



2006-2012 ACTION PLAN – FIRST-YEAR RESULTS

QUÉBEC AND CLIMATE CHANGE

A challenge for the future



JUNE 2007

Québec 

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INTRODUCTION

ON JUNE 15, 2006, THE QUÉBEC GOVERNMENT UNVEILED ITS 2006-2012 ACTION PLAN, **QUÉBEC AND CLIMATE CHANGE – A CHALLENGE FOR THE FUTURE**. THIS PLAN PROVIDES FOR THE IMPLEMENTATION OF 24 ACTIONS FOR THE REDUCTION OF GREENHOUSE GAS (GHG) EMISSIONS AND ADAPTATION TO CLIMATE CHANGE. THESE MEASURES, ONCE FULLY IMPLEMENTED, WILL ENABLE QUÉBEC TO REDUCE ITS EMISSIONS BY 10 MEGATONNES (MT) BY 2012.

IN ADDITION, WITH THE \$350 MILLION IN FUNDS FROM THE FEDERAL GOVERNMENT UNDER THE CANADA ECOTRUST, QUÉBEC AIMS TO REDUCE ITS GREENHOUSE GAS EMISSIONS BY AN ADDITIONAL 3.8 MT. THUS, QUÉBEC CAN EXPECT TO CUT ITS GREENHOUSE GAS EMISSIONS BY 13.8 MT, A REDUCTION OF 6% UNDER 1990 LEVELS.

IMPLEMENTATION OF QUÉBEC'S 2006-2012 ACTION PLAN BEGAN THE DAY FOLLOWING ITS UNVEILING. THE FIRST YEAR HAS THEREFORE BEEN A VERY ACTIVE ONE WITH THE DEVELOPMENT OF PROGRAMS AND REGULATIONS, VARIOUS CONSULTATIONS AND THE LAUNCH OF INITIATIVES TO REDUCE GHG REDUCTIONS IN DIFFERENT SECTORS OF QUÉBEC'S ECONOMY AND BETTER PREPARE FOR THE IMPACTS OF CLIMATE CHANGE. THE FOLLOWING IS AN OVERVIEW OF THE WORK CARRIED OUT TO DATE AND THE INITIATIVES TO BE IMPLEMENTED IN THE SHORT TERM.



1. FINANCING THE 2006-2012 ACTION PLAN

Always a key element in the development of government policies is the financing. With this in mind, the Québec Government gave the Québec 2006-2012 Action Plan the funding to match its ambitions, a \$1.2 billion budget up to 2012. The budget will be financed through a duty levied on fossil fuels. A first in North America, this duty is one of the Action Plan's innovative elements.

In December 2006, a first step was taken to introduce this mechanism with the adoption of the *Act respecting the implementation of the Québec energy strategy and amending various provisions*. This law among other things gives the Régie de l'énergie the necessary legislative power to implement the mechanism for collecting the duty that will finance the Action Plan. On June 6, 2007, for the purpose of publication in the *Gazette officielle du Québec*, the government submitted the draft regulation that will introduce the mechanism. The consultation period for the draft regulation is 45 days. Thus, it should be adopted by the end of August 2007. The Régie de l'Énergie will then transmit the fee notice to fossil fuel distributors, who will be required to make their first payment to the MDDEP before October 1, 2007. Under the regulation, the duty is payable each year in four equal payments on the first day of each quarter. The Minister will disposit the received amounts in the Green Fund, where they will be available to finance the Action Plan's measures.

It is important to point out, however, that the Minister of Sustainable Development, Environment and Parks obtained a \$22 million advance from the Minister of Finance to accelerate implementation of the Action Plan. The advance will enable several of the plan's financing programs to be launched in the meantime until funds from the fossil fuel duty are paid into the Green Fund.

Finally, the programs that will receive funding from the \$350 million from the Canada ecoTrust, as mentioned in the Action Plan, will be identified in the fall of 2007. This additional financing will serve to top up some of the Action Plan's measures as well as finance new GHG reduction initiatives.



2. ENERGY EFFICIENCY AND RENEWABLE ENERGIES

Increasing the energy efficiency of buildings is one of the most economically advantageous ways to fight climate change. This is something Québec has understood and it has initiated a major overhaul of its building code. Technical and economic assessments were carried out in 2006 and sector consultations are underway. The draft regulation proposing new energy-related standards for Québec's building code will be submitted to the government in the spring of 2008.

The comprehensive energy efficiency and new technologies plan (comprehensive plan) will be submitted by the Agence de l'efficacité énergétique to the Régie de l'énergie in the fall of 2007 and will include three-year action targets and priorities for improving the energy efficiency of residential buildings in the business sector (measure 1).

Finally, on May 10, 2007, the government announced the creation of a new land decontamination program, *ClimatSol*, to encourage the integration of measures having a real and measurable impact on reducing the energy consumption of buildings and on the reduction of GHG emissions in land development projects. Although this measure is not specifically provided for in the Action Plan, it is an additional initiative of the Québec Government intended to encourage municipalities to develop their territory with a view to sustainable development and climate change. Thus, increased energy efficiency of buildings, emerging renewable energies and increased vegetation coverage (trees, shrubs, green roofs) will be some of the objectives of the program, to be launched at the beginning of summer 2007 (measure 1).

In renewable energy development, new start-ups include 480 MW of hydroelectricity (Eastmain-1), 109.5 MW of wind power (parc de Baie-des-Sables) and 39.4 MW of energy purchased from pulp and paper mills (biomass) between April 2006 and May 2007. Emissions avoided with these projects will be 1.1 MT this year and recurring for subsequent years.



3. TRANSPORTATION

Transport was the sector most targeted by the 2006-2012 Action Plan, with nearly 80% of its budget devoted to it, and with good reason. This sector's emissions increased by 20% between 1990 and 2003, representing 38% of Québec's emissions. Eight of the plan's measures target GHG emissions in the transport sector, two of which have been announced by government in the last year:

- In September 2006, the government announced it would be investing \$1.5 million to expand the Port of Sept-Îles to encourage marine freight transport on the St. Lawrence River (measure 8).
- In March 2007, the government announced \$16.5 million in funding, in cooperation with the federal government and transportation companies concerned, for innovative public transportation initiatives, including the introduction of electric buses in Old Québec and hybrid buses in Gatineau and Montréal (measure 6).

Also, in June 2006, the government adopted the *Politique québécoise du transport collectif des personnes* and in February 2007 began its implementation. The purpose of this policy is to increase public transportation use in Québec by 8% by 2012. Five public transportation support programs for public transportation in urban and rural areas were approved by Cabinet:

- the *Programme d'aide gouvernementale au transport collectif des personnes* whose three-year capital program will require an investment of \$1 461 billion;

- the *Programme d'aide aux immobilisations en transport en commun* of the Société de financement des infrastructures locales du Québec, which will receive \$504 million between now and 2009-2010;
- the *Programme d'aide gouvernementale à l'amélioration des services en transport en commun* financed by the Green Fund, in the order of \$100 million a year (measure 6);
- the *Programme d'aide gouvernementale au transport collectif régional*, which will receive \$11 million a year from the Green Fund (measure 6);
- the *Programme de subventions à l'adaptation des taxis et des autocars interurbains pour le transport des personnes se déplaçant en fauteuil roulant*, which will receive \$3 million a year from the Green Fund (measure 6).

Two other programs should be adopted in the coming weeks:

- the *Programme d'aide gouvernementale aux modes de transport alternatifs à l'automobile*, whose annual budget is \$11 million (measure 7), and
- the *Programme d'aide gouvernementale à l'amélioration de l'efficacité énergétique dans le transport routier des personnes*, whose annual budget is \$5 million dollars.

Of the seven programs, the last five will be funded by the Green Fund and launched very shortly, as a result in part of the \$22 million advance in funds. The last two are additional measures to the Action Plan.



With regard to ethanol production, the government wishes to support ethanol production using agricultural, forest and urban biomass rather than producing this biofuel using corn. This type of production relies on emerging second-generation production technologies and the perfecting of cellulose ethanol production technologies.

Québec is in a good position to succeed in this area and develop a cellulose ethanol production industry: the raw material is available, our universities have scientific expertise renowned in North America and interesting synergies are possible with the pulp and paper industry, an industry that is well established in Québec.

In June 2007, the government announced the creation of an industrial research chair in cellulose ethanol at Université de Sherbrooke, in cooperation with partners from the industrial and technological sectors, and the implementation of two demonstration plants for the production of cellulose ethanol; production is slated to start in 2010. The research chair will receive nearly \$20 million over five years, including a \$1.5 million grant from the Québec Government. The two demonstration plants will receive a total budget of nearly \$20 million over five years, of which \$5 million will be provided by the Québec Government.

These investments will help reach the objective to supply 5% ethanol in total fuel sales in Québec by 2012. They will also help reach the objective to reduce GHG emissions by 780 kt of carbone equivalent (CO₂) by 2012.

In legislative terms, the draft regulation to regulate the GHG emissions of automobiles, following the California standard, is being drafted in view of prepublication by December 2007 (measure 3). With regard to regulating at 105 km/hr speed limiting devices for trucks (measure 10), modelling studies are currently underway to assess the impact of such a measure across Canada.

Finally, a program to support municipalities who wish to adopt bylaws prohibiting idling motors (measure 5) was developed by government and a consultation was held with several municipalities and cities. Program provisions were positively received by the municipalities and may be launched in the coming months.

With regard to financial support for public transportation, a \$2 000 tax credit has been in force since March 2007 on the purchase of certain hybrid vehicles (6 litres or less per 100 km). Although this measure is not specifically in the Action Plan, it is an additional measure of the Québec Government aimed at providing financial support for citizens who wish to contribute to the fight against climate change.



4. INDUSTRIAL SECTOR

Québec's industrial sector has one of the best records in Canada with regard to GHG emissions. From 1990 to 2003, the large industrial emitters reduced their emissions by 10%. However, this sector contributes 31% to Québec's overall GHG emissions and it is important to continue efforts to improve industrial processes in order to decrease GHG emissions and increase the energy performance of businesses.

For this purpose, the government has begun negotiations with Québec's big industrial associations to reach agreements on GHG reductions by 2012 (measure 11). The first of these agreements will be announced in June 2007. This agreement will enable significant GHG reductions by 2012. Agreements with two other industrial sectors in Québec have also begun.

Moreover, the government in 2006 published the draft regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere. This regulation, which should be published next fall, will consolidate the inventory work already being done in Québec over the past years.

Finally, MDDEP personnel received training at the beginning of 2007 on the application of the *Regulation respecting halocarbons*; to date over 4 000 workers have received an environmental qualification allowing them to handle and use halocarbons. Note that the *Regulation respecting halocarbons* enables better management of these substances in Québec and among other things provides for the eventual banning of all chlorofluorocarbons (CFCs) and halons.



5. RESIDUAL MATERIALS

Good progress is being made in the capture and recovery of biogases to reduce GHGs in the residual materials sector. The *Regulation respecting the landfilling and incineration of residual materials* is in force and should serve to avoid 500 000 tonnes in CO₂ equivalent emissions by 2012 (measure 13). It should be noted that Québec is one of only a few provinces that regulate the capture and incineration of biogases and its legislation is by far the strictest in Canada.

In other respects, using the advance in funds obtained to implement the Action Plan, the MDDEP will be launching the *Biogaz* program, which includes an economic incentive to reduce GHGs generated by the capture of biogas from landfill sites not subject to mandatory Québec requirements (measure 14). To be eligible, projects must produce real, measurable and verifiable greenhouse gas reductions by 2012.



6. AGRICULTURE

The agricultural sector's greenhouse gas emissions have remained relatively stable since 1990. It is estimated, however, that by continuing to improve agricultural productivity and stepping up the adoption of new environmentally-minded practices and technologies, the agricultural sector will contribute to reducing GHG emissions. Thus, the Action Plan forecasts that the agricultural sector will see a reduction of 300 000 tonnes of CO₂ equivalent by 2012.

The climate change issue has been included in the new *Plan d'action concerté sur l'agroenvironnement et la cohabitation harmonieuse 2007-2010*, a joint effort of the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation (MAPAQ), the MDDEP and the Union des producteurs agricoles (UPA). One component of the plan specifically targets the reduction of GHG emissions, energy efficiency and adaptation to climate change in the agricultural sector.

In reply, the government is currently developing a financing program aimed at reducing GHG emissions which includes measures for treating waste and converting agricultural biomass into energy (measure 15). This program, with \$24 million allocated by the Action Plan, will be launched in the fall of 2007. In addition to investment measures, there will also be awareness raising and assistance activities to encourage the agricultural sector to adopt better practices for reducing GHG emissions.

Furthermore, a study on climate change adaptation, which pools the expertise of various players from Québec's pomiculture sector, began in 2006 and will continue until 2008.

In other respects, the *Programme favorisant l'utilisation de sources d'énergie non conventionnelles dans l'industrie serricole* has provided nearly \$5 million to some forty projects to support environmental initiatives in the greenhouse sector leading to a reduction in or avoidance of approximately 68 000 in CO₂ equivalent each year. Among these achievements is a large 5.1 hectare greenhouse complex that will recover the biogases from the Saint-Étienne-des-Grès landfill site. These biogases will be used to heat the greenhouse complex as well as provide the CO₂ needed for hydroponic growth. The technology that is used will serve to annually reduce the polluting effects caused by the equivalent of 4 million cubic metres of methane.



7. GOVERNMENT LEADERSHIP

Initiatives in government leadership include the pilot project “programme employeur” being implemented by the MDDEP (measure 17), which targets the reduction of GHG emissions generated by government employees commuting to work. Once the pilot phase is completed, the program will be extended to all the other government departments.

Numerous initiatives were put in place to improve the energy efficiency of public buildings (measure 16), initiatives in addition to those already deployed in the sector. An investment of \$200 million, at a rate of \$20 million a year over 10 years, was set aside for buildings in the education as well as health and social services networks. The Société d’habitation du Québec (SHQ) and the Société immobilière du Québec (SIQ) are also aware of the issue and have done work of their own on their respective buildings.

The SIQ has already succeeded in reducing the GHG emissions of its buildings by 30% over 1990 levels. This performance was obtained by replacing high-energy heating, cooling and ventilation systems with less energy-hungry equipment. Now, 70% of the energy consumed is hydroelectricity, 27% is gas and only 3% is heating oil. Optimized electronic management of electromechanical systems, growing use of clean energy supplies like geothermics and improvements in building envelope insulation have also contributed to this positive outcome.

As an example, use of electricity to heat the Complexe scientifique de Québec cut energy consumption by over 20% and reduced the building’s GHG emissions by 80%. The building recently received one of two energy efficiency awards given by Hydro-Québec. The other award was also earned by a SIQ building, the Sureté du Québec (provincial police) station in Lac Beauport, which uses geothermal technology.

All new SIQ constructions with budgets over \$2.5 million must now be designed following LEED criteria and receive certification from this organization. Based on the results obtained and many upgrade projects underway, the SIQ estimates being able to reach the objective set by the 2006-2012 Action Plan, a 10% improvement by 2010 of the energy efficiency of its buildings over 2003.

Finally, the Agence de l’efficacité énergétique has developed awareness tools, drafted practical guides and perfected measuring instruments to help managers in the public sector reach the energy consumption objective set for them.



8. PUBLIC AWARENESS

In public awareness, the government on June 8 will be announcing its financial participation in a large national public awareness campaign, bringing together all environmental partners. The campaign will use different means of communication and will address the things citizens can do individually as part of their daily routines to reduce GHG emissions and contribute to the fight against climate change.

The government will also continue to support its partners in the sector through an assistance program for nonprofit organizations that wish to present awareness and education projects addressing the fight against climate change. The program will be launched at the beginning of summer 2007 as a result of the advance of funds obtained by the MDDEP.

Awareness initiatives provided for in the Action Plan will receive an annual budget of \$2 080 million up to 2012.

Finally, training content for businesses and organizations on the different CO₂ credit systems will be determined and calls for tender for the different training components were launched in May. The complete training should be available to businesses and organizations by the fall of 2007.



9. TECHNOLOGICAL INNOVATION

An inventory of assistance programs for research and demonstration of technologies designed to fight greenhouse gases was carried out and a status report on research (teams, infrastructures and research projects) aimed at reducing and sequestering GHGs is underway. Also, a contract for inventorying emerging GHG reduction and sequestration technologies, which will specify the development stage of these technologies, their position with respect to global competition and the obstacles to their marketing, has just been granted by the Ministère du Développement économique, de l'Innovation et de l'Exportation. The inventory will be carried out in the summer of 2007.

All this information will serve to determine the research priorities to support and the steps in the innovation chain that are most difficult to overcome to gain a market foothold. The terms of operation of the financial support program, which should be launched by the end of 2007, will remain to be defined.



10. ADAPTATION TO CLIMATE CHANGE

Climate change has already begun and despite efforts to reduce emissions, changes will continue to occur in the decades to come. The impacts will be felt by the population, ecosystems and infrastructures and in this regard adaptation measures are essential to reducing the negative effects.

Work is underway in the health sector to set up monitoring systems for episodes of intense heat and infectious disease as well as analyses of ventilation, heating, cooling and dehumidification needs and will continue during 2007. A list of heat islands and zones at risk in populated areas is also being prepared (measure 21). Adaptation measures by neighbourhood could be quickly drawn up and put in place.

Intervention plans aiming to consolidate the networks monitoring climate and water resources are now completed (measures 22) and will be implemented this fall as a result of the \$22 million advance. The data collected will be essential in validating the hydro-climatic simulations. In the south, the water budget suggests a drop in availability of water resources, whereas the opposite might be observed in northern Québec. The first impact studies of climate change on the water table have also begun.

Moreover, studies aiming to determine the impacts of the melting permafrost on urban and airport infrastructures are almost completed (measure 23). Experimental adaptation measures will be tested. Impact studies on northern communities are near completion and will serve to establish specific and progressive adaptation measures.

Finally, studies on the vulnerability of forests and the forest sector to climate change have been undertaken and will continue in the coming years (measure 24).

In November 2006, the government launched its *Cadre de prévention des risques naturels* in which it will invest close to \$55 million. This framework will support municipalities wishing to take preventative action in the face of natural risks to mitigate the impacts, some of which are related to climate change (increased coastal erosion, flooding, landslides, etc.). For example, it is estimated that over \$1 billion in infrastructures is threatened by erosion over the three next decades. A study looking at the costs related to the various possible adaptation measures is underway. This framework therefore completes the Action Plan's measures for adapting to global warming.

Finally, actions for climate change impacts and adaptation require the most complete and precise information possible on future weather (likely weather episodes). For this purpose, since 2002, important measures have been put in place at the Consortium sur la climatologie régionale et l'adaptation aux changements climatiques (Ouranos) to develop the capacity for regional climate simulations, both in human resources and expertise and in calculation power. Over 20 researchers work at Ouranos, in Montréal, focusing both on improving the model and carrying out multiple forecasts and climate scenarios according to impact analysis needs. Also, Ouranos has developed a guide for assessing the benefits and costs of adaptation to climate change to help players in their decision making.



11. ACCOUNTABILITY

With regard to follow-up and accountability, the Action Plan requires that no later than one year following its release, government departments and agencies responsible for implementation of the actions must provide the government with the indicators they are required to assess annually in order to monitor and measure the progress made.

In accordance with these requirements, the government departments and agencies have provided the MDDEP with the indicators they intend to use to monitor the measures outlined in the Action Plan. With these indicators, the government will be able to publish in 2010 a progress report on the work undertaken and a final summary of the Action Plan in 2012.

Also, this summary is an accountability tool that the MDDEP intends to use each year until 2012 to report to the population on the results of the measures deployed under the climate change action plan.



12. QUÉBEC'S INTERNATIONAL INITIATIVES ON THE CLIMATE CHANGE FRONT

Québec has been very active in the international climate change arena in 2006-2007. In addition to participating in the second meeting of the Parties to the Kyoto Protocol held in Nairobi in December 2006, Québec was host to the Ministerial Forum on Energy and the Environment at the Conference of New England Governors and Eastern Canadian Premiers. The objective of the forum, which was co-chaired by Premier of Québec Jean Charest was to discuss the links between the production of renewable energy, energy trade in the region, transportation, environmental protection and climate change. Recommendations of the meeting aim to improve coordination of the actions taken by the states and provinces in these sectors.

During the year, Québec also joined the Climate Group, an international nonprofit organization based in London focused on promoting the climate change-related actions of large multinationals and government by looking at solutions and best practices. Joining this group will give Québec an additional window for its actions on the international stage, while enabling it to keep abreast of new practices in the fight against climate change in other states.

CONCLUSION

TO SUMMARIZE, ALL THE MEASURES CONTAINED IN THE 2006-2012 ACTION PLAN WERE THE FOCUS OF INTENSIVE WORK DURING 2006-2007 AND FINANCING FOR THE PLAN IS TAKING SHAPE. WITH THE ADVANCE OF FUNDS OBTAINED BY THE MDDEP IT WAS POSSIBLE TO LAUNCH SOME OF THE ACTION PLAN'S MEASURES IN SPRING 2007, AND SOME BY EARLY SUMMER. OTHER MEASURES WILL BE IMPLEMENTED IN THE FALL, AS SOON AS DUTIES BEGIN TO BE PAID INTO THE GREEN FUND. STUDIES ON ADAPTATION TO THE IMPACTS OF CLIMATE CHANGE HAVE BEGUN AND WILL CONTINUE IN THE COMING YEARS.

THESE RESULTS CLEARLY SHOW THAT QUÉBEC IS MOVING TO MEET ONE OF HISTORY'S BIGGEST ENVIRONMENTAL CHALLENGES, AT ONCE CONFIRMING ITS LEADERSHIP IN THE AREA OF SUSTAINABLE DEVELOPMENT IN NORTH AMERICA.



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**Développement durable,
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Québec 

