

# BRITISH COLUMBIA

## Climate Action for the 21<sup>ST</sup> Century



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Did you know British Columbia's Climate Action Plan includes:

**33%**  
**Reduction**  
in GHG by 2020

**80%**  
**Reduction**  
in GHG by 2050

**1<sup>ST</sup>**  
Broad-Based  
**Revenue Neutral  
Carbon Tax**

**93%**  
**Clean Electricity**  
Production

**100%**  
**Carbon-Neutral**  
Government by 2010

# Message from the Minister of Environment and Minister of State for Climate Action

When our government passed the *Greenhouse Gas Reductions Target Act* (GGRTA) in 2007, it committed the Province to reducing greenhouse gas emissions by 33 per cent below 2007 levels by 2020 and 80 per cent by 2050. To ensure we meet those legislated targets we are using 2012 and 2016 for emission reduction benchmarks of six per cent and 18 per cent respectively.

In June 2009, the Ministry of Environment released the *British Columbia Greenhouse Gas Inventory Report 2007*, setting the Province's baseline for meeting its legislated commitments under GGRTA. This year government is required by GGRTA to publically report:

- a a determination of the B.C. greenhouse gas emissions level for the relevant calendar year,
- b the progress that has been made toward achieving the targets,
- c the actions that have been taken to achieve that progress, and
- d the plans to continue that progress.

The *British Columbia Greenhouse Gas Inventory Report 2008* fulfills government's obligation to determine its greenhouse gas emissions levels for the 2008 calendar year. Emissions are estimated to have increased by 1 per cent in 2008 compared to 2007 levels. Increased activity in the oil and gas sector and greater movement of some goods accounts for the majority of the increase while there are encouraging signs of other emission sources decreasing, such as road transportation.

In December 2009, Premier Gordon Campbell attended the United Nations Climate Change Conference in Copenhagen as part of the Canadian delegation and to profile B.C.'s action on climate change. A report was created to inform the public of B.C.'s progress, actions and plans to achieve its legislated emissions reduction targets. *Climate Action for the 21<sup>st</sup> Century* demonstrates how government is acting decisively to mitigate the direct consequences related to climate change building on commitments contained in the *Climate Action Plan* released in 2008. *Climate Action for the 21<sup>st</sup> Century* summarizes key initiatives and progress made through 2009 and describes actions that will be undertaken as government moves closer to its target. The report fulfills the GGRTA requirements with respect to the progress, action and plans to achieve the emissions reduction targets. Significant milestones include:

- progress towards meeting carbon neutral public sector commitments for 2010;
- successfully hosting the 2010 Olympic and Paralympic Games as the greenest ever;
- continued involvement with the Western Climate Initiative and other regional and international partnerships to achieve broad action on climate change; and
- new commitments to invest in Clean Energy.

Since the December 2009 report, government has continued to implement and make progress in key areas, for example: British Columbia signed an agreement-in-principle with the Federal Government as a first step to avoid duplicating environmental regulatory measures; new legislation was passed this spring that sets the path for the Province's zero net deforestation commitment for 2015; to help B.C. cope with the effects of climate change the Province adopted a cross-government Adaptation Strategy to share goals, strategies and resources; and the *Clean Energy Act* was introduced to enable development of low-carbon energy within the province. *Climate Action for the 21<sup>st</sup> Century* was revised July 2010 to reflect B.C.'s climate action progress since Copenhagen.

Tackling climate change remains an enormous challenge, but by continuing to act decisively in British Columbia we can ensure that we maintain B.C.'s high quality of life while meeting our legislated emission reduction targets.



Honourable Barry Penner  
Minister of Environment



Honourable John Yap  
Minister of State for Climate Action

## Broad-Based Revenue- Neutral Carbon Tax

# 1<sup>ST</sup>

## Introduction

**THE GOVERNMENT OF BRITISH COLUMBIA** has acted decisively to mitigate direct consequences related to global warming. It has set the necessary regulatory context for the province's citizens and industries to position themselves in the fight against climate change and to seize the opportunities created in the emerging low-carbon global economy. British Columbia's comprehensive set of climate actions and policies are enshrined in law.

### B.C.'s climate action plan includes:

- A legislated **33 per cent reduction of greenhouse gases** from 2007 levels by 2020 and **80 per cent by 2050**.
- Legally established interim emission reduction targets of six per cent by 2012 and 18 per cent by 2016 to measure progress towards the 33 per cent reduction by 2020.
- A new **Clean Energy Act** that harnesses British Columbia's natural advantage to help build a new future of electricity self sufficiency, job creation and reduced GHG emissions.
- A legislated requirement for core government and broader public sector to be **carbon neutral by 2010**, a first for North America.
- Implemented **world's first broad-based, revenue-neutral carbon tax**.
- First full Canadian partner in the **Western Climate Initiative**, which is developing and adopting a comprehensive cap and trade system.
- Working with all sectors of the province's economy to reduce emissions and to establish a low-carbon economy competitive advantage.
- LiveSmart BC Efficiency Incentive Program which provides financial support to households for energy audits and energy efficiency building retrofits.
- All new public buildings must be built to **LEED Gold Standards**.
- Adopted new **Wood First Policy** to require the use of the world's most environmentally friendly and sustainable building resource to help meet climate objectives.
- Adopting a **zero net deforestation policy** to optimize the full carbon and storage value of the province's forests.
- Implementation of an **Adaptation Strategy** to address climate change impacts now and in the future.

# Overview of British Columbia's Climate Actions

**BRITISH COLUMBIA HAS TAKEN SPECIFIC** actions defining its approach to reducing greenhouse gas (GHG) emissions.

## Making Greenhouse Gas Reductions Mandatory by Law

- **Greenhouse Gas Reductions Targets Act:** Setting GHG reduction targets for the Province and mandating the provincial government become carbon neutral in 2010.
- **Vehicle Emissions Standards Act:** Enabling the adoption of tailpipe emissions standards that will increase automobile fuel efficiency.
- **Emissions Standards Statutes Amendment Act:** Regulating landfill gas.
- **The 2008 Utilities Commission Amendment Act:** Designed to encourage more low-carbon energy generation projects.
- **Renewable and Low Carbon Fuel Requirements Act:** Encouraging the development of renewable forms of energy and decreasing the carbon content of fuels.
- **Green Communities Statutes Amendment Act:** Designed to guide the development of more sustainable, healthy communities.
- **Wood First Act:** Requiring provincially-funded building projects use wood as the primary construction material where possible.
- **Zero Net Deforestation Act:** Encouraging the creation of new forest land that is equal to or greater than the area of deforestation.

## Implemented World's First Broad-Based, Revenue-Neutral Carbon Tax on Fossil Fuels

- **Carbon Tax Act:** World's first broad-based, revenue-neutral carbon tax on fossil fuels where every penny of carbon-tax revenue is reinvested into targeted tax cuts for individuals and businesses taxpayers, effective July 2008.
- **Cap and Trade Act:** Canada's first province to become a full partner in North America's Western Climate Initiative, which is designing the world's most comprehensive emissions trading program, scheduled to start in January 2012. The Cap and Trade Act enables the implementation of a cap and trade system. So far, a reporting regulation has been implemented and regulations with respect to allowances, offsets and compliance are in development.

## Government Leadership

- **Carbon Neutral Government:** By law all of government operations, including schools, universities, colleges and hospitals will be 100 per cent carbon neutral by 2010.
- **Pacific Carbon Trust:** The provincial crown corporation mandated to deliver high quality, made-in-B.C. offsets to help the Province and other clients become carbon neutral.
- **Pacific Institute for Climate Solutions:** The \$94.5-million Pacific Institute for Climate Solutions brings together universities, government and the private sector to facilitate leading-edge climate change solutions.



- **Clean Energy Funding:** An annual \$25-million Innovative Clean Energy Fund, designed to help promising clean-power technology projects succeed in development and in the marketplace. A \$25-million Bioenergy Network to encourage research and development in areas such as wood-waste cogeneration, biofuel production, cellulosic ethanol and wood pellet production. An additional \$100 million of climate action and clean energy funding announced in Budget 2010 to ensure commercial developments of new, clean energy technologies.

### Improving Transportation and Transit to Reduce Emissions

- **Green Transit Expansion:** \$14-billion transit plan to significantly expand transit throughout the province.
- **Low-Carbon Fuel Standards:** Low-carbon fuel standard requiring fuel distributors to reduce carbon intensity by 10 per cent by 2020.
- **Tailpipe Emission Standards:** Tailpipe emission standards to reduce personal vehicle greenhouse gas emissions, on average, by 30 per cent by 2016, while preserving consumer choice.
- **Electrifying Ports:** Recently completed **Canada's first electric shore power project** at Port Metro Vancouver to reduce marine diesel engine emissions from cruise ships.
- **World's Largest Hydrogen Fuel Cell Bus Fleet:** Launched the **world's largest fleet of hydrogen fuel cell buses** serving the public to operate during and after the 2010 Olympic and Paralympic Winter Games.

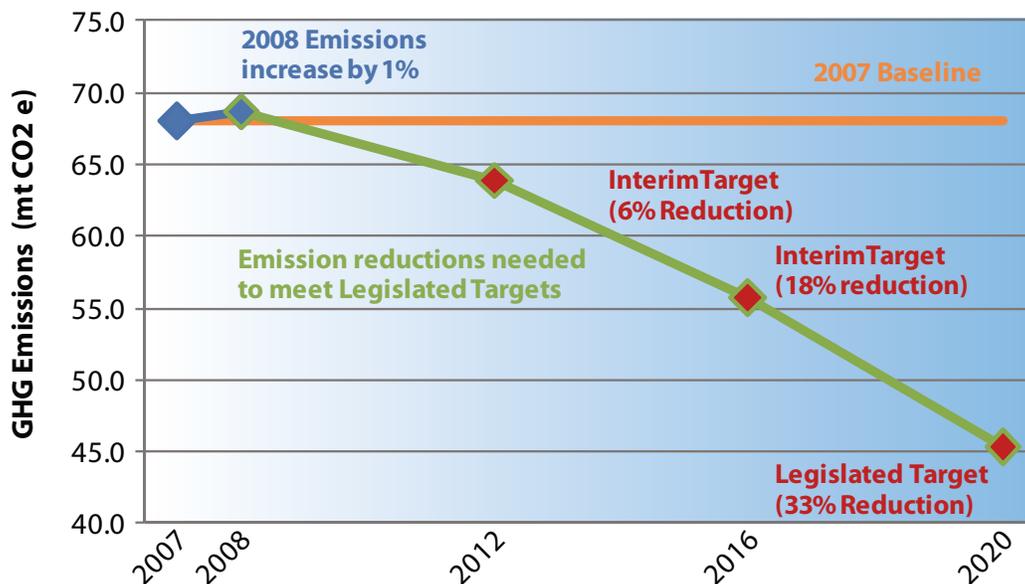
### Building Green Communities

- **Green Building Code:** Developed a new **green building code** with some of the highest energy-efficiency standards in Canada.
- **Carbon-Neutral Communities:** Over 90 per cent of the province's **local governments have committed to be carbon neutral** by 2012.
- **Solar Roofs:** The Province is working with industry to install 100,000 **solar roofs** on residential and commercial buildings by 2020.
- **LEED Standards:** In 2007 the Province committed that all new provincially-owned or leased facilities must be built to **LEED (Leadership in Energy and Environmental Design) Gold Standards**.
- **Citizen Engagement:** Regional citizen conservation councils have built networks of knowledge and action platforms for grassroots climate action and to advise government on next steps to further reduce greenhouse gas emissions.

## New Solutions in Natural Resources and Clean Energy

- **Zero Net Deforestation:** A new zero net deforestation policy designed to optimize the full carbon and storage value of the province's forests that cover 60 million hectares, an area larger than the size of France.
- **Clean Energy Act:** Helps the Province meet its greenhouse gas reduction targets and to position B.C. as a North American leader in the low carbon global economy.
- **B.C. Energy Plan:** A defined energy plan setting key targets for the province, including being **electricity self-sufficient** by 2016.
- **Zero Net Emissions:** All new electricity generation projects must have **zero-net greenhouse gas emissions**.
- **Renewable Energy Requirement:** **cleaner, renewable energy will comprise a minimum 93 per cent** of the total electrical generation in the province.
- **Conservation:** By 2020, the provincial agency responsible for electricity, BC Hydro, must acquire 66 per cent of its incremental electricity through conservation.
- **Eliminating Oil and Gas Flaring:** The Province is committed to eliminate all routine flaring at oil and gas producing wells and production facilities by 2016, with an interim goal to reduce flaring by half by 2011.

## Emissions Targets



# 1 World's First Broad-Based Revenue-Neutral Carbon Tax

**PUTTING A PRICE ON CARBON** pollution is widely recognized as an essential step towards reducing greenhouse gas emissions. In 2008, British Columbia introduced the world's first broad-based revenue-neutral carbon tax that is designed around three fundamental principles:

## Revenue-neutrality

- All carbon tax revenue is recycled through other tax reductions.
- The Province is legally required to present an annual report showing how every dollar of the carbon-tax revenue will be returned to taxpayers through tax reductions.
- The carbon-tax revenue is lowering personal and corporate taxes, giving British Columbia some of the most competitive tax rates in North America.

## Carbon tax rate increases gradually and is comprehensive

- Initially introduced in 2008 at \$10 per tonne, the carbon tax is now at \$20 per tonne of carbon emissions, rising \$5 a year until 2012, when it will reach \$30 per tonne. This clear price signal provides economic and business certainty and transparency.
- The carbon tax is applied to all carbon fuels such as gasoline, diesel, jet fuel, natural gas, propane and coal.
- A phased approach gives individuals and businesses time to reduce their use of fossil fuels responsibly and effectively by providing certainty.
- Covers 77 per cent of emissions, capturing sources not initially covered by proposed regional or North American cap and trade systems.
- Is designed to harmonize seamlessly with any future regional cap and trade system or national carbon pricing to avoid double-taxation.

## Revenue-neutral carbon tax taxes pollution, reduces income tax and strengthens B.C.'s international economic competitiveness

- Purchase and use of fossil fuel in B.C. is taxed, tax covers 77 per cent of emissions in British Columbia, while reducing other taxes on productivity.
- As a result of the carbon tax, corporate and small business tax reductions will give British Columbia some of the lowest corporate taxes in all of the G7 countries by 2012 and attract investment, while enhancing British Columbia's competitive position among its major trading partners.

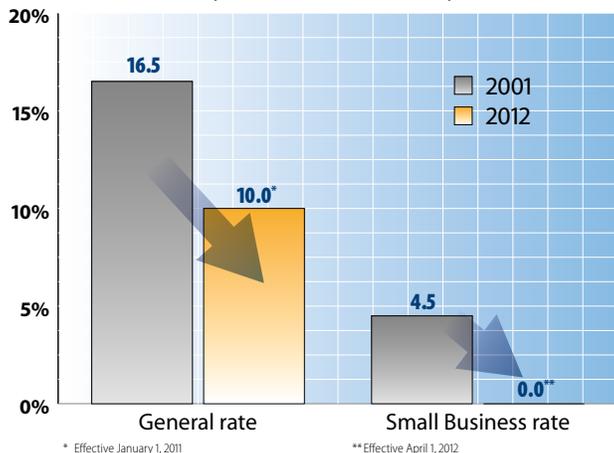


- British Columbia's corporate income tax rate has been reduced by nearly 40 per cent and **small business corporate income tax rate will be reduced to zero by 2012.**
- Reductions to personal income taxes means that British Columbians now enjoy the **lowest provincial personal income tax in Canada** for individuals earning up to \$118,000 a year.
- As companies reduce their emissions and become more energy-efficient, they reduce their operating costs and become more competitive. Compounded with lower business and corporate tax rates because of cuts funded through the carbon tax, **British Columbia-based companies will have a long-term advantage over other jurisdictions.**

**B.C.'s competitive tax advantage**

- The lowest provincial personal income tax rates in Canada for people earning less than \$118,000
- Among the lowest Corporate Taxes in G7
- No small business tax by 2012

**Corporate Income Tax Reductions Since 2001**  
(% of taxable income)



**CASE STUDY: REWARDING LOW-CARBON CHOICE**

British Columbia individuals and families can choose to reduce driving or improve efficiency to reduce the amount of carbon tax they pay, while at the same time still receiving the benefit of reduced taxes.

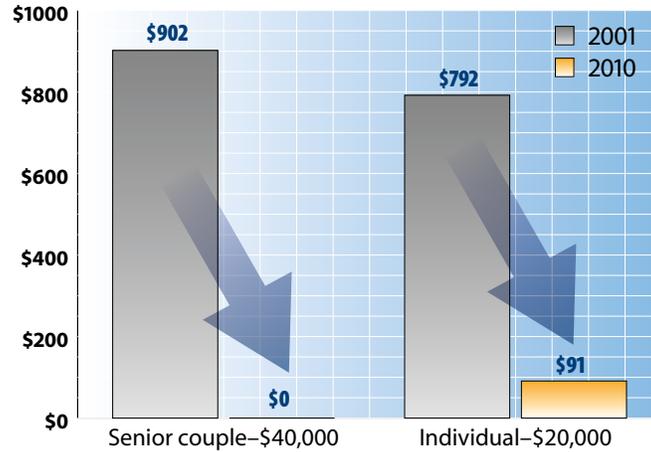
Family Example- An average family of four with an annual income of \$90,000CDN in 2009: After calculating the carbon tax paid on their personal vehicle and home-heating bill, then subtracting the offsetting income tax cuts they would be eligible for, that family can expect to save \$62CDN per year. Should that family take further actions to reduce energy consumption, they would save even more.

LiveSmartBC Energy Efficiency Incentive Program: The Province developed a program to encourage citizens to make greener choices through targeted financial incentives to save money. **Participants reduced their home energy use, on average, by 31 per cent** for a total of just under 20,000 tonnes of greenhouse gas emissions.

## Protection for low-income individuals and families

- Lower-income British Columbians receive an ongoing, quarterly **climate action tax credit**.
- This credit, indexed to provincial inflation, is for individuals and families earning less than \$30,722 CDN and \$35,843 CDN respectively, and provides \$115 CDN for each adult and \$34.50 CDN for each child.

### Personal Income Tax Reductions Since 2001



### CASE STUDY: PCT OFFSET PROJECT – LAFARGE CEMENT

Lafarge Cement near Vancouver, British Columbia, is substituting biomass for coal because B.C.'s revenue-neutral carbon tax made switching to lower-carbon fuels attractive. At the same time, the company will create a new market for pine in B.C. that has been damaged by the mountain pine beetle and will help create new jobs harvesting, transporting and processing the material.

The project would not be economically viable without carbon offset funds that will allow the company to reduce the amount of coal it has traditionally used to produce cement. Lafarge will replace a portion of the fossil fuel it previously used with biomass and other materials from construction waste. Making this switch will enable the company to significantly reduce its annual greenhouse gas emissions while simultaneously decreasing its business costs by reducing the amount of carbon tax it would pay.

### CASE STUDY: UNIVERSITY OF BRITISH COLUMBIA

The University of British Columbia (UBC) is one of Canada's leading research institutions. In their move towards low-carbon operations, UBC has been crunching their carbon numbers. The University calculated that the 40-year net present value of the carbon tax and required carbon-neutral offsets is \$42 million.

Prior to the carbon tax and the public service's commitment to a carbon-neutral public service their incentive to decrease their use of fossil fuels was minimal. With the government's new climate change commitments, they now have a \$42-million low-carbon incentive.

UBC has since started the process of eliminating their natural gas boilers which will remove 58,000 tonnes of greenhouse gas emissions per year. New energy efficient boilers will lower the university's consumption of fossil fuels and insulate them against increases in energy costs.

## 2 Carbon-Neutral Government

**BRITISH COLUMBIA IS THE FIRST** government in North America to pass legislation legally requiring all government operations to be carbon neutral in 2010. It applies to all provincial public sector operations including schools, hospitals, universities, health authorities and government ministries.

Almost 300,000 public servants are involved in this unprecedented initiative. It requires, by law, that employees and politicians track their emissions for all travel, and offsets purchased through the Pacific Carbon Trust become part of the Province's travel expense. To track individual emissions, B.C. developed a tool called **SMARTEC, which allows employees to calculate emissions used regardless of their mode of transportation** or where they stay. **SMARTEC** technology is now being looked at by other provinces and states for potential similar endeavours. To ensure **transparency and accountability**, the Government of British Columbia requires that all provincial government institutions:

- Publicly report their annual emissions (including their use of taxis, personal vehicles, aircraft and public transit).
- Demonstrate how they will reduce emissions (such as less travel through the use of technologies like video conferencing).
- Purchase carbon offsets for any remaining emissions, ensuring the net effect of government activities is carbon neutral.
- In 2007, the Province committed that all new government facilities must be built to **LEED** gold or equivalent standards for efficiency, and feature wood as a primary building material where possible.

Increasingly, this initiative has gained interest and momentum. More than 90 per cent of **communities and regional districts in British Columbia have signed the Climate Action Charter to become carbon neutral by 2012**. Participating local governments have their **carbon tax fully refunded** by the Province on an annual basis.

### CASE STUDY: PUBLIC SECTOR ENERGY CONSERVATION AGREEMENT

Through the Public Sector Energy Conservation Agreement (PSECA), more than 170 energy-efficiency retrofit projects in schools, colleges, hospitals and social housing reduce over 18,700 tonnes of greenhouse gas emissions and save 38.6 gigawatt hours of electricity a year – enough to power almost 3,500 homes. That saves British Columbian taxpayers \$7.4 million annually.

The third year of PSECA funding will invest \$6 million to upgrade heating and cooling equipment in schools, \$2 million to install for solar thermal projects in buildings across the public sector, \$5 million for building efficiency upgrades and \$12 million for district energy systems that will provide energy savings to communities through centralized heating and cooling.



## Pacific Carbon Trust

To ensure this commitment is met, the Province created a new government agency known as Pacific Carbon Trust, which is mandated to deliver high-quality greenhouse gas emission offsets and support the province's participation in the growing global carbon market.

- This is one of the world's first state-owned entities to play a leading role in the creation of a new carbon offset market.
- Carbon offsets in the province have been set at \$25 per tonne.
- These carbon-offsets projects will be specific to British Columbia, not only reducing emissions but creating new jobs, driving innovation and fostering new skills and labour development directly related to the new low-carbon economy, like carbon accounting and auditing.
- To date, Pacific Carbon Trust has received proposals representing potential greenhouse gas emission reductions of more than 1.1 million tonnes of CO<sub>2</sub> emissions by 2011, and over 11.5 million tonnes by 2020.

### Pacific Carbon Trust – History of action on climate change

■ **2007 – BC Throne Speech**  
Outlining Province's commitment to action on climate change

■ **March 2008 – PCT Established in B.C.**  
Pacific Carbon Trust incorporated and launched to stimulate the growth of B.C.'s green economy and deliver on government carbon neutrality

■ **June 30, 2009 – PCT's First Offset Purchase**  
Pacific Carbon Trust acquires and retires first tranche of offsets to make B.C. government travel carbon neutral

■ **2010 – Public Sector Carbon Neutrality**  
Pacific Carbon Trust to deliver up to 1M tonnes of offsets to offset all emissions from B.C.'s public sector

Participation in cap and trade post-2012

Accelerate development of B.C.'s carbon market

Support B.C. municipalities becoming carbon neutral

Growing investments in B.C. based low carbon technologies

### 3 Working Beyond Our Borders

**BRITISH COLUMBIA HAS SIGNED BINDING** agreements or joined formal organizations with **national and sub national government from around the world** in an effort to combat climate change and partner in the development of important climate change initiatives and programs such as emission trading systems and integrated planning in electricity generation and transmission. Working together and co-operatively, taking early action against climate change helps the Province meet its legally binding emission reduction targets. This maximizes economic competitiveness and saves time and resources in joint planning through globally compatible systems and integrated planning in areas like electricity and transmission.

**The Western Climate Initiative (WCI)** – British Columbia was the first Canadian province to join this regional climate action partnership that is designing the world’s most comprehensive cap and trade system, which could be used as the model for a continental cap and trade program in the United States, Canada and Mexico. British Columbia is currently the Canadian liaison to the federal government, chair of the Offsets Committee and leads the economic modelling team. Canadian WCI membership covers approximately 80 per cent of Canada’s population and 73 per cent of its GDP.

**International Climate Action Partnership (ICAP)** – British Columbia was a founding partner of this international partnership and now serves as the chair. Working with national and sub-national governments in Europe, Asia, Oceania and North America, ICAP shares best practices and learning experiences in efforts to build a truly global carbon market.

**The Climate Registry** – British Columbia was the first Canadian province to join the Climate Registry and is now on the executive committee and co-chairs its mandatory reporting committee. All Canadian provinces and territories are now members of the Climate Registry.

**The Pacific Coast Collaborative** – Alongside four Pacific Coast neighbours – Alaska, Washington, Oregon and California – British Columbia is working with Pacific leaders to establish regional co-operation on climate change, energy, green transportation opportunities, and adaptation and ocean health.

#### B.C. AT COPENHAGEN

Premier Campbell represented British Columbia at the United Nations Climate Change Conference in Copenhagen to support the Canadian federal government and highlight the important role sub national governments can play in fighting climate change and driving national-level change. While at the conference Premier Campbell accepted, on behalf of all British Columbians, an award from several prominent environmental organizations recognizing British Columbia as a leader on carbon pricing.

33  
PERCENT

Reduction  
in GHG  
Emissions  
by 2020



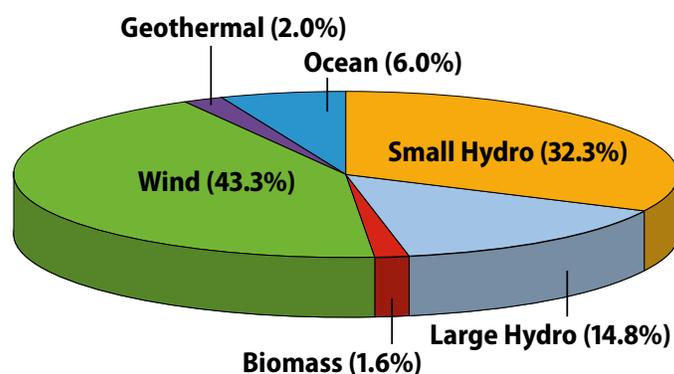
## 4 Investing in Clean Energy

**THE PROVINCE OF BRITISH COLUMBIA** is unique in its diversity and **abundance of clean and renewable energy** potential in areas such as run-of-river hydroelectricity, bioenergy, wind, tidal and solar energy. The *Clean Energy Act*, introduced April 2010, will enshrine into law the Province's commitment to capitalize on B.C.'s natural advantage and sets the course for a new future of electricity self-sufficiency, job creation and reduced greenhouse gas emissions.

Currently, 90 per cent of British Columbia's electricity generation is derived from non or low emitting sources, placing the province among the top jurisdictions in the world. British Columbia is positioned to become a North American clean energy powerhouse that will help meet North America's need for clean, renewable carbon neutral power. Conservation and clean, renewable energy are the cornerstones of British Columbia's energy plan and *Clean Energy Act* as key policies and actions are implemented, including:

- Legislated commitment to become **electricity self-sufficient by 2016**.
- **First in Canada** to require 66 per cent of new incremental energy needs to be met through conservation by 2020.
- Among the first in North America to require all new electricity generation have **zero-net greenhouse gas emissions**.
- 93 per cent clean or renewable electricity generation target – one of the highest standards in the world.
- Strict zero greenhouse gas emissions requirements for any coal-thermal generation facilities.
- Enacted legislation requiring the capturing of landfill gas.
- Legislated requirement to install Smart Meters in homes and businesses that will allow ratepayers to better manage their electricity use and save on power bills.
- Targeted programs to **encourage the use of electricity, or energy directly from a clean or renewable resource**, and to accelerate the deployment of natural gas an electric vehicles and fuelling infrastructure."
- New opportunities for rural and remote residents to access clean and renewable electricity.

**British Columbia's Potential Clean Energy Supply**



**British Columbia's total potential clean energy supply is nearly 130,000 GWh/year.**



# NEW CLEAN ENERGY ACT

Building  
on the  
POWER  
of B.C.

Targeted incentives, technology research and development programs help maximize the province's energy and economic potential, create jobs and reduce greenhouse gas emissions. Investments in the province's energy sector will drive innovation and commercialization of clean technology and fuels such as cellulosic ethanol, and hydrogen fuel cell technology. Programs include:

- **Innovative Clean Energy (ICE) Fund:** Over \$47 million in 34 projects in communities across B.C., representing a total value of more than \$174 million to help develop clean and renewable energy technologies for British Columbians in areas such as solar, geothermal, tidal, wind and bioenergy.
- **Standing Offer Program:** Incentives for small, clean, renewable power projects to get onto the transmission grid and expand the province's clean energy supply. This program is designed for clean, renewable or high-efficiency co-generation projects that are less than 10 megawatts – enough electricity to power 4,000 households.
- **Hydrogen Fuel Cells:** British Columbia is home to the **world's largest fully operational hydrogen fuel cell bus fleet** of 20 buses serving the public.
- **Venture Capital Programs:** The Province's venture capital programs make tax credits available to investors in early-stage clean technology companies operating in B.C.

## CASE STUDY: BC HYDRO – CLEAN ENERGY CALL

BC Hydro issued a call for clean power in 2008, which targeted up to 5,000 gigawatt hours of clean or renewable energy per year from projects using proven clean technologies, such as hydro, wind, solar, and geothermal energy. This call was complemented by the Bioenergy Call for Power, which is supporting projects that convert wood waste and other biomass resources into clean power.

The first phase of BC Hydro's Bioenergy Call for Power resulted in four biomass projects that will deliver power to British Columbia's power grid and will generate a total of 579 gigawatt hours of electricity annually, or enough to power more than 52,000 homes. These bioenergy facilities will use forest-based biomass, including sawmill residue, logging debris, trees killed by the mountain pine beetle, and other residual wood to generate clean, green electricity.

British Columbia's new Clean Energy Act sets the foundation for a new future of electricity self-sufficiency and job creation, powered by unprecedented investments in clean, renewable energy across the province.



### **CASE STUDY: ATLIN ELEMENTARY AND SECONDARY SCHOOL**

The Province is working with school districts to turn B.C. schools into models for progressive environmental practices.

Atlin Elementary and Secondary School is benefiting from green retrofits that will replace the school's propane furnace with a high-efficiency model and upgrade its domestic hot water system. These green upgrades will see the school's carbon footprint reduced by 56 per cent. The \$270,000 project is jointly funded by the Province and the school district.

Projects like this are underway across the B.C. and will help the Province meet its legislated carbon neutral commitment while providing health benefits for students and their communities.

### **CASE STUDY: WESTPORT INNOVATION**

Founded in 1995, British Columbia-based Westport Innovations Inc. is a leading global supplier of proprietary solutions that allow engines to operate on clean-burning fuels such as compressed natural gas, liquefied natural gas, hydrogen and biofuels. Cummins Westport Inc., Westport's joint venture with Cummins Inc., manufactures and sells the world's broadest range of low-emissions alternative fuel engines for commercial transportation applications such as trucks and buses.

Westport also has partnerships with some of the world's leading truck and engine manufacturers, including PACCAR and Weichai. Cummins Westport engines and Westport fuel systems are designed to meet the most stringent emissions regulations, meeting or exceeding the toughest U.S. EPA, California Air Resources Board, and EURO emissions standards.

The company has supplied more than 2,500 engines to Beijing Public Transport, making it one of the cleanest fleets in the world. Delhi Transport Corporation in India has over 3,000 Westport engines in its fleet.

**80**  
**PERCENT**

**Reduction  
in GHG  
Emissions  
by 2050**

## 5 A Natural Advantage: Forestry

**FORESTRY PLAYS AN ENORMOUS ROLE** in the environmental and economic well-being of British Columbia. Outbreaks of the Mountain Pine Beetle – spurred by unusually warm winters – have led to an unprecedented infestation that now covers an area of forest more than three times the size of Denmark. Recognizing this, the Government of British Columbia is moving forward with innovative and sustainable policies and actions. They are designed to prevent deforestation and maximize the value of trees, both as clean energy and carbon sinks.

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- **Zero Net Deforestation** – To protect the province’s forests as a critical resource and carbon sink, B.C. is working to ensure that any forest loss associated with development or other land use change will be offset by an equivalent area of new trees being planted elsewhere. This ensures no net reduction in forest lands covering an area larger than France. The full value of forest carbon storage is realized while maintaining the responsibility to manage the forests for future generations while reducing greenhouse gasses. The Province introduced legislation in 2010, with 2015 as the goal for implementation.
- **“Wood First” Policy** – World-leading commitment to increase demand for wood products by requiring that all provincially-funded building projects use wood as the primary construction material where possible. This supports reducing emissions through carbon-friendly building materials and the development of expertise in wood engineering and design and job stability for forest workers. This legislated commitment will be augmented by an international marketing program to China and other Asian countries to adopt wood and wood building technologies that are cheaper, more durable and better for the environment than concrete or other traditional technologies and materials.
- **Forests For Tomorrow** – Forests for Tomorrow is about reforesting areas hardest hit by the mountain pine beetle and past wildfires. Based on a sound scientific foundation and a respect for both human and environmental values, the program works to ensure resilient forest ecosystems and sustainable forests by planting the right tree species in the right areas to ensure faster growth and healthy forests. Over six billion trees have been planted in B.C. since replanting efforts began in the 1930s.
- **Bioenergy Network** – British Columbia leads Canada in energy production from plant materials, known as biomass, including wood waste, agricultural waste, aquatic plants and vegetation. Biomass is an important source of energy because unlike fossil fuels, it is renewable. The BC Bioenergy Network supports research and development in areas such as wood-waste cogeneration, biofuel production and wood-pellet production – all of which represent new opportunities for jobs and economic growth in B.C.’s forest sector.
- **Cellulosic Ethanol** – As biofuel markets grow, new regulations such as low-carbon fuel standards will help drive the development of biofuels. Cellulosic ethanol (derived from non-digestible plant fibres such as wood waste) holds enormous potential for British Columbia to deploy cost-effective bioenergy production by utilizing its vast supply of wood fibre. With an estimated 11 million tonnes of wood waste available every year, including about 2.5 million tonnes of mountain pine beetle-killed wood, cellulosic ethanol production can demonstrate new value in wood as a renewable energy while not having the same “food versus fuel” concerns that have been associated with corn-based ethanol production.
- **Call for Forestry Offsets** – To take advantage of the carbon sequestration potential of British Columbia’s forests, the Pacific Carbon Trust issued a call for carbon offset projects April 2010.

The call targets three activities that will increase the total stock of carbon sequestered in B.C.'s forests: Afforestation projects that increase the area of B.C. forests; fertilization projects that add nutrients to improve tree growth; and select-seed projects that focus on planting seedlings grown from seeds selected for specific traits that increase carbon intake. The Pacific Carbon Trust intends to build on this initial forestry call for projects creating a whole new category of economic opportunities for the forest sector in B.C.

#### **CASE STUDY: MOUNTAIN PINE BEETLE AND WOOD PELLETS**

British Columbia is looking at new opportunities that the mountain pine beetle outbreak presents to the province, particularly in rural communities, through the development of new and innovative use of the beetle-wood.

Under our bioenergy strategy, there will be opportunities to recover value from beetle-killed timber and wood wastes by generating renewable energy. In 2007 alone, the province's wood pellet industry produced over 900,000 tonnes of wood pellets, of which 90 per cent was exported for thermal power overseas.

#### **CASE STUDY: CHINA AND EARTHQUAKE ASSISTANCE**

British Columbia is contributing to the \$8-million Canada-British Columbia Wenchuan Earthquake Reconstruction Project to help build a new school for hundreds of children in one of the areas hardest hit by the 2008 Wenchuan earthquake. The project demonstrates that wood-frame construction can meet China's requirements for buildings that will provide stability in earthquake-prone areas. The 5,749-square-metre complex recently received fire safety approval from Chinese authorities, setting a new precedent for multi-storey, multi-use wood frame buildings. Other reconstruction projects under this initiative include a special school for the disabled in Mianyang and an elder care centre in Beichuan.

## 6 Adapting to a Changing Climate

**BRITISH COLUMBIA'S ACTIONS TO REDUCE** greenhouse gas emissions will have long term benefits for the province and the global climate. Greenhouse gases released into the atmosphere from historical and ongoing emissions, however, will continue to warm the climate for decades to come. B.C. can expect more long-term warming, more frequent extreme weather, changes to precipitation patterns and rising sea levels.

B.C. will need to adjust to unavoidable climate change and its impacts to our resources, communities and businesses. That is why the Government of British Columbia is ensuring that climate change impacts are minimized.

- **Preparing for Climate Change: British Columbia's Adaptation Strategy** is the Province's plan to help B.C. adapt to climate change. The strategy strengthens knowledge and tools for decision-makers across British Columbia, communicates the importance of adaptation to British Columbians and ensures that long-term investments in the green economy and infrastructure are resilient to climate change impacts.
- **Pacific Institute for Climate Solutions (PICS)** received an endowment of \$94.5 million from the Province to bring together B.C.'s research intensive universities to assess, develop and promote viable adaptation as well as emission reduction options. The endowment also provides support to the **Pacific Climate Impacts Consortium (PCIC)**, which produces provincially-relevant information about past and future climate change and its impacts.
- **The Future Forest Ecosystems Initiative** is adapting British Columbia's forest and range management framework so that it continues to maintain and enhance the resilience and productivity of B.C.'s ecosystems as our climate changes.
- **Living Water Smart** is the provincial government's plan to keep our water healthy and secure for the future. It will help communities prepare for more frequent floods and droughts associated with climate change.
- **The Mountain Pine Beetle Action Plan** coordinates all levels of government, communities, industries and stakeholders working to help forest based communities adjust to the ecological, economic, and social impacts of the pine beetle infestation in the interior of B.C.

### CASE STUDY

The Government of British Columbia is a major partner in the provincial Regional Adaptation Collaborative (RAC), along with Natural Resources Canada, Fraser Basin Council, Columbia Basin Trust, WWF-Canada, B.C. Conservation Foundation, and the University of British Columbia. The RAC is undertaking 18 interconnected projects that advance adaptation in the context of water allocation and use, watershed management, flood protection and community adaptation. RAC's work will include new tools and information to help local governments and other stakeholders identify potential impacts of climate change and appropriate adaptation options. They will include adaptation plans for watersheds in the Skeena, Okanagan, West Kootenay, Lower Mainland, and Vancouver Island regions.

## 7 Every British Columbian Doing Their Part

**EFFECTIVELY ADDRESSING CLIMATE CHANGE DEPENDS** on all British Columbians doing their part. Government's initiatives and actions lay the groundwork to achieve our Provincial targets through legislation, policies and support for new infrastructure and sets the stage for all British Columbians to reduce carbon pollution. Taking climate action will make communities more liveable, industry and business more efficient and save families money as they reduce their carbon footprint.

### Carbon Neutral Communities

178 out of 188 local governments have signed on to the Climate Action Charter committing to becoming carbon neutral in their operations by 2012, measuring and reporting on their community's GHG emission profile and creating complete, compact and more energy efficient rural and urban communities. Many are implementing actions to address climate change such as public transit improvements, energy retrofits for buildings and construction of new facilities to higher efficiency standards. Highlights from across B.C. include:

- Canada Line – On August 17, 2009, the Canada Line opened, bringing rapid rail service between downtown Vancouver and Richmond, including the Vancouver International Airport, reducing an estimated 14,000 tonnes of GHGs annually.
- Greening Communities through District Energy – One way to reduce emissions in communities is to centralize energy production for use in multiple buildings. The communities of Lonsdale in North Vancouver and Revelstoke are leading the way in the province by successfully implementing district energy systems that reduce emissions and energy costs.
- Vancouver Convention Centre – An expanded, harbour-front Centre is LEED Gold and uses seawater to provide heating and cooling. It also features a 2.5-hectare living roof with more than 400,000 indigenous plants and has a fully restored marine habitat underneath the building.

#### CASE STUDY: CITY OF KELOWNA

The City of Kelowna performed more than 80 upgrades and retrofits to city facilities to save over 3.75 million kwh/year and reducing energy costs annually by \$168,000. It converted all traffic intersection lights to LED, installed 51 solar pedestrian signals, is installing 100 solar lights in parks and paths, scrapped over 760 vehicles as part of a local Cash for Clunkers program, and uses recovered landfill gas to generate power.

### Everyone Doing their Part

The Livesmart BC website highlights several ways that British Columbians can take part in acting on climate change. Livesmart BC provides resources for making green choices that save money at home, at work and on the road as well as information on Provincial actions. Website highlights include:

- Information on how to participate in the **Livesmart BC: Efficiency Incentive Program**. The Program provides incentives for reducing energy use in residential homes. \$60 million in program funding was committed in 2008 and the Province extended the program in Budget 2010 with an additional \$35 million, in partnership with BC Hydro, Terasen Gas and FortisBC.

- A **Climate Action Inventory** map that connects people to projects and activities in their communities across the province.
- An **Apps 4 Climate Action Contest** was announced March 2010 that challenges Canadian software developers to build web and mobile applications that raise awareness of climate change and inspire action to reduce carbon pollution.



### **Building a Network of Grassroots Climate Action**

Seven regional Citizens' Conservation Councils (CCCs) on Climate Action were established in 2008. The councils included citizens who represented their region's youth, seniors, municipal government, local business, First Nations, community groups and educational institutions. They have helped to form a grassroots regional network that aims to stimulate climate action in every region of the province. They also advised government on the best ways to encourage individuals, groups and communities in their regions to learn more about climate change, participate in climate action initiatives and reduce greenhouse gas emissions.

### **Finding Solutions with Key Stakeholders**

Government is working with major industrial sectors, organized labour and environmental organizations through eleven **Climate Action Working Groups** that provide opportunities for mutual learning and information sharing. The B.C. government also consults and engages with First Nations on greenhouse gas reduction strategies. The Climate Action Working Groups:

- Provide input on the development of cap and trade regulations in British Columbia, including B.C.'s dialogue with the Western Climate Initiative.
- Help define a vision of what their sector looks like in a low carbon economy; identify emission reduction opportunities.
- Discuss economic opportunities for their sector during the next phase of the Climate Action Plan.
- Build partnerships and recommend ways to remove barriers to emission reductions across the B.C. economy.
- Recommend critical research priorities to enable future improvements in each sector.

## 8 2010 Olympic and Paralympic Winter Games



**IN FEBRUARY 2010, BRITISH COLUMBIA** hosted the 2010 Olympic and Paralympic Winter Games. Billions of viewers witnessed how British Columbia is setting a new Olympic standard with its commitment to host the greenest Olympic and Paralympic Winter Games ever. Meeting this legacy includes:

- **Carbon Neutral Games** – Offsetting 268,000 tonnes of carbon emissions for Olympians and Paralympians (118,000 tonnes from direct emissions and 150,000 tonnes from indirect emissions). Offset projects will be a combination of energy efficiency and renewable-energy projects.
- **Green Building Award** – The Vancouver-Whistler 2010 Olympic and Paralympic Winter Games received the Excellence for Green Building Award from the Globe Foundation and the World Green Building Council in recognition of the organization's leadership in establishing green building criteria for the Games venues.
- **Richmond Oval Roof** – The venue for the 2010 speed skating events features a one-of-a-kind wave design, using arched trusses and rafters and a curvature in the surface panels that give the roof a rippled appearance and is made entirely from British Columbia wood – the first time ever such a design has been made by wood.

### CASE STUDY: OLYMPIC VILLAGE

Millennium Water, home of the 2010 Olympic and Paralympic Winter Games Village, will have a sustainability impact long after the Games are over. This unique waterfront community in Vancouver, British Columbia was designed based on the use of renewable resources and energy-efficient conservation strategies.

The goal of this community is to set a high standard for environmental, social and economic sustainability. The key is the focus on a fully functioning, sustainable community with its own community school, pedestrian-friendly streets, limited auto traffic, easy access to public transit and public ownership of spaces such as the community centre. All buildings are constructed to meet LEED silver standards at minimum.



# Appendix – What others are saying about British Columbia’s climate action plan

***“I believe (B.C.’s carbon tax) will prove to be the greatest economic generator you could possibly embrace.”***

- Bill Clinton, former president of the United States of America

***“Premier Gordon Campbell has reached out to build cross-border relationships, and he has emerged as an important leader in North America who promotes collaboration and co-operation on issues that affect us all.”***

- Arnold Schwarzenegger, Governor of California

***“Premier, I also want to compliment you on [B.C.’s climate action program] and the leadership that you are showing. It really is a fantastic source of optimism and hope to have someone in your position taking this kind of initiative and thank you very much. All the more important because the world is going to come here for the Olympics and they’re going to see, displayed in British Columbia, what environmental leadership is all about.”***

- Al Gore, former vice-president of the United States of America

***“I think (B.C.) is a world-leader in trying to go about doing this in a comprehensive way. What I like about the B.C. approach is that it is so all-encompassing. It’s actually looking at trying to pull a number of different pieces together so it’s not just one solution – it’s a comprehensive solution.”***

- Peter Robinson, CEO, The David Suzuki Foundation

***“Gordon Campbell’s leadership on the environment is visionary and courageous. He clearly understands the importance of taking strong action to combat global warming right now. The most important thing that anyone who cares about our planet can do is to support leaders like Gordon Campbell who have the courage to aggressively combat climate change, while creating opportunities for a green economy.”***

- Dr. Andrew Weaver, head of the University of Victoria’s School of Earth and Ocean Sciences and one of the lead authors on the Nobel Prize-winning Intergovernmental Panel on Climate Change.

***“I look at policies around the world – and that’s my area of expertise; climate policy – and I see what the British Columbia Government has done. This makes us here in British Columbia leaders in the world in climate policy.”***

- Dr. Mark Jaccard, Simon Fraser University Professor of Resource and Environmental Management and a lead author on the Global Energy Assessment



For more information about British Columbia's climate action initiatives go to [www.env.gov.bc.ca/cas](http://www.env.gov.bc.ca/cas).



