

Getting to Carbon Neutral Government

Plans and actions taken in British Columbia's public sector to reduce greenhouse gas emissions, save money and support the low carbon economy



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Message from the Minister of the Environment, the Honourable Barry Penner



I am pleased to present our first Carbon Neutral Action Report. It provides an overview of the innovative planning and action that has taken place since February 2007 when our government committed to becoming carbon neutral by 2010.

When our government committed to reducing GHGs by 33 per cent by 2020, we brought in the most aggressive plan in North America. Key components include a revenue-neutral carbon tax, enabling legislation for cap and trade, and our commitment that provincial government operations will be carbon neutral.

British Columbia has a strong diverse economy, talented, well-educated people, a thriving clean technology sector, and a growing list of eco-friendly businesses in every sector. We have some of the world's leading climate change scientists and innovators who are focusing their energy on finding new solutions.

Climate action requires collaboration across organizations, sectors, communities and in fact the globe – and effective change needs leaders who are willing and able to go first. By taking concrete action to become carbon neutral, the B.C. Government can then share that experience with other public institutions in British Columbia as we move to a low carbon economy.

And we have incredible natural attributes that work to our advantage. If any place in the world is a natural home for low carbon economic development, it is British Columbia.

A low carbon economy is the way of the future. Keeping BC at the forefront of this new and growing sector will ensure our economic growth through innovation, investment opportunities and job creation.

Sincerely,

A handwritten signature in blue ink, reading "Barry Penner".

Barry Penner
Minister of the Environment

"Government will act now and will act deliberately... The more timid our response is, the harsher the consequences will be."

**Speech from the Throne
February, 2007**

Message from the Minister of State for Climate Action, the Honourable John Yap

As the Minister of State for Climate Action, I am pleased to join with my colleague, Environment Minister Barry Penner, to present the public sector's first Carbon Neutral Action Report.

Effective climate action requires collaboration across organizations, sectors and communities because change requires leaders who are willing and able to go first. B.C.'s public sector has a history of planning for sustainability, and this year's report lays the framework for moving forward. From the individual reports provided by each public sector organization, you can see that our public sector has a history of sustainability planning and action.

By focusing on the way we use energy and fossil fuels, the B.C. government is conserving energy, reducing greenhouse gas emissions, and fostering a conservation culture. By taking concrete action to become carbon neutral by 2010, we will stimulate development of new products and services as we embrace a low carbon economy.

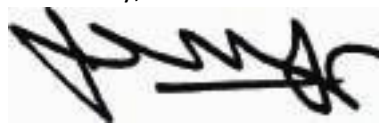
We are fortunate to have a public sector that is demonstrating leadership on climate action. By leading the way to become carbon neutral, we can reach out to all British Columbians to share knowledge, and motivate people to take action at home, and in their communities.

During tough economic times, it's important that we recognize that by offsetting our emissions we are not only meeting our legislated commitment, but also helping to foster the growth of innovative technology and practices. This support for the clean energy and technology sector is one of the key policy actions B.C. is taking to achieve its aggressive climate action goals. It's also a cornerstone of the

government's commitment to ensuring businesses and citizens across the province benefit as we take our place as leaders in the green and low carbon economy.

Our government will continue to demonstrate that sustainability is about doing things differently, and ensuring a future where clean, low carbon technology helps us protect our environment and improve our quality of life.

Yours truly,



John Yap
Minister of State for Climate Action



B.C. recognized as a leader

In April, 2009, the B.C. Public Service was recognized by Mediacorp as one of Canada's Greenest Employers for its Carbon Neutral commitment, employee engagement and green building policy.



Executive Summary

On November 20, 2007, the *Greenhouse Gas Reduction Targets Act* made B.C. the first jurisdiction in North America to make a legally binding commitment to carbon neutral operations. The passing of the Act tasked British Columbians to take concrete action to reduce provincial emissions. In doing so it demonstrated the government's leadership and willingness to put its own house in order as it set aggressive province-wide targets. This report fulfills a legislated requirement to report on emissions related to carbon neutral government business travel in 2008 of over 34,000 tonnes CO₂e and associated offsets worth \$860,000. It includes plans to reduce GHGs in the future and actions taken in 2008 across the public sector – and represents the actions of over 150 organizations. It highlights some of the key activities in each sector and individual detailed reports are available on-line. (www.LiveSmartBC.ca).

The Government of B.C. takes a proactive role in ensuring public sector organizations across government are prepared and have the necessary tools to meet this carbon neutral commitment. The Climate Action Secretariat (CAS) works in partnership with these entities, and provides direction for the climate action strategy, as well as clarity around policies and governance. Shared Services B.C. within the Ministry of Citizens' Services, is instrumental to delivering programs to support the carbon neutral government commitment.

Becoming carbon neutral is about measuring GHG emissions, making reductions and offsetting the remainder. By taking the knowledge gained from measurement, we can better understand energy use, manage provincial assets effectively and drive down cost while supporting the low carbon economy.

Beyond the climate action benefits, carbon neutral operations make sense from an economic and societal perspective. By strengthening the public sector's energy and asset management practices we reduce exposure to escalating costs and are better positioned to make informed decisions about our capital assets. Under the Public Sector Energy Conservation Agreement we will assess all government facilities to identify cost savings opportunities. To date, projects that will achieve over \$7 Million in annual energy savings



"This new world requires a new mindset that finds hope in the transformation that now drives us to change. It is an entrepreneurial mindset that sees opportunity in the dire reality of global warming and it's a clarion call for innovation, clean energy and the green economy"

***Speech from the Throne
February, 2009***

"Emissions are growing much faster than we'd thought, the absorptive capacity of the planet is less than we'd thought, the risks of greenhouse gases are potentially bigger than more cautious estimates, and the speed of climate change seems to be faster."

Nicholas Stern, April 16, 2008
Author, Stern Review on the Economics of Climate Change
HM Treasury, UK

Savings

- Reducing energy use
- Buying less paper and fewer supplies
- Finding alternatives to travel
- Lowering space requirements

Managing risks

- Understanding climate risks
- Taking action to minimize and mitigate risks
- Reducing exposure to energy price escalation
- Leading the best practices of carbon neutral government

have been approved. The B.C. Government is also promoting active transportation, increased use of technology that improves work-life balance, and conservation of resources in all forms. The savings that result from these actions will allow us to deliver public services more efficiently, which is critical as we face a large demographic change that will result in fewer staff to serve a growing population.

Becoming the first carbon neutral North American jurisdiction also provides an opportunity to build on momentum to transform the way we do business – recognizing that business as usual is no longer acceptable. By including core government and the broader public sector which includes Boards of Education, Health Authorities, Post-secondary Institutions and Crown Corporations – this commitment will touch close to 300,000 staff directly. By 2010 everyone in B.C. who attends school, visits a government office or goes to the hospital will know they are in a carbon neutral facility. Through carbon neutral government, British Columbians will learn directly how to take action and will see first-hand the benefits of a low carbon lifestyle.

With this commitment we have begun to build on community-based social marketing concepts and engage public sector staff in thinking creatively about how to tackle this issue. In January 2008, we formally celebrated the winners of *Green Ideas Shine*, including representatives from the Ministry of Transportation who developed an innovative solution to lower GHGs by managing trans-border traffic flow at one of B.C.'s busiest borders. This initiative reduced the time cars idle by 95 per cent. Going forward, we continue to harness the collective wisdom and energy of over 800 public servants who volunteer on our Ministry Green Teams. They have been instrumental in supporting the roll out of initiatives as well as acting as change agents within their own ministries to engage their colleagues and executive in carbon neutral action.

A commitment to carbon neutral requires the assurance that offset projects will deliver verified reductions in GHGs. With the passing of the Emission Offsets Regulation under the *Greenhouse Gas Reduction Targets Act* and the formation of the Pacific Carbon Trust, British Columbians can be assured that investments in offsets will mean a reduction in GHGs. Clean and innovative businesses in B.C. will receive the support they need to demonstrate the commercial viability of many new and emerging technologies and techniques.

What is Carbon Neutral?

Carbon neutrality involves measuring operational GHG emissions, reducing those where possible, offsetting the remainder and demonstrating leadership through public reporting.

Measurement: measuring greenhouse gas emissions

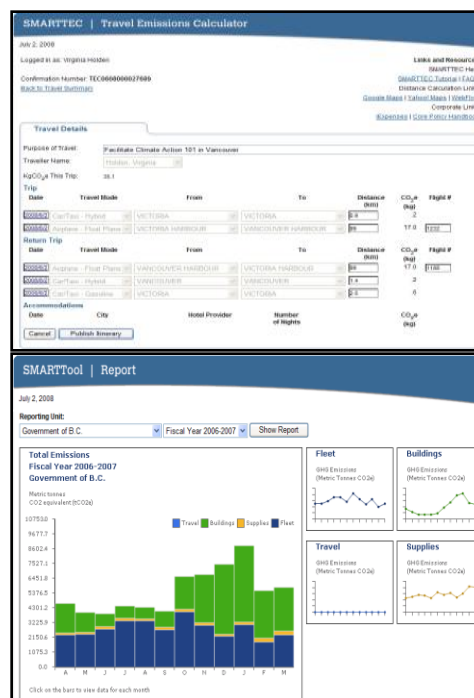
Government has developed and implemented a travel emissions calculator called SMARTTEC, officially released in April 2008 to core government staff. To calculate emissions for the period October 1, 2007 to March 31, 2008, government used an estimate based on a survey by BC Stats. With SMARTTEC, staff have the opportunity to explore various travel alternatives and make informed choices balancing GHG reductions, cost savings and factors such as travel time. Through the BC Stats survey and SMARTTEC, government accurately estimated its business travel emissions through December 31, 2008 at just over 34,000 tonnes.

In addition to SMARTTEC, government developed SMARTTool, a calculator to aggregate and estimate emissions related to buildings, fleet and paper. SMARTTool was released in February, 2008 to core government and is being rolled out to all public sector organizations, including Crown Corporations, Universities and Colleges, Health Authorities and School Districts (over 150 organizations) in preparation for their requirement to be able to report out on their actual emissions at the end of

B.C. is committed to emissions estimates that are credible, exhibit continuous improvement, and are consistent with international protocols

SMARTTEC was launched on April 1, 2008 to core government only to measure emissions associated with business travel. Currently School Boards, Universities, Colleges, Health Authorities and Crown corporations are not using SMARTTEC and are not required to have carbon neutral business travel.

SMARTTool was launched on February 18, 2008 across the core government and will be rolled out to all public sector organizations before the end of 2009. SMARTTool aggregates data input by public sector organizations, calculates GHG emissions and provides reports so organizations can understand their energy use and consumption, and develop effective plans that save money and reduce GHGs.



Sample SMARTTEC and SMARTTool screens



Why go carbon neutral?

Through the carbon neutral commitment, public sector organizations are showing leadership in reducing emissions and demonstrating that taking climate action is a shared responsibility with the citizens of B.C. The Carbon Neutral Action Reports demonstrate a breadth of actions – some small and seemingly insignificant – however if all citizens of B.C. took many of the simple actions the effect on reducing GHGs would be dramatic.

Public Sector Carbon Neutral Action Reports are available on-line

This document highlights how each sector is making plans and taking action to become carbon neutral. For individual detailed reports by sector, visit www.LiveSmartBC.ca

2010.

Reduction: taking steps to reduce where possible

There are a number of initiatives and partnerships in place to help core government and the broader public sector organizations reduce emissions related to operations (e.g., the Public Sector Energy Conservation Agreement which has funded close to \$50 million for energy retrofits across the province). In addition to formal programs, the government supports Green Teams across government, which have been instrumental in identifying and rolling out initiatives and engaging staff to do their part to reduce GHGs. By 2010 over two million people will work or learn in carbon neutral facilities, making this an excellent initiative to reach British Columbians at a grass-roots level.

Offsets: getting to zero remaining emissions

To become carbon neutral, each public sector organization will invest in emission reduction projects (e.g., investing in a clean power project that will replace existing fossil fuel based energy) by purchasing offsets. The Pacific Carbon Trust has been set up to acquire carbon offsets on behalf of its clients, starting with the B.C. Government. For 2008 and 2009, core government will purchase offsets for business travel, and the requirement to offset all operational emissions under regulation will begin in 2010.

Reporting: demonstrating responsibility

By June of 2009 (and each year thereafter) public sector organizations are required to report on actions taken and plans in place to reduce emissions. In addition, core government will need to report on emissions related to travel and offsets purchased. The requirement for all public sector organizations to report on emissions and offsets related to operations begins following 2010.

All public sector organizations have produced a detailed Carbon Neutral Action Report that outlines the steps they have taken to date to become carbon neutral and the plans they have for 2009 and beyond. These reports form the basis of the reporting below, but are also available individually on-line at www.LiveSmartBC.ca.

B.C. Government – Taking Action

Laying the framework for success

The B.C. Government began taking action to reduce greenhouse gas emissions in early 2007 by developing a Carbon Neutral Program under Shared Services B.C. Given its role as a shared service provider with responsibility for buildings, fleet, information technology, procurement and supplies, the Ministry has the expertise to identify and implement organization-wide programs to reduce energy and product consumption.

Government is well placed to deliver on its carbon neutral commitment – with a robust measurement system currently being rolled out to all public sector organizations – government will have a clear picture of public sector GHG emissions by the end of 2010. Detailed Carbon Neutral Action Reports by each B.C. Government Ministry, Health Authority, School District, University, College and Crown Corporation are available and they outline actions already taken and plans to continue to reduce emissions. By taking early action, all public sector organizations have reduced their offset obligation in addition to improving their operating efficiency. To follow are some examples of how the Ministries are making a difference.

Travel: using technology to avoid travel

Reducing business travel by government employees cuts down on GHGs, saves costs, eliminates unnecessary safety risks, improves work-life balance and increases work-time efficiency and employee productivity. All staff are being provided web conferencing and collaboration tools under an initiative led by Shared Services B.C. A cross-ministry Green Team-led project will support the broad use and acceptance of these tools. The team will provide extensive training and support to the pilot group in an effort to create a train-the-trainer model across all ministries and sectors. To follow are a few examples of using technology to reduce travel emissions.

Shared Services B.C. Cross-Government Initiatives

Achievements as of March 31, 2009

Reduced the need for 210 new physical servers through server virtualization, yielding an estimated 88 per cent power savings;

Implemented advanced power management, including auto-sleep mode during off hours, saving more than 10 million kilowatt hours of electricity annually;

Supported ministries in the purchase of multi-function devices to replace single purpose printers, photocopiers and fax machines;

Replaced existing computers with Energy Star 4 models, including new collaborative tools such as Window's Live Meeting, Groove and Office Communicator – allowing staff to collaborate on-line and reducing the need for business travel;

Supported the procurement of hybrid vehicles, bringing the total up to 21 per cent of government's light vehicle fleet giving B.C. one of the largest hybrid fleets in North America; and

Developed Corporate Supply Arrangements for energy efficient refrigerators, cradle to cradle furniture, hybrid rentals and green hotel accommodations, as well as establishing a service agreement for enhanced video-conferencing.

Reducing Travel Makes Sense

By using collaborative tools like Live Meeting or Elluminate, organizations:

- Save travel time;
- Reduce travel costs;
- Balance work and life;
- Are more effective; and
- Reduce GHGs and other ecological impacts of travel.

With the tool you can share and edit documents on-line in real time and give everyone access to the latest materials.

As one of the Ministry of Children and Family Development staff mentioned, [I can]"*apply these tips when I'm driving to and from work*" so driver training has the potential to lower province-wide emissions significantly.



The DriveSMART training tool is available to all core government staff and to date has had over 2,500 visitors.

Government and B.C. First Nations come together in a sustainable way using LiveMeeting

The GHG emissions from treaty negotiation and implementation can add-up quickly. In partnership with other negotiators from the Government of Canada and B.C. First Nations, the Ministry of Aboriginal Relations and Reconciliation (MARR) Negotiations Division ran a pilot project where many face-to-face meetings were replaced with on-line meetings using Microsoft LiveMeeting technology. Over the five-month pilot, the 'LiveMeetings' enabled negotiators to reduce their time away from home, their GHG emissions, work down-time and their travel costs. Travel savings amounted to \$43,000 (over \$18,000 for the Province) for all negotiators, 76 avoided travel days and a reduction of GHGs (these numbers only represent two negotiating tables).

Since the completion of this pilot, MARR executive approved the implementation of this project across the ministry, including demonstrations, information sessions and one-on-one training.

Driver training saves dollars, reduces emissions and improves safety

Fuel Smart Driver instruction teaches employees to drive smart and reduce GHGs and gases that cause air pollution, with the added potential to reduce expenses and increase safety. Over the summer of 2008, the Ministry of Children and Family Development targeted 84 high-mileage fleet operators from across the province to participate in Fuel Smart Driver. This training introduces participants to driving techniques in all kinds of road conditions. Fuel efficiency is measured and initial results indicated that average fuel consumption decreased by 15-18 per cent.

With the success of this initiative and the demonstrated potential to save government thousands of dollars and up to 20 per cent of its fleet-related GHGs, the province has developed and launched an on-line driver training tool that is available to all public service staff.

Building efficiency: conserving energy and saving costs

Approximately 1/3 of government's emissions are related to the built environment. With the average lifespan of buildings being over forty years, there are many opportunities to manage energy use through systems, retrofit with newer technologies and to reduce energy consumption through behaviour change.

Over the past thirty years, government has focused on driving energy consumption down and has improved energy efficiency in public buildings by 50 per cent. The B.C. Government is also ensuring new buildings are designed taking energy efficiency into consideration by requiring all new buildings to be Leadership in Energy and Environmental Design (LEED) Gold certified. In the Carbon Neutral Action Reports, there are many examples of schools, colleges and hospitals that have designed for, or achieved, this designation.

Energy management plans to ensure building systems are being operated at optimal levels are in place across the core government and many public sector organizations are bringing full-time energy managers on staff so they can take advantage of the operating cost savings through lower energy use.

In 2008 and 2009, close to \$50 million in combined provincial and BC Hydro funding went to support over 170 energy retrofit projects under the Public Sector Energy Conservation Agreement with BC Hydro. This will save operating costs of over \$7 million annually in addition to almost 19,000 tonnes/yr GHG reductions and over 38 GWh/yr electricity savings. This agreement funded an innovative solar wall at a health facility in Tumbler Ridge, leading edge bio-mass technology at the University of Northern British Columbia and upgrades to the St. Mary's hospital in Sechelt that will make the hospital a model for understanding the health and workplace benefits of better design.

Energy Management Pays Off

Government's Energy Management Program, originally launched in 1978, has increased the energy efficiency of our buildings portfolio by more than 50 per cent. Increased energy efficiency has also led to:

Cumulative cost avoidance to date is approaching \$250 million.

GHG reductions of 61,000 tonnes of CO₂-equivalent per year (2004). This is a savings to taxpayers of \$12 million per year and the equivalent of taking approximately 15,250 cars off the road.



Green Teams are supporting conservation attitudes and personal behaviour change through lunch and learn events and by supporting corporate initiatives like the on-line Work Station Tune Up. The tool was developed by BC Hydro in partnership with the BC Public Service and walks staff through their office environment showing them how they can collectively save significant energy by taking simple steps like unplugging chargers or turning off monitors. Although focused on the work environment, the tool presents information that will benefit employees at home and in the community.

Working together

The province and the B.C. Road Builders and Heavy Construction Association have identified a number of strategies for lowering road building emissions including:

Fuel conservation in trucks and off-road equipment (e.g., idle reduction strategies);

Investment in energy efficient technologies (e.g., hybrid trucks and fleet monitoring systems);

Substitution of lower-emitting fuels (e.g., by electrifying asphalt production yards);

Waste minimization and recycling of materials like asphalt and construction waste; and

Substitution of less GHG-intensive materials (e.g., higher fly ash content in concrete).

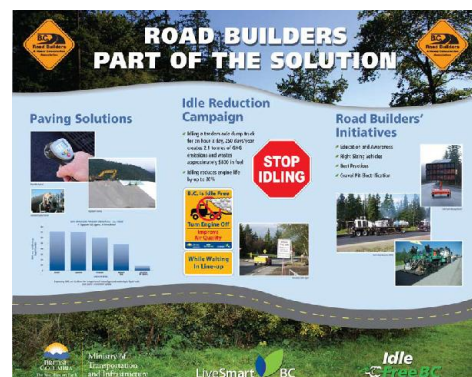
To date the pilot has resulted in three fuel conservation projects: a pilot for warm mix asphalt, three pilot projects of aggregate tarping to reduce moisture content, and an idle-reduction campaign.

The partners have also made progress on investments in energy efficient technologies by right-sizing fleets, and several association members have installed fleet monitoring systems. The groundwork is set to continue working on additional GHG emission reduction strategies.

Procurement: working with our partners to lower harmful emissions

Government has always looked for a good value for money when purchasing goods and services, and with over 660 green products to choose including non-toxic cleaners, cradle to cradle furniture and recycled giftware, staff can do their job while lowering their impact on the environment.

Government also purchases many services including the construction of major infrastructure. Currently staff are creating purchasing tools (e.g. rating criteria, standards and specifications, etc.) to help potential purchasers understand and quantify sustainability efforts by suppliers. In the side bar is an example of how the Ministry of Transportation is partnering with the B.C. Road Builders and Heavy Construction Association to develop emission reduction strategies for construction, paving, maintenance, service and supply. Many of these emission reduction opportunities result in both financial and GHG emission savings and provide an opportunity to develop B.C. based technologies that contribute to B.C.'s low carbon economy.



Poster on the partnership between the Ministry of Transportation and the BC Road Builders and Heavy Construction Association – highlighting some of the actions to reduce GHGs

Green Teams: catalyzing behaviour change through grass-roots involvement

A key requirement for success in most of the government's carbon neutral activities is for employees to take up the challenge. To change their behaviour and decision making to conserve energy and fuel, print less and use alternatives to travel as they continue to serve the public. We have shown there are many tools and small actions we can take every day, but to get these actions to become lifetime habits, we need to transform

how we operate and what we do. This is one of the key drivers behind the Green Teams and Sustainability groups that have been established across the public sector.

The Government of B.C. launched the Green Team initiative in October 2007, to assist provincial employees to play a key role in making British Columbia green and sustainable. Green Teams are encouraged to identify ways for government to reduce GHGs in meeting its carbon neutral commitment and their creativity will transform how the government operates in the future. Green Teams support the implementation and uptake of government-wide initiatives like the development of ministry-specific Carbon Neutral Action Plans. Thanks to Green Teams, both within the core government and in the broader public sector, there are programs under way at public facilities around the province – each one helping us meet our legislated goal of making the public sector carbon neutral by 2010.

“When we launched the B.C. Government Green Team initiative in 2007, we asked provincial employees to help meet our climate action goals and find solutions to the global climate challenge. One year later, I’m impressed and inspired by the tremendous success of our Green Teams – a group of dedicated individuals who are taking the lead to inspire and engage provincial government employees and all British Columbians in choosing a sustainable, green lifestyle.”

Honourable Gordon Campbell, Premier of British Columbia



Creating rich soil with waste

The Abbotsford Green Team Compost-to-Food Project began in 2008 and involves collecting food waste from the staff at the Abbotsford Agriculture Centre (AAC), composting that waste, and then applying it as a soil amendment to a garden plot at a community garden located next to the AAC. This project has successfully engaged Ministry employees in taking organics out of the waste stream and turning them into rich soil that could yield vegetables. The AAC generates roughly 7 litres of waste for composting each day. About two loads of finished compost (roughly 12 cubic feet) were applied to the garden plot over the course of the summer which yielded carrots, zucchini, strawberries, corn, cucumbers, and radishes.

“The community garden has been a great way to hang out with other Green Team members..., while putting part of our waste-stream to work. It was wonderful handing out vegetables to co-workers and getting them excited about gardening. They got to eat what their compost helped create!”

Hannah Cavendish-Palmer,
Abbotsford Agriculture Centre
Green Team Member, seen with
Orlando Schmidt and Venkatesh
Sosle

Key Climate Action Trends Across The Public Sector

Although the breadth of actions being undertaken is considerable, there are also some actions that most organizations are undertaking including:

- 77 per cent of agencies have or will replace vehicles with either a hybrid or an energy efficient vehicle (when leases expire);
- 70 per cent are undertaking an anti-idling behaviour change program;
- 87 per cent are focusing on lighting retrofits, including 71 per cent installing motion sensor lights;
- 59 per cent will support a personal work station energy assessment going forward (called a work station tune-up);
- 70 per cent support or develop their Green (or sustainability) Team to engage staff in taking climate action; and
- 94 per cent enhanced recycling programs (and 68 per cent initiated on-site composting).

Building a Framework for the Future

Under the *Greenhouse Gas Reduction Targets Act*, all public sector organizations are required to report out annually, beginning in June of 2009, on the actions taken and plans to reduce their GHG emissions. In addition, core government is required to report on emissions associated with business travel beginning in October 2007 through the end of 2008, and on the offsets purchased to achieve carbon neutral travel. Many organizations already have existing sustainability reporting mechanisms that provide significant detail on their programs, so the Carbon Neutral Action Reports were designed to meet regulatory requirements simply, without requiring duplicate reporting. All PSO reports are available online at www.LiveSmartBC.ca.

Many of B.C.'s public sector organizations had begun energy efficiency and broader sustainability efforts prior to the carbon neutral commitment and should be recognized for these efforts and partnerships. Early and consistent action is important. Organizations that focused on wise building, fleet and equipment management in the past saved energy and operating costs and will have lowered their longer term obligation to offset remaining emissions. Most of the organizations that took early action have included a high level summary of the key actions taken prior to 2008 in the Executive Summary of their individual reports.

One of the benefits of the standardized reports is that the public sector now has a framework in which to categorize its efforts and the beginnings of a catalogue of all of the climate actions that are taking place across the province. The Climate Action Secretariat is reviewing the catalogue to identify trends to better understand what actions make sense for different sectors and to identify areas of interest where more education or support is required to take advantage of emission reduction opportunities. This resource will also be available to all public sector organizations in the future as a search tool that will support cross sector collaboration and economies of scale.

Climate Action in the Broader Public Sector

Beyond core government, the broader public sector includes Crown Corporations, Health Authorities, Universities and Colleges and School Districts. Although there are many similarities, each of these sectors has tended to tackle climate action in a unique way. Crown organizations vary dramatically in purpose and size so their needs and capacity for implementing in-depth strategies varies accordingly. Health Authorities recognized their many common characteristics and have been working together to identify opportunities for collective action. The post-secondary sector recognizes its role to influence the broader societal response to climate change through research, education and advocacy. The K-12 school system has been focusing on cost saving measures in its operations and sustainability education in the classroom. Below is a summary of each sector's actions – focussing on overarching themes as well as individual approaches.

Crown Corporations

British Columbia's Crown Corporations vary in size from less than 10 employees to over five thousand, therefore their actions and plans also vary considerably. A common thread is the recognition that small actions add up and that Crowns have a unique role to play in helping British Columbians understand both the risks and potential impacts of climate change, as well as the actions that individuals can take to reduce energy and fuel use. Below are a few highlights of some of the actions Crowns have taken:

BC Assessment – climate action is an ongoing initiative and is supported by active Green Teams in 19 sites throughout the province. Similar to government Green Teams, these teams generate innovative ideas and coordinate events at the site level to engage staff in personal climate action.

BC Games Society – green transportation at BC Games is supported by a no-idling policy for all Games vehicles, planning to reduce transportation between athlete accommodation and sporting venues and the decision to use highway charter buses that are fully bio-diesel.

To design policy for climate change, there are really only five things you can do:

1. Regulate;
2. Adopt fiscal measures;
3. Introduce market mechanisms;
4. Support technology; and
5. Change behaviour.

The commitment to carbon neutral government is really about changing behaviour. By engaging and educating public servants on climate change, we will lead people to change their behaviours and attitudes.

Beyond the extensive actions taken to green operations, what we do in the public service can make a difference – a major difference – and impact everybody in B.C.

Our public service consists of close to 300,000 employees in the full public sector and over 1.6 million full and part-time students are educated annually in our K-12 and post-secondary school systems. Through just one degree of separation, we are educating and engaging nearly all British Columbians on the actions they can take to reduce their personal carbon footprint.



BC Hydro Power Smart Excellence Awards

Now in its seventh year, BC Hydro's awards recognize excellence in energy conservation leadership. Based on their work in 2008, the following public sector organizations were nominated for awards.

- **Conservation Partner of the Year** – BC Housing and BC Non-profit Housing Association (Winner)
- **Energy Conservation Commitment** – BC Liquor Distribution Branch
- **Innovation in Sustainable Building Design** – BC Pavilions (Vancouver Convention Centre West)
- **New Technology of the Year** – University of British Columbia
- **Workplace Conservation Leader** – Ministry of Finance and Revenue, Royal BC Museum and Vancouver Coastal Health Authority (Winner)

Both BC Housing/BC Non-profit Housing Association as well as Vancouver Coastal Health Authority were winners in their category.



Vancouver Convention Centre is a LEED Gold centre, has a 6-acre living roof and uses seawater to provide heating and cooling.

BC Hydro – as a large organization with a long-term commitment to conservation, BC Hydro has taken a leadership role in supporting carbon neutral government. Of note, BC Hydro has undertaken research to better understand the barriers an organization's staff face in making conservation choices and ways to motivate action.

BC Transit – going beyond carbon neutral, BC Transit is also working with local governments to develop strategic transportation initiatives that support their growth strategies; including transit oriented development plans, alternative transportation solutions, and pedestrian and transit friendly community design.

Community Living BC – supports grass-roots behaviour change through a Go Green Committee and a network of Go Green Leaders in 26 regional offices and they plan to use their staff orientation as an opportunity to help ensure a go green culture across the province.

First People's Heritage, Language and Culture Council – although this organization is very small, it demonstrates the power of behaviour change and many of the behaviours we can all take in our personal lives.

Home Owner Protection Office – by using expanded web-based platforms to deliver services more effectively, this office is reducing its own emissions, and facilitating the reduction of transportation related emissions in the broader community.

Insurance Corporation of BC – since putting in place an environmental policy in 2001, ICBC has demonstrated leadership and a commitment to reducing waste and improving the built environment. In 2008, ICBC retrofitted a number of locations to save energy and reduce emissions, including their Head Office, which was recognized with BOMA Go Green certification.

Knowledge Network Corporation –the network capitalized on their broad reach across the province to help provide compelling and informative documentaries on environmental issues and used their partnerships to encourage British Columbians to make positive changes in their lives.

Legal Services Society – recognizing that organizational behaviours are often driven by policy, Legal Services Society took action to design policies that (1) recognize the lifecycle emissions associated with the consumption of goods and (2) support reduced emissions through cost saving measures.

Royal BC Museum – at the Royal BC Museum, sustainability is practiced in the truest sense as they focus on the efficiency of their own operations and use their position as an educator and research institution to reach out to B.C.'s citizens and visitors from around the world through the Climate Change Gallery and films on climate change and water projected onto the B.C. relief map in the main lobby.

A green and healthy B.C.

B.C.'s six health authorities have demonstrated how they can achieve more by working together. The Health Authorities pulled together the Provincial Environmental Technical Team. The Team advises the B.C. Health Authorities Service Delivery Committee, providing information and recommendations regarding environmental planning matters for the B.C. Health Authorities. Below are some highlights from the health sector.

Provincial Health Services Authority:

- Offered staff the TransLink Employer Pass Program which provides discounted annual transit passes. 230 staff members are enrolled and use their passes throughout their workdays to get to meetings and visit sites.
- Provided a shuttle bus connecting the Oak Street campus, BC Cancer Agency-Vancouver Centre, and several Vancouver Coastal Health Authority and University locations. In 2008, there were 120,000 person trips on the shuttle. Of those participants surveyed, 85 per cent said they would have driven if the shuttle service was not available.
- Initiated an environmental audit based on the *Green Guide to Healthcare* to gauge priorities and locate new opportunities for sustainability savings and GHG reductions.

Vancouver Island Health Authority:

- Initiated a travel policy "VIHA Travel Smart" to increase awareness and use of other travel options such as walking, transit, ride sharing and carpooling and installed eight additional video conferencing rooms.
- Installed heat recovery systems at three facilities.
- Partnered to reduce the waste associated with medical devices. The partner uses designated collection systems to capture medical devices which are then decontaminated, sanitized and either re-used or recycled.

Interior Health Authority:

- Replaced older fleet vehicles with 17 new hybrids (Honda Civics and Ford Escapes).
- Invested approximately \$1.16 million on five projects that will generate annual savings of \$114,000 from reductions in energy and water usage.
- Outstanding efforts in paper reduction. Altering activities that traditionally used paper and shifted them to digital processes, such as surveys, reimbursement for personal vehicle travel, job postings, lab results, diagnostic imaging consults and reports transcribed by health records.

Early Action Pays Off

Completed in 2006, the Hillside Acute Psychiatric Facility in Kamloops was the first certified LEED Gold inpatient care facility in Canada



Fraser Health Radiologists can now review emergent patient film on-line

- As a part of their travel reduction plan, 250 staff in Kelowna were encouraged to carpool to and from work. Everyone's address was plotted on a map to show staff how close they live to each other and that they could pick up people on route to work.

Fraser Health:

- The adoption of a Picture Archiving and Communications System virtually eliminates the need for travel to Hospital to review emergent patient film.
- Piloted a Tele-Working Program for medical transcriptionists whereby employees are encouraged to work from home. This pilot has resulted in the reduction of GHGs and increased productivity and job satisfaction.
- Piloted the replacement of solid waste compactors with a solar assisted compactor at one site. The project will be monitored to determine its effectiveness and the potential to expand to other sites.

Vancouver Coastal Health:

- Encouraged alternatives to travel in fleet vehicles through the Nurses On Bikes pilot program at the Raven Song Community Health Centre. This small pilot reduced work related travel emissions by 35 per cent.
- Encouraged the re-use of furniture and equipment through the development of a "VCH Reuses" website, an online exchange site. The goal is to avoid the unnecessary purchase of items and reduce the amount of waste in landfills.
- Provided conservation education. VCH GreenCare Awareness and behavioural-focused initiatives included events such as the GreenCare Educational and Awareness Fairs.

Northern Health:

- Implementing "Iportal" which hosts policy and procedure manuals, standard employee forms and an employee bulletin board; and implemented electronic medical records to reduce paper use. Information is linked directly to physicians' offices, clinics and hospitals, eliminating the need for paper copies to be sent.
- Installed bicycle storage facilities at Prince George Regional Hospital to encourage employees to ride their bicycles to work by providing a secure and weather-protected enclosure.
- Initiated the Northern Health Connections program that provides a mass transit conduit for staff and patients who need to travel to hospitals outside of their own community. The Connections program provides scheduled bus transportation between Northern Health sites, as well as into Vancouver and Alberta.

Sustainable education – post secondary

The youth of B.C. have an enormous vested interest in climate action as they will be living with the impacts. They also have the potential to play an important role in helping B.C. achieve its carbon neutral and climate action goals given their influence on household decisions and their ability to accelerate behaviour change.

Post-secondary institutions have taken a very collaborative approach in responding to their carbon neutral commitments by developing networks to share information on climate change including activities and best practices within their institutions. Below are a few of the overarching initiatives that are shared by B.C.'s post secondary community:

Tackling transportation – by the nature of being a major hub, most campuses have a unique opportunity to influence the commute of their staff and students. Universities and colleges have tackled this in a couple of ways – first by undertaking transportation demand management studies to clearly understand where and when people are travelling to and from the institution. These studies can help inform planning – including discussions around improved transit service. In addition, many institutions have joined with BC Transit or TransLink to offer a pre-paid U-Pass (a universal bus pass that is included in student fees at a fraction of the normal cost). The U-pass is consistently seen as a successful way of helping students to develop transit friendly habits that may stay with them after they graduate. Alternatively – some colleges like Northwest Community College are geographically dispersed and have chosen to focus attention on aggressively managing their fleet and supporting alternatives like carpooling and video-conferencing.

Engaging on energy – as places of learning many universities are naturally well positioned to implement education and engagement programs for both their staff and students. For example Douglas College held an Eco Challenge that asked staff and students to pledge to achieve 50 per cent of the items on a list of environmental activities.

Demonstrating clean technology – a policy of building to LEED (leadership in energy and environmental design) Gold standards has fostered the uptake in a number of new environmental building practices such as the inclusion of solar hot water panels for domestic hot water and the use of geothermal heating systems at the Okanagan College. Recovering waste heat from the computer bank at Thompson Rivers University now provides 20 per cent of the heating requirements for the Information Technology building.

walkingthetalk

On April 27, 2009, The BC Working Group on Sustainability Education hosted an 'unconference' titled *How Sustainability Education? A Solutions Summit*. This event brought together 150 of B.C.'s key stakeholders, decision makers and change agents in sustainability education to create teams of champions from around the province. Teams worked together to design and contribute to collaborative action plans for sustainability education that will support B.C.'s public institutions in reaching the carbon neutral commitment of 2010. Follow up events throughout the summer and fall will support the momentum of the teams. Find out how to get involved at www.walkingthetalk.bc.ca

The BC Working Group on Sustainability Education is a multi-sectoral group of 25 key players and decision makers working across the province to advance the agenda of sustainability education in B.C. Working closely with the Ministry of Education and Ministry of Advanced Education and Labour Market Development, the goal is to connect and support groups and individuals in a world where information and resources about sustainability are often overwhelming. By creating this working group and online network, we aim to collaborate, integrate, track progress, and network around sustainability education.

B.C. Universities and Colleges initiate a Climate Change Statement of Action for Canada

In addition to leading action in B.C., six provincial universities and College Presidents' *Climate Change Statement of Action for Canada* in recognition of their responsibility to advance research, knowledge and best practices about climate change. Consistent with the B.C. government's carbon neutral commitment, this agreement is a powerful tool to influence campuses across Canada and to date over 21 campuses have joined outside of the province. For more info visit www.climateaction.ubc.ca

"It is clear that, as a good corporate citizen responding to the needs and wishes of its constituents, that reducing our carbon footprint is a good and moral direction to take for now and in the future"

Kootenay Lake SD #8

Redesigning business processes – critical to success is always asking how to do things more effectively. The Private Career Training Institutions Agency found that reconfiguring of computer and telecommunications equipment, and the enhancement of the paperless enrolment reporting system for the 400 institutions it serves, has made a significant impact on their operations.

Sustainable education – K-12 schools

In the K- 12 education system, there are 60 school districts and over 1,800 facilities. Each school district's carbon neutral action report is as unique as the district itself – from remote districts with few students covering areas the size of Nova Scotia to large urban districts with growing school populations. Even with this variety, it was clear that historically the main focus of school districts has been on the energy efficiency of their buildings and fleets. Many school districts used 2008 as an opportunity to undertake planning and put resources such as sustainability committees, green teams and energy managers in place. Below are some of the key themes.

Training drivers pays off in fuel and emissions – With many school districts covering large geographic areas, it is critical to identify ways to reduce the fuel consumption of their fleet – districts have responded in a number of ways:

- Providing DriveSMART and "Thinking Driver" training so drivers will better understand how they can reduce energy consumption and associated GHGs by approximately 20 per cent simply by changing their driving style. (SD #5 SE Kootenay, SD# 20 Kootenay-Columbia)
- Idling get's you nowhere and B.C's schools have responded by implementing anti-idling policies both for their drivers and in drop-off zones adjacent to schools. If every driver of a light-duty vehicle in Canada avoided idling for just five minutes a day, on an average day we would collectively save 1.8 million litres of fuel, \$1.7 million in fuel costs, 4,500 tonnes of GHG emissions, and 8 tonnes of smog. Central Okanagan SD #23 has used GPS to monitor idling and achieved an idle reduction of 54 per cent once staff were aware of the issue.

Web-based meetings cut costs – The use of desktop collaborative tools such as Elluminate is equally effective at reducing travel-related emissions. Elluminate is a web-based meeting portal that allows teams to present and work on documents either individually or in groups in real time while carrying on conversations over standard teleconferencing equipment. Although not as widely used yet – web conferencing options also include the use of web cams, providing organizations with a cost-effective and efficient alternative to business travel.

Energy management complements new monitoring systems –

Proper monitoring and maintenance is important for institutions to take full advantage of today's energy efficient technology. That is why so many school districts have hired full-time energy managers (many funded by BC Hydro) who are able to manage the day to day requirements of the energy management system, identify new GHG saving opportunities and work with staff and students to provide information and encourage behaviour changes. For example Sea to Sky SD #48 has focused on low-cost actions to reduce energy consumption and utilizing existing features and equipment – such as closing blinds daily to reduce heating and cooling costs and using power management features on computers and lighting. In addition to managing our systems well, some schools are exploring new technologies and techniques to make dramatic energy savings:

- Cariboo-Chilcotin SD #27 is exploring bio-energy as an alternative to natural gas – providing cleaner energy and supporting their local economy as there is a large scale producer of bio-energy fuel in the local community.
- Delta SD #37 replaced one hundred, 40 per cent efficient gas-fired rooftop heating units with 300 per cent efficient air source heat pumps.
- New Westminster SD #40 has installed solar wall technology to capture heat.
- Kootenay-Columbia School District #20 planted trees on grounds to provide shade in the summer and allow sun in the winter to reduce required energy use.
- Vernon SD #22 used technology and sensors to automatically adjust systems to optimum levels, complimenting training for staff and professional energy managers.
- Kootenay Lake SD#8 designed and built Crawford Bay Elementary to LEED Gold and is currently in the process of achieving certification.
- Saturna Island, SD#64 created the Saturna Ecological Education Centre (SERC) that focuses on supporting employees and students to allow them to become more aware and educated regarding the challenge of reducing GHGs and promoting sustainability in the environment.

Students can be the climate action leaders of today

Many districts have worked to engage their students, including Abbotsford SD #34 which has organized teacher led, student driven Green Teams in each school. The teams organize and implement new and existing methods of saving energy, including “turn it off” light switch stickers designed by the students.

In addition, districts are supporting Destination Conservation, a three-year program that focuses on energy, water and waste reduction. Destination Conservation helps schools to reduce their environmental impact and improve environmental literacy by first helping them to identifying conservation challenges and then developing their own unique strategy to solve the problem in their school, at home, or in their community.

Through the efforts of the students and adults that support their work, schools can save over \$2000 per year on their energy costs. This is tracked and shared back with the schools through the district facilities department. For more information on Destination Conservation visit www.dcplanet.ca

**Source of core government's
estimated travel related
emissions**

Based on SMARTTEC entries from
April 1, through December 31, 2008

Transportation by Mode	Total
Air	44%
- commercial air 37%	
- float planes 3%	
- helicopters 4%	
Motor vehicle	39%
- cars – gasoline 19%	
- trucks – gasoline 15%	
- other – hybrid, diesel, natural gas, propane 5%	
Ferry	1%
Total for Transportation	84%
Accommodation	
-Hotel/motel	15%
-Private	1%
Total for Accommodation	16%

Government's Travel Emissions*Travel reductions supported by advanced
collaboration tools*

While overall government will be carbon neutral in 2010, the commitment to carbon neutral business travel for core government began in October 2007. This commitment currently applies to all public officials traveling on public business for which travel expenses are paid through the Consolidated Revenue Fund. It does not include day to day travel within the community unless a fleet vehicle is used (fleet emissions will be offset as part of government's operations).

Beginning in April 2008, SMARTTEC (Travel Emission Calculator) was available for government employees, Members of the Legislative Assembly and Ministers to track GHGs associated with travel. SMARTTEC is an online tool that counts emissions based on mode of travel and nights of accommodation. Prior to the release of SMARTTEC, emissions for government from October 1, 2007 to March 31, 2008 were estimated based on a survey through BCStats.

Based on direct SMARTTEC entries, 84 per cent of travel related emissions for April – December 2008 are related to transportation covering over 75 million kilometres, while 16 per cent are related to accommodation.

SMARTTEC entries were audited as part of the expense audit and emissions were adjusted accordingly. The SMARTTEC tool is new for public servants and information from the audit was passed on to support continuous improvement in emissions tracking. The total emissions were over 34,000 tonnes and the value of offsets purchased for October 2007 to December 2008 is just under \$860,000.

The Pacific Carbon Trust

Offsetting emissions by investing in a low carbon B.C.

Even with all of the actions taken and plans in place to reduce GHGs, with today's business practices and infrastructure, it is not possible to be carbon zero yet. Pacific Carbon Trust was established in March 2008 to deliver quality B.C.-based greenhouse gas offsets to help public sector organizations meet their carbon neutral commitment and to support growth of the offset industry in B.C. Given the emerging carbon market, a key Pacific Carbon Trust task is explaining the meaning and significance of offsets. An offset represents one tonne less of CO₂ in our atmosphere and is created when an organization invests in emissions reducing activities (called an offset project). An example could be supporting a company to switch to a cleaner fuel to power its operations.

Pacific Carbon Trust is well on its way to promoting innovative reductions in GHG emissions throughout B.C. To date it has sourced over 300,000 tonnes of carbon offsets for delivery over five years. This work not only leads to a cleaner environment but also supports innovation and B.C.'s low carbon economy.

In June, 34,367 of these tonnes were delivered to government to meet its carbon neutral obligation for business travel. The delivery of these offsets marks a major milestone for Pacific Carbon Trust by delivering quality, cost-effective offsets for its first year.

Fifteen innovative B.C. projects are behind Pacific Carbon Trust's first offset delivery to government. The projects reduce emissions by switching from fossil fuel to renewable fuel and improving energy efficiency in greenhouses, hotels, residences and a cement plant. For example, two of the greenhouse operations installed a biomass boiler, which burns solid fuels such as wood waste, thereby reducing the reliance on fossil fuels such as natural gas and coal. Other innovations include the

Biomass— provides an opportunity to generate electricity with no additional GHGs



Langley Greenhouse – promotes energy efficiency with insulating curtain



What makes a good quality offset?

PCT will only buy credible offsets. Several internationally accepted characteristics describe quality offsets, and these form the basis of the Ministry of Environment's Emission Offsets Regulation.

Additional – the goal of an offset project is to reduce greenhouse gas emissions by an amount over and above what would have happened anyway – i.e. to result in reductions that are *additional*. Another way to view this concept is that the money from the sale of offsets acts as an incentive to help the project overcome or partially overcome economic, investment or technological barriers.

Verification – is an assurance by an independent third party that the greenhouse gas reductions claimed have genuinely taken place.

Permanence – refers to the ability of the project to maintain the greenhouse gas removals over a long period of time, for example 100 years or more.

No Leakage – is an unintended change in greenhouse gas emissions that happens outside the offset project boundary, but is attributable to the project. For example, a reduction of emissions counted from the project could result in an increase in emissions elsewhere. The result of leakage is that there is no net reduction of emissions.

Counted Once – this is required to avoid the sale of a project's greenhouse gas reduction to more than one buyer. Public disclosure of documentation for offset projects can reduce the chances of this occurring.

installation at several greenhouse operations of insulating curtains to use at night and on overcast days, reducing heat loss and the demand for energy. One greenhouse operation installed an Enhanced Environmental System, which greatly increases heating and cooling efficiency.

The cement plant is developing a system to combine a variety of alternative fuels (e.g., biomass and process engineered fuel) to replace a portion of coal combustion at the facility.

These innovations are resulting in a real reduction of GHG emissions in B.C. At the end of the day, it is the revenue from the sale of offsets that has helped them overcome hurdles to implementing these projects.

What is ahead? Pacific Carbon Trust plans to purchase over 700,000 tonnes of offsets annually by 2011, largely to meet public sector carbon neutral requirements. As the provincial carbon neutral program expands, Pacific Carbon Trust will be consulting with industry and innovators to find far greater carbon savings in coming years.

For more information about Pacific Carbon Trust, offsets, procurement calls, and specific projects, please visit www.pacificcarbontrust.ca.

LiveSmart

LiveSmart BC is a key component in the Provincial Government's Climate Action Plan. LiveSmart BC comprises a number of pillars that build public awareness of climate change and support B.C.'s move to a low carbon economy. It encourages British Columbians to make carbon-smart choices at home, at work and on the road – and save money at the same time. For businesses, LiveSmart BC provides programs and resources that make cleaner choices more attractive, reduce energy consumption and promote investment in green business opportunities. LiveSmart BC programs will strengthen B.C.'s economy, enhance innovation and create sustainable communities, while rewarding smart choices that help the environment. To access the LiveSmartBC web portal visit www.livesmartbc.ca.



Visit the LiveSmartBC web portal and learn about actions to reduce energy costs and GHGs in the home, at work and on the road



You Choose, You Save

The Province wants to help families go green and, in doing so, help save money along the way. There are a number of rebates, incentives and tax exemptions that make it easier and more affordable to make green choices and work towards reducing GHG emissions at home, at work and on the road. British Columbian's are invited to be part of the solution.

The Future of Work – helping to transform the B.C. Public Service

The Future of Work Initiative supports the transformation of the B.C. Public Service by promoting cross-government innovation and collaboration and the modernization of internal operations and infrastructure. The Initiative leverages the ideas and capacity of the B.C. Public Service, and uses technology to transform the way we deliver services to the citizens of B.C. It will have a major impact on internal business processes, and service delivery approaches and has the potential to address demographic, economic and program goals for the province, public sector partners and the public.

Both the Future of Work and carbon neutral government initiatives rely on public sector employees asking “how to do things more efficiently and effectively”? They also rely on employees asking, “why are we doing this”? And, “is there something else we could do to serve the public”? This is the kind of transformation that is asked of us as B.C. embraces a low carbon and prosperous future.

Beyond Carbon Neutral

Throughout 2008, public sector organizations laid the foundation of a solid emissions tracking, energy management and reduction program and they are well placed to meet their carbon neutral commitment. This planning will help them understand the tools and strategies they have to operate more efficiently and in many cases more effectively, (e.g., as they embrace many of the IT solutions that support collaboration, organizations will be more effective at a lower cost). Individual Carbon Neutral Action Reports each identify the actions organizations are committed to. These reports represent a rich source of information, enabling organizations to understand what others are doing, make connections and take advantage of synergies and economies of scale.

Transformation – not just efficiency

With economic uncertainty being the only certainty for 2009 – carbon neutral government is more relevant than ever. The conservation ethic that underpins a carbon neutral public sector is critical as organizations are asked to hold the line on expenses. And the support for green technologies and practices, through procurement guidelines, operational policies and training, will be critical to drive the uptake of these technologies.

Centrally, the Climate Action Secretariat will continue to act as a conduit to help identify, promote and remove barriers to low carbon operations. Shared Services B.C. will enable behaviour change and efficiencies through innovative service delivery and identification of transformative business practices and economies of scale across the public sector. The leadership from government will help commercialize many energy and fuel efficient opportunities making carbon neutrality the norm.

Together the Climate Action Secretariat, Shared Services B.C. and the carbon neutral leads across the public sector will negotiate a path forward to the low carbon economy where environmentally responsible behaviour is seen as fiscally prudent and in the best interests of society.

Getting to Carbon Neutral Government

Plans and actions taken in British Columbia's public sector to reduce greenhouse gas emissions, save money and support the low carbon economy



LiveSmart  BC

Available at www.livesmartbc.ca

June 30, 2009

Climate Action Secretariat

Ministry of Environment