



# Carbon Neutral B.C. – Transforming B.C.'s Public Sector





# Contents

- What is Carbon Neutral? ..... 1
- Message from Minister Terry Lake..... 2
- Achieving Carbon Neutrality..... 3
- Climate Action across the BC Public Sector ..... 6
- Demonstrating Clean and Renewable Fuel ..... 7
- Leading the Way by Building with  
the Future in Mind ..... 10
- Fostering a New Conservation Culture..... 12
- Contributing to Community Sustainability ..... 14
- Energy Management ..... 16
- Transportation in our Communities and around  
our Province ..... 18
- Buying and Wasting Less ..... 20
- Credible and Accountable Emission Reductions ..... 21
- Just the Beginning ..... 23
- Appendix..... 24

Cover (clockwise from top-left): David Thompson Secondary School students in greenhouse (photo: Alison Candy); Tremblay Elementary visits Bear Mountain Wind Park; BC Hydro’s i-MiEV electric vehicle (photo: Albert King).

This page: UNBC biomass energy plant.



# What is Carbon Neutral?

Recognizing that climate change is one of the most critical issues facing our generation, the Government of B.C. created the *Greenhouse Gas Reduction Targets Act* in 2007. The *Act* committed that B.C. reduce greenhouse gas (GHG) pollution in line with internationally agreed-to targets (33 per cent by 2020 and 80 per cent by 2050). The *Act* further committed to a carbon neutral public sector by 2010. This report summarizes the key results of this ambitious achievement.

In 2008, B.C. also released the Climate Action Plan – outlining how B.C. would foster action across all sectors. For more information on how B.C. is supporting climate action leadership and growth of a clean economy visit [www.LiveSmartBC.ca](http://www.LiveSmartBC.ca).

Carbon neutrality is about achieving net-zero greenhouse gas emissions – recognizing that government is responsible for 100 per cent of the carbon pollution it generates. The commitment covers the entire public sector including government offices, schools, post-secondary institutions, Crown corporations and hospitals. Achieving carbon neutrality is a four-step process:

1. Measure – what is measured is managed;
2. Reduce – saving energy and costs;
3. Offset – investing in clean-tech and growing jobs across B.C.; and
4. Report – engaging the public and demonstrating success.

Leading by example, public sector employees across B.C. are taking tangible action to:

- Significantly reduce the carbon pollution produced by the public sector;
- Conserve energy (electricity and fossil fuels) and decrease operating costs;
- Engage their colleagues and customers in taking action;
- Transform how B.C. delivers public service in a new low-carbon economy; and
- Demonstrate a successful approach to addressing climate change.

## Reporting on actions to inspire change

B.C. is proud to report how it has achieved a carbon neutral public sector. As a government, we are accountable to the citizens of B.C. who have clearly shown support for climate leadership. This report is the third carbon neutral update – covering 2010 – the first year the public sector measured and offset greenhouse gas emissions. Readers will see how a strong conservation culture is taking root in schools, hospitals, colleges and public sector organizations across B.C. Building on the momentum of 2008 and 2009, we are beginning to see measureable returns that can be invested back into the organizations. Reporting provides an idea bank for organizations looking to reduce their own energy use and carbon footprint.

To see what organizations across B.C. are doing, visit [www.LiveSmartBC.ca](http://www.LiveSmartBC.ca).



# 73%

of public sector organizations have completed energy retrofits.



Top: Cyclist getting on West Coast Express; UBC Centre for Interactive Research on Sustainability (Courtesy Perkins+Will Canada Architects Co.). Above: Simon Fraser University Burnaby Campus



# Message from Minister Terry Lake

It is a demonstration of commitment and leadership on climate action that we hope will take hold within homes and business here in B.C. and in other jurisdictions around the world.

# 80%

reduction in  
greenhouse gas  
emissions at the  
Simon Fraser  
University campus.



Above: Simon Fraser University Burnaby Campus.

Opposite page (clockwise from top-right):  
Delta School District students; David Thompson  
Secondary School greenhouse (photo: Bill Swan);  
Rendering of North Vancouver School District's  
Environmental Learning Centre (McFarland  
Marceau Architects).

British Columbia has become the first province or state in North America to take full responsibility for its emissions, transforming more than 7,000 public buildings into carbon neutral operations in 2010.

Leading up to the first year of carbon neutrality, the Province invested nearly \$75 million in energy conservation projects across the public sector. From this point forward, every person who enters a school, hospital, college, university and government office in B.C. will enter a building that is part of the climate change solution.

It is a demonstration of commitment and leadership on climate action that we hope will take hold within homes and business here in B.C. and in other jurisdictions around the world.

Change is not easy, and because B.C. is the first jurisdiction to make a bold commitment to carbon neutral operations, there were no rule books or best practices on which to rely.

So how will we know we made the right choice?

We can look at the emissions reductions being made as public sector organizations update and transform their approach to energy use so that they do not just "offset" their emissions, but actually reduce them. And we can look at the energy savings being realized in our public sector operations and the jobs created by those energy projects. B.C.'s clean energy sector is stronger than ever before and played a key role in carbon neutrality.

British Columbia is now a model of success to the world. British Columbians can be a collective voice for global action on climate change, and future generations of British Columbians can be proud to know that we cared enough to do something about it.

Today's congratulations belong to British Columbia's public sector organizations, supported by the taxpayers of British Columbia, that are reducing energy use, saving money and improving their communities now and into the future.



**Canada's Greenest Employer recognition is given to employers that lead the nation in incorporating environmental values into their corporate culture. This is the third year in a row that the B.C. Public Service has earned this distinction.**



# Achieving Carbon Neutrality

British Columbia is at the forefront of the fight against climate change and is the first jurisdiction in North America (possibly the world) to achieve carbon neutral operations on this scale. Being the first meant there were no existing best practices to look at, so B.C.'s approach balances the costs of credible measurement with achieving reduction outcomes. Through engaging the public sector in conservation, we have saved money and reduced carbon pollution in our atmosphere.

## Reducing the public sector's carbon

Recognizing the majority of public sector emissions are from building energy use, government created the \$75 million *Public Sector Energy Conservation Agreement (PSECA)* in 2007 with BC Hydro. The program funded retrofits to existing schools, post-secondary institutions and hospitals, and achieved significant results such as:

- Saving the Delta School District close to \$500,000 per year;
- Cutting the greenhouse gas emissions by 80 per cent at the Simon Fraser University campus; and
- Reducing natural gas costs by \$65,000 per year at the University Hospital of Northern B.C.

FortisBC became a PSECA partner in 2010, bringing additional incentive funding and broader program support. Both SolarBC and Natural Resources Canada supported solar projects as well. In addition to funding, the PSECA partners brought energy management expertise, helped build staff capacity and supported organizations to achieve greater savings. For more information on the 247 projects funded to date through this agreement, visit [www.LiveSmartBC.ca](http://www.LiveSmartBC.ca).

However, technology alone is not the solution as reducing energy demand is as important. Employees are taking action in many ways from improved driving habits to recycling and composting, to changing commuting behaviours to turning off lights and reducing paper use. Organizations foster behaviour change through education, events and person-to-person conversations. This personal connection is often through green or sustainability teams. Three-quarters of all public sector organizations have committed staff that act as agents of change in motivating climate action. They personalize the message, champion local programs and are a continual source of ideas. Building on success, green teams have collectively rolled out many of the initiatives first developed by individual teams. This is leading to measurable results in projects such as green commuting, paper conservation and reduced consumption of goods.



# SAVING

- Delta School District close to \$500,000 per year; and
- University Hospital of Northern BC \$65,000 per year.



Below: Comox Valley School District solar hot water; construction of green roof on Thompson Rivers University Irving K. Barber Centre. Right: Health employees join Cut the Carbon Community; rendering of Okanagan College Centre of Excellence main entrance.



# 26%

St. Joseph's General Hospital audited the regional laundry and installed a new tunnel washer. The electrical savings with the new equipment are estimated at 8% per year and the gas savings were 26%.

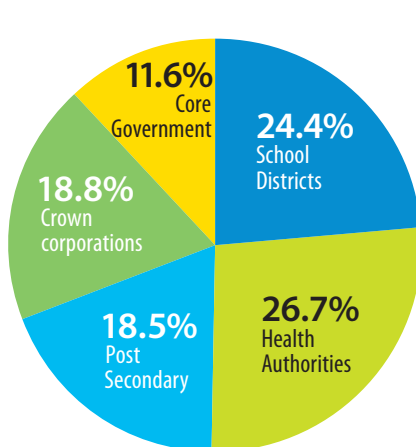


## Carbon Offsets

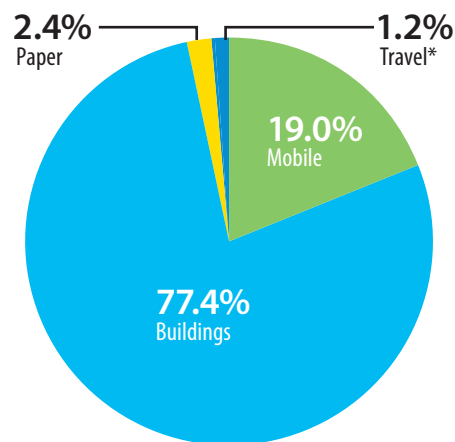
Carbon offsets are only part of the solution; they are a temporary measure to stimulate movement towards a low-carbon economy.

## Measuring emissions helps manage energy and costs

To become carbon neutral, public sector organizations accurately measure energy use from buildings, fleets, equipment and paper. Core government (government ministries and agencies) must also measure emissions from travel. To convert energy use to GHG emissions, B.C. uses two on-line measurement tools that meet international standards.



**Greenhouse gas emissions by sector**



**Greenhouse gas emissions by type of use**

\*Core government only.

2010 is the first year for which the entire public sector has measured its GHGs. The charts above detail public sector emissions broken down by sector and source. See the Appendix for a breakdown of greenhouse gas emissions and offset investments by public sector organizations. Although this is our first year of measurement, the B.C. public sector has been actively reducing emissions and reporting on actions to conserve energy since 2007.

## Offsetting: counteracting carbon pollution and growing clean technology

While public sector organizations have reduced energy use, with today's infrastructure it is not possible to achieve zero emissions. To become carbon neutral the entire public sector must invest in enough high-quality emission reduction projects or "offsets" through Pacific Carbon Trust to reduce its emissions to net-zero. For 2010, the B.C. public sector created 814,149 tonnes of emissions. Of this total, 84,367 do not require offsetting under regulation. The total offset investment made through Pacific Carbon Trust was \$18,244,575 for 729,782 tonnes of GHG emissions.

Pacific Carbon Trust is a Crown corporation, set up by the B.C. Government in March 2008 to acquire credible GHG offsets from projects in communities across B.C. Projects meet stringent eligibility criteria as defined by the Ministry of Environment's *Offset Emissions Regulation*.



## Building momentum

Measuring carbon pollution and taking action to reduce it supports the province-wide long-term goals of a 33 per cent reduction in GHG emissions by 2020, and an 80 per cent reduction by 2050. Reaching B.C.'s climate action goals requires unprecedented collaboration.

The carbon neutral commitment is reducing organizational emissions, saving costs, demonstrating leadership and inspiring individuals to take action at work and with their families, friends and neighbours. B.C. now has all the carbon neutral policies and systems in place. The focus going forward will be on energy conservation and emissions reductions that save money and on building energy management expertise across communities.

Through a carbon neutral government, we have the opportunity to communicate the benefits of change. It makes sense to pay attention to energy and cost savings, improved health, cleaner air, a more balanced work-life, less garbage, etc. Decisive action on climate change provides us with a huge advantage as we move to the new, low-carbon economy of the future.

The B.C. Public Sector can take great pride in this incredible success. B.C. is transforming – finding opportunities where we had not even thought to look and implementing ideas that leapfrog from old inefficient technologies to a new sustainable paradigm.

## Demonstrating the future of energy

“Solar projects also show students that this is part of the new green economy, the idea that this sort of technology will become more prominent as time goes by, and it will provide jobs... this is really the future of energy, not so much making energy but conserving energy,” said Fred McGregor, Manager of Energy Conservation for the Comox Valley School District.

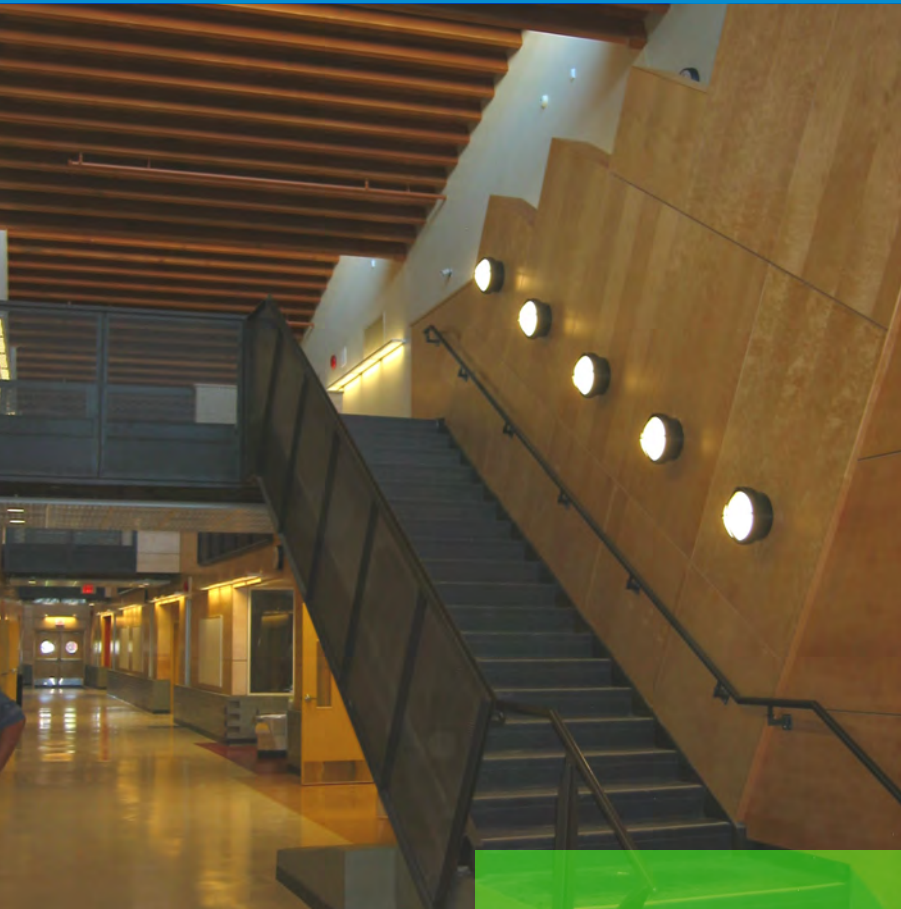


Left: BC Transit encourages low-carbon commuting. Above: Coquitlam School District's Kwayquitlam Middle School recycling pilot project.



# Climate Action across the B.C. Public Sector

The following highlights just some of the conservation initiatives and demonstrates the impact that focusing on energy use since 2007 has had. For example, transformative projects like the University of Northern B.C.'s district energy project will reduce GHGs created by 85 per cent and create annual savings of \$500,000. The provincial government has reduced travel emissions by 60 per cent since the 2008 baseline and 85 per cent of organizations have implemented auto-sleep functions on computers and monitors. These actions add up saving costs, improving efficiency, engaging employees and students, reducing pollution and showing British Columbians how to take their own climate action.







Left: Solar hot water tubes. Below: Installing solar hot water at Selkirk College Castlegar Campus. Opposite page: Surrey School District Hazelgrove Elementary, targeting LEED Gold; green wall in Thompson Rivers University House of Learning.

# Demonstrating Clean and Renewable Fuel

B.C. is a clean energy powerhouse – with over 90 per cent of electricity generated through clean and renewable sources. In addition, B.C. has a commitment to conservation that requires 66 per cent of new demand be filled through savings from existing customers. Even with abundant resources, B.C. has not been energy self-sufficient. That is why the *Clean Energy Act* passed in 2010 commits B.C. to become self-sufficient with 93 per cent coming from clean sources by 2016. The *Public Sector Energy Conservation Agreement* supports the transition to clean and renewable fuel sources including solar air and hot water, geo-thermal projects, biomass and district energy.

## Solar fuel ignites action in B.C. students

Students today are aware of the importance of clean energy and of reducing their impact on the environment. School administrators understand how renewable energy will provide savings and teachers across the province are excited about the learning opportunity that solar energy provides. The Province of B.C. is committed to solar energy working with partners such as SolarBC to support educational and retrofit programs. In 2010, under the *Public Sector Energy Conservation Agreement*, the B.C. Government funded 39 solar projects, spending close to \$2 million and attracting over \$900,000 in partner incentives from Natural Resources Canada, SolarBC and FortisBC. For a complete list of the solar projects visit [www.LiveSmartBC.ca](http://www.LiveSmartBC.ca).

## 2010 SolarBC School of the Year

Two-years of hard work paid off for students and staff at Sir Charles Tupper Secondary School in Vancouver. They raised the profile of solar, garnered support and attracted both in-kind donations and funding. Sustainability club members obtained support from their facilities department for the installation of the bases for solar-photovoltaic (PV) arrays that convert solar radiation to electricity and received the donation of a power inverter from Xantrax Corporation. They fell short of the total funding needed, but this changed when they were selected by SolarBC and the province, as one of only 10 schools to receive \$20,000 for a solar-photovoltaic system.

Being selected as a SolarBC School of the Year for 2010 was icing on the cake for Tupper Secondary. It will now have both solar thermal panels for hot water and solar-PV panels. The school will be integrating SolarBC lesson plans and engaging the school community in raising awareness about solar energy and the benefits of renewable energy systems.



In 2010, under the Public Sector Energy Conservation Agreement, the B.C. Government funded 39 solar projects, spending close to \$2 million and attracting over \$900,000 in partner incentives from Natural Resources Canada, SolarBC and FortisBC.

# 50%

of public sector organizations are considering or installing on-site renewable energy demonstration projects.



"I've been in education over 30 years. In my time in this profession, I don't know that I've ever been in a time where I'm seeing so many students and staff as engaged as they are about our facility, concern about energy, concern about our environment, and it is really cool to see," said principal Bill Village.



Top: G.P. Vanier Secondary School solar-powered sign. Above: BC Housing Greenbrook solar-photovoltaic system. Opposite page: Rendering of SFU UniverCity Childcare Centre, targeting Living Buildings status; UNBC biomass gasification system.

## Renewable interest at Comox Valley schools

Students and teachers in the Comox Valley do not take their energy for granted. They are active in reducing energy, sharing their learning and putting their own green brand on their schools. By combining retrofit projects and behaviour change they achieved enough electrical savings to power at least 50 homes and they reduced GHGs by 201 tonnes. Solar projects include:

- Solar hot water at Highland Secondary School in Comox with funding from ecoENERGY, SolarBC, and PSECA;
- Solar hot water at Mark Isfeld Secondary School in Courtenay with funding from FortisBC and SolarBC; and
- Solar-photovoltaic at G. P. Vanier Secondary School in Courtenay with SolarBC support.

Additionally, students designed and installed a small PV system to power a lighted sign at G.P. Vanier School. The district is also actively promoting conservation through green teams in 100 per cent of their schools, a district-wide energy blog, GHG education and an "energy bear" mascot. They are committed to expand their use of renewable energy through solar-PV and hot water panels in addition to solar air and are exploring adding wind generation to the mix.

**Selkirk College's continued effort to reduce green house gas emissions within its facilities footprint includes the installation of 30 solar collection panels on the roof of the college's Kekuli House residence on the Castlegar campus. The panels are anticipated to reduce energy usage by approximately 50 per cent, saving approximately \$1,900 per year.**

## BC Housing dramatically cuts GHGs

BC Housing has a significant carbon footprint because it is responsible for more than 13,500 social housing units in about 200 communities across B.C. The agency's mandate is to provide affordable housing to people in greatest need so it makes sense to reduce energy costs whenever possible. "We became carbon neutral in large part through energy retrofits," said Chief Executive Officer Shayne Ramsay. "Many of our housing sites are undergoing extensive renovations including building envelope replacements, which contributed to a reduction of GHGs by 25 per cent compared against our 2005 baseline, exceeding our already ambitious target of 15 per cent."

This pro-active approach to energy management includes the largest residential solar panel installation in western Canada at Greenbrook, a public housing site in Surrey. The project achieved an even greater GHG reduction of 86 per cent and reduced energy use by an impressive 45 per cent. "The difference is night and day," said a tenant. "Most importantly, there are no more draughts and everything is insulated properly. It's improved our sense of living and we're saving money on our heating bills."



## Biomass – a new source of clean energy and reduced landfill waste

Fuelled by construction wood waste, combined with a process that captures waste energy from university equipment, a new plant at Simon Fraser University (SFU) will provide heat and hot water for a nearby residential and commercial development and nearly all of the heating at the university campus. This project will reduce GHGs on the Burnaby campus by 80 per cent – meeting B.C.'s GHG reduction targets more than 37 years early.

"The carbon tax and offset requirements of the Greenhouse Gas Reduction Targets Act have created important incentives for operational and behavioural change at SFU," said SFU President Andrew Petter. "By engaging the campus community to evaluate and then modify the way we occupy and heat our buildings, we have significantly reduced both our GHG emissions and our energy costs. Moreover, this regime of energy and emissions management has become an instrument for continuous improvement."

Innovative biomass technology is also part of the award winning University of Northern B.C. project and the UBC Centre for Interactive Research on Sustainability. For more information on biomass projects in B.C., visit [www.LiveSmartBC.ca](http://www.LiveSmartBC.ca).

**"The commitment to carbon neutrality within the B.C. Public Sector means that UNBC benefits from reducing the fossil fuel used on campus. The new UNBC bioenergy project uses wood waste from local mills to heat the University and will result in an 85 per cent reduction of natural gas consumption in our central power plant. Northerners are happy to see our school make significant GHG reductions and the cost savings are significant at \$163,000 per year. The fact that carbon now carries a price on its use within British Columbia from the carbon tax and offsets through Pacific Carbon Trust, helps make the business case to take actions toward renewable energy sources."**

— Doug Carter, UNBC Assistant Director – Physical Plant, Sustainability, Capital Projects



The Greenbrook project achieved a GHG reduction of 86% and reduced energy use by 45%. "We became carbon neutral in large part through energy retrofits," said Chief Executive Officer Shayne Ramsay. "Many of our housing sites are undergoing extensive renovations including building envelope replacements, which contributed to a reduction of greenhouse gas emissions."



Below: Richmond School District students tour new Brighthouse Elementary, targeting LEED Gold. Right: Rendering of Thompson Rivers University House of Learning.

Opposite page: VIU Deep Bay Field Station (photo: Brian Kingzett).



# Leading the Way by Building with the Future in Mind

New buildings are expensive undertakings and more than 80 per cent of the costs associated with a building over its lifetime are operational costs including heating and electricity. Good upfront planning and design will result in long-term operational savings. B.C. requires new public sector buildings to meet the internationally-recognized standards of Leadership in Energy and Environmental Design (LEED)<sup>®</sup>. LEED awards points for performance across six major aspects of a building project and has four levels of certification: Certified, Silver, Gold and Platinum.

In 2007, B.C. committed that all new public sector buildings or major renovations must target LEED Gold certification. B.C. public sector organizations are now leading the charge with approximately 105 LEED Gold projects complete or underway. A number of organizations are choosing to go even further by pursuing the highest LEED certification level of Platinum. Some are even taking on the ambitious goals of the Living Building Challenge – a complementary rating system to achieve the highest level of sustainability currently possible.

The following section highlights some of the most striking achievements in this area by various public sector organizations across the province.

## B.C. is “LEEDing”

“By mandating the public sector to offset their building GHG emissions, B.C. is driving energy efficiency and GHG reduction. Like the LEED rating system and the Living Buildings Challenge, the carbon tax and offsets encourage building owners and designers to think about the entire life of the building and to try and make it as efficient as possible. B.C. is leading North America in making the transition to a low carbon economy,” said Jason F. McLennan CEO of Cascadia Green Building Council.

## Putting B.C. products on the world stage

BC Showcase, located at the heart of Robson Square in Vancouver, was used during the 2010 Olympic and Paralympic Winter Games to educate and connect businesses to economic opportunities.

Targeting LEED Gold for commercial interiors, the facility includes multiple components made by businesses located around the province, such as interior B.C. fir and larch flooring, recycled glass tiling, innovative low energy light fixtures, as well as the original hand-carved cedar doors used at the B.C. Canada House at the Torino Winter Games.

A comprehensive energy efficiency project was also completed at Robson Square in Vancouver, including the installation of equipment to enable the ice rink operations to be carbon neutral, and upgrades to existing lighting and controls. This retrofit resulted in cost savings of approximately 25 per cent.



## A house of learning and inspiration

Thompson Rivers University's House of Learning opened May 26, 2011, and is targeting LEED Gold. The striking building features a four-story interior wall covered with plants, as well as a large, circular, assembly hall built from beetle-killed pine logs and modelled off an Interior Salish pit house.

To further their sustainability objectives, Thompson Rivers University also put \$1.5 million in funding towards an energy retrofit program and received \$263,000 in funding from PSECA, Fortis and Natural Resources Canada for solar hot water systems.

## Revitalizing campuses and neighbourhoods

Scheduled for completion in 2011, Selkirk College's Tenth Street Residence LEED Gold renovation project in Nelson will have much improved energy and water efficiencies, use recycled and low emitting materials, and will have a geo-thermal heating plant and bike racks to encourage green transportation. "That residence will bring the Tenth Street campus to life and invigorate the neighbourhood. There will be better bus service, the city has put in new sidewalks and there is a new park going in across the street," said Barry Auliffe, Director of Communications and Development, Selkirk College.

An Aboriginal Gathering Place targeting LEED Gold is being built on the college's Castlegar campus. This facility will create a more supportive, welcoming and relevant environment for Aboriginal students. The Province's Gathering Places Capital Fund and The Columbia Basin Trust, another B.C. public sector organization, funded the project along with a similar project at the College of the Rockies.

## An outdoor school in the trees

"Throughout the world, environmental education is now understood as a vital necessity in raising generations of citizens who not only appreciate nature but can contribute solutions to the pressing sustainability challenges of our time," said John Lewis, Superintendent of the North Vancouver School District.

In April 2011, North Vancouver School District broke ground for the construction of the North Shore Credit Union Environmental Learning Centre near Squamish. The building is targeting a LEED Platinum rating, and is striving to become a truly carbon neutral facility and demonstrate the systems described by the Living Building Challenge.

The school district also has a number of LEED Gold projects in planning or underway including a replacement of Carson Graham Secondary School and renovations to both Ridgeway and Queen Mary Elementary.

## Higher learning meets high-performance

The following are just a few of the buildings targeting LEED Gold or higher:

- UBC Centre for Interactive Research in Sustainability (Targeting LEED Platinum and Living Building status) as well as five other LEED Gold projects registered by UBC in 2010;
- Surrey School District's Woodward Hill and Adams Road Elementary schools, and District Education Centre;
- Burnaby School District's University Highlands Elementary and Brantford Elementary ;
- Royal Jubilee Hospital Patient Care Centre;
- Langara College Campus Buildings;
- BCIT SW1 Gateway Project; and
- College of the Rockies.



# 105

LEED Gold projects are underway or have been completed since 2007.



## Platinum

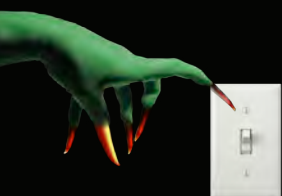
Deep Bay Field Station in Bowser is Vancouver Island University's first building to target a LEED Platinum rating. The recently completed Cowichan Campus in North Cowichan will be LEED Gold certified– bringing Vancouver Island University's count of LEED-certified buildings to three.

Below: B.C. Public Service poster; Langara College interactive building energy kiosk. Right: East Kootenay Regional Hospital's painted murals encourage use of stairs; bear mascot from the B.C. Public Service Hibernation Challenge.



## EMBRACE YOUR DARK SIDE

Save energy and turn off lights whenever possible.



# 59%

Recognizing how important it is to support sustainability, 59% of public sector organizations have dedicated resources. For example, Langara College's Sustainability Website was enhanced with more information, an interactive building energy information kiosk was installed, and "Green Tips" were distributed through email, electronic newsletter, and the student newspaper.

## Fostering a New Conservation Culture

Although industry plays a key role in combating carbon pollution, personal consumption and reliance on fossil fuels is a major driver behind development as companies respond to the market. Raising awareness about this connection and providing alternatives is important to stemming the demand for energy. We have seen the results as automakers are now focusing on more fuel-efficient vehicles and celebrating the financial savings as well as the reduced impact on our environment. Transforming behaviour is not easy, but there are well-understood techniques that include providing information, removing barriers to action, celebrating early adopters and finding the co-benefits of action.

### A movement for change starts with individual action

Like spring flowers, "green teams" have grown across the B.C. Public Service – educating and motivating their peers. But leading the charge on your own can be a challenge, so Core government's green teams collaborated to focus on an annual campaign of initiatives meant to engage their colleagues in easy actions that they can take at work and potentially at home. The campaign, which earned the green teams a Premier's Award for Cross-Government Integration, included the following:

- *Spring Greening* – The week of Earth Day, employees were asked to return unused office supplies (and in many cases larger IT equipment and furniture) for re-use. In 2010, 11 agencies collected 17,778 pounds of supplies. Going forward, the plan is to attribute a cost savings to supplies returned and support this with a sustainable purchasing strategy.
- *Target: Green Streets* – Held in September, this challenges staff to commute actively at least one day per week (including weekends). An on-line tool was developed to make it easy to sign-up, track progress and report out on results. Over 2000 public service employees participated in 2010, saving over four tonnes of GHGs.
- *Hibernation Challenge* – In November, green teams asked staff to pledge to ten easy energy conservation actions such as turning off lights or wearing a sweater. 2061 staff signed up and committed to 15,218 energy-saving tasks. Staff was engaged through videos, posters and fun reminders.

With a similar approach to engagement, Richmond School District is a leader at fostering sustainability in students. The district has active green teams in 60 per cent of its schools and a dedicated "green fund" created from savings through energy conservation. These teams developed and executed initiatives from anti-idling campaigns to school composting programs. One initiative is the monthly Sustainability Café networking event, targeting a different sustainability theme each month, with insight from experts in the community.

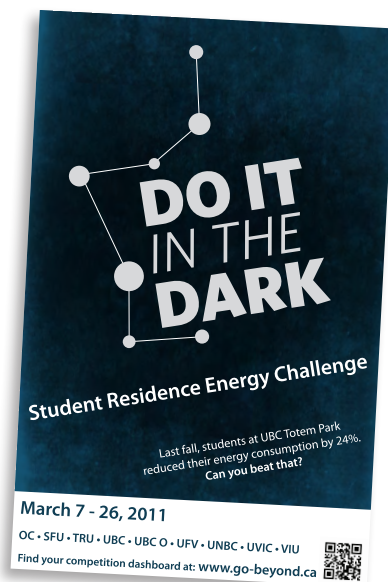


## goBEYOND residence energy conservation

In March 2011, nine post secondary institutions partnered with the goBEYOND Campus Climate Network to conserve energy in student residences. The project, titled *Do it in the Dark*, is a fun and cooperative competition between students living in university and college residences. Over a three-week period, students compete across buildings and campuses to reduce their energy consumption. The game format encourages students living together in residence to engage with each other, with residence advisers, and with facility managers. Social activities on campus, such as workshops, candlelight dinners and conservation commitments, help drive engagement.

Okanagan College was the winner in Spring 2011; however, the real win was the overall results. Participating schools conserved a total of 84,512 kWh of electricity and 1284 kg of greenhouse gases. Individual student participants made 532 conservation commitments and helped to drive 2500 visits to the energy dashboard.

Preparations are underway for another competition in the spring of 2012. goBEYOND is working with the Pacific Institute for Climate Solutions and the UBC School of Regional and Community Planning to conduct research on how engagement (e.g. social media, workshops, energy dashboard) drives behaviour change. This research will help everyone engaged in conservation work, plan better projects.



"By engaging students early in their careers we aim to inspire long-term behaviour change and a lifetime ethic of conservation," said Ashley Webster, Development Manager, goBEYOND Campus Climate Network.



## Partners building a community of conservation in our hospitals

Health Authorities in British Columbia have taken strong steps to show leadership in reducing their collective carbon footprint. The consolidation of services at Vancouver Coastal Health Authority, Fraser Health Authority, Providence Health Care and Provincial Health Services Authority has enabled the creation of an Energy and Environmental Sustainability (EES) group. This group collaborated with FortisBC, which funded and developed a web-based, carbon reduction program.

*Cut the Carbon Community* or C3 is an informational resource for health employees to connect through discussion forums, share knowledge and success around conservation activities, and encourage energy conservation behavioural commitments at work and in the home. With a web-based tool capturing behavioural actions, licensed from the Pembina Institute, the FortisBC Energy Efficiency and Conservation team hopes to investigate the energy savings from behavioural and educational campaigns. The program launched in March 2011 and will run through to 2012 with a variety of communications outreach activities to drive employees to the C3 site. With this tool, FortisBC hopes to build an extensive employee engagement strategy that can eventually be implemented by other health authorities and/or large customers.

# 2,000 tonnes!

The goal for *Cut the Carbon Community* is to reach 6,000 staff and reduce 2,000 tonnes of greenhouse gas emissions.



Top: Vancouver Island University students sign sustainability pledge (courtesy of VIU). Above: Vancouver Island University student supports "ugly sweater" energy-saving campaign (courtesy of VIU).

Right and below: Renderings of Okanagan College Centre of Excellence. Below: David Thompson Secondary School students in greenhouse (photo: Alison Candy); Tremblay Elementary visits Bear Mountain Wind Park.



# Contributing to Community Sustainability

"Inspired!  
I feel inspired to  
change the world!"

- Kaity (Grade 5/6 student)

The carbon neutral government initiative has staff and students across B.C. thinking about energy and their impact on the planet. In addition to direct operational emissions, many public sector organizations are examining how their organization fits in with broader community choices that influence carbon emissions. Below are just a few examples of how public sector organizations are contributing to broader community sustainability.

## Clean and renewable fuel for local food

Focusing on climate change makes the interconnected nature of our world clear and demonstrates the co-benefits of different actions. Working with the Groundswell Network and the community, David Thompson Secondary School in Invermere created a solar-heated greenhouse that puts energy back into the grid and provides an opportunity for students to gain experience growing their own food. In a unique partnership with the Groundswell, a 3,000 sq ft food-producing greenhouse was developed. The greenhouse incorporates passive solar heat, solar hot water heating and electricity production. Surplus heat from the solar hot water and air systems is pumped into the ground and stored for use during shoulder seasons. Education programs increase public understanding of the use of solar energy. Students plant, cultivate, and harvest food and prepare it for serving in the school cafeteria. "Food draws people into a discussion about the greenhouse, but once they're there they become interested in the energy and water systems, the way it's been built. They realize that the sustainable design features can also be applied to their homes or businesses," said Bill Swan, Groundswell Associate.



## Students see the energy future

The northeast part of B.C. is energetic – from hydro electricity, to natural gas – and now wind farms are becoming part of the clean and renewable energy mix. Students and teachers know how vital energy is to their communities and so building understanding on where it comes from and how we can reduce our use makes a lot of sense. That is why students from the Funky Monkey Recycling Club and some of their classmates at Crescent Park School, along with two classes from Tremblay Elementary in Dawson Creek visited the Bear Mountain Wind Park.

"In the South Peace, we have a beautiful advantage over areas of the province in terms of our close connection with our energy sources," said teacher Joanne Duek. "We can actually see the turbines turning and teach the children this is where those electrons begin their flow."





## Future careers that build on sustainable technologies

How better to teach students than to immerse them in their topic? That is the thinking behind the Okanagan College Centre of Excellence, which is highly adapted to its site, climate and context with the goal of meeting the Living Building Challenge. The facility will support a program mix that has a focus on sustainable building technologies and processes, as well as research and development of alternative and renewable sources of energy. The innovative features of the building itself will be used as a teaching tool to help train the next generation of tradespeople in green construction practices.

## Public sector organizations – leaders in their community

Columbia Basin Trust (CBT) focuses on local priorities and issues, bringing people together around key issues, providing information, encouraging collaboration and supporting planning. CBT is a partner in Carbon Neutral Kootenays, an initiative delivered across the Canadian portion of the Columbia River Basin focusing on reducing energy consumption and greenhouse gas emissions from municipal, regional and First Nations' corporate operations. Carbon Neutral Kootenays brings together three regional districts (Central Kootenay, East Kootenay and Kootenay Boundary) as active participants and funders as well as twenty-eight municipalities and five First Nations which receive direct support in conducting emissions inventories, developing action plans and implementing them. This type of broad-based, regional collaboration is unprecedented. In addition, carbon neutral training for local government staff and elected officials helped build their capacity and commitment.

The three leading regional districts received the Union of B.C. Municipalities Community Excellence Award for Phase One of the Carbon Neutral Kootenays Project, where each district received a detailed carbon neutral action plan. Phase One emission inventories confirmed the potential to reduce 2,000 tonnes of GHGs (about 10 per cent of the total). Phase Two is underway with an emphasis on implementing energy saving strategies and continued efforts to build capacity.

## Saving water contributes to bottom line

Water connects us all – it generates our electricity, irrigates our crops, supports our industry, provides our recreation and quenches our thirst. Rivers and lakes dominate our landscape and provide for the communities that have developed along their shores. Fifty-nine per cent of B.C.'s public sector organizations are becoming effective stewards of the resource. Here are a few examples:

- Revised maintenance operations at Selkirk College include a 50 per cent reduction of lawn irrigation at all campuses during the months of May through October. As a direct consequence of the reduced watering program, lawn mowing was reduced to approximately once every five weeks (achieving additional cost savings and GHG benefits);
- School District 68 in Ladysmith installed field irrigation controls at both Departure Bay and Chase River schools and are realizing savings of at least 14 per cent with further savings as the system is expanded to other sites; and
- School District 39 in Vancouver installed 75 urinal sensors – saving approximately 34 million litres of water.

# 59%

of public sector organizations support education to staff about the conservation of water, energy and raw materials.



School and community sustainability gardens in Coquitlam continued to be an exciting new opportunity to engage students and educators in several schools across the district.



Top: Scott Creek Middle School garden project in Coquitlam. Above: Columbia River Basin (photo: Douglas Noblet).

Far-right: Vancouver Island University staff supports “ugly sweater” energy-saving campaign (courtesy of VIU). Below: Online energy dashboard tracks savings for goBEYOND residence challenge; Thompson Rivers University Irving K. Barber Centre interior.



# Energy Management

By focusing on measuring our emissions in 2010, the B.C. public sector now has a comprehensive building and energy inventory. This powerful tool enables staff to focus energy conservation efforts on assets with the largest footprint or the greatest opportunity for improvement – be they buildings, machinery, equipment or fleet.

## Reducing the energy demand of existing buildings

The Ministry of Labour, Citizens' Services and Open Government is responsible for policies, programs and partnering with service contractors to deliver energy management initiatives that are applied to government's building portfolio. The following is a list of initiatives and results tied to the ministry's conservation strategy.

- A portfolio-wide account of energy consumption per square meter (Building Energy Performance Index) has been established. Preliminary estimates demonstrate that, while energy intensity based on raw consumption increased between 2009 and 2010 by approximately 1.8 per cent, when variations in weather conditions were considered, energy performance actually improved by approximately 2 per cent year over year.
- Building on previous investments in buildings, government completed \$1.8 million worth of efficiency projects in 2010. The five projects generated approximately \$464,000 and 28,700 GJ in annual savings.
- Began five additional energy efficiency projects in 2010. The projects will cost approximately \$800,000 and will generate annual cost savings of \$140,000 and approximately 10,000 GJ in energy savings.
- Made a commitment in 2009 to virtualize 65 per cent of its servers over 5 years, yielding substantial space and energy savings.

In addition, energy saving behaviours will be promoted through a year-long, multi-ministry pilot called the Power of Ten. Led by Shared Services BC and B.C. Government green teams, the pilot involves nine buildings that accommodate a total of 3,041 employees. Building energy use will be monitored using real-time metering technology where available and, after weather variation and operational efficiencies are accounted for, the impact of changes in employee behaviour will be calculated and used to inform energy-saving initiatives across government going forward.

**Richmond School District has a comprehensive energy conservation program, including computer power management. Computers now automatically go into sleep mode when not in use and are powered off after business hours. The initiative saved 878,000 kWh (the equivalent of powering 80 homes for a full year) and was recognized by BC Hydro.**



# 9%

Powell River School District achieved a 9% reduction in electrical consumption, saving \$40,000 that was provided to the schools to support further projects.





## Building capacity through energy managers saves school operating costs

Rocky Mountain School District in the Kootenays began an energy management program in 2009 by hiring an energy manager. While annual energy use for the school district had been trending upwards, energy consumption over the first year of the energy manager program decreased by 14 per cent for all energy types compared to the previous year. Greenhouse gas emissions from combustion of fuel decreased by 275 tonnes, or 11 per cent compared to 2008.

## Green winter break for UVic students

University of Victoria declared a "green break" in 2010, mandating that the temperature in most of the empty buildings be lowered to 16 degrees and that office equipment – from interior lighting to computers to exhaust fans – be turned off between December 25 and January 3. Electricity use went down by 170,000 kWh and natural gas consumption decreased by 3,750 GJ, resulting in \$62,000 in energy savings and a reduction of greenhouse gas emissions of 210 tonnes.

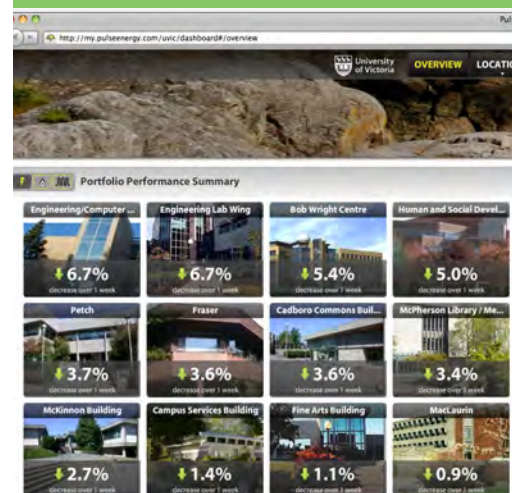
## Innovation dramatically cuts energy use and funds programs

As the classroom, the lab, the library and the workplace become increasingly digital, energy managers are looking to solutions that make it easier to power down. Take the Vancouver School District, which installed power management software on 10,000 school computers. The software will save 2.5 Gigawatt-hours of electricity this year, equivalent to eight per cent of the district's total electricity bill. "We are proud to be recognized for our energy conservation efforts," said Vancouver School Board's Manager of Facilities for Climate Action, Kirthi Roberts.

The school district also piloted a program with Gladstone, John Oliver and Windermere schools and removed 25 inefficient refrigerators. The schools qualified for 11 new Energy Star-rated refrigerators to replace the outdated units. The schools received an incentive based on the energy they helped save the district, which they will use for other energy conservation programs.

# 10million

Core government implemented a desktop power management program in 2009 that has resulted in 10 million kilowatt hours of savings per year during 2010, electricity savings from workstation power management approximated 30% to 40% relative to the July 2008 benchmark and resulted in \$516,000 of savings.



"While only three schools participated in this pilot, the potential energy savings when scaled up to the entire district are significant. If the entire district participated in such a program, the energy saved could effectively remove two to three elementary schools from the BC Hydro electricity grid," said Kirthi Roberts, VSB's Manager of Facilities for Climate Action.



Above: UVic monitors building energy consumption with online energy dashboard. Left: Vancouver schools rewarded for energy saved by eliminating fridges.



# Transportation in our Communities and around our Province



# 63%

of organizations actively encourage commuting by foot, bicycle, carpool or public transit.

Transportation makes up 36 per cent of GHG emissions across B.C. It is integral to our way of life and shapes the design of our communities. Taking action to reduce our reliance on cars and increase our public and human-powered or “active” transportation choices will benefit British Columbians by reducing our infrastructure and equipment costs, improving air quality and general health.

## Driving change – with new technology and training

The B.C. Public Services’ hybrid vehicle replacement program has led to a hybrid fleet of 604 vehicles – one of the largest hybrid fleets in North America. Further, a number of other initiatives are in place to minimize fuel use by government vehicles. These include:

- A plug-in hybrid pilot program in a few ministries including the Ministry of Energy and Mines;
- An on-line “DriveSmart” training program is available to all staff to help them reduce their emissions;
- Improved information sharing between fleet managers to strengthen day-to-day practices and yield better fleet fuel economy (e.g., fuel efficiency data from individual light vehicles, intelligence on alternative fuels); and
- An anti-idling tool-kit that includes a poster, building signage and in-vehicle stickers.

## BC Transit expands and improves service – providing new options in the community

With the support of the Province and local government partners, BC Transit initiated service expansions and lengthened service hours in 2010. More polluting and less energy efficient buses were replaced, significantly reducing particulate matter and other air emissions. Older conventional buses continuing in service were upgraded through an air emissions retrofit program.

New vehicles were assessed for service, including North America’s first double-decker hybrid bus and the smaller, more fuel-efficient Vicinity bus. BC Transit introduced the world’s largest fleet of zero-emission hydrogen fuel cell buses into service in the Resort Municipality of Whistler and launched a new RapidBus service, connecting downtown Kelowna with the University of British Columbia, Okanagan.

In addition, BC Transit launched the “Transit Future” public consultation campaign. The campaign includes a 40-foot bus outfitted as a mobile open house (designed for customers to walk through to learn more about local transit) and an interactive online game. More than 5,000 British Columbians passed through the bus in 2010 and the road tour continues.



BC Transit’s hydrogen bus terminal in Whistler.  
Above: BC Transit pilots hydrogen hybrid battery-dominant fuel cell bus in Victoria.



## Tools improve safety and reduce costs

Employee safety is a critical concern when staff are required to drive off-highway and in poor conditions. Now GPS satellite locator systems installed in BC Oil and Gas Commission vehicles target employee safety and time efficiency. Coupled with vehicle use policies and enhanced driver training, the GPS systems have led to a 15 per cent reduction in fuel use compared to 2009 by optimizing travel distances to wellsites and preventing drivers from getting lost in the field. In addition, the centralized resource scheduler for booking fleet vehicles optimizes employee carpooling.

## Route optimization saves cost, time and reduces the impact of busing

Conseil Scolaire Francophone operates 148 bus routes each day, providing transportation services to 80 per cent of francophone students attending regional schools throughout B.C. Over the past two years, the Conseil Scolaire Francophone embarked on restructuring its transportation system that includes a rewrite of its transportation policy and the purchase of transportation mapping software. The goal is to develop a system that provides reasonable service levels while reducing the overall environmental impact of such a complex busing system.

## Cutting travel saves much more than carbon

The B.C. Government has been reporting and offsetting business travel since October 2007. At that time, travel was estimated to make up about 30 per cent of Core government's GHG emissions so it was an obvious area to focus on. Although it is important staff meet with citizens in communities across B.C., new tools that allow for on-line meetings help staff continue to serve British Columbians while cutting travel by approximately 60 per cent since 2008. On top of the obvious savings in reduced travel and over-time costs, there is also the benefit of less down-time when staff is in transit. Add to this the improved employee engagement and the benefits quickly cover the cost of installing technology.

Recognizing this, the B.C. Government expanded and enhanced its videoconferencing. Employees now have access to close to 140 sites across the province. Starting in 2009, Shared Services B.C. rolled out desktop collaboration tools to more than 36,000 workstations across core government. Statistics show a 33 – 50 per cent usage increase for a typical peak hour between early 2010 and late 2010 (approximately 60 – 80 simultaneous web conferences).

On May 13, 2010, the BC Public Service Agency delivered an all-agency virtual teleconference involving 385 staff, in five cities across B.C. and at 22 sites. The conference also involved a site in Montreal, a keynote speaker presenting virtually from Ontario and another from the United States. The head of the agency was interested in exploring new innovative ways to deliver a conference.

"The BC Public Service Agency expanded its climate action efforts in 2010 by encouraging a greater use of technology in everyday business. We believe that collaboration software such as LiveMeeting helps us with customer service excellence as it maintains our relationship with clients," said Lynda Tarras, head of the BC Public Service Agency.

## Fuel efficient utility vehicles

Vancouver Island University purchased two fuel efficient John Deere 'gator' utility vehicles for use on the Nanaimo Campus reducing use of larger, less efficient utility vehicles.



# 86%

of organizations recognize the value of web-conferencing software to allow staff to achieve results without the added time and cost of travel.



Vancouver Island University president tries out fuel-efficient utility vehicles; Government's high-resolution "telepresence" rooms reduce the need for travel (Copyright © 2011 Cisco Systems, Inc. - all rights reserved).

Right: 100% biodegradable bags from B.C. Government Distribution Centre; Ministry of Environment staff gather and re-use office supplies during annual *Spring Greening*. Below: Providence Health Care staff ensure the success of their hospital's recycling program.



## Buying and Wasting Less

### Using purchasing power to support cost-effective green choices

In recognition of the significant opportunity the Province has to reduce GHGs caused indirectly through purchases, the government's product distribution centre has close to 700 Eco-logo certified or environmentally preferable products in its catalogue. All ministries and core government agencies do the bulk of their ordering from the distribution centre. Green procurement guides support staff choices and some ministries have adopted formal policies.

### Waste management: reduce, reuse, re-purpose and then recycle

Waste disposal accounts for about five per cent of B.C.'s carbon emissions. The B.C. Public Service has a number of programs in place to reduce the waste generated by its business practices. These include:

- Full seven-stream recycling in many offices;
- An eWaste Recycling program to recycle end-of-life of computers, monitors and peripherals; and
- *Easy Green Waste Reduction Guide* – offering tips to help employees reduce their work-related waste streams, and to recycle waste that's unavoidable.

### B.C. Ministry of Environment challenges others to focus on sustainable procurement

In February 2010, the Ministry of Environment (MoE) adopted a ministry-wide Sustainable Procurement Policy that addresses office products under \$5,000, travel and meetings. The policy directs staff to make sustainable purchasing decisions. Since adopting the policy, 90 per cent of all purchases by MoE headquarters' have been "Green Leaf" products from the government's distribution centre (compared to 17 per cent in 2008/09). The ministry has been successful in part because it is not just changing what it buys, but how it buys. Reducing consumption and reusing is a big part of that.

With the support of the Ministry of Labour, Citizens' Services and Open Government's Deputy Minister, the Ministry of Environment's Deputy Minister challenged other B.C. Government ministries to "meet or beat" their 90 per cent green purchasing achievement without increasing their spending budget. Participants will sign onto the challenge at the Distribution Centre's website and results and lessons-learned will be shared at the end of the year. "At MoE, we have a vision for a sustainable organization that 'walks the talk.' To help fulfill this, we are changing the way we use office products, reducing cost, carbon and waste," said Cairine MacDonald, Deputy Minister, Ministry of Environment.

# 57%

have implemented a sustainable purchasing program for cleaning products. "At MOE, we have a vision for a sustainable organization that 'walks the talk.' To help fulfill this, we are changing the way we use office products, reducing cost, carbon and waste," said Cairine MacDonald, Deputy Minister, Ministry of Environment.



Above: 100% recycled newspaper pencils.





Left: Biomass feedstock; Adams Lake Mill (courtesy of [www.videonexus.ca](http://www.videonexus.ca)). Below: Darkwoods forest (photo: Tim Ennis).

# Credible and Accountable Emission Reductions

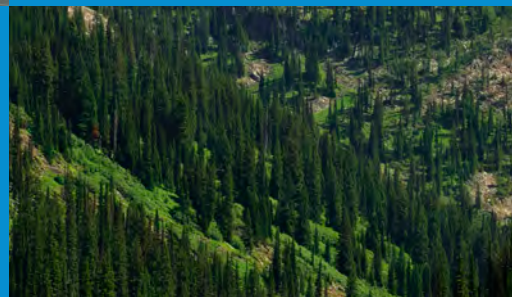
## Offsetting: counteracting carbon pollution and growing clean technology

While the B.C. public sector has actively reduced its carbon footprint, it still generates GHG emissions. For 2010, the entire public sector invested in enough high-quality offsets through Pacific Carbon Trust to reduce its emissions to net-zero. This Crown corporation, established by the B.C. Government in March 2008, acquires credible GHG offsets from projects in B.C. Offset projects must meet stringent eligibility criteria as defined by the Ministry of Environment's *Offset Emissions Regulation*. This means that we can be confident that our investment is leading to real and permanent emission reductions that are additional to what business is already required to do.

By reducing our own emissions where economical and then investing in high-quality offset projects, B.C. is supporting the growth of clean technology, small business opportunities and jobs in communities across the province. The B.C. public sector's offset investment is in fact a small fraction – roughly five per cent – of the total capital invested in the offset projects supported by Pacific Carbon Trust. It is important to note that carbon offsets are only part of the solution; they stimulate emissions reductions and move us towards a low carbon society. Below are a few examples of innovative B.C.-based projects.

- Kruger Products Ltd.'s installation of the Canadian pulp and paper industry's first biomass gasification plant has decreased the New Westminster mill's carbon emissions by as much as 50 per cent annually. This new installation, developed by Vancouver's Nexterra Systems Corp., converts local wood waste into clean-burning syngas. Use of this renewable resource provides a competitive advantage and underscores the province's potential to become a world leader in clean energy. Pacific Carbon Trust will retire 16,027 tonnes of offsets for 2010.
- Neucel produces specialty cellulose and will now do so more sustainably thanks to a unique offset project. The mill has reduced – and intends to eliminate over time – its use of oil. Instead, it is using hog fuel, a wood waste product from lumber processing. The mill currently employs the majority of Port Alice residents and these innovations will provide a new competitive advantage in the international market, while supporting even more local jobs. Number of offsets to be retired for 2010: 31,131.
- An Interfor project in Adams Lake supports fuel switching from natural gas to biomass (wood residue from the lumber manufacturing process). This new, highly efficient energy system dries lumber and provides heat for the mill during cold winter months. This year, the project delivered 25,000 tonnes of GHG offsets.
- The Darkwoods property in southeastern B.C. supports a diversity of plants and animals. Carbon financing helped the Nature Conservancy of Canada secure funds for the long-term care of Darkwoods, ensuring that this national treasure will continue to be conserved for its ecological and carbon values. Number of offsets to be retired for 2010: 405,000.

For more information on these and other emission reduction projects, visit [www.pacificcarbontrust.com](http://www.pacificcarbontrust.com).



### High-quality carbon offsets

"Like carbon taxes, high-quality offsets offer a valuable tool for reducing carbon emissions. And they have an added benefit: establishment of verified-offsets markets opens new business opportunities while stimulating development and adoption of the clean-energy technologies we must have as we transition to a zero-carbon society," said Dr. Tom Pedersen, Executive Director of the Pacific Institute for Climate Solutions.

Right: BC Transit uses mobile open house to engage public. Below: Comox Valley School District solar hot water.

At Thompson Rivers University they found the use of power saving software alone in 2010 resulted in an approximate 40% savings in power used by computers and monitors.



## Focused on continuous improvement

B.C.'s approach to carbon neutral government has been to develop a program that is credible, accountable and focused on continuous improvement, long-term energy savings and GHG reductions. Just as it is important that we invest in credible offset projects, accurate measurement is an important part of achieving carbon neutrality. However, measurement alone is not the end goal. To find the right balance, the Climate Action Secretariat engaged public sector organizations and developed an approach to verifying data that mirrors financial controls. Annually, organizations are required to fill out a check-list and certify that they have accurately entered data into the on-line measurement tool (SMARTTool). As with financial reporting, senior staff must sign the document – demonstrating their confidence in their organizations energy and asset management. In addition, the Province will undertake a risk-based verification. This combination strikes a balance between rigor, cost and administrative requirements.

For the 2010 reporting year, 11 organizations volunteered to pilot the self-certification and verification processes. The self-certification process aims to increase certainty that emissions reporting is complete and accurate, and prepares organizations for verification should they be selected. Of the 11 pilot organizations, eight have undergone an external assurance process. This group includes representatives from all types and sizes of public sector organizations that together make up approximately 33 per cent of the B.C. public sector's total emissions. The assessors observed that all of the organizations assessed exhibit a culture of energy management that is aligned with government's GHG emissions reduction strategy and they are committed to collecting and reporting accurate emissions data. The self-certification process provides an opportunity for them to demonstrate what they are already managing. They have a good understanding of the regulatory requirements for reporting consumption data. In addition, organizations are aware of the need to create a credible, sound data collection and reporting process while balancing the need for accuracy with reasonableness of effort and resources.

So far, organizations have found that reporting requirements encourage them to strengthen data collection processes and the assessment identified areas for improvement. Additionally, some organizations derived benefits from the emissions reporting requirements. For example, one organization is using SMARTTool reports to track trends for its own energy management program. Once feedback on the process is complete, it will be rolled-out to all public sector organizations for 2011 reporting.



# 59%

have installed or are planning real-time energy metering to support behaviour change.





Below: BC Housing Greenbrook solar system; pine beetle-killed wood used in Thompson Rivers University Irving K. Barber Centre construction. Left: Construction of Surrey School District's Woodward Hill Elementary, targeting LEED Gold. Bottom-left: public sector staff during Bike to Work Week.

# Just the Beginning

2010 was the first year for which B.C. has a complete and accurate energy use and greenhouse gas baseline. This in itself is a tremendous achievement as it provides valuable information that allows the B.C. public sector and energy companies to identify the greatest opportunities for improvements. With three years of experience through the *Public Sector Energy Conservation Agreement*, B.C. has seen the benefit of a broad approach to energy efficiency and has supported opportunities for community partners such as local governments to gain from public investments. Actions undertaken have demonstrated the business case for conservation now and in the future, and the ongoing results support the bottom-line of public sector organizations.

Climate change is not a challenge that the B.C. Government can solve on its own, however by taking a leadership position and seeing this commitment through, B.C. is demonstrating that energy and resource conservation are achievable, save money and have co-benefits like cleaner air and a more active population that is choosing to walk or cycle. Responsibility for carbon pollution is beginning to resonate with the close to two million staff and students who work, learn or visit public sector buildings every day. We are seeing uptake in conservation behaviour change that supports organizational transformation and broader community sustainability.

The carbon neutral commitment has resulted in energy reductions within government and with the investment in offsets, it is supporting clean energy, the export of B.C. technology, and creating jobs for families across B.C. This is just the beginning, as organizations continue to take action their savings will increase and their offset investment will decrease. Through this report and the individual carbon neutral action reports that are available at [www.LiveSmartBC.ca](http://www.LiveSmartBC.ca), British Columbians can see how the public sector is taking action, reducing costs, transforming how it operates and benefitting communities, families and future generations.



# 37%

It is estimated that the various initiatives to reduce energy consumption and the carbon footprint in Delta School District facilities have resulted in over 1,900 fewer tonnes of carbon dioxide emissions annually, compared to 2007 – a 37% decrease.



# Appendix

## B.C. Public Sector Greenhouse Gas Emissions and Offset Investment\*

ORGANIZATION	Total Emissions (tonnes)	Total Offsets Purchased (tonnes)	Offset Investment (dollars)
<b>Public Sector total</b>	<b>814,149</b>	<b>729,782</b>	<b>18,244,575</b>
<b>Core government total</b>	<b>94,494</b>	<b>92,951</b>	<b>2,323,778</b>
<b>Crown corporations total</b>	<b>152,978</b>	<b>92,245</b>	<b>2,306,130</b>
BC Assessment	610	606	15,138
BC Games	7	7	183
BC Housing	26,628	26,560	663,988
BC Hydro	30,672	29,974	749,345
BC Innovation Council	6	6	157
BC Liquor Distribution Branch	3,875	3,863	96,565
BC Lottery Corporation	1,504	1,488	37,196
BC Oil and Gas Commission	442	433	10,813
BC Pavilion Corporation	5,348	5,347	133,679
BC Transit	61,305	1,385	34,615
BC Securities Commission	199	199	4,964
Columbia Basin Trust	22	22	542
Columbia Power Corporation	29	28	709
Community Living BC	1,059	1,056	26,402
First Peoples Heritage LCC	4	4	92
Forestry Innovation Investment	155	155	3,877
Industry Training Authority	36	36	903
Insurance Corporation of BC	20,464	20,464	511,600
Knowledge Network Corporation	96	96	2,409
Legal Services Society	101	101	2,513
Pacific Carbon Trust	7	7	170
Partnerships BC	36	36	912
Private Career Training Institute Agency	7	7	179
Provincial Capital Commission	179	179	4,463
Royal BC Museum	190	189	4,720

<b>Health total</b>	<b>217,331</b>	<b>217,135</b>	<b>5,428,384</b>
Bella Coola General Hospital	284	276	6,912
Fraser Health Authority	37,355	37,349	933,720
Interior Health Authority	38,697	38,636	965,891
Louis Brier Home and Hospital	723	723	18,066
Menno Hospital	442	442	11,054
Mount St. Mary Hospital	419	419	10,467
Nisga'a Valley Health Board	204	200	5,001
Northern Health Authority	23,161	23,126	578,156
Providence Healthcare	11,351	11,350	283,742
Provincial Health Services Authority	24,716	24,708	617,699
RW Large Memorial Hospital	104	104	2,595
St. Joseph's General Hospital	983	982	24,543
St. Michael's Center	388	388	9,704
Vancouver Coastal Health Authority	45,885	45,873	1,146,831
Vancouver Island Health Authority	32,560	32,501	812,514
Wrinch Memorial Hospital	60	60	1,488
<b>Post secondary total</b>	<b>150,959</b>	<b>150,779</b>	<b>3,769,485</b>
BC Institute of Technology	9,854	9,847	246,184
Camosun College	2,034	2,033	50,821
Capilano University	2,172	2,171	54,267
College of New Caledonia	2,258	2,256	56,408
College of the Rockies	842	819	20,472
Douglas College	1,960	1,960	48,990
Emily Carr University of Art and Design	859	859	21,469
Justice Institute of BC	699	696	17,407
Kwantlen Polytechnic University	2,480	2,479	61,964
Langara College	1,762	1,762	44,049
Nicola Valley Institute of Technology	421	420	10,498
North Island College	1,069	1,069	26,727
Northern Lights College	2,270	2,268	56,688
Northwest Community College	1,393	1,369	34,228
Okanagan College	1,904	1,902	47,540
Royal Roads University	1,462	1,460	36,499
Selkirk College	1,527	1,526	38,142
Simon Fraser University	17,787	17,778	444,452
Thompson Rivers University	4,137	4,132	103,310
UBC Okanagan	2,853	2,851	71,268
University of BC	60,856	60,792	1,519,801
University of Northern BC	5,689	5,688	142,198
University of the Fraser Valley	3,062	3,061	76,517
University of Victoria	15,557	15,546	388,647
Vancouver Community College	2,993	2,993	74,830
Vancouver Island University	3,060	3,045	76,113



School district total	198,387	176,672	4,416,798
School District 05 Southeast Kootenay	3,355	2,717	67,914
School District 06 Rocky Mountain	2,220	1,656	41,397
School District 08 Kootenay Lake	2,651	1,903	47,570
School District 10 Arrow Lakes	403	310	7,761
School District 19 Revelstoke	463	367	9,166
School District 20 Kootenay-Columbia	2,367	1,932	48,300
School District 22 Vernon	3,403	2,617	65,431
School District 23 Central Okanagan	6,405	5,119	127,965
School District 27 Cariboo-Chilcotin	4,688	3,397	84,921
School District 28 Quesnel	2,405	1,657	41,422
School District 33 Chilliwack	2,678	2,255	56,368
School District 34 Abbotsford	4,816	3,829	95,726
School District 35 Langley	6,433	5,845	146,122
School District 36 Surrey	20,102	19,876	496,892
School District 37 Delta	4,061	4,009	100,235
School District 38 Richmond	7,554	7,295	182,387
School District 39 Vancouver	16,258	16,244	406,094
School District 40 New Westminster	2,006	2,005	50,130
School District 41 Burnaby	6,014	6,007	150,175
School District 42 Maple Ridge	3,512	3,506	87,656
School District 43 Coquitlam	9,390	9,342	233,545
School District 44 North Vancouver	4,728	4,579	114,484
School District 45 West Vancouver	1,569	1,568	39,199
School District 46 Sunshine Coast	1,115	1,110	27,744
School District 47 Powell River	1,353	1,144	28,602
School District 48 Sea To Sky/Howe Sound	1,998	1,818	45,461
School District 49 Central Coast	403	344	8,606
School District 50 Haida Gwaii	863	848	21,196
School District 51 Boundary	1,064	828	20,688
School District 52 Prince Rupert	1,010	989	24,730
School District 53 Okanagan Similkameen	1,069	872	21,790
School District 54 Bulkley Valley	1,296	918	22,941
School District 57 Prince George	6,585	6,573	164,333
School District 58 Nicola-Similkameen	1,192	974	24,355
School District 59 Peace River South	3,751	2,863	71,578
School District 60 Peace River North	4,145	2,879	71,984

School District 61 Greater Victoria	6,096	6,082	152,040
School District 62 Sooke	2,892	2,306	57,649
School District 63 Saanich	2,181	1,793	44,832
School District 64 Gulf Islands	327	216	5,388
School District 67 Okanagan Skaha	1,933	1,814	45,356
School District 68 Ladysmith	4,456	3,912	97,805
School District 69 Qualicum	2,201	1,707	42,677
School District 70 Alberni	1,646	1,437	35,916
School District 71 Comox Valley	2,499	2,463	61,584
School District 72 Campbell River	2,652	2,279	56,975
School District 73 Kamloops/Thompson	5,846	4,260	106,496
School District 74 Gold Trail	1,183	776	19,400
School District 75 Mission	2,314	1,934	48,338
School District 78 Fraser-Cascade	1,085	871	21,766
School District 79 Cowichan Valley	3,441	2,643	66,068
School District 81 Fort Nelson	699	694	17,356
School District 82 Coast Mountains	2,548	2,533	63,320
School District 83 North Okanagan-Shuswap	3,537	2,471	61,784
School District 84 Vancouver Island West	202	181	4,514
School District 85 Vancouver Island North	788	656	16,392
School District 87 Stikine	485	485	12,129
School District 91 Nechako Lakes	3,641	2,578	64,453
School District 92 Nisga'a	107	88	2,196
School District 93 Conseil Scolaire Francophone	2,300	2,300	57,504

\*Please note that individual tonnes and dollar values are rounded to the nearest whole number, therefore individual numbers may not equal total values.

**The 'Total Emissions' reported meet the reporting requirements of the Carbon Neutral Regulation of the Greenhouse Gas Reduction Targets Act. As per the regulation, some of the emissions reported in the total do not require the purchase of offsets in order to reach carbon neutrality. This includes emissions from mobile or stationary combustion of biomass as well as emissions from bus fleets (school buses and BC Transit buses). The total offsets purchased matches the emissions requiring offsets.**

**For more information on how the B.C. Public Sector measures emissions, please visit [www.LiveSmartBC.ca](http://www.LiveSmartBC.ca). Following this report, any adjustments to emissions or offsets purchased due to unforeseen errors or omissions will be noted on-line.**



[www.LiveSmartBC.ca](http://www.LiveSmartBC.ca)

