Environment Canada Environnement Canada

A Climate Change Plan for the Purposes of the *Kyoto Protocol Implementation Act* 2007

Canada

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Preface – The *Kyoto Protocol Implementation Act*

On June 22nd 2007 the *Kyoto Protocol Implementation Act* received Royal Assent.

Section 5 of the Act provides that "Within 60 days after this Act comes into force and not later than May 31 of every year thereafter until 2013, the Minister [of the Environment] shall prepare a Climate Change Plan that includes

(a) a description of the measures to be taken to ensure that Canada meets its obligations under Article 3, paragraph 1, of the Kyoto Protocol, including measures respecting
  i) regulated emission limits and performance standards,
  ii) market-based mechanisms such as emissions trading or offsets,
  iii) spending or fiscal measures or incentives,
  iii.1) a just transition for workers affected by greenhouse gas emission reductions, and
  iv) cooperative measures or agreements with provinces, territories or other governments;

(b) for each measure referred to in paragraph (a),
  i) the date on which it will come into effect, and
  ii) the amount of greenhouse gas emission reductions that have resulted or are expected to result for each year up to and including 2012, compared to the levels in the most recently available emission inventory for Canada;

(c) the projected greenhouse gas emission levels in Canada for each year from 2008 to 2012, taking into account the measures referred to in paragraph (a), and a comparison of those levels with Canada's obligations under Article 3, paragraph 1, of the Kyoto Protocol;

(d) an equitable distribution of greenhouse gas emission reduction levels among the sectors of the economy that contribute to greenhouse gas emissions;

(e) a report describing the implementation of the Climate Change Plan for the previous calendar year; and

(f) a statement indicating whether each measure proposed in the Climate Change Plan for the previous calendar year has been implemented by the date projected in the Plan and, if not, an explanation of the reason why the measure was not implemented and how that failure has been or will be redressed."

Sections 6 through 8 address the issues of regulating greenhouse gases. Section 6 sets out broad authorities for the Governor-in-Council to make regulations respecting greenhouse gases. Section 7 provides that within 180 days of the coming into force of the *Kyoto Protocol Implementation Act* the Governor-in-Council shall ensure that Canada fully meets its obligations under section 3, Paragraph 1, of the Kyoto Protocol by "making, amending or repealing the necessary regulations under this or any other Act." Section 8 sets out requirements for pre-publication of any such regulations for consultation purposes.

Section 9 of the Act provides that “Within 120 days after this Act comes into force, the Minister of the Environment shall prepare a statement setting out the greenhouse gas emission reductions that are reasonably expected to result for each year up to and including 2012 from

(a) each regulation made or to be made to ensure that Canada fully meets its obligations under Article 3, paragraph 1, of the Kyoto Protocol, pursuant to subsections 7(1) and (2); and

(b) each measure referred to in subsection 7(3).”

This document addresses the Government’s obligations under sections 5 through 9 of the *Kyoto Protocol Implementation Act*.

Specifically, this document constitutes the Climate Change Plan that the Minister of the Environment is required to file under Section 5 of the Act.

With regard to Sections 6 through 8 of the Act, these call for the Government to regulate compliance with the Kyoto Protocol, but are silent on what types of regulation are expected and which sectors of society should shoulder the burden. The Governor-in-Council has discretion on whether and how best to regulate to meet legislative objectives, in order that the Government may pursue a balanced approach that protects both the environment and the economy. The Government is taking aggressive action to reduce greenhouse gases and will therefore continue to fulfil its proper role in Canada’s parliamentary system by regulating where appropriate and in a balanced and responsible manner. In that context, this document elaborates on the Government’s existing plan to regulate greenhouse gas emissions and air pollution, *Turning the Corner*.

With regard to Section 9, Annex 1 constitutes the Statement required under that section of the Act. As required by the *Kyoto Protocol Implementation Act*, this document will be tabled in Parliament within the required timelines.

Introduction

Climate change is one of the most important challenges facing the global community in the 21st century. A series of reports by the International Panel on Climate Change (IPCC) demonstrate, with more scientific certainty than ever before, that climate change is happening, and that it is almost certainly caused by the greenhouse gas emissions released into the air from industries, homes, vehicles, and other energy-consuming activities[1].

Countries around the world have mobilized, both individually and in concert, to address climate change. These efforts continue to intensify and deepen. The recent meeting of the G8 in Heiligendamm, Germany, demonstrated the commitment of the world's major industrialized countries to take further action on climate change. At the meeting, G8 leaders agreed to seriously consider the decisions made by Canada, the European Union and Japan to, at least, halve emissions by 2050.

Although Canada is a comparatively small contributor to the world's overall greenhouse gas emissions, at roughly two percent of global emissions, Canada is among the highest in terms of per capita emissions. Canada faces real challenges when it comes to making progress on reducing greenhouse gas emissions. Given our geography, the structure of our economy, and a growing population, no one should be under the illusion that these challenges can be overcome overnight or even in a few short years. These challenges are made even greater by the nearly continuous growth in Canada's greenhouse gas emissions since the Kyoto Protocol was signed. Addressing climate change requires a realistic and balanced plan based on concrete and practical actions, on both the domestic and the international stages.

Canadians are ready to move forward and act on climate change. They are looking to their federal and provincial governments to offer practical, realistic plans of action that deliver real greenhouse gas reductions in the short and medium term, while maintaining the economic growth and prosperity necessary to sustain and accelerate those reductions over the long term.

The Government has developed a plan, entitled *Turning the Corner*, that balances the need to reduce greenhouse gas emissions and support sustainable economic growth. It employs mandatory regulations to ensure reductions in greenhouse gas emissions and uses market-based approaches to ensure that these reductions are achieved at a reasonable cost. The Plan also promotes innovation by stimulating the development and deployment of clean energy and clean transportation technologies.

[1] International Panel on Climate Change, "Climate Change 2007, The Physical Science Basis: Contribution of Working Group 1 to the Fourth Assessment Report of the International Panel on Climate Change."

Turning the Corner represents a major step forward for Canada. It responds to the compelling science of climate change and Canada's international obligations, while accounting for Canada's unique economic and geographic circumstances. The Plan also makes clear Canada's goal of working with the international community, through the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and other fora, toward a long term approach to climate change that brings all of the world's largest emitters together in action. This Plan provides a solid foundation for domestic action to reduce greenhouse gases, putting Canada in a strong position to play an effective role in ongoing international negotiations on climate change.

Canada's Kyoto Protocol Targets and Obligations

Canada has a long history of participation in international processes to reduce air pollution and greenhouse gases. In 1988, Canada hosted the Toronto Conference on the Changing Atmosphere, which produced a declaration to establish an intergovernmental committee to elaborate a Convention on climate change. In 1992, the UNFCCC was adopted at the Rio Earth Summit. In 1997, the Government of Canada negotiated the country's target under the Kyoto Protocol. The Government remains strongly committed to the objectives and processes for international action through the UNFCCC and the Kyoto Protocol.

Canada's Commitments under the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol

The **UNFCCC** is the key multilateral environmental agreement through which national governments address climate change. The ultimate objective of the Convention is to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level low enough to prevent dangerous human interference with the climate system. A total of 190 countries and the European Economic Community (EEC) have ratified the Convention, which entered into force in 1994.

The **Kyoto Protocol** to the UNFCCC, which entered into force in 2005, commits developed countries (Annex B Parties) to individual targets to limit or reduce their greenhouse gas emissions. Under the terms of the Kyoto Protocol, 36 developed countries (including Canada) and the EEC have ratified commitments that would cut their total emissions of greenhouse gases on average between 2008 and 2012 to levels 5% below 1990 levels. Canada's target is an average of 6% below 1990 levels over the 2008-2012 period.

Canada has met and will continue to meet a series of requirements under the Kyoto Protocol. These include: providing financial assistance to developing countries so that they may endeavour to meet lesser commitments; submitting periodic "national communications" that include additional information to the information submitted to the UNFCCC; submitting a one-time "Initial Report under the Kyoto Protocol" to facilitate the operation of the first commitment period and describe the required infrastructure that Canada has in place; and, submitting a one-time "Report on Demonstrable Progress under the Kyoto Protocol" outlining the initiatives put in place in Canada in achieving its commitments under the Protocol.

Along with these submissions, Canada has also established a national inventory system for measuring and reporting emissions and removals of greenhouse gases and is establishing a national registry. The registry will serve as a tracking system to ensure accurate accounting of the initial issuance of the amount of greenhouse gas emissions allowed in Canada, and the subsequent international transactions undertaken with other countries.

In its "Initial Report under the Kyoto Protocol" filed with the UNFCCC Secretariat on March 15, 2007, Canada declared its base year emissions (1990) under the Kyoto Protocol to be 599 Mt CO_2 equivalent[2]

[2] Carbon dioxide equivalent (CO_2 eq) is a metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP). The carbon dioxide equivalent for a gas is derived by multiplying the tonnes of the gas by the associated GWP. For example, the GWP for methane is 21, which means that emissions of 1 million metric tonnes of methane are equivalent to emissions of 21 million metric tonnes of carbon dioxide.

(eq). In accordance with Article 3, paragraphs 7 and 8 of the Kyoto Protocol, Canada's allowable emissions for the period 2008 to 2012 are 2,815 Mt (i.e. 94% of the 1990 level multiplied by five)[3]. This means Canada's target level of greenhouse gas emissions is an average of 563 Mt CO_2 eq per year for the period 2008 to 2012.

Timelines for Compliance with the Kyoto Protocol

The first commitment period of the Kyoto Protocol begins January 1, 2008, and ends December 31, 2012. Kyoto Protocol Annex B Parties are required to submit their annual greenhouse gas emissions data in the form of a national inventory report, the first of which will be due on April 15, 2010, with the final report for 2012 due on April 15, 2014. The degree to which a ratifying Party has met its emissions reduction obligations under the Kyoto Protocol will be assessed after its final report has been filed in 2014.

An Expert Review Team will examine and record each country's total emissions for the commitment period (2008-2012), along with final accounting quantities for land use, land-use change and forestry activities. Once the expert review process has been completed for all Parties, a 100-day "additional period for fulfillment of commitments" will begin. This period is intended to provide Parties with the opportunity to undertake and finalize the transactions necessary to achieve compliance with Article 3, paragraph 1, of the Kyoto Protocol. The specific date when the 100-day period begins will be determined by the Conference of the Parties to the Kyoto Protocol prior to 2014.

[3] Canada's Initial Report Under the Kyoto Protocol, 2007

Canada's National Circumstances and Greenhouse Gas Emission Trends

Canada's National Circumstances

Canada faces unique geographic and economic circumstances that must be considered in the development of a realistic plan to reduce Canada's greenhouse gas emissions.

Canada is the second largest country in the world. Average and seasonal temperatures vary widely, depending on the region – most of the country experiences short, hot summers and long, very cold winters. As such, heating, cooling and transportation needs associated with the Canadian geographic context contribute to high energy demand and higher per capita greenhouse gas emissions. Along with these factors, Canada also has one of the highest rates of population and economic growth in the OECD, and is expected to maintain this trend in the future.

The Canadian economy is export-oriented and resource-based. More than 40% of Canada's economic output is exported, and 40% of those exports are energy-intensive, resource-based commodities. Canada is an energy superpower and one of only a few industrialized countries that is a net exporter of coal, oil, and natural gas, and has large reserves of each. This gives Canada a major role in the long term energy security of North American and world energy supplies. According to the International Energy Agency, fossil fuels will remain the dominant source of world energy, accounting for 83% of the overall increase in energy demand between 2004 and 2030[4]. In this context, Canada is seen as one of the few secure places in the world to invest in energy development, and as one of a very few energy exporting nations that has reserves sufficiently large to provide a secure long term supply of fossil-fuels.

Since Canada exports a significant amount of energy, its emissions levels are partly the result of energy consumed in other countries. In fact, more than half of the oil and natural gas produced in Canada is exported for US consumption. Between 1990 and 2005, oil exports grew by 140% while natural gas exports grew by 170%. Other G7 countries, with the exception of the UK, increased their imports of oil and gas over the same period, thereby effectively exporting that portion of the emissions associated with the production of the fossil fuels they consume.

Canada's national circumstances are not expected to shift dramatically in the near term. Population growth is expected to continue, while the Canadian economy is forecast to grow at 2.4% annually.

Canada's National Greenhouse Gas Emissions

Total greenhouse gas emissions in Canada in 2005 were about 747 Megatonnes (Mt) CO_2eq, which represents a slight increase from 2003 levels. Overall the long term trend indicates emissions in 2005 were 32.7% above Canada's Kyoto Protocol target of an average of 563 Mt CO_2 eq per year for the period 2008 to 2012.

Over 85% of Canada's greenhouse gas emissions result from the production and use of energy, largely in the areas of stationary fossil fuel combustion (46%) and transportation (26%). Industrial process

[4] International Energy Agency, "World Energy Outlook 2006".

emissions and emissions from agricultural activities each account for approximately 7% of Canada's total greenhouse gas emissions.

While there have been relatively minor and short-lived dips in Canada's historical emissions (for example, in 1991 due to an economic recession, and in 2001 due to the impacts of the terrorist attacks of September 11, 2001), in general emissions have grown steadily since 1990.

Most recently, the growth in emissions has been slowed by the re-starting of significant nuclear capacity in electricity generation in Ontario following refurbishment of a number of units at the Bruce and Pickering Generating Stations as well as increases in hydro-electricity generation. There has also been somewhat reduced demand for heating fuels due to warmer winters during 2004 and 2005 and a reduced rate of increase in fossil fuel production.

Despite this recent slowdown, the most recent forecasts of economic growth and energy demand indicate that under a business-as-usual scenario Canada's greenhouse gas emissions will continue to grow[5]. With no new actions from governments or industry to control emissions growth, Canada's greenhouse gas emissions would average some 825 Mt per year between 2008 and 2012. This means that an emission reduction of one third below business as usual levels, on average, for each year from 2008 to 2012 would be required to achieve Canada's Kyoto Protocol target of 6% below 1990 levels, equivalent to 262 Mt per year. As will be explained in more detail in the following section, this level of reductions could not be achieved without imposing significant costs on the Canadian economy.

[5] Business as usual levels refer to the expected levels of economic growth and energy demand that would exist if no new action were to be taken to reduce greenhouse gas emissions.

The Economics of the *Kyoto Protocol Implementation Act*

In the face of rising greenhouse gas emissions directly tied to our resource-based economy, growing population, and vast, northern geography, the economics of the *Kyoto Protocol Implementation Act* for Canada are significant.

The Kyoto Protocol requires parties to focus principally on domestic measures to reduce their greenhouse gas emissions. This is the preferred approach of most countries with targets as described in Annex B of the Kyoto Protocol, and for good reason. Addressing domestic sources of greenhouse gas emissions not only results in certain and measurable greenhouse gas reductions, but also leads to numerous co-benefits, including reductions in local and regional air pollutants that pose human health and other risks. Over the longer term, reducing emissions at home may also strengthen the energy efficiency and technological competitiveness of domestic businesses and entrepreneurs, thereby better positioning them to compete, and potentially lead, in an increasingly carbon-constrained global economy.

In seeking to mitigate the economic risk associated with reducing greenhouse gas emissions, the Government has carefully examined all of its compliance options under the Kyoto Protocol. This includes the potential to rely on the purchase of international credits under the Protocol's "flexibility mechanisms" to meet a major share of Canada's reduction target. These mechanisms are:

- The Clean Development Mechanism (CDM) which provides for Parties to implement projects that reduce emissions in developing countries;
- Joint Implementation (JI) which provides for Parties to implement an emission-reducing project or a project that enhances removals by sinks in the territory of another Annex I Party; and,
- Emissions trading which provides for Parties to acquire assigned amount units (AAUs) from other Parties that have excess units.

At this time, project-based credits generated from the CDM (known as Certified Emission Reductions or CERs) and JI represent the main option for environmentally credible international purchases. There is, however, considerable uncertainty about the volume of project-based credits available for purchase. Based on preliminary information from the United Nations Environment Programme (UNEP) Risoe Centre on Energy, Climate and Sustainable Development, about 85 million CERs and other project-based credits (from Joint Implementation) will be available per year for purchase between 2008 and 2012[6]. Under the unlikely assumption that Canada could acquire all of these credits, this equates to less than one-third of Canada's annual reduction target.

An alternative compliance option to purchasing project-based credits would be to purchase Assigned Amount Units (AAUs), which are emission allowance units granted to each country according to their respective target level of greenhouse gas emissions in the Kyoto Protocol. Those countries that no

[6] Certified Emission Reductions (CERs) are issued for emission reductions from CDM project activities and are equal to 1 metric tonne of CO_2 equivalent. Based on information from the UNEP Risoe Centre on Energy, Climate and Sustainable Development, the number of CERs represents roughly 93% of the total project-based credits forecast to 2012 (credits from Joint Implementation – Emissions Reduction Units - account for only 7%).

longer need their AAUs to be in compliance with their Kyoto Protocol targets may offer them for sale to other countries.

Canada and several other countries have serious concerns about the environmental quality of AAU credits at this time, since the vast majority have been generated due to economic collapse or falling production, and not for reasons directly related to efforts to curb emissions. These concerns apply to "greened" AAUs as well, which derive from efforts to ensure that funds generated by the sale of excess AAUs be dedicated to projects that will result in real, incremental greenhouse gas reductions in the near future. At this point, methods to track and ensure the "greening" of AAUs are still at the development stage.

Relying on such international credits would do little to encourage investment and innovation at home, giving a long term economic and environmental advantage to others. Over time, as carbon markets become more mature and more global in nature, with robust emission reduction verification systems, Canadian firms may have increased access to international markets for the purposes of compliance with Canadian regulations. The Government of Canada will not, however, purchase credits or otherwise participate in the carbon market.

Unfortunately, when cast against a timeframe that requires Canada to begin reducing its greenhouse gas emissions by one-third beginning in January 2008, it is evident that domestic action would have to be buttressed by some international purchase of emission credits. Even allowing for such purchases, the government would need to take further drastic action that would overwhelm the environmental and other benefits of action on climate change that Canadians are seeking. These measures would require placing the equivalent of a tax on energy, impacting both large industrial emitters of greenhouse gases and individual consumers. The Government has examined this scenario and rejected it as a viable policy option. Key conclusions under this scenario are presented below, while a more detailed account can be found in the Government's Report entitled *The Cost of Bill C-288 to Canadian Families and Business* **http://www.ec.gc.ca/doc/media/m_123/c1_eng.html**.

The Government's analysis, broadly endorsed by some of Canada's leading economists, indicates that Canadian Gross Domestic Product (GDP) would decline by more than 6.5% relative to current projections in 2008 as a result of strict adherence to the Kyoto Protocol's emission reduction target for Canada. This would imply a deep recession in 2008, with a one-year net loss of national economic activity in the range of $51 billion relative to 2007 levels. By way of comparison, the most severe recession in the post-World War II period for Canada, as measured by the fall in real GDP, was in 1981-1982. Real GDP fell 4.9% between the second quarter of 1981 and the fourth quarter of 1982.

All provinces and sectors would experience significant declines in economic activity under this scenario, while employment levels would fall by about 1.7% (or 276,000 jobs) between 2007 and 2009. In addition, there would be a reduction of real per capita personal disposable income levels from forecast levels of around 2.5% in 2009 (or about $1,000 per Canadian in today's dollars).

Meeting Canada's Kyoto Protocol target on the timeline proposed in the *Kyoto Protocol Implementation Act* would also have implications for energy prices faced by Canadian consumers. Natural gas prices could potentially more than double in the early years of the 2008-2012 period, while electricity prices could rise by about 50% on average after 2010. Prices for transportation fuels would also inevitably rise by a large margin – roughly 60%.

These statistics demonstrate the immense challenges associated with trying to meet our Kyoto Protocol target following a decade in which our emissions have grown steadily.

Actions to Address Climate Change

The Government takes its responsibilities under the Kyoto Protocol very seriously. Its approach to meeting the requirements of the Protocol is informed by the extensive review and analysis of the climate change issue undertaken since early 2006. The key conclusions from this review are as follows:

- Canada stands out as an exception to the emissions trend in many other industrialised countries that have ratified the Kyoto Protocol and assumed reduction targets. While most EU countries and Japan have reduced or generally stabilized emissions relative to 1990 levels, Canadian greenhouse gas emissions have grown steadily since the Kyoto Protocol was signed in 1997. As a result, to meet its obligations under the Kyoto Protocol, Canada would have to achieve an average 33% reduction in annual emissions for each of the next five years.

- Canada's options for meeting the Kyoto Protocol's 2008-2012 target through domestic action alone are very limited. There is also a very limited supply of environmentally sound international credits under the Kyoto Protocol's Clean Development Mechanism (CDM) and Joint Implementation (JI) compliance options available for purchase.

Notwithstanding the above challenges, the Government is convinced that the adjustments required to reduce greenhouse gas emissions without negatively impacting the economy are manageable over a reasonable period of time, with an appropriate range of regulatory and market-based instruments to provide Canadian firms and individuals with the right incentives. Under such an approach, and given a longer timeframe, firms and individuals could adopt currently available technologies that emit fewer greenhouse gas emissions, as well as implement new technologies with limited costs as existing facilities and equipment wear out and are replaced.

The Government's Clean Air Agenda, as laid out in *Turning the Corner*, takes an integrated approach to reducing greenhouse gas emissions and air pollution. For the purposes of this Climate Change Plan, however, the elements of *Turning the Corner* that specifically address greenhouse gases will constitute the policies and measures to be pursued. For more information on *Turning the Corner*, please see **http://www.ecoaction.gc.ca**.

The real reductions in emissions that will be driven by the Government's new regulations, coupled with the impacts of both the non-regulatory actions and ambitious new initiatives being taken by provincial and territorial governments, mean that Canada's greenhouse gas emissions from all sources are expected to begin to decline as early as 2010 and no later than 2012. Thereafter, absolute emissions will continue to decline.

The Government is committed to reducing Canada's total emissions of greenhouse gases, relative to 2006 levels, by 20% by 2020 and by 60% to 70% by 2050.

Regulatory Framework for Greenhouse Gas Emissions

This Climate Change Plan incorporates *Turning the Corner's* short, medium and long term emission targets for greenhouse gas emissions, regulations to ensure that air emission targets are achieved, compliance mechanisms and program investments to support regulatory action. *Turning the Corner* also recognizes the fact that climate change is a shared priority across all jurisdictions and communities in Canada, and that other levels of government, as well as industry and individual citizens, will be taking significant action to reduce greenhouse gas emissions beyond the reductions achieved by federal action alone. The Government is working with all of its partners through meaningful consultations on its integrated approach to clean air and climate change.

The Government understands that any strong action to reduce greenhouse gas emissions will impose a cost on Canadians. Canadians understand that these costs are unavoidable and continue to demand rightly that all orders of government take strong action to combat climate change while also ensuring a strong and growing economy. There are a number of actions that individuals can take to reduce both Canada's overall greenhouse gas emissions, as well as their personal costs that stem from the new regulations. In the short term, such action can be as simple as making greater use of public transportation. Over the longer term, Canadians will need to be prepared to change their driving habits, the way they heat and cool their homes, as well as make more sustainable choices as consumers.

Pursuant to the requirements of paragraph 5 (1) (a) (iii.1) regarding measures respecting a just transition for workers affected by greenhouse gas emission reductions, the government has duly considered the requirement and determined that the implementation of regulatory or other measures proposed in this plan will not require significant worker adjustment in regulated industries. Therefore the Government is not bringing forward any specific measures at this time.

Regulatory Framework for Industrial Air Emissions

The following provisions address the requirements of paragraphs 5 (1) (a) (i) and (ii) of the *Kyoto Protocol Implementation Act* as well as paragraphs 5 (1) (b) (i) and (ii).

Greenhouse Gas Targets

Emission reduction targets from major sources in industrial sectors are based on an initial required reduction of 18% in emissions intensity from 2006 levels starting in 2010. This reduction represents an improvement of 6% each year from 2007 to 2010. Every year thereafter, a 2% continuous improvement in emissions intensity will be required.

New facilities, whose operations started in 2004 or later, will have three years in to reach normal operating levels. Their initial intensity target will be based on cleaner fuel standards. After this, new facilities will also be required to improve their emissions intensity by 2% annually.

The intensity-based targets will produce an absolute reduction in industrial greenhouse gas emissions in the 2010-2012 period and are ambitious enough to support the establishment of a fixed cap on emissions at an appropriate juncture in the future.

Complying with Regulated Targets

The regulations of greenhouse gas emissions required to implement the Regulatory Framework for Industrial Air Emissions are intended to come into effect in 2010. Regulated industries will have several options for fulfilling their regulatory obligations, including:

- reducing emissions through abatement actions such as energy efficiency measures, improved energy management systems, deployment of carbon capture and storage or other emission-reducing technologies;
- contributing to a climate change technology fund. Investments from this fund will focus on technology development and deployment, and related infrastructure projects, which are likely to reduce greenhouse gas emissions in the short term;
- using emissions trading, which includes inter-firm trading and emission reduction credits from non-regulated activities;
- using a one-time recognition of early action, if verified actions to reduce their greenhouse gas emissions were taken in the period from 1992 to 2006; and
- purchasing certain types of credits from the Kyoto Protocol's Clean Development Mechanism.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)[7]	0	0	49	53	58

Regulating Energy Efficiency – Strengthening Energy Efficiency Standards

The Government intends to amend energy efficiency regulations under the *Energy Efficiency Act*. This will include the introduction of new performance requirements for 20 currently unregulated products, such as commercial clothes washers and commercial boilers, and tightened requirements for ten products, such as residential dishwashers and dehumidifiers, for which efficiency standards are already in place.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	0.61	0.96	1.31	1.40	7.1[8]

Phasing Out Incandescent Light Bulbs

The Government is developing regulations under the *Energy Efficiency Act* that will phase out the use of inefficient incandescent light bulbs in most areas of regular use by 2012. The regulations will ensure customers that the lighting choices they make will always meet a high standard of energy efficiency. The new standards will also provide certainty for manufacturers and support investments in new products

[7] The estimated emission reductions are based on the targets contained in the Regulatory Framework for Industrial Air Emissions that was released on April 26, 2007. Consultations on some elements of that Framework are ongoing. Actual industrial emission levels will depend on the compliance options chosen by regulated firms.

[8] This estimate includes the reductions expected from the Government's efforts to regulate incandescent light bulbs as described below.

they will meet both the Government's standards and the public's demand for efficient lighting sources. The Government's efforts to regulate lighting efficiency will lead to 5.70 Mt of expected reductions for 2012. This amount is included in the table above for Regulating Energy Efficiency.

Regulating Transportation

Fuel Efficiency of New Cars and Light Trucks

The Government intends to regulate the fuel consumption of cars and light trucks sold in Canada under the *Motor Vehicle Fuel Consumption Standards Act* after the expiration of the Memorandum of Understanding (MOU) between the auto industry and the Government. This MOU aims to reduce greenhouse gas emissions by 5.3 Mt in 2010. A mandatory fuel efficiency standard, beginning with the 2011 model year, will be published by the end of 2008. It will be benchmarked against a stringent, dominant North American standard. As the regulations for fuel consumption are still being developed, the Government is not in a position to provide expected emission reductions.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions from MOU (Mt)	3.0	3.9	5.3	5.3	5.3

Reducing Emissions from Rail, Air and Marine Transportation

The Government intends to develop and implement new regulations coming into effect in 2011 under the *Railway Safety Act* to reduce air emissions from the rail industry in Canada. In the meantime, the Government supports a Memorandum of Understanding that has been signed with the Railway Association of Canada that ensures that the rail industry continues to reduce its emissions of greenhouse gases between 2007 and 2010. As the regulations are still being developed, the Government is not in a position to provide expected emissions reductions.

The Government will also support the development of international standards and recommended practices with the International Civil Aviation Organization concerning emissions from aviation sources. These standards and recommended practices will be considered in the development of domestic regulations under the *Aeronautics Act*. As the standards are still being developed, the Government is not in a position to provide expected emissions reductions. Canada is the first country in the world to have negotiated a memorandum of understanding with its aviation industry to reduce emissions of greenhouse gases from aviation sources. The agreement sets a clear and measurable annual fuel efficiency target that will achieve a cumulative improvement of 24% by 2012 relative to 1990 levels.

Regulating Renewable Fuels Content

The Government has announced its intention to develop and implement a regulation under the *Canadian Environmental Protection Act, 1999,* which will require fuel producers and importers to have an average annual renewable fuel content of at least 5% of the volume of gasoline that they produce or import, commencing in 2010.

In addition, the Government intends to put in place a requirement for an average 2% renewable fuel content in diesel fuel and heating oil, no later than 2012, upon successful demonstration of renewable diesel fuel use under the range of Canadian conditions.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	1.3	1.3	2.9	2.94	4.1

ecoACTION Investments

Consistent with the fact that the *Kyoto Protocol Implementation Act* was identified as a non-money bill by the Speaker of the House of Commons on February 14, 2007, this plan is not announcing any new expenditures beyond those already committed by the Government of Canada.

As a means to support these regulatory actions and further reduce greenhouse gas emissions, the Government is investing in a series of ecoACTION programs intended to promote the development and deployment of new technologies. This section outlines ecoACTION programs including: ecoENERGY, ecoTRANSPORT and ecoAGRICULTURE. Implementation of these initiatives began in 2007.

The following sections detailing ecoACTION investments address the requirements of paragraph 5 (1) (a) (iii) of the *Kyoto Protocol Implementation Act* as well as paragraphs 5 (1) (b) (i) and (ii).

ecoENERGY Initiatives

The **ecoENERGY Technology** Initiative is investing $230 million over 4 years in the research, development and demonstration of clean transformational energy technologies and systems. Given the longer term nature of this project, the investment is expected to lead to reductions in greenhouse gas emissions in the post-2012 period.

The **ecoENERGY for Renewable Power** program is investing $1.48 billion over 14 years to provide incentives to increase Canada's supply of clean electricity from renewable sources such as wind, biomass, small hydro and ocean energy.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	2.2	3.74	5.45	6.67	6.67

The **ecoENERGY for Renewable Heat** initiative is investing approximately $36 million over 4 years in incentives and will support the adoption of clean renewable thermal technologies such as solar air and hot water heating for water and space heating in buildings.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	0.005	0.01	0.015	0.02	0.02

The **ecoENERGY for Buildings and Houses** program is investing $60 million over 4 years to encourage the construction and operation of more energy-efficient buildings and houses using complementary activities such as rating, labeling and training.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	0.57	0.90	1.22	1.30	1.30

The **ecoENERGY Retrofit Initiative** is investing $220 million over 4 years to provide financial support and information to encourage retrofitting by home owners, small and medium sized businesses, public institutions and industrial facilities.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	0.44	0.69	0.94	1.00	1.00

The **ecoENERGY for Industry** program is investing $18 million over 4 years to encourage information-sharing on new technologies and best practices in energy use, as well as training for energy managers to identify and implement energy-saving projects.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	0.17	0.27	0.37	0.40	0.40

The **Canada-Alberta ecoENERGY Carbon Capture and Storage Task Force** is assessing the economic technical, and regulatory challenges associated with the implementation of carbon capture and storage. The Task Force will provide advice to the Government of Canada and the Government of Alberta on how best to facilitate the large-scale deployment of this technology. Carbon capture and storage has the potential to achieve substantial reductions in greenhouse gas emissions associated with a broad array of industrial activities beyond 2012.

ecoTRANSPORT Initiatives

The **ecoAUTO Rebate Program** is investing $160 million over 2 years, offering up to $2,000 for the purchase of new fuel-efficient vehicles. In addition, a new green levy ranging from $1000 to $4000 is being imposed on fuel-inefficient vehicles.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	0.12	0.16	0.2	0.22	0.25

The **ecoENERGY for Personal Vehicles Initiative** is investing $21 million over 4 years to provide information to consumers on fuel consumption and decision-making tools such as vehicle labels, guides and information, to encourage more fuel efficient buying, driving and maintenance practices. It also supports the MOU that has been signed between the auto industry and the Government of Canada.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	0.025	0.05	0.075	0.1	0.1

The **ecoMOBILITY Initiative** is investing $10 million over 4 years to work with municipalities across Canada to help develop programs, services and products to improve choice and make it easier for Canadians to adopt transportation choices such as public transit, car pooling and other sustainable transportation options.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	0.938	1.236	1.631	1.653	1.675

The **Vehicle Scrappage Initiative** is investing $36 million over 2 years to remove older vehicles from Canadian roads.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	0.017	0.063	0.025	0	0

The **ecoTECHNOLOGY for Vehicles Program** is investing $15 million over 4 years to test the safety and environmental performance of a range of emerging technologies for use in light duty vehicles in the Canadian context. The program raises public understanding of these advanced technologies through showcasing across Canada, and collaborates with the auto industry to remove barriers to the introduction of advanced technology vehicles in Canada.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	0.242	0.364	0.501	0.699	0.928

The **ecoENERGY for Fleets** initiative is investing $22 million over 4 years to generate reductions in fuel use and related costs, air pollutants and greenhouse gas emissions through measures targeted at both operators and managers of Canada's commercial and institutional road vehicle fleets.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	0.22	0.34	0.47	0.50	0.50

The Government is investing $33 million over 4 years in four initiatives under the **ecoFREIGHT** program to test new freight technologies and remove financial barriers to their adoption. These initiatives include the **National Harmonization Initiative for the Trucking Industry** ($6 million), the **Freight Technology Demonstration Fund** ($10 million), the **Freight Technology Incentives** ($10 million) and the **ecoFREIGHT Partnership** Initiative ($7 million).

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	0.434	0.650	1.189	1.221	1.255

The **Marine Shore Power Program** is investing up to $6 million over 4 years to support as many as four pilot projects to demonstrate the installation and use of shore-based power for marine vessels in Canadian ports.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	0.005	0.005	0.007	0.007	0.008

Encouraging Canadians to use Urban Transit - The Government provided a 15.5 % tax credit for public transit passes and recently extended this tax credit to electronic fare passes and weekly passes when used on a regular basis.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	0.22	0.22	0.22	0.22	0.22

Renewable Fuels Strategy

In addition to increasing the availability of renewable fuels through regulations, the Government's Renewable Fuels Strategy includes three other components. Through the **ecoENERGY for Biofuels Initiative**, the Government is providing $1.5 billion over nine years to boost Canada's production of renewable fuels. The $10 million expansion of the **Biofuels Opportunities for Producers Initiative** will help farmers seize new opportunities in this sector. Finally, an additional $500 million is being provided to Sustainable Development Technology Canada to invest with the private sector in **establishing large scale production facilities for next-generation renewable fuels**. Reductions under these measures have already been accounted for in the expected reductions for Regulating Renewable Fuels Content.

ecoAGRICULTURE Initiatives

The Government has announced almost $365 million for the **Agricultural Bioproducts Innovation Program**, the **Agri-Opportunities Program**, the **ecoAGRICULTURE Biofuels Capital Initiative** and the **Co-operative Development Initiative** to assist farmers and rural communities to seize new opportunities in the agriculture bioproducts sector through biofuels and bioproducts initiatives. Reductions under these measures have already been accounted for in the expected reductions for Regulating Renewable Fuels Content.

In addition, the Government has made significant investments in developing **beneficial management practices** that will encourage the Canadian agricultural sector to reduce greenhouse gas emissions. Since decisions on the specifics of inclusion of emission reduction credits from non-regulated sources in the *Regulatory Framework for Industrial Air Emissions* have not been concluded, the Government is not in a position to provide an emission reduction estimates at this time.

Provincial and Territorial Collaboration and Action

Provinces, territories and municipalities control many of the important levers for making significant reductions in greenhouse gas emissions from particular sectors. These sectors include, among others, electricity generation, residential, commercial and institutional buildings, transportation, agriculture, and waste management. Over 85% of Canada's total greenhouse gas emissions is emitted in areas under sole or partial provincial / territorial responsibility.

Most provinces and territories have announced greenhouse gas emission reductions targets largely commensurate with their responsibilities and capacities. Provinces such as British Columbia, New Brunswick, Nova Scotia, Quebec, Saskatchewan, Manitoba and Ontario have established specific targets for aggregate reductions in the province, while Alberta has a reduction target based on emissions intensity.

Federal Collaborative Initiatives

In February 2007, the federal government put in place an important instrument for collaboration across jurisdictions on climate change policy. Under the $1.5 billion **Clean Air and Climate Change Trust Fund,** a series of third-party trusts have been established to directly support provincial and territorial efforts to develop technology, improve energy efficiency, and undertake other projects that will result in significant environmental benefits.

The Trust Fund is expected to result in the following reductions in greenhouse gas emissions.

Year	2008	2009	2010	2011	2012
Preliminary Expected Reductions (Mt)	16	16	16	16	16

This section on federal collaborative initiatives addresses the descriptive requirements of paragraph 5 (1) (a) (iv) of the *Kyoto Protocol Implementation Act* to include measures respecting cooperative measures or agreements with provinces territories or other governments as well as paragraphs 5 (1) (b) (i) and (ii).

Provincial Climate Change Targets and Plans

Canada's provinces and territories have developed an ambitious array of plans, programs and other initiatives that will go beyond those supported by the Trust Fund for Clean Air and Climate Change and other federal-provincial funding agreements to reduce significantly the overall greenhouse gas emissions within their respective jurisdictions.

- In the **British Columbia** 2007 Speech from the Throne, the B.C. Government announced its intention of reducing greenhouse gas emissions by 33% below current levels by 2020, which would place its emissions 10% under 1990 levels. The B.C. Government has also committed to reducing greenhouse gas emissions from the oil and gas sector to 2000 levels by 2016.

- **Alberta**'s 2002 Plan, *Albertans and Climate Change: Taking Action*, established a target to reduce emissions intensity by 50% below 1990 levels by 2020. Starting July 1, 2007 Alberta facilities that emit more than 100,000 tonnes of greenhouse gases a year will be required to reduce their emissions intensity by 12 % under the *Climate Change and Emissions Management Act.*

- In June 2007, **Saskatchewan** released its *Saskatchewan Energy and Climate Change Plan* with goals of: stabilizing the level of greenhouse gas emissions by 2010; reducing emissions to 32% below current (2004) levels by 2020; and reducing emissions by 80% from current levels by 2050.

- **Manitoba**'s climate change plan entitled "Kyoto and Beyond" released in October 2002 calls for emissions reductions of 18% from 1990 levels by 2010 and as much as 23% by 2012.

- In June 2007**, Ontario** announced its commitment to reduce greenhouse gas emissions by 6% below 1990 levels by 2014, 15% by 2020 and 80% by 2050.

- **Quebec**'s 2006 climate change plan entitled *Quebec and Climate Change – A Challenge for the Future* outlines actions that are intended to produce greenhouse gas emissions reductions of 1.5% below 1990 levels by 2012. Quebec's overall goal is to achieve the Kyoto Protocol target of 6% below 1990 levels by 2012 through the actions in the 2006 plan combined with those derived from federal funding.

- In March 2007, **Nova Scotia** introduced an *Act Respecting Environmental Goals and Sustainable Prosperity* with the mid-term objective of reducing greenhouse gas emissions to 10% below 1990 levels by 2020.

- In June 2007, **New Brunswick** released its *Climate Change Action Plan* which seeks to deliver a reduction of greenhouse gas emissions to 1990 levels by 2012 with mid-term target of reducing greenhouse gas emissions by 10% below 1990 levels by 2020.

- The **Northwest Territories** has set a goal to reduce greenhouse gas emissions from its own operations by 10% below 2001 levels by the year 2011. It also encourages all other sectors to develop their own emissions management plans and targets.

- **Newfoundland and Labrador** has not yet released a climate change strategy, although it has stated a commitment to reducing greenhouse gas emissions by 1.5 Mt annually.

- To date, **Prince Edward Island**, **Yukon** and **Nunavut** have not set recent greenhouse gas reduction targets.

Annex 2 presents details on the wider range of actions provinces and territories are taking to reduce greenhouse gases, including national partnerships, regulations and economic instruments, energy and conservation, and transportation and biofuels.

Working Together for National Progress

It is clear that Canada's provinces and territories, like the federal government, are committed to serious action to address climate change. Governments at all levels are implementing a wide range of climate change plans with incentives for businesses and individual Canadians to take action. Together, action

by government, industries and individuals will achieve real change. These initiatives will help Canada reach its national medium term target of reducing its greenhouse gas emissions by 20% below 2006 levels in 2020 and place Canada on a pathway to achieving the long term goal of a 60 to 70% reduction in greenhouse gas emissions by 2050.

Canada's Emissions Levels from 2008 to 2012

In accordance with paragraph 5 (1) (c), the text and the table below set out Canada's projected greenhouse gas emission levels for 2008 to 2012 and how these levels compare with Canada's obligations under Article 3, paragraph 1, of the Kyoto Protocol. In addition to the levels in the table, provincial plans and actions are expected to lower Canada's emission levels over the period of 2008 to 2012; however, it is premature to estimate the resulting emissions reductions in the context of this Plan.

Canada's allowable emissions for the period 2008 to 2012 are 2,815 Mt. These projected numbers will be verified by the national inventory reports, the first of which will be due on April 15, 2010, with the final report for 2012 due on April 15, 2014. The degree to which Canada has met its emissions reduction obligations under the Kyoto Protocol will be assessed after its final report has been filed in 2014.

Year	2008	2009	2010	2011	2012
Projected Emission Levels (Mt)	766	786	742	746	739

Strengthening the Global Framework for Action

Climate change is a global problem that demands large reductions in greenhouse gas emissions around the world. However, Kyoto Protocol countries are responsible for only about a quarter of global emissions. It is also noteworthy that global emissions will be at least 30% higher in 2012 than they were in 1997 when the Protocol was concluded.

It is clear that a global effort that includes the participation of all major emitters is required to make a significant reduction in worldwide greenhouse gas emissions. Only fifteen economies around the world, of which over half are still developing, account for 80% of global emissions. The United States and Australia, which have not ratified the Kyoto Protocol, and key developing countries, such as China and India, that do not have targets under the Kyoto Protocol, represent about two-thirds of global emissions.

Within this overall effort, countries must strive to achieve real and verifiable reductions in their greenhouse gas emissions. For example, it is important that regulatory targets are set at a reasonably stringent level and met. This can be done through the use of either absolute caps or with intensity improvement-based targets, which can yield absolute reductions over time and be transformed into hard caps at an appropriate juncture.

Addressing global climate change will require action for many years to come. Key factors within the global effort to reduce greenhouse gas emissions include the scale and timing of global emission reductions through to 2050 and perhaps beyond, the use of the most up-to-date science, and an understanding of the impacts of climate change.

Reducing global emissions over the long term will require a significant transformation in the capital stock of energy producing and consuming businesses and households around the world. Countries and industry will likely need to use market-driven approaches that will include the development and deployment of new technologies, as well as emissions trading. These market mechanisms may need to become more mature and robust in order to allow a transparent and comparable carbon price signal to be sent around the world.

The Government of Canada believes that many of the elements of its Plan will help position Canada to take some of these steps and thereby act as a global leader in the development of a post-Kyoto international framework to address global climate change over the long term.

Canada's actions within a global framework on climate change are guided by its work within a number of key international agreements and partnerships.

United Nations Framework Convention on Climate Change

Discussions under the UNFCCC are increasingly focused on addressing climate change beyond 2012. The establishment of a broad, comprehensive framework that includes all major emitting countries will be a key goal of the United Nations High-Level Event on Climate Change in New York in September and at the next Ministerial UNFCCC Conference of the Parties (COP13) in Indonesia in December 2007.

G8

The G8 is committed to demonstrating strong leadership and implementing approaches which optimally combine effective climate protection with energy security. At the G8 Summit in June 2007 in Heiligendamm, Germany which included leaders from Brazil, China, India, Mexico and South Africa, Canada played an important role. The Chair's summary of the discussion on climate change noted that:

- a comprehensive post Kyoto-agreement should include all major emitters;
- major emitting countries should agree on a detailed contribution for a new global framework by the end of 2008 – the United States will host the first meeting towards this end in fall 2007. The meeting has since been scheduled for September 27 and 28 2007;
- in setting a global goal for emissions reductions, the decisions made by the European Union, Canada and Japan which include at least a halving of global emissions by 2050 should be considered seriously; and
- technology, energy efficiency and market mechanisms are key to mastering climate change as well as enhancing energy security.

North American Cooperation

Canada, Mexico and the United States represent almost one quarter of global greenhouse gas emissions. Continental cooperation could play an important role in the development of a post-Kyoto international framework.

Canada is exploring opportunities with US partners for linking Canada's emission trading system with regulatory-based emissions trading systems at the regional and state level and with any that may be established at the federal level. Canada will also explore cooperation on emissions trading with Mexico.

Canada is sharing its considerable experience and expertise in the oil and gas industry through the U.S.-led Methane to Markets Partnership and Carbon Sequestration Leadership Forum, and International Partnership for a Hydrogen Economy.

Asia-Pacific Economic Cooperation

The economies of APEC account for 60% of global energy demand and include the world's four largest energy consumers as well as many of the major emitters. A number of APEC economies are engaged in a range of joint initiatives in areas such as clean coal technology, renewable energy and energy efficiency aimed at reducing greenhouse emissions.

The Asia Pacific Partnership

The Asia-Pacific Partnership (AP6), which includes the U.S., Australia, China, India, Japan and South Korea, brings together countries representing approximately 45% of the world's population, 49% of GDP, and 50% of global emissions of CO_2. Through its focus on the development and deployment of

climate-friendly technologies, the AP6 is a significant opportunity for Canada to work in cooperation with key developed and developing country emitters as well as the private sector to support the development and uptake of the technological solutions that will be crucial to any future approach to addressing climate change. The AP6 could be a forum for Canada to pursue its objective of lower greenhouse gas emissions through technological solutions.

Conclusion

With this document, the Minister of the Environment has responded to the filing requirements of Sections 5 and 9 of the *Kyoto Protocol Implementation Act*. The Government has a Plan, *Turning the Corner*, that takes an integrated approach to protecting the health of Canadians and reducing greenhouse gas emissions and air pollution, while protecting jobs and our standard of living. By utilizing mandatory regulations, focused program measures that support technology, and by supporting provincial and territorial actions, this Government has set Canada on a realistic and balanced pathway to a low carbon future.

Provision of Comments

Pursuant to paragraph 5 (3) (a) of the *Kyoto Protocol Implementation Act*, persons are welcome to submit comments about the Plan to the Minister of the Environment, care of:

Director General, Strategic Policy
Strategic Policy Branch
Environment Canada
22nd Floor – 10 Wellington St.
Gatineau, Quebec
K1A 0H3

Comments must be provided in writing by September 20, 2007.

Annex 1

Statement of Measures and Expected Emission Reductions 2008-2012
(Section 9 of the *Kyoto Protocol Implementation Act*)

Expected Emissions Reduction	2008 (Mt)	2009 (Mt)	2010 (Mt)	2011 (Mt)	2012 (Mt)
Regulations for Industrial Air Emissions[1]	0	0	49	53	58
Regulating Energy Efficency	0.61	0.96	1.31	1.4	7.1
Regulating Fuel Efficiency of New Cars and Light Trucks (MOU)	3.0	3.9	5.3	5.3	5.3
Regulating renewable fuels content	1.3	1.3	2.9	2.94	4.1
ecoENERGY for Renewable Power	2.2	3.74	5.45	6.67	6.67
ecoENERGY for Renewable Heat	0.005	0.01	0.015	0.02	0.02
ecoENERGY for Buildings and Houses	0.57	0.9	1.22	1.30	1.30
ecoENERGY Retrofit Initiative	0.44	0.69	0.94	1.00	1.00
ecoENERGY for Industry	0.17	0.27	0.37	0.40	0.40
ecoAUTO Rebate Program	0.12	0.16	0.2	0.22	0.25
ecoENERGY for Personal Vehicles	0.025	0.05	0.075	0.1	0.1
ecoMOBILITY Initiative	0.938	1.236	1.631	1.653	1.675
Vehicle Scrappage	0.017	0.063	0.025	0	0
ecoTECHNOLOGY for Vehicles Program	0.242	0.364	0.501	0.699	0.928
ecoENERGY for Fleets	0.22	0.34	0.47	0.50	0.50
ecoFREIGHT Initiatives	0.434	0.650	1.189	1.221	1.255
Marine Shore Power Program	0.005	0.005	0.007	0.007	0.008
Encouraging Canadians to Use Urban Transit	0.22	0.22	0.22	0.22	0.22
Clean Air and Climate Change Trust Fund	16.0	16.0	16.0	16.0	16.0

[1] The estimated emission reductions are based on the targets contained in the Regulatory Framework for Industrial Air Emissions that was released on April 26, 2007. Consultations on some elements of that Framework are ongoing. Actual industrial emission levels will depend on the compliance options chosen by regulated firms.

Annex 2

Provincial and Territorial Actions on Climate Change

Programs and Incentives Funded under the Federal Trust Fund for Clean Air and Climate Change

British Columbia – funding of $199.3 million will support projects, such as providing clean electricity to remote rural areas, extracting energy from sawmill scrap and wood infested with pine beetles, development of a "hydrogen highway" and new geothermal and bioenergy projects.

Yukon – funding of $5 million will support the installation of a third hydro turbine at the Aishihik hydro electric plant to reduce the territory's dependence on diesel generated electricity.

Alberta – funding of $155.9 million will support projects, such as the development of a carbon capture and storage system, the development of clean coal technology and a project to convert municipal waste into energy.

Saskatchewan – funding of $44.4 million will go towards continuing development of near zero CO_2 emission electrical generation projects, improving energy efficiency and conservation, developing renewable and alternative energy sources, and continuing efforts in CO_2 capture and storage through the International Test Centre for Carbon Dioxide Capture.

Manitoba – funding of $53.8 million will support projects to expand the province's low-income energy efficiency program, support the creation of new biodiesel plants in rural Manitoba, further develop solar power and bio-gas, and invest in an East-West power grid with Ontario.

Northwest Territories – funding of $5 million will support energy conservation and efficiency projects, alternative and emerging technologies, as well as the development of hydro-electric resources.

Ontario – funding of $586.2 million will support the development of an East-West power grid with Manitoba, allowing for the importation of clean hydroelectric power, and the phasing out of the remaining coal fired generating stations, which could result in emissions reductions of up to 30 Mt.

Quebec – funding of $349.9 million will support projects such as new technologies in the trucking sector, ethanol production, geothermal energy, research in carbon sequestration, gas capture from landfill sites, and waste treatment and energy recovery from agricultural biomass.

Nunavut – funding of $5 million will support enhanced energy conservation, and projects that promote efficiency and diversity of the energy system in a move towards alternative and emerging technologies.

New Brunswick – funding of $34 million will support projects, such as developing renewable fuels such as cellulosic ethanol and biodiesel, capturing landfill gas to produce energy, examining the use of clean coal technology and expanding and enhancing energy efficiency programs in residential, forestry and commercial sectors.

Nova Scotia – funding of $42.5 million will support the conversion of the Capital Health Authority's heating plants to burn natural gas, a tidal power plant project and the establishment of the Nova Scotia Municipal Climate and Clean Air Fund to allow municipalities to take on their own projects to reduce harmful emissions.

Prince Edward Island – funding of $15 million will support several renewable energy projects, such as investment in technology development, uses in homes and government buildings, and a hydrogen fuelling station for the P.E.I. Wind-Hydrogen Village.

Newfoundland and Labrador – funding of $23 million will support projects such as making public buildings more energy efficient, improving waste management, and promoting environmentally friendly innovation in rural and remote areas.

Regulations and Economic Instruments

Provincial and territorial governments also have many tools at their disposal to better control industrial emissions and are supporting their policies and programs with a mix of regulatory tools and economic instruments. Examples of these include:

- **Alberta's** *Climate Change and Emissions Management Amendment Act* and its associated *Specified Gas Emitters Regulation* compel companies emitting more than 100,000 tonnes of greenhouse gas a year to reduce their emissions intensity by 12%. Compliance with this regulation is flexible in that companies unable to reduce emissions intensity have two other options:

    1. Contributing to a new Alberta-based fund that will invest in technology to reduce greenhouse gas emissions in the province. Companies taking this option will pay $15 per tonne for every tonne above the 12% target.
    2. Investing in outside projects that reduce — or offset — emissions on their behalf. Projects must be Alberta-based and be verified by a third party.

- **Quebec** has developed a new fee on hydrocarbons, which will be imposed on greenhouse gas emitting companies in the energy sector. The plan is based entirely on the 'polluter pays principle' and the Government, to ensure funding for the plan, is willing to impose new fees rather than use existing funding. The Government of Quebec has requested that the costs not be passed on to consumers. Royalties from this fee, estimated at $200 million a year, will be set aside in a Green Fund that will be used to finance its climate change plan. The actual amount of the royalty varies according to the emissions produced by each fuel.

Sources of Carbon Emissions	Royalty Amount
Gasoline	0.8 cents/litre
Diesel	0.9 cents/litre
Propane	0.5 cents/litre
Light heating oil	0.96 cents/litre
Heavy heating oil	1 cent/litre
Coke used in steel manufacturing	1.3 cents/litre
Coal	$8/tonne

Energy and Conservation Initiatives

The core of most efforts to address climate change and ensure the long term sustainability of economies is often linked to energy policies. Most provinces and territories have recently updated or are currently updating their energy plans and many have already announced numerous initiatives designed to improve energy efficiency and promote conservation in homes, businesses and institutions.

- In February 2007, **British Columbia** released its Energy Plan and committed the province to be self-sufficient in electricity by 2016. The Energy Plan also committed to the following:
    - All new electricity generation projects developed in BC must have zero net greenhouse gas emissions, including zero net emissions for coal-fired generation;
    - All exiting thermal power negation must reach zero net greenhouse gas emissions by 2016;
    - Measures to ensure that 50 percent of BC Hydro's incremental resource needs are acquired through conservation by 2020;
    - New energy efficiency standards for buildings will be determined and implemented by 2010;
    - A new $25-million Innovative Clean Energy Fund will encourage the development of clean energy and energy efficient technologies in the electricity, alternative energy, transportation and oil and gas sectors; and
    - The Government of British Columbia in its 2007 Speech from the Throne also committed to reducing greenhouse gas emissions from the oil and gas sector to 2000 levels by 2016.

- By 2008, 3.5% of **Alberta**'s total electricity will be generated from renewable and alternative sources, primarily wind and biomass. Furthermore, the Alberta Government announced that a Renewable Energy and Energy Efficiency Revolving Fund will be created. The goal of the Fund is to achieve a 25% reduction in energy consumption from fossil fuels through the use of energy efficiency measures and an increase in the use of renewable energy within a five-year period.

- In its 2007 Energy and Climate Change Plan, **Saskatchewan** indicated that it would ensure that all of SaskPower's new and replacement electricity generation facilities were either emissions-free or fully offset by emission credits. The province also committed to develop a conservation program to reduce SaskPower's electricity load by 300 megawatts by 2017.

- **Manitoba** launched its *Clean Energy Transfer Initiative* (CETI) to promote enhancements to the East-West power grid that would facilitate the sale of hydro power to other jurisdictions. In its 2005 Speech from the Throne, Manitoba committed $3 billion over 10 years to CETI. In its 2007 Budget, **Manitoba** announced a call for proposals to develop 300 megawatts (MW) of wind power and introduced a new 10% Green Energy Manufacturing Tax Credit to encourage manufacturing of machinery and equipment used to produce renewable energy. Finally, the province announced a new energy saving target of 842 MW by 2017.

- **Ontario** remains committed to closing down its remaining coal fired power plants by 2014. This initiative will have substantive climate change implications and could result in some 30 megatonnes of greenhouse gas reductions, as well as significant reductions in toxic pollutants (e.g., mercury) and substances that cause smog and acid precipitation.

- **Ontario** has also issued contracts for almost 1,400 MW of renewable energy and introduced a Standard Offer Program for small renewable generators. In the longer-term, Ontario has set targets that will double the installed capacity of renewable energy sources to 15,700 MW by 2025. **Ontario** has also set targets to achieve. 6,300 MW of electricity demand reduction through conservation by 2025. Of this, 2,700 MW of savings are to be realized by 2010.

- **Quebec** has committed to the development of 4,000 MW of wind power by 2015, preventing 2.9 Mt of greenhouse gas emissions per year. Beyond 2015, Quebec will ensure that for any additional hydroelectric capacity added, wind energy equal to the equivalent of at least 10% of that capacity will also be developed.

- **New Brunswick** has adopted a standard that requires 10% of electricity sales to come from renewable resources by 2016. In response to this standard, NB Power announced an expression of interest to provide 400 MW of renewable electricity generation.

- **Nova Scotia** announced that it wants to increase the renewable power production from wind, solar, tidal and biomass sources to almost 18.5% of Nova Scotia's total energy production by 2013.

- **Prince Edward Island** has set a target of producing 30% of the province's total energy needs from local, renewable resources by 2016 including; electricity, transportation and home heating fuels. P.E.I. has also adopted the goal of having a 15% renewable portfolio standard by 2010.

- With the release of the new energy plan and greenhouse gas strategy, the Government of the **Northwest Territories** announced a total investment of $6 million to be spent on a number of projects including the development of hydro resources, energy conservation programs, alternative energy projects, and an Energy Efficiency Financing Program to support energy-saving investments made by residents in their homes, appliances and vehicles.

- Several provinces have also committed to updating and amending their building codes to improve energy efficiency standards for new building construction and renovation.

- **Ontario**, **Saskatchewan, New Brunswick, Manitoba, Nova Scotia and the Northwest Territories** have all established home retrofit programs, similar to the federal *ecoENERGY Retrofit* for home energy retrofits that improve the energy efficiency of homes. Several provincial crown corporations, specifically Hydro companies, also offer similar programs that promote energy efficiency and conservation.

- Several provinces have also established home retrofit programs specifically designed to help low income individuals make home energy retrofits that increase energy efficiency.

Transportation and Biofuels Initiatives

The demand for transportation is determined by the need to move people and goods. As the size of the population, the economy and trade grow, so to does the demand for transportation. Reducing emissions from transportation present a complex set of policy choices. Much effort has focused on improving vehicle technology, changing the content of fuels, or developing alternative fuels. Efforts are also being made to change the design of the transportation system, to influence transportation

behaviour and to reduce fuel demand. The following are examples of such efforts undertaken by provincial governments.

- In its 2007 Speech from the Throne, **British Columbia** announced that it will set new tailpipe emissions standards for all new vehicles sold in B.C. to be phased in between 2009 and 2016. The measure is expected to reduce carbon dioxide emissions from automobiles in the province by 30% by 2016. **Quebec, Nova Scotia** and **New Brunswick** have also signaled their intention to adopt emission standards for motor vehicles similar to those set by the State of California.

- In 2006, **British Columbia** committed $10 million to the first phase of the development of the Hydrogen Highway. Additional funding from the trust fund for clean air and climate change is also intended to contribute towards this initiative. B.C. will also require a 10% reduction in the carbon content in fuels by 2020.

- In its 2007 Energy and Climate Change Plan, **Saskatchewan** indicated that it will work with industry to develop E-85 Corridors (road corridors where fuel containing 85% ethanol is available to drivers) in the province and encourage all provinces and the federal government to create an E-85 Corridor across Canada. The province said it will also work with industry to increase the percentage of biofuels in Saskatchewan gasoline and diesel fuel to 7.5% and will develop a 1.4 billion litre biofuels industry.

- In 2003, **Manitoba** passed legislation mandating the use of 10% ethanol in gasoline. The legislation will take effect when there is a sufficient supply of locally produced ethanol. The province currently provides tax exemptions for both ethanol and biodiesel and has launched a program to encourage community based production facilities.

- Both **Ontario and British Columbia** continue to deliver their provincial vehicle emission testing programs, known respectively as '*Drive Clean*' and '*AirCare*'.

- For **Ontario**, new regulations that came into effect January 1, 2007 require an average of 5% ethanol in gasoline sold in the province. **Quebec**, while favoring cellulosic ethanol, aims at insuring 5% ethanol content in gasoline by 2012. **New Brunswick** has also indicated that it would work in co-operation with the federal government to support the use of biofuels with the goal of achieving the 5% ethanol content in gasoline.

- **Ontario** has announced the establishment of a $650 million fund to help the auto industry become a leader in producing more environmentally friendly cars.

- In its 2006-12 action plan on climate change, **Quebec** indicated that it would require mandatory use of speed limiting devices on all trucks to cap speeds at 105 km/h to reduce fuel usage and greenhouse gas emissions and to improve road safety. In its 2007 climate change plan, **New Brunswick** indicated that it will partner with **Quebec** and the trucking industry to implement a strategy for limiting truck speeds at 105 km/h. Most recently, **Ontario** also announced that it intends to mandate the use of speed limiters on trucks to cap speeds at 105 km/h.

- Several provinces also provide rebates for the purchase or lease of fuel-efficient alternative energy vehicles. **Ontario** and **British Columbia** currently provide up to $2,000 dollars for individuals who purchase or lease vehicles powered by alternative fuels and hybrids, whereas **Quebec**, **Manitoba** and **Prince Edward Island** provide rebates of up to $1,000, $2,000 and $3,000 dollars respectively for the purchase or lease of hybrid electric vehicles only. In its 2007 Climate Change Plan, **New Brunswick** signaled its intention to also implement an incentive program for vehicles.