

WHY ACT NOW?

CAN CANADA AFFORD TO DELAY GREENHOUSE GAS EMISSION REDUCTION ACTION BEYOND THE 2000 FEDERAL BUDGET?

*By delaying strong action to reduce
greenhouse gas emissions Canadian
governments put Canadians' health at
greater risk, risk Canada's economic
prosperity, and reduce the likelihood of
successful international atmospheric
protection measures*

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While greenhouse gas emissions can be reduced dramatically through measures that are worth doing for reasons that include protecting human health, improving competitiveness, saving consumers' money and improving the liveability of cities, delaying action will likely prove expensive. Barring an almost unimaginable derogation of responsibility towards the citizens of the globe, the increasing scientific consensus around the need to act makes international greenhouse gas emission limits a virtual certainty. Canada needs to position itself for this inevitability.

This brief considers the international imperative for reducing greenhouse gas emissions and the costs – to both Canadians' health and the Canadian economy -- of delaying action to reduce emissions. It urges Members of Parliament to support extensive funding for greenhouse gas emission reductions in the 2000 Federal Budget.

EXECUTIVE SUMMARY

This brief calls for Parliamentarians to support strong measures in the Year 2000 Federal Budget for the reduction of greenhouse gas emissions in all sectors of the Canadian economy. While the *Kyoto Protocol* is not yet in force and does not impose emission limits until 2008, the need to act has never been greater. There are a number of reasons for immediate action:

First, unlike previous climate agreements, once the *Kyoto Protocol* is in force, failure to reduce emissions will be a clear breach of international law, and the breach will have consequences. Canadians cannot ignore Kyoto.

Second, scientific certainty surrounding the threat of climate change has gained momentum throughout the last decade and makes international action a virtual certainty. In the long term, global reductions of 50% or more will be needed to stabilize climate, with deeper cuts needed if action is delayed. Thus, Canadian actions to reduce greenhouse gas emissions are not only necessary to meet the imperative of the *Kyoto Protocol* but also to meet inevitable long-term reduction targets.

Third, climate change is caused by the same thing that causes air pollution: the burning of fossil fuels. Recent studies show that eight percent of all non-traumatic mortality in Canadian cities is attributable to air pollution caused by the burning of fossil fuels. Aggressive measures to reduce Canada's greenhouse gas emissions will save Canadian lives.

Fourth, while major reductions in greenhouse gas emissions are possible through measures worth doing for other reasons, successfully realizing this no-regrets potential depends on timing. There are a number of costs of not taking immediate action and benefits to taking earlier action:

- In the absence of immediate action more investments will need to be written off.
- In the absence of immediate action, increased capital will flow out of the Canadian economy.
- In the absence of immediate action we lose opportunities for increased efficiency.
- In the absence of immediate action we lose opportunities for export markets.

Canada's long term competitiveness is dependent on immediately beginning a shift to low greenhouse gas emissions.

Finally, Canada's failure to take immediate action creates a political dynamic that could delay the development of an effective, international climate protection regime.

Immediate action is needed at all levels of government and in all sectors of the economy to begin reducing Canada's greenhouse gas emissions. The year 2000 budget must contain significant first steps to encourage or require greenhouse gas emission reductions in all sectors.

INTRODUCTION

This brief calls for Parliamentarians to support strong measures in the Year 2000 Federal Budget for the reduction of greenhouse gas emissions in all sectors of the Canadian economy. Measures to encourage provincial and municipal investment in alternatives to the passenger car, measures to encourage renewable energy production, measures to encourage investment in residential, commercial and industrial efficiency are all essential. The federal budget for 2000 should also include expenditures to develop an efficient, equitable system of emissions trading or ecological tax reform by the year 2002.

While the *Kyoto Protocol* is not yet in force and does not impose emission limits until 2008, the need to act has never been greater. Unlike previous climate agreements the *Kyoto Protocol* involves legally binding commitments that cannot be ignored, and growing scientific consensus makes stronger international action virtually inevitable over the long term. Moreover, delaying action means higher pollution levels in Canadian cities, leading to unnecessary deaths. If it begins immediately, the transition to a low carbon economy will be smoother, have more benefits for Canadians and less costs. Delaying action could damage Canadian economic health. Finally, Canada is already obligated to adopt policies that reduce emissions; continued failure to abide by existing obligations reduces the chances of moving toward effective international climate protection.

CANADIAN INACTION

Under the 1992 Climate Convention, Canada committed to developing policies and measures with the aim of returning our greenhouse gas emissions to 1990 levels by 2000. While many cost-effective solutions were identified in consultation processes during the mid-1990s, our primary response was a program that challenged the private sector to voluntarily reduce its emissions. This response proved largely ineffective; indeed, Canada's emissions increased faster in the 1990s than the 1980s.¹ Six years after the Climate Convention was negotiated Parliament's Environment Commissioner concluded that many of the key elements necessary to manage the implementation of Canada's response to climate change were still missing or incomplete.²

In the meantime, many of Canada's competitors took strong measures to reduce their emissions.³ However, because Canada's climate commitments were somewhat vague and no enforcement provisions were included in the Convention, Canada was essentially able to ignore its international commitment.

¹ Canada's emissions expanded by five percent from 1980 to 1990; they have expanded 13.5% between 1990 and 1997: derived from "Long Term Greenhouse Gas Emission Trends in Canada" in Environment Canada, *Canada's Greenhouse Gas Inventory, 1997 Emissions and Removals with Trends* (Ottawa: Pollution Data Branch, 1999).

² Auditor General of Canada, *Report of the Commissioner of the Environment and Sustainable Development*, (Ottawa: Supply and Services Canada, 1998).

³ Russell, Doug, "Keeping Canada Competitive: comparing Canada's Climate Change Performance to other Countries" (Vancouver: David Suzuki Foundation, 1997).



KYOTO CANNOT BE IGNORED

In December 1997, the nations of the world negotiated the *Kyoto Protocol*. The *Protocol* sets quantitative limits on the emissions of greenhouse gases for the industrialised countries for the period from 2008 to 2012. Canada is required to achieve a six- percent reduction from 1990 levels.

Although many significant details of the *Kyoto Protocol* remain unresolved, it is clear that the *Kyoto Protocol* is a different beast from the 1992 Climate Convention. The emission limits imposed by the *Protocol* are measurable, and they are not vague commitments to “aim to return” to a particular level. Although a compliance regime has yet to be negotiated, there is an international consensus on the need for a credible compliance mechanism. Once the *Kyoto Protocol* is in force, failure to reduce emissions will be a clear breach of international law, and the breach will have consequences. Canadians can no longer ignore the need to reduce greenhouse gas emissions.

GROWING SCIENTIFIC CERTAINTY

Scientific certainty surrounding the threat of climate change has gained momentum throughout the last decade and makes international action a virtual certainty. In the long term, global reductions of 50% or more will be needed to stabilize climate, with deeper cuts needed if action is delayed. Thus, Canadian actions to reduce greenhouse gas emissions are not only necessary to meet the imperative of the *Kyoto Protocol* but also to meet inevitable long-term reduction targets.

In 1995, the Intergovernmental Panel on Climate Change (IPCC) issued the summary of its Second Assessment Report. This report -- often being compared to the Surgeon General's 1960 warning about health effects of smoking -- represented an international scientific consensus agreed to by scientific representatives of over 100 nations. It stated:

Global mean surface temperatures increased by between 0.3 and 0.6°C since the late 19th century, a change that is unlikely to be entirely natural in origin. The balance of evidence ... suggests a discernible human influence on global climate...⁴

These numbers may seem low, but the Earth today is only four degrees warmer than at the height of the ice age 20,000 years ago,⁵ a time when ice covered almost all of Canada. Even if the temperature increase were limited to the lowest of the IPCC projections (a 1°C increase) the average rate of warming would probably be greater than seen in the last 10,000 years. Warming is uneven with some areas warming far more than the global average and some areas cooling. The warmer temperatures will also cause sea level rise and intensify the earth's hydrological cycle, with more severe droughts in some places and floods in other places.

⁴ Intergovernmental Panel on Climate Change, *Second Assessment Synthesis of Scientific-Technical Information Relevant to Interpreting Article 2 of the UN Framework Convention on Climate Change* (Geneva: Intergovernmental Panel on Climate Change, 1995) at 4.

⁵ National Academy of Sciences, Committee on Science, Engineering, and Public Policy, *Policy Implications of Greenhouse Warming* (Washington, D.C.: National Academy Press, 1991) at 22.

Since 1995, scientific and political consensus has grown. A 1999 US National Academy of Sciences expert panel found that declines in satellite based temperature records (one of the arguments most frequently used by climate change sceptics) were based on failure to take into consideration changes in the orbit of satellites. The NAS panel went on to affirm the IPCC conclusion the global mean surface temperature has warmed rapidly since 1979, and noted that the upward temperature trend has continued and accelerated in the years since the 1995 report went to press.⁶

Moreover, scientists are increasingly gathering evidence that changes in global temperature may be far more dramatic than predicted by the IPCC. Climate may not change in a linear fashion, with temperatures increasing a fraction of a degree per decade, but could “flip” to a completely different climate system within a decade.⁷ Evidence of rapid, dramatic climate changes in the past suggests that climate change in the future could be more far more abrupt than projected by the IPCC in 1995. Waiting to see whether scientists are right means waiting until it is far too late. One of the lead authors of the IPCC’s upcoming Third Assessment Report has warned that our decisions now will determine global emission patterns over the next few decades and could inexorably lead to catastrophic breakdowns in climate systems.⁸

To achieve a “safe landing” – i.e. to reduce emissions quickly enough to slow climate change and avoid the ecological, social and economic damage that would come from too fast a rate of climate change while at the same time avoiding a rate of reductions that would cause economic dislocation – requires immediate action and requires reductions far deeper than Kyoto in the not too distant future.⁹ This imperative means that – short of an inconceivable derogation of responsibility to the earth and its citizens – the international community will need to go beyond Kyoto in the period after 2012. Canada needs to position itself to make this shift to a low carbon economy. The need to act will only grow.

DELAYING ACTION ON CLIMATE CHANGE THREATENS CANADIANS’ HEALTH

Climate change is caused by the same thing that causes air pollution: the burning of fossil fuels. Recent studies show that eight percent of all non-traumatic mortality in Canadian cities is attributable to air pollution caused by the burning of fossil fuels.¹⁰ The Canadian government estimates that up to 16,000 premature deaths per year result from air pollution.¹¹ Studies for European countries and the US indicate that secondary benefits of

⁶ U.S. Global Change Research Program Seminar Series, Notes from January 25, 2000 Whitehouse briefing. “The Earth’s Surface Temperature in the 20th Century: Coming to Grips with Satellite and Surface-Based Records of Temperature.”

⁷ For example, the Gulfstream could stop flowing meaning that temperatures in Europe would drop by several degrees Celsius even if global temperatures rose strongly. See Rahmstorf, Stephan (1999): *Shifting seas in the greenhouse?*, in: Nature, 399, p.523-524.

⁸ Briefing by Jeff Severinghaus, Stephen Schneider, Michael Molitor and Stefan Rahmstorf, November 4, 1998, Buenos Aires. See also “Rapid global climate change possible: study” *The Montreal Gazette* Friday 29 October 1999 at A13.

⁹ See National (Netherlands) Institute of Public Health and the Environment, *The Safe Landing Approach: Linking Near term action to Long term Climate Protection*, (The Netherlands, 1996).

¹⁰ B.T. Burnett et al. “The Effect of the Urban Ambient Air Pollution Mix on Daily Mortality Rates in 11 Canadian Cities” *Canadian Journal of Public Health* 89.3 (May-June 1998) p. 152.

¹¹ Government of Canada, “Canada’s response to the US EPA Proposal on Transboundary Pollution” (16 March 1998).



air quality improvements related to lower greenhouse gas emissions could offset between 30 and 100% of the greenhouse gas emission reduction costs.¹²

Aside from helping avert climate change and helping sustain the national economy, aggressive measures to reduce Canada's greenhouse gas emissions will reduce fossil fuel use and air pollution. Federal climate change measures are worth doing for this reason alone: they will save Canadian lives. Earlier action means averted deaths.

Moreover, as is discussed further below, immediate Canadian action will help ensure the successful negotiation of an effective international climate protection regime. In the absence of successful international action, unmitigated climate change will have severe impacts on Canadians' health. For instance, increased temperatures increase the formation of secondary air pollutants, higher temperatures allow the spread of diseases that currently do not effect Canadians, and it is estimated that, if actions are not taken to curb greenhouse gas emissions, annual heat related deaths in Toronto could skyrocket from twenty to 290 by 2020.¹³

DELAYING ACTION IS BAD FOR THE CANADIAN ECONOMY.

There is considerable evidence that the economic, human health and environmental benefits of reducing greenhouse gas emissions far outweigh the costs, but the ability to reduce emissions at zero or negative cost to the economy is dependant on taking action soon. A Royal Society of Canada panel of experts concluded that it would be feasible and cost effective to achieve an absolute reduction of about 20% from 1990 levels by 2010 purely through measures worth doing for reasons unrelated to climate change.¹⁴ In 1997 a forum of expert American and Canadian economists, including two Nobel Laureates, signed a statement concluding that

[e]conomic studies have found that there are many potential policies to reduce greenhouse-gas emissions for which the total benefits outweigh the total costs. For the United States and Canada, sound economic analysis shows that there are policy options that would slow climate change without harming North American living standards, and these measures may in fact improve productivity in the longer run.¹⁵

The ability to realize reductions that are worth doing for reasons unrelated to climate change depends on timing. As the Intergovernmental Panel on Climate Change concluded:

¹² D.W. Pearce et al. "The Social Costs of Climate Change: Greenhouse Damage and the Benefits of Control," in James Bruce et al., et al. *Economic and Social Dimensions of Climate Change, Contribution of Working Group III to the Second Assessment Report of the IPCC* (Cambridge: Cambridge University Press, 1996) See also Ekins, Paul (1996) "How large a carbon tax is justified by the secondary benefits of CO₂ abatement" in *Resource and Energy Economics* 18, at 161-187.

¹³ A.J. McMichael, *Climate Change and Human Health* (Geneva: World Health Organization, 1996) Table 3.5

¹⁴ John Robinson et al., *Canadian Options for Greenhouse Gas Emission Reduction (COGGER): Final Report of the COGGER Panel to the Canadian Global Change Program and the Canadian Climate Program Board* (Ottawa: Canadian Global Change Program Secretariat, September 1993).

¹⁵ Kenneth Arrow et al., "Economists' Statement on Climate Change" (San Francisco: Redefining Progress, 1997). It should be noted that many studies projecting high costs to greenhouse gas emission reductions are based on the assumption that all reductions will have cost. This obvious bias ensures high cost estimates for reductions.

Despite significant differences in views, there is agreement that some energy efficiency improvements (perhaps 10-30% of current consumption, depending on baseline assumptions and the implementation time frame) can be realized at negative to slightly positive costs.¹⁶

The sooner we start reducing emissions, the lower the costs of emission reduction and the more the benefits to the Canadian economy. There are a number of costs of not taking immediate action and benefits to taking earlier action:

- **In the absence of immediate action more investments will need to be written off.** As individuals, businesses and governments invest in capital stock (i.e. infrastructure, equipment, buildings and production facilities), their investment decisions will have a long-term impact on emissions. If investments are made in capital stock that has high emissions or energy use, there will be a future cost of prematurely replacing this capital stock in order to meet future emission limitations. A July 1999 study by the US Energy Information Administration examined the impacts of meeting the *Kyoto Protocol* by an aggressive reduction program starting in 2000 versus one that started in 2005.¹⁷ Despite its failure to account for the economic, environmental or social benefits from reduced emissions, the study found that earlier implementation lead to a smoother transition to a low carbon economy with lower cumulative costs.
- **In the absence of immediate action, increased capital will flow out of the Canadian economy.** If Canada delays taking action to reduce greenhouse gas emissions, it will become more expensive to make domestic reductions in the future and industry is likely to rely increasingly on international emissions trading to meet the *Kyoto Protocol* commitments. Rather than investing in efficiency and lower emissions in Canada, Canadian money will be invested overseas through the purchase of greenhouse gas quotas and emission reduction credits. While international trading can reduce Canadian compliance costs, delaying action will mean unnecessary reliance on trading and an unnecessary flow of money from the Canadian economy.
- **In the absence of immediate action we lose opportunities for increased efficiency.** There is a huge potential to reduce emissions through energy efficiency measures that save consumers and businesses money. Energy efficiency gains of 10 to 30% above current trends appear to be possible at negative or zero net cost.¹⁸ Not taking action now means wasting an opportunity for improved efficiency.
- **Delayed action makes later action more difficult.** When governments or the private sector choose between alternative technologies — e.g. between investing in

¹⁶ J.C. Hourcade *et al.*, "A Review of Mitigation Cost Studies" in James Bruce *et al.*, eds, *Climate Change 1995: Economic and Social Dimensions of Climate Change: Contributions of Working Group III to the Second Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge: Intergovernmental Panel on Climate Change, 1996) at 301.

¹⁷ United States Department of Energy, Energy Information Administration, *Analysis of the Impacts of an Early Start for Compliance with the Kyoto Protocol*, (Washington: Dept. of Energy, 1999).

¹⁸ Intergovernmental Panel on Climate Change, Working Group III, "Economic and Social Dimensions of Climate Change: Summary for Policy Makers" in James Bruce *et al.* *Economic and Social Dimensions of Climate Change, Contribution of Working Group III to the Second Assessment Report of the IPCC* (Cambridge: Cambridge University Press, 1996).



the rail system or the road system, or between expanding fossil fuel production and introduction of renewables — they reinforce a pattern of development which is increasingly difficult to turn away from. Once certain choices are made, the market tends to reinforce them. Investing in low carbon intensity technologies today may sometimes impose an immediate cost, but it will help ensure that businesses and individuals do not face higher costs in the longer term.

- **In the absence of immediate action we lose opportunities for export markets.** Early reduction policies are likely to lead to increased research and development on energy efficiency, renewable energy and other greenhouse gas mitigation techniques. The success of companies such as Ballard Fuel cells is testimony to Canadian companies' ability to compete in new clean, green markets, but domestic incentives to these technologies will help ensure the transition of the Canadian economy into a mature 21st Century economy.

Canada is falling behind its competitors in climate change action. Since the 1990s, European countries have been using carbon taxes. This summer Denmark adopted a greenhouse gas emissions trading system. The United States, realizing the potential for export of clean technologies, has invested heavily in spurring technological development. Canada's long term competitiveness is dependent on immediately beginning a shift to low greenhouse gas emissions.

DELAYING ACTION ON CLIMATE CHANGE THREATENS THE ATMOSPHERE

Avoiding dangerous human interference with the climate system entails limiting cumulative global emissions over many decades. Although Canada is a relatively small contributor to global greenhouse gas emissions, earlier action reduces the need for deeper, more rapid reductions in the future, and reduces the risks of passing thresholds where the climate system could abruptly break down.¹⁹

Moreover, Canada's failure to take immediate action helps create a political dynamic that could delay the development of an effective, international climate protection regime. Canada's sorry record in reducing emissions and meeting its international commitments makes developing countries understandably distrustful regarding the seriousness with which Canada takes its environmental commitments. This decreases the likelihood of developing countries agreeing to limit their emissions (which are a fraction of Canada's on a per capita basis). Until Canada, as one of the highest per capita emitters on the globe shows leadership, it will be difficult to convince developing countries of the need to reduce their emissions. Delay in reducing our domestic reductions will tend to slow movement towards comprehensive limits on global emissions.

WHAT IS NEEDED?

Immediate action is needed at all levels of government and in all sectors of the economy to begin reducing Canada's greenhouse gas emissions. The year 2000 budget must

¹⁹ For example, the Gulfstream could stop flowing meaning that temperatures in Europe would drop by several degrees Celsius even if global temperatures rose strongly. See Rahmstorf, Stephan, (1999) "Shifting seas in the greenhouse?" in *Nature* 399, at 523-524.

contain significant first steps to encourage or require greenhouse gas emission reductions in all sectors. Measures to encourage provincial and municipal investment in alternatives to the passenger car, measures to encourage renewable energy production, measures to encourage investment in residential, commercial and industrial efficiency are essential. These must be followed up by further regulatory and fiscal measures within the coming year.

In the longer term, Canada needs to adopt economic instruments that will encourage greenhouse gas emissions throughout the economy. The federal budget for 2000 should include expenditures on policy development that allow for the development of an efficient, system of emissions trading or ecological tax reform by the year 2002.

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