a -7 per cent Kyoto Protocol target, which is more aggressive than Canada's.

However, the United States has indicated its intention not to ratify the protocol, effectively negating its target. Norway negotiated a +1 per cent target, with the less aggressive target reflecting limited opportunities for GHG reductions from Norway's predominantly hydroelectric power generation system, as well as its forecasted growth in crude oil output for export throughout the 1990s. Australia (which did not ratify the Kyoto Protocol) negotiated a +8 per cent target, which still represents an aggressive target in the face of Australia's fast-growing population and economy. Canada, with a predominantly hydroelectric power generating system and rising crude oil production, like Norway, and with a fast-growing population and economy, like Australia, still negotiated a large reduction in GHG emissions under the Kyoto Protocol. Taking into account the trends discussed throughout this chapter, Canada's GHG reduction targets are probably the most aggressive of all countries bound by the Kyoto Protocol.

Conclusions

Since 1988, Canada has committed internationally to several GHG reduction targets, with the most recent being a 6 per cent reduction of GHG emissions below the 1990 level between 2008 and 2012, under the legally binding Kyoto Protocol. Canada's GHG emissions since 1990 have risen by 24 per cent (through 2003), and appear on track to continue this fast-paced growth. As a result, Canada has missed several historic GHG reduction targets, and domestic emissions appear likely to substantially exceed the Kyoto Protocol target. Canada's record on GHG emissions growth is amongst the worst in the developed countries. As we have seen, there are several reasons why Canada's emissions have increased so quickly since 1990.

First, Canada's population is growing quickly, partly as a result of natural increase (births and deaths), but more importantly as a result of Canada's high immigration rate. Canada's fast population growth, which is somewhat unusual amongst developed countries, is the largest contributor to the fast growth in GHG emissions. Second, Canada's growth in per capita economic activity, which is also somewhat unusual amongst developed countries, has been an important factor. Third, Canada has aggressively developed its oil sands since 1990. Since production of oil sands is energy- and GHG-intensive, this has been an important factor. All of these factors are generally considered beyond the scope and capacity of governments in addressing climate change.

Also, Canada has been ineffective in influencing those factors generally considered to be within the scope of climate policy. In stark contrast to Germany (see chapter 12 by Weidner and Eberlein), Canada's federal government has relied almost completely on non-compulsory policies to encourage GHG reduction, even though increasing evidence suggests that this approach is ineffective and hard to coordinate. Canada negotiated perhaps the most aggressive GHG target in the world under the Kyoto Protocol, and its main trading partners are not faced with similar targets. As a result, Canada's government has been constrained in its lack of capacity to enact policies because of complex arguments by industry, labour, and regional interests that this will have negative impacts on economic competitiveness and employment. It seems likely that Canada will fail its Kyoto Protocol targets more dramatically than any other country.

Most of these trends are not likely to change over the next two decades. Canada's population is projected to continue growing, as a result of natural increases and immigration, which will increase GHG emissions. Canada's economy is also projected to continue its fast pace of growth over the coming two decades. Forecasts have been developed for oil sands production in Canada over the coming two decades, and show continued rapid expansion for the foreseeable future. In the absence of dramatically different processing technologies (such as carbon capture and sequestration) this trend will also increase GHG emissions. In terms of policy, although Canada has tentatively begun to explore more compulsory GHG reduction policies, it continues to concentrate mostly on less effective non-compulsory policies in order to minimize political resistance.

Postscript May 2008

In the period between the writing of our chapter and the final editing of this collective manuscript, there have been several climate policy developments in Canada, at the provincial and federal levels. In presenting these, we focus on the policy initiatives in Al-75 A47216 9 (pe4721BC6 (e.47

Alberta

In 2007, after a decade of unfulfilled negotiations with industry by the federal government, Alberta introduced the country's first cap-and-trade regulatory system on the major industrial GHG emitters within the province. The policy covers only large industrial emitters – oil and gas extraction and processing, refineries, electricity generators, petro-

cent intensity reduction required by the regulation, then emissions could actually rise. Indeed, the Alberta policy is conspicuously silent on future rates of intensity reduction. (This is in contrast with the proposed federal policy that starts with an 18 per cent requirement by 2010 and then an annual 2 per cent intensity reduction in future periods.) Second, the policy does not provide a carbon price signal across the entire Alberta economy. The offset provision for unregulated sectors is supposed to take care of this job, but we have already shown the overwhelming evidence from international research and past Canadian policy that subsidies to emission reduction, whether from government or other private entities, are likely to be highly ineffective because of the impossibility of preventing free-ridership – offset payments to farmers, foresters, small businesses, and consumers for reductions they were going to make anyway, and therefore have no downward effect on the GHG trajectory. Third, the value of emissions reductions tend to be more uncertain in a cap-and-trade system in comparison to a carbon tax. But this critique is only partial in that the technology fund provides a sort of price cap for industry, at least for the next while.

In January 2008, in anticipation of the March provincial election, the Alberta government released a climate policy update that included some additional policies and set a long-run target for GHG reduction. The major policies included an offer to subsidize carbon capture and storage by industry, support for renewable energy, tighter energy efficiency standards for buildings, assistance to municipalities to plan low-emission urban development, and assistance for sequestration and emissions reductions in the forestry and agricultural sectors.

According to the government, the net effect of its policies over several decades will be to reduce Alberta emissions about 50 per cent from their projected levels in 2050. However, because these emissions

in the industrial emissions cap-and-trade system being developed by states in the western United States, with the potential participation of some Canadian provinces, and potential changes to vehicle emissions standards and building codes.

It is too early to say if the BC government's policies will be sustained. But for the moment, they represent a radical departure from two decades of ineffectual policies.

Canada

In reports for the C.D. Howe Institute, we have assessed the Canadian government's recent climate policies. In 2007, we estimated that while the policy package developed in 2006–7 by the federal Conservative government would significantly slow the growth of Canadian emissions over the next decades, these policies would not achieve the government's commitment of a 20 per cent reduction from 2006 levels by 2020. We estimated that Canadian emissions in 2020 would be close to today's levels rather than 20 per cent below them.

in the unregulated sectors of the Canadian economy – just like the Alberta industrial policy with its unlimited Alberta-specific offsets.

Implicitly acknowledging the critiques from various parties (including us) that the government's 2007 policy package would not achieve its 2020 emissions target, the government also set facility-specific, technology-based emission intensity requirements on future investments in oil sands production and coal-fired electricity generation. Specifically, oil sands processing plants and coal-fired electricity generation facilities completed after 2017 will have their intensity target based on the assumed incorporation of carbon capture and storage technologies. In the interim, facilities completed between 2004 and 2017 would be required to meet the emissions intensity levels equivalent to the best conventional technologies available today in oil sands production and electricity generation. This would be oil sands production using natural gas for upgrading and coal-fired generation using 'supercritical' steam.

These are not technology requirements. They are facility-specific emission intensity requirements based on low-emission technologies expected to be commercially ready over the next decade. Estimating the effect of these policies on future industrial emissions is complicated. It depends on the definition and relative costs of the flexibility provisions. If offsets are of relatively low cost, large industrial emitters

should put a tight cap on the allowance for offsets. Better still, it should disallow them all together and extend the cap-and-trade system to the entire economy or use a carbon tax to cover all remaining unregulated emissions.

A key benefit of a uniform economy-wide price on greenhouse gas emissions is that it ensures that society does not pursue high cost emissions reductions in one sector while ignoring low cost actions in another. Such an approach is a more costly way to achieve a given level of emissions reduction. Yet the government's policy is headed in just this direction. Large industrial emissions face a price different from that for consumer emissions. In fact, the emissions from using a backyard patio heater, and thousands of other such devices, are free under the Conservative government's approach. Even within the industrial sector, the 'refined' policy has many similar conditions. Emissions from new facilities face a emissions price different from that for old facilities. Process emissions, which are not covered by the regulation, face in effect a price of zero dollars / tCO_2. This is likewise the case for emissions from small industrial facilities that are exempt from the federal policy. With these and other provisions, the federal policy will be much more costly than need be.

Another cost associated with the federal climate policy approach, which stands in sharp contrast to a carbon tax, is all of the extra bureaucratic and transaction costs it causes. Conservative governments promote themselves as being especially keen to reduce the burden of government on society. Yet the offset system and other technology-specific provisions in the policy require multiple regulatory procedures and will require a large staff to administer them properly. The offset system alone has a great potential for fraud, as investigators are already finding out with companies providing offset services to the airline industry. Administrative costs are likely to be substantial.

At the same time, a cap-and-trade system requires many brokers and traders for permit exchanges – costs to society that are not required by a simple carbon tax, which relies on existing taxation systems. It is again ironic that a Conservative government should be responsible for taking such a costly approach to achieving society's climate policy objectives.

Finally, another concern is how the federal government's climate policy approach will mesh with the policies of provincial governments and Canada's major trading partners. This is a difficult question. Europe has an absolute cap-and-trade system, while Canada's is inten-

sity based. The United States may implement a policy similar to that of Europe. Within Canada, the new carbon taxes in Quebec and BC create a challenge for attaining national policy cohesion.

The latest developments in federal climate policy in Canada do, indeed, represent an improvement over the largely non-compulsory policies of the past. But with the exception of the policies of the government of British Columbia, Canada has a long way to go before closing the climate policy gap with many European countries such as Germany.

NOTES

1 Extracting synthetic crude from oil sands produces about 100 kg carbon

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