



Québec :
a partner to tackle climate change



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About Québec

- Québec is located in north-eastern North America, and is the largest of the ten provinces in the Canadian federation. It covers an area three times the size of France and five times the size of Japan. It is also larger than Alaska, the biggest US state.
- Québec has a population of 7.7 million people, a majority of whom are French-speaking, representing almost one quarter of the Canadian population. Québec City is the capital, but Montréal is the largest city.
- Québec has a versatile environment industry of international calibre. Businesses in the environment sector offer a wide range of highly technical products and services that are also innovative, especially in the fields of environmental engineering and energy engineering. Consulting in the field of the environment is another Québec strength.
- A strong foundation for the environment sector in Québec is provided by its international-calibre universities and leading research centres, which offer access to specific know-how and a qualified, multilingual workforce, reflecting the capacity to innovative that is a vital feature of the sector.
- Québec's international relations today are built on experience acquired over time. Québec has pursued international relations for almost half a century, possesses numerous contacts abroad, and also benefits from an effective range of offices located in the countries where they can best serve Québec's interests.





Québec : a forward-looking player in the fight against climate change

Québec has positioned itself as one of the most progressive and responsible jurisdictions worldwide in the fight against climate change. For some years it has recorded the lowest per-capita greenhouse gas emissions in Canada, and has reduced emissions by almost 6% since 1990. It is also the first federated state in North America to have introduced a levy on fossil fuels.

With respect to international agreements, Québec declared itself bound in 1992 by the United Nations Framework Convention on Climate Change, and implemented various measures as a result. In 2006, it presented an action plan for climate change for the period 2006-2012, with precise targets for greenhouse gas emission reductions that set out a coherent vision consistent with the objectives of the Kyoto Protocol. The plan, described as one of the most ambitious in North America, is called *Québec and Climate Change, A Challenge for the Future* and is designed to reduce greenhouse gas emissions to 6% below their 1990 level by 2012.

The plan of action marks a major step forward in the actions taken by the government to build a society focused on the needs of the current population without compromising the wellbeing of future generations.

On November 28, 2006, Québec's National Assembly approved the Kyoto Protocol, allowing Cabinet to adopt, on December 5, 2007, the order in council in which the Québec government declares itself bound by the Kyoto Protocol and undertakes to implement it in the areas under its jurisdiction, based on the provisions of its action plan on climate change.

Québec has conducted a series of public hearings to help define an ambitious target for reducing its greenhouse gas emissions by 2020.

QUÉBEC'S PLAN OF ACTION HAS TWO KEY OBJECTIVES:

- **to reduce greenhouse gas emissions** in strategic sectors such as energy, transportation, waste processing, agriculture, government activities and municipal activities, with actions to support technological innovation and raise public awareness that also target a reduction in greenhouse gas emissions;
- **to adapt to climate change** which, despite the planned reduction in greenhouse gas emissions, threatens the health and safety of the population, the integrity of infrastructures and the delicate balance of ecosystems.

« Québec has really done a much better job than many regions around the world. If there were more governments like this, we would be on the way to finding a solution to the problem of global warming. »

Al Gore

Nobel Peace Prize winner and former US Vice-President
Montréal, April 5, 2008





Québec actively involved in major international forums



M. Jean Charest
Premier of Québec

QUÉBEC STATES ITS CASE AT THE WORLD ECONOMIC FORUM IN DAVOS

In January 2009, the Davos Forum provided an opportunity for the Québec Premier, Jean Charest, to attend various meetings where the question of the fight against climate change was addressed. More specifically, he met with the Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC), Yvo De Boer, and stated his government's intention to make the fight against climate change its key priority despite other concerns connected with the worldwide economic slowdown. He also made Mr. De Boer aware of the shared determination of several federated states and regional governments to support the implementation, within their territories, of a new greenhouse gas reduction plan for the post-2012 period.

« Climate change requires action by the international community as a whole, and by all levels of government. There is now a consensus that concrete steps must be taken in terms of attitudes and legislation. The involvement of federated states and regions is imperative if the commitments included in the upcoming international agreements are to be implemented. »

Line Beauchamp

Québec Minister of Sustainable Development, Environment and Parks
Poznań, December 12, 2008



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QUÉBEC SUPPORTS THE WORK OF THE UNITED NATIONS DEVELOPMENT PROGRAMME

Québec was the first federated state in North America to join the new Territorial Approach to Climate Change promoted by the United Nations Development Program (UNDP).

Extending over a five-year period (2008-2013), the Territorial Approach to Climate Change is designed to help regions in developing countries develop and implement climate change mitigation and adaptation policies.

In October 2009, Premier Jean Charest took advantage of presence attendance at the Governors' Global Climate Summit alongside Algeria's Minister of Land Planning, Environment and Tourism to confirm a partnership between Québec and the Tizi-Ouzou region of Algeria as part of the Approach.



Work by Québec to ensure recognition for the role of federated states and regions in the fight against climate change

In September 2009, during Climate Week, the Premier of Québec acted as the spokesperson for the leaders of several federated states and regions. He gave the United Nations Secretary General, Ban Ki-Moon, a declaration describing the concrete and essential contribution made by this level of government to the fight against climate change.

In December 2008, speaking on behalf of the States and Regions Climate Alliance, Québec's Minister of Sustainable Development, Environment and Parks, Line Beauchamp addressed the plenary meeting of national delegates and international organization representatives at Poznań, Poland, during the 14th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) and the 4th Meeting of the Parties to the Kyoto Protocol.

In addition to describing Québec's achievements in the fight against climate change, the Minister pointed out the central role played by federated states and regional governments. She also called for explicit recognition, in the text of the agreement for the post-2012 period, for the role played by federated states.



Yvo De Boer,

Executive Secretary of the UNFCCC, taking part in the second Climate Leaders Summit to discuss the influential role played by federated states and regional governments in the conclusion of an upcoming international agreement on climate change at Poznań on December 10, 2008



Working together with other states that play an active role in international authorities in a spirit of cooperation and commitment, Québec and Manitoba – another Canadian province – joined forces in 2005 to highlight the role of federated states and regional governments in the fight against climate change. They organized the first Conference of Climate Change Leaders in Montréal, Québec, with help from the Climate Group, demonstrating the determination of all stakeholders to work

harder to reduce greenhouse gas emissions and promote new partnerships. Thirty-three federated states and regional governments signed the Montréal Declaration on this occasion.

The second Climate Leaders Conference took place in Poznań, Poland, on December 8, 2008, during the 14th United Nations Climate Change Conference. This summit meeting provided an opportunity to launch discussions on best practice, and to share

strategies to raise public awareness about the problem of climate change and possible solutions. A plan of action was adopted, along with cooperation measures involving participants from all the continents.

The third Climate Leaders Conference will be held in Copenhagen on December 15, 2009 and will provide an opportunity for members to reaffirm their commitment in the fight against climate change.



Strengthening Québec's networks of influence

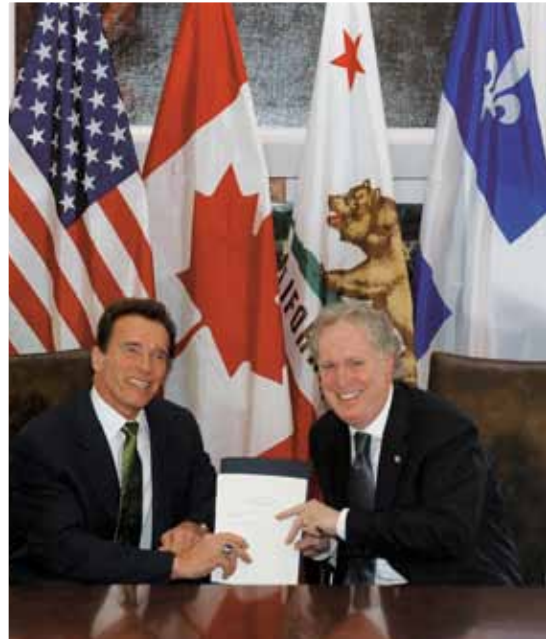
Québec's membership in various groups of federated states and regional governments involved in the development of a joint approach to the reduction of greenhouse gas emissions is at the heart of its international actions. The close ties it has developed allow Québec to participate actively in the decision-making process and to monitor the most promising initiatives to combat climate change. Listed below are some of the organizations in which Québec is a participant.

In April 2008, Québec joined the Western Climate Initiative (WCI), a group of seven US states and four Canadian provinces that plan to establish a joint program to cap and trade greenhouse gas emissions in certain economic sectors.

Since November 2007, Québec has also been a member of the Climate Registry, a North American organization whose principal mission is to record the greenhouse gas emissions of various industries using uniform measuring methodology.

Québec's actions in the area of climate change include joining the International Carbon Action Partnership (ICAP) in December 2008. ICAP brings together governments from Europe, North America and Oceania who wish to promote an international carbon market as a tool in the fight against climate change.

Arnold Schwarzenegger, Governor of California, with **Jean Charest**, Premier of Québec, as Québec joined the WCI New Haven, April 18, 2008



THE CARBON MARKET: AN INCENTIVE FOR INNOVATION

The use of emissions cap and trade systems has spread around the world in recent years. The systems provide an efficient mechanism for fighting climate change, and Québec is part of this trend that combines economic development and environmental protection.

In June 2009, Québec's National Assembly unanimously passed new legislation to give the government the necessary powers to participate in the Western Climate Initiative (WCI), the most important greenhouse gas cap-and-trade system in North

America. Québec is the WCI member with the most ambitious reduction target for 2012: a decrease of 6% compared to 1990.

The establishment of a joint WCI market will spur the growth of the Montréal Climate Exchange (MCEX), a joint venture by the Bourse de Montréal and the Chicago Climate Exchange (CCX). The products offered help businesses manage their emissions risks at a lower cost and stimulate innovation in the field of greenhouse gas emissions.





Several far-reaching policies to support Québec's actions



◀ QUÉBEC ENERGY STRATEGY

Québec has taken resolute steps to develop clean, sustainable sources of energy, which are already used to generate 97% of Québec's electricity, one of the highest rates on the planet.

Québec's 2006-2015 energy strategy, *Using Energy to Build the Québec of Tomorrow*, is based primarily on renewed hydroelectric development. It also promotes the development of existing wind energy potential and other sources of clean, renewable energy that can be used to replace more polluting forms of energy production. Ambitious targets for energy efficiency and investments in technological innovations connected with clean, renewable energy complete the strategy. Several concrete initiatives have already been launched around Québec.

QUÉBEC PUBLIC TRANSIT POLICY ▶

Because the transportation sector is the main source of greenhouse gas emissions in Québec, the Québec government released a public transit policy in 2006, called *Better choices for citizens*. The overall objective is to improve the supply of services by 16% and to increase the use of public transit throughout Québec by 8% between now and 2012, in both urban and rural regions.

Québec's efforts have led to tangible results, since Québec has the highest rates of public transit use in Canada.



◀ DEVELOPMENT STRATEGY FOR QUÉBEC'S ENVIRONMENTAL AND GREEN TECHNOLOGY INDUSTRY

By considering the environment and the economy together, the Québec government intends to make protection of the environment a lever to increase job creation and raise business competitiveness.

To place Québec in the vanguard, businesses, R & D centres, institutions providing education and training, financial institutions, associations and other stakeholders must mobilize and pool their efforts, as proposed by the strategy. It is also intended to support Québec's environmental and green technology industry, which is active in the fields of renewable energy, energy efficiency and the traditional environmental sectors of water, air, soil and waste management.

At the international level, the strategy *For a Green and Prosperous Québec* is designed to increase the presence of Québec firms on foreign markets, for example by supporting their networking activities and promoting their participation in carbon markets and the clean development mechanism (CDM) set up under the Kyoto Protocol. In this way, Québec will support growth in this innovative industry, making it Québec's trademark abroad.





Québec is the first Canadian province to target the adoption, by 2010, of standards for greenhouse gas emissions from cars based on the standards introduced by California, some of the most stringent in North America.



◀ THE *SUSTAINABLE DEVELOPMENT ACT* AND THE RELATED GOVERNMENT STRATEGY

In 2006, Québec's National Assembly unanimously passed the *Sustainable Development Act*, which required the Premier to table a government strategy before the Assembly one year after assent to the Act.

The *Government Sustainable Development Strategy 2008-2013* will influence all sectors of activity and will lead to real changes within the public administration and among the general public. Almost 150 government departments and agencies, along with state-owned enterprises, will be asked to contribute by gradually setting up strict, collaborative management frameworks.

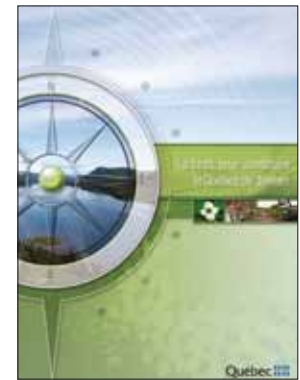
REVIEW OF THE FOREST SYSTEM ▶

Québec's first businesses were logging companies and, from one generation to the next, in almost all regions, the forest has regulated daily life. However, Québec's forest industry today is at a major turning point with respect to economic and environmental issues.

For this reason, the forest system has undergone an in-depth review that began in 2008, and the Québec government has proposed a general strategy for sustainable industrial development in the forest sector based on products with high added value.

The strategy for the use of wood in construction in Québec (*Stratégie d'utilisation du bois dans la construction au Québec*), released in March 2008, is the first step in this major update of the development strategy for the forest sector. The primary objective is to increase the use of wood in construction in Québec by a factor of three, in particular in public, commercial and industrial infrastructures and in single-family dwellings. The use of wood, an ecological material, also helps reduce greenhouse gas emissions. By meeting this objective, a unique expertise will be developed and Québec's industries will be able to supply foreign markets efficiently.

In the plan of action for the use of forest biomass (*Plan d'action sur la valorisation de la biomasse forestière*), released in February 2009, the Québec government completed a second major step in its new development strategy for the forest sector. The plan is designed to reduce Québec's dependence on fossil fuels by making forest residue, in the form of leaves and branches, available for other uses. This raw material will offer an affordable solution for companies that currently use heating oil and other fossil fuels, reducing their energy consumption along with their greenhouse gas emissions.





Innovation as a response to the challenges of climate change

Québec, with its clear political leadership, niches of excellence, dynamic firms of international calibre and expertise developed by research centres and experienced researchers, is part of this worldwide trend and fully intends to meet the challenges involved by focusing on innovation.

Innovation is, in many ways, the spearhead of Québec's performance in the fight against climate change. Innovation will make an even more crucial contribution to the development of the environmental technologies of the future, in Québec and around the world.

The fight against climate change also opens up some of the most promising avenues of economic development in the 21st century, since the entire world is seeking the same solutions.

Québec's dynamic approach to managing and reducing greenhouse gas emissions is reflected in a range of products and services developed by multi-skilled firms established in Québec.

Québec has a large pool of consulting engineering firms, big businesses and small and medium-sized firms specializing in sectors such as CO₂ capture and storage, the use of biomass from various sources, energy efficiency, renewable energy, greenhouse gas emissions reduction, waste recovery and greenhouse gas measurement. Some firms are increasingly well positioned abroad.

SOME SUCCESS STORIES REFLECTING THE ABILITY TO INNOVATE OF QUÉBEC'S ENVIRONMENTAL AND GREEN TECHNOLOGY INDUSTRY:

	Enerkem transforms waste into biofuels such as cellulosic ethanol and advanced chemical products.
	CO ₂ Solution uses the activity of an enzyme present in the human body to capture CO ₂ and convert it into bicarbonate ion, a substance that is harmless for the environment.
	Cansolv markets a process to absorb sulphur dioxide (SO ₂) and several generations of solvents to capture the CO ₂ found in gas effluents.
	Vaperma offers membrane-based gas separation solutions used to purify ethanol, process natural gas and biogas and dehydrate chemical compounds.
	Biothermica specializes in the design, construction and turnkey delivery of tailored solutions to control air pollution and manage biogases, along with projects to generate electricity from renewable energy sources such as biomass, biogas, geothermal wells, wind energy and solar energy.
	Boralex produces electricity from three renewable sources: water energy, wind energy and thermal energy from wood residues or natural gas.



Québec's environmental industry relies on strong R & D infrastructures and on the skills of the researchers they employ. Québec has over forty research groups and university research chairs active in the fields of renewable energy and the environment. In addition, a dozen college-based technology transfer centres deal with questions relating to greenhouse gas reductions using chemical processes, industrial ecology, agri-environmental approaches and advanced transportation methods (including biofuels).

SOME RESEARCH CENTRES AND CONSORTIUMS IN QUÉBEC HAVE JOINED FORCES TO STUDY THE IMPACT OF CLIMATE CHANGE AND WAYS TO ADAPT

Here are some examples:



The OURANOS consortium brings together around 250 professionals from various fields and institutions, and over the next decade will study the impact of climate change in areas such as population and infrastructure safety, energy supplies, water resources, healthcare, forestry, agriculture, mining, tourism, transportation, and protection for the physical environment.



The research chair in geological CO₂ storage at the Institut national de la recherche scientifique (INRS), created with funding released under the Québec plan of action on climate change, will carry out research work to explore the main options for the geological storage of CO₂. It will then determine the CO₂ storage capacity of various sites around Québec, and see how Québec can participate in the international drive to assess carbon capture and storage (CCS) technology.



The centre for climate change and the global environment (Centre sur les changements climatiques et l'environnement global, or C3EG) is made up of around forty researchers in different fields working at Québec universities, with a secretariat at McGill University. The C3EG concentrates on the processes, modelling and impact of environmental and climate change. It has developed a Web-based interface to provide access to environmental data from four major North American databases, allowing it to take advantage of the possibilities offered by the Internet to gain maximum access to a broad range of statistics.



The joint work of the Eco-Advisory Chair at Université du Québec à Chicoutimi and the research consortium on the commercial boreal forest promises to deliver interesting results from the boreal carbon project, which has been designed to study and quantify carbon absorption through the reforestation of naturally cleared areas in the boreal zone as a way to compensate for greenhouse gas emissions.



In Québec City, Université Laval hosts the Canadian Carbon Program (CCP), a pan-Canadian group of almost 100 researchers from twelve different universities and federal and provincial government departments. The CCP studies climate fluctuations, forest management practices and natural disturbances in forest and peatbog ecosystems. It also looks at the question of greenhouse gas management through the short-term capture of atmospheric CO₂. The CCP intends to join the North American Carbon Program (NACP) to work alongside and in collaboration with groups in the United States and Mexico.

A recent study commissioned by Québec's Department of Economic Development, Innovation and Export Trade has identified several hundred promising technologies, mainly in the fields of renewable energy and energy efficiency. Over 60% of the technologies will have an impact on greenhouse gas emissions.

The Québec government will provide support for these technologies, most of which are still at the experimental stage, until they are ready to be marketed. It will also assist in publicizing them around the world by taking action to increase the presence of Québec firms on foreign markets and to create consortiums or partnerships with foreign firms.