



2011 Carbon Neutral ACTION REPORT



A document from the department of
[Lower Mainland Facilities Management](#)
Energy & Environmental Sustainability
the home of GreenCare

EXECUTIVE SUMMARY

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Lynda Cranston

President and Chief Executive Officer

Over the years, the Provincial Health Services Authority has integrated energy and environmental conservation values and is consequently seeing work processes and the region through a new and refreshed ecological perspective.

In 2011, PHSA:

- **Reduced our energy consumption** by 1.4 GWh & 8,560 GJ
- **Increased staff engagement** through the launch of the *Cut the Carbon Community*
- **Decreased staff commuting**, via single occupancy vehicles, through a *Clean Commuter Challenge*.

Looking forward, we're excited about our planning for the new Children's Hospital, which will be the first project in British Columbia to seek a LEED Gold for Health Care certification.



Peter Goldthorpe

*VP Capital Projects, Real Estate & Facilities
Lower Mainland Facilities Management*

Within Facilities Management, we know the design and construction of buildings to support the delivery of health care services involves substantial resources, technology and materials. It also requires decades of further investment related to maintenance and remodeling. The

environmental impact and resulting carbon footprint are significant.

We're taking responsibility to reduce this environmental impact. Facilities Management is working to support sustainability through effective site planning, energy efficiency, water efficiency, material flow reduction, toxics reduction, better land use, and life cycle analysis. We're also encouraging staff and clients to live in an environmentally sound way that expresses a modest level of consumption and ecological impact.

We have a lot of work to do, but becoming better stewards of the environment is worth it. The Carbon Neutral Action Report is an important part of this quest.



ABOUT PHSA

The Provincial Health Services Authority is the only health authority in Canada that has a mandate to deliver specialized health services province-wide

We provide specialized health services

The Provincial Health Services Authority (PHSA) is a publicly funded health service provider in the province of British Columbia. Other health authorities in the province have a regional jurisdiction, but we're unique in Canada for being the only health authority having a province-wide mandate for specialized health services.

Operating nine provincial agencies

Our services are provided either directly through PHSA agencies or through funding or collaboration with regional health authorities. PHSA operates and manages nine well-recognized specialized agencies and two divisions:

- BC Cancer Agency
- BC Centre for Disease Control
- BC Children's Hospital & Sunny Hill Health Centre for Children
- BC Mental Health & Addiction Services
- BC Provincial Renal Agency
- BC Transplant Society
- BC Women's Hospital & Health Centre
- Cardiac Services BC
- Perinatal Services BC
- BC Emergency Health Services (incl. BC Ambulance Service)
- Health Shared Services BC

Voted Employer of the Year in 2008 and 2011

PHSA operates with an annual budget in excess of \$2 billion (CAD) and employs more than 13,000 staff. In October 2008 and again in 2011, PHSA was proud to be named one of BC's Top Employers by Mediacorp Canada Inc. This news was announced by The Vancouver Sun, The Province and the Victoria Times-Colonist.



Quick Facts

\$2 billion

Operating budget 2010/11

8,496 FTEs

Full time employees

1 FTE for projects

To improve our footprint

1 FTE to measure

Our energy/carbon use

13,000 staff

Full-time, part-time, casual

0 small vehicles

In our fleet (forklifts, gators etc)

2 medium vehicles

(Cars, ambulances etc.)

0 large vehicles

(Buses, transport trucks)

"Environmental degradation and climate change have major potential to impact population health. The health care sector, therefore, must lead the way in addressing these issues."

Dr. Graeme Duncan, FRCPC
Clinical Professor in Radiation Oncology, UBC
BC Cancer Agency

CHANGES IN OUR OPERATIONS

We created a new Energy & Environmental Sustainability group to reduce the environmental impact of all the Lower Mainland health authorities

Net Space +4.4%

During 2011 PHSA decreased its facilities space by 18,932 m², or 4.4% from 2010.

Four health authorities are working together

Beginning in 2010, the following four health organizations began formally working together to manage and deliver administrative and clinical support services:

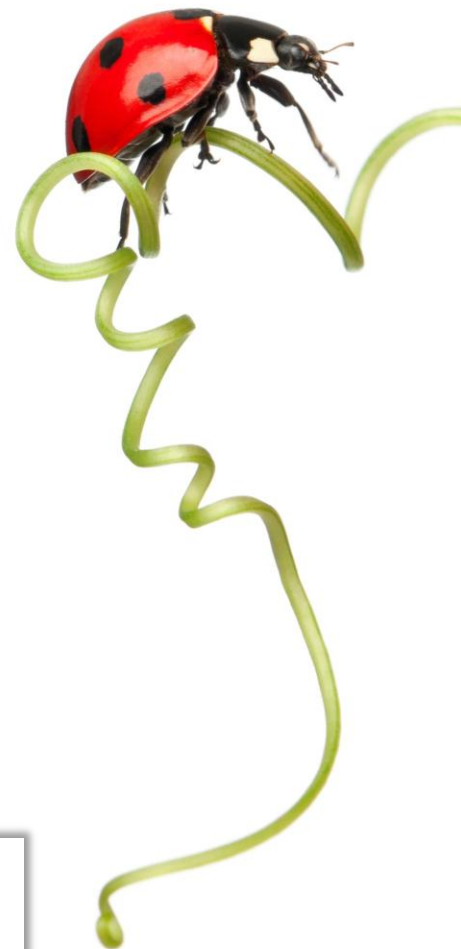
- **Provincial Health Services Authority**
- **Fraser Health Authority** (FH)
- **Providence Health Care** (PHC)
- **Vancouver Coastal Health** (VCH).

This partnership allows us to consolidate operations across the four health organizations for greater efficiency, so our health care dollars can be effectively focused on patient care.

Facilities Management was one of the ten administrative and clinical services areas consolidated. Now, the Lower Mainland Facilities Management team has a mandate that includes 27 acute care hospitals and 50 residential care facilities, which serve over 2.5 million British Columbians living in 37 municipalities and regional districts.

Coordinating our sustainability work

Consolidation enabled the creation of an Energy & Environmental Sustainability (EES) group in 2010 within the Lower Mainland Facilities Management department. This has presented new opportunities to coordinate our environmental and sustainability work across PHSA, FH, VCH, and PHC for greater impact.



Building Space Change

	2010	2011
Distinct PHSA Buildings	59	64
Owned	55%	53%
%Leased	45%	47%
Usable Square Meters m ²	*427,685	446,617
Full-time Employee Equivalents	8,886	8,496

* Includes adjustments made to leased space. % based on floor areas

ENERGY AND ENVIRONMENTAL SUSTAINABILITY

We understand energy and environmental sustainability are important components of organizational, human and environmental health



GreenCare is the brand name for all the environmental sustainability activities across the Lower Mainland health organizations. This includes work done by our EES group, our recycling programs, our Green+Leaders staff champions, and through our online staff engagement forum Cut the Carbon Community.

Reducing our environmental impact

Our new Energy & Environmental Sustainability group includes Energy Managers and Sustainability Managers tasked with reducing the waste and environmental impact of our health organizations.

It's the goal of this EES group to unite PHSA and the other three health organizations in our commitment to reduce health care's impact on the environment, while increasing the health and wellbeing of British Columbians by maintaining the important link between health and the environment.

Increasing our staff's enviroengagement

An increased focus is on engaging our staff and work communities to take action on climate change and to reduce the organizations' overall carbon footprint.

PHSA has endorsed an Environmental Sustainability Policy, along with the other Lower Mainland health services organizations, that includes a Vision Statement and Sustainability Conservation Goals.

Creating a conscious work culture

Our vision is to promote an environmentally conscious culture that's actively aware and engaged in creating sustainable solutions for healthy lives and a healthy community.

10 Focus Areas

Our EES group aims to create greater sustainability in ten key areas of focus:

1. **Chemicals & Toxics**
2. **Energy**
3. **Finance**
4. **Green Built Systems**
5. **Land & Food**
6. **Materials**
7. **People**
8. **Sustainability & Carbon Reporting**
9. **Travel**
10. **Water**

Our Sustainability Goals

	2015	2020
Energy Reduction	10%	20%
Green House Gas Reduction	15%	33%
Water Reduction	7%	10%
Alternate Commute Increase	10%	20%
Waste Diversion (Recycling) *	70%	80%
Staff Engagement in GreenCare	40%	75%

Targets use a 2009 baseline, except Green House Gas Emissions which uses 2007.
* Goals aligned to Metro Vancouver targets

2011 GREEN HOUSE GAS EMISSIONS

PHSA is committed to setting aggressive targets for the reduction of Greenhouse Gas Emissions

Our Goal: An 18% drop in GHG emissions by 2016

As a government funded organization PHSA must abide by the Provincial Government of British Columbia's *Greenhouse Gas Reduction Targets Act* (Bill 44), passed in 2007.

Under the Act, our Green House Gas emissions are to be reduced below our 2007 levels as follows:

- **6% by 2012**
- **18% by 2016**
- **33% by 2020**
- **80% by 2050**

The Act also laid the foundation for the *Emission Offsets Regulation* and the *Carbon Neutral Government Regulation*, both enacted in December 2008, which guide PHSA.

Our 2011 carbon footprint: 23,387 tCO₂e

PHSA has calculated our 2011 carbon footprint, in accordance with the Greenhouse Gas Reduction Targets Act (as reported in SMARTTool), to be 23,387 tonnes.

"As health care professionals, we need to exercise caution and restraint where uncertain health risks exist. This is reflected in our efforts related to CO₂ emissions and the increasing toxicity in our environment."

Karim H. Karmali
Chief Operating Officer, BC Cancer Agency



Our Carbon Footprint (in tCO₂e)

	2010	2011
Mobile Fuel Combustion (Fleet & other mobile equipment)	195	181
Stationary Fuel Combustion & Electricity (Buildings)	20,079	22,302
Supplies (Paper)	891	912
Emissions Which Don't Require Offsets*	0	-8
Total Carbon Footprint (tCO₂e)	21,166	23,387
Emissions per Full-Time Employee	2.38	2.75
Emissions per Meter Square Facility Space	.049	.052

*As outlined in the Carbon Neutral Government Regulation of the Greenhouse Gas Reductions Targets Act, some emissions do not require offsets. Also carbon emissions from buildings are based upon actual energy use data and not adjusted for weather. Weather variances will cause fluctuation in energy usage and ultimately the CO₂ footprint from year to year.

It was estimated Fugitive Emissions from cooling equipment do not comprise more than 0.01% of PHSA's total emissions and an ongoing effort to collect or estimate emissions from this source would be disproportionately onerous. For this reason, emissions from this source have been deemed out-of-scope and have not been included in our total greenhouse gas emissions profile.

CARBON OFFSETS

While we continue to work to reduce our carbon footprint, this year we purchased carbon offsets to become carbon neutral

Offsets applied to be carbon neutral in 2011

The Provincial Health Services Authority was carbon neutral in 2011. Mechanical and electrical energy retrofits, policy development, behavior change programs, and the purchasing of carbon offsets were all contributing factors.

The preliminary offsets, purchased from the Pacific Carbon Trust in 2011, for in-scope emissions, amounted to \$540,036.

Weather increased our total GHG emissions

Our total carbon footprint increased in 2011. This increase was primarily due to weather conditions. Carbon emissions from buildings are based upon actual energy use data and not adjusted for weather. Weather variances will cause fluctuations in energy usage and ultimately the CO2 footprint from year to year.

In 2011, the Heating Degree Days were 13% higher than 2010 in the Vancouver region. Because some fuel consumption is weather dependent, this resulted in a 7% increase at the large PHSA sites in Vancouver. Other PHSA sites experienced similar consumption increases due to weather in 2011.

In 2011
PHSA was
carbon
neutral
for the
second
year

Our Carbon Offsets

	2010	2011
Carbon Footprint in tCO2e	21,166	23,387
Purchased Carbon Offsets	\$617,907	\$540,036
Purchased Carbon offsets +HST	\$692,056	\$604,841

Purchased carbon offsets for 2011 include a payment credit and space adjustments from 2010

GREEN BUILDINGS

Construction projects on new or existing facilities are built to an existing sustainability/green standard. This includes LEED (Leadership in Energy and Environmental Design) for new buildings, and BOMA BEST (Building Environmental Standards) for existing buildings



Two buildings are LEED certified

- **One building is Gold LEED certified**, the BC Cancer Research Center. Certified July 22, 2005.
- **Silver LEED Certification was awarded this year** to the Child, Adolescent and Women's Mental Health Building in Vancouver. Certified Nov 21, 2011.

One building is pending LEED certification

- **Gold LEED certification is being sought** for the British Columbia Cancer Agency Centre for the North in Prince George. Registered May 12, 2009.

Three projects are being designed to LEED

- **We're using LEED standards in the design of three buildings:** The Clinical Support Building and The Child Daycare building at Children's and Women's Hospital, as well as the Prince George Cancer Agency.

We're expecting one BOMA BEST certification

- **One building received BOMA BEST Level 1 certification in 2011**, 520 W.6th Avenue.
- **We're expecting to receive BOMA BEST certification** for 590 W. 8th Avenue.

EMISSIONS REDUCTION ACTIVITIES 2011



PHSA has increased its focus on infrastructure improvements and engaging staff, communities and key stakeholders to take actions to reduce our overall carbon footprint. Following are some 2011 highlights

Energy Saved

PHSA completed 4 energy projects in 2011 which led to big savings for us...and the environment.

5,300 GJ

Fuel saved

265 tCO₂e

Green house gas reduction

\$63,733

Energy bill reduction

ENERGY: We improved efficiency

- **We completed 4 dedicated energy retrofit projects** in PHSA owned buildings this year.
- **We continued the energy retrofits** started in 2010 through the BC Hydro Continuous Optimization Project (COP):
 - **The Ambulatory Care Building at the BC Women's Hospital & Health Centre** is in the coaching phase.
 - **BC Cancer Research Centre** is ready for implementation.
 - **Several studies were done at BC Children's and Women's Hospital** for ventilation and chilled water implementations.
- **We undertook a control system revision and upgrade** of Ambulatory Care at the BC Women's Hospital & Health Centre to monitor and control lights and ventilation.
- **Energy awareness campaigns are conducted** to encourage staff to use stairs where feasible to save energy and encourage personal fitness.

TRAVEL: We facilitated greener commutes

- **We continued enforcing anti-idling.**
- **We encouraged staff to participate in an online car-pooling coordination program**, the Jack-Bell Ride Share.
- **Staff shuttle services were provided to employees in Vancouver** travelling between Vancouver General Hospital, UBC Hospital, St Paul's Hospital, GF Strong, and the BC Women's and Children's Hospital.

One Less Tonne

During 2011, as part of our new Cut the Carbon Community at c3community.ca, we ran a One Less Tonne challenge and asked Lower Mainland staff at the Provincial Health Services Authority, FH, PHC and VCH to commit to taking actions to reduce their personal carbon footprint.

Here's what they committed to for the year:

524 tCO₂e

Green House Gas Reduction

5,939 GJ

Energy Saved

936,400 kWh

Power saved

\$153,446

Cost savings

BEHAVIOUR: We engaged staff

- **Over 2,300 Lower Mainland staff and 424 PHSA staff signed up for our new Cut the Carbon Community website and campaign, launched in 2011.** They committed to take actions that would reduce over 500 tonnes of carbon emissions through this Fortis sponsored site.
- **We continued our Green+Leaders program** and recruited and trained PHSA staff to champion and run behavior change campaigns at their care facilities, departments and offices focusing on:
 - **waste and paper reduction**
 - **energy reduction, and**
 - **sustainable transportation.**
- **We encouraged staff to change their behavior** by hosting Energy Fairs, and other Energy and Sustainability awareness sessions, all rolled out as part of our BC Hydro Workplace Conservation Agreement. This included EES staff distributing "Stop the Energy Bleed, Turn off the Lights" bookmarks.
- **We provide real-time power usage per hospital** to staff through our Cut the Carbon Community and our partnership with Pulse Energy. This builds awareness of the success of initiatives and retrofits.
- **Alternative/Green travel to meetings was encouraged,** as well as video conferencing and other virtual attendance/presentations.

Our C3community.ca for staff engagement

The screenshot shows the C3community.ca dashboard for a user named EnviroWoman. The page features the GreenCare logo and the text 'Cut the Carbon Community' with the FORTIS BC logo. The user's dashboard includes a search bar, navigation tabs for 'Your Dashboard', 'GreenCare Hub', 'Real Time Data', and 'C3 Community', and buttons for 'EDIT OR VIEW PROFILE' and 'LOGOUT'. A welcome message reads 'Welcome to your C3 dashboard, EnviroWoman!' followed by a congratulatory message: 'Congratulations, you just earned 10 points and now have 1710 points in your C3 score.' The main content area has a section titled 'Why join the Clean Commuter Challenge?' with an illustration of people on bicycles. To the right, a large blue box displays '2479 MEMBERS AND GROWING!' and lists 'C3 members by health authority or organization: PH: 767, PHC: 200, PHSA: 462, VCH: 1050'. Below this are buttons for 'invite colleagues to C3' and 'Track your invites'. At the bottom right, a box shows 'Your C3 Score 1710' and 'What is the C3 Score? Earn more points'. The footer includes a 'Community Discussion' section with a 'START A NEW DISCUSSION' button and a list of topics, with '1. Online paystips' visible.

EMISSION REDUCTION GOALS 2012–14

Our plans to continue reducing greenhouse gas emissions 2012–2014

The four Lower Mainland health organizations, the Provincial Health Services Authority, Fraser Health, Providence Health Care, and Vancouver Coastal Health will continue to coordinate, collaborate and integrate energy and environmental initiatives within all our operational clinical and non-clinical work.

Within those efforts, the following is a list of tasks to be achieved in 2012 by PHSA.

ENERGY

- **Upgrade the chilled water plant at BC Children's & Women's Hospital** with a piping modification to optimize performance and to reduce energy consumption. Two new boilers for the steam plant will be installed.
- **Upgrade the Digital Design Control systems** at the Sunny Hill Health Centre, Fraser Valley Cancer Centre, Children's and Women's Mental Health Building, and GF Strong.
- **Implement the BC Hydro Continuous Optimization Program** at the BC Cancer Research Centre.

WASTE

- **Roll out recycling renewal programs** to 7 sites.
- **Implement food services recycling and composting** at the 3 largest sites.

TRAVEL

- **Tie the Jack-Bell Ride Share program into the Cut the Carbon Community staff engagement program** at www.c3community.ca.

BUILDING DESIGN

- **Seek LEED Gold or Platinum status** for the new Acute Care Centre at Children's Hospital which is in the planning stage and using LEED for Health Care standards.
- **Continue to use the GOLD LEED standard in new facility design and construction**, and the LEED standard for all major renovations. PHSA has 3 projects seeking certification completion in 2012.
- **Continue to apply the BOMA BEST standard** for any existing building projects.

BEHAVIOR

- **Maintain and grow the online Cut the Carbon Community** websites offers stories, tips, challenges, incentives, and collaboration for staff.
- **Recruit more staff volunteers** and continue to support the Green+Leaders program through the Energy and Environmental Sustainability team.
- **Run the Green+Leaders paper reduction campaign in 120 departments** across all four health authorities by the end of 2013.
- **Implement energy reduction campaigns in 120 departments** across all four health authorities by the end of 2013 through the Green+Leaders program. Campaigns will encourage staff to turn off lights and equipment in their departments.
- **Develop an Energy & Environmental Sustainability "Playbook"** describing the team and work involved in our efforts.

ADDITIONAL RESOURCES

Health Authority Resources

- **Provincial Health Services Authority**
<http://www.phsa.ca>
- **Fraser Health**
<http://www.fraserhealth.ca>
- **Providence Health Care**
<http://www.providencehealthcare.org>
- **Vancouver Coastal Health Authority**
<http://www.vch.ca/>
- **Cut the Carbon Community**
www.c3community.ca

External Resources

- **LiveSmart BC: 2010 Carbon Neutral Action Reports: Health Authorities**
http://www.livesmartbc.ca/government/carbon_neutral/health_authorities.html
- **Bill 44 - 2007; Greenhouse Gas Reduction Targets Act**
http://www.leg.bc.ca/38th3rd/1st_read/gov44-1.htm
- **Canadian Green Building Council LEED description**
<http://www.cagbc.org/>
- **ASHRAE 189.1 standard for new buildings and renovations**
<http://www.ashrae.org/resources--publications/bookstore/standard-189-1>
- **BOMA BEST Environmental Certification**
<http://www.bomabest.ca/>
- **Natural Resources Canada**
<http://www.nrcan.gc.ca/home>

Partner Resources

- **Fortis**
<http://www.fortisbc.com>
- **BC Hydro**
<http://www.bchydro.com/>

Assurance

As part of meeting the Carbon Neutral Government Regulations, all Public Sector Organizations (PSOs) are now required to annually self-certify, i.e. declare that the data entered into SMARTTool is accurate and complete.

Beginning in 2012, each year a cross section of PSOs will undergo an independent verification process.

In 2011, our Energy and Environmental Sustainability team volunteered for the Climate Action Secretariat's pilot self-certification program.

Feedback from the auditors was good, indicating the Lower Mainland Health Authorities' new process for self-certification is sound.



Provincial Health Services Authority - 2011 Carbon Neutral Action Report

Actions Towards Carbon Neutrality

The actions listed below contribute to a reduction in greenhouse gas emissions from sources for which public sector organizations are responsible under the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*.

Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Mobile Fuel Combustion (Fleet and other mobile equipment)							
Vehicle fuel efficiency							
Replace vehicles with more fuel-efficient models	Ongoing/In Progress			No new vehicles purchased in 2011	All new vehicles purchases to be as fuel efficient as possible	2008	No End Date (Continuous)
Replace larger vehicles with smaller models according to fleet "right-sizing" principles	In Development				All new vehicles to be optimized according to need and "right sizing"	2010	No End Date (Continuous)
Replace small maintenance vehicles with more fuel-efficient models	Ongoing/In Progress	50	% of small maintenance vehicles are fuel-efficient	No new vehicles purchased in 2011	On going practice	2008	No End Date (Continuous)
Behaviour change program							
Encourage carpooling in fleet vehicles	Ongoing/In Progress			Encouraging Staff to participate in Jack-Bell Ride Share online car pooling coordination program.	Tie the Jack-Bell Ride Share program into the Cut the Carbon Community (C3) staff engagement program.	2008	No End Date (Continuous)
Promote alternatives to fleet vehicle travel where possible (e.g., bicycles, public transit, walking)	Ongoing/In Progress			Is a regular practice to encourage Staff to commute or use bikes or walk when possible	On going practice	2008	No End Date (Continuous)
Stationary Fuel Combustion, Electricity and Fugitive Emissions (Buildings)							
Planning/management							
Enrol in a building energy benchmarking program (e.g., GREEN UP)	In Development			Following-up with Monique Goguen (mgoguen@cagbc.org)	Continued dialogue with the CaGBC and investigating opportunities to implement the Green Up program.	2010	No End Date (Continuous)
Reduce office space (square meters) per employee	Ongoing/In Progress	60	is the current average rentable square meters per employee	There is ongoing consolidation of under-utilized leased facilities to reduce energy utilities consumptions, the organization's carbon footprint, square footage footprint and leasing costs	Ongoing consolidation of under-utilized leased facilities to reduce energy utilities consumptions, the organization's carbon footprint, square footage footprint and leasing costs	2010	No End Date (Continuous)
Install a real time metering system (e.g. Pulse, Reliable Controls, Houle Controls)	Ongoing/In Progress	50	% of buildings have a real time metering system installed	Buildings on C&W Site, BCCRC, BCCA, Sunnyhill, FVCC	Continuous analysis of data and identification of new sites to install real time metering	2010	No End Date (Continuous)
Owned buildings							
Achieve LEED NC Gold certification at a minimum for new construction or major renovations	Ongoing/In Progress	10	% of owned buildings are certified LEED NC Gold or LEED NC Platinum	Children's Hospital Day care, Flex Building, and Prince George Cancer Agency building.	Currently in planning and development stage, the new Children's Hospital will be LEED Gold.	2010	No End Date (Continuous)
Incorporate integrated design process into new construction or during renovations of owned buildings	Ongoing/In Progress	10	% of buildings built or renovated since start year indicated used the integrated design process	Open Public consultation for the New Children's and Women's phase to take it to the Integrated Design Team	Open Public consultation for the new constructions will be considered for the Integrated Design Team work	2010	No End Date (Continuous)
Perform energy retrofits on existing, owned buildings	Ongoing/In Progress	50	% of owned buildings have undergone energy retrofits since start year indicated	C&W site buildings are under metering installation, steam valves installation, energy audits. Continuous Optimization Programs are under development on BCCRC, BCCA, SHC, FVCC, CFRI, MH.	Continuous work on retrofits of existing buildings. To start the Continuous Optimization Program at the BCCA building	2010	No End Date (Continuous)
Retrofitting owned buildings							

Provincial Health Services Authority - 2011 Carbon Neutral Action Report

Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Upgrade mechanical systems (heating, cooling, ventilation) during retrofits	Ongoing/In Progress	10	% of retrofits since start year indicated had heating, cooling, and ventilation systems upgrades	1- The BC hydro Continuous Optimization Project (COP) energy retrofit started in 2010 and is under implementation. The Ambulatory Care Building is under the coaching phase and the BC Cancer Research Centre is ready for implementation. Several studies were done at Children's and Women's for Ventilation and Chilled water implementations	Upgrade the chilled water plant at C&W with piping modification to optimize performance and to reduce energy consumption. The two new boilers for the steam plant will be installed. District Energy at C&W is under study	2007	No End Date (Continuous)
Upgrade lighting systems during retrofits	Ongoing/In Progress	5	% of retrofits since start year indicated had lighting systems upgrades	On going replacement of old technologies with CFL of LED's	Continue to replace existing lighting systems with high efficiency lighting	2007	No End Date (Continuous)
Upgrade/adjust control systems during retrofits	Ongoing/In Progress	5	% of retrofits since start year indicated had control system upgrades or adjustments	Ambulatory Care at C&W went under control system revision and upgrade to monitor and control lights and ventilation in some buildings.	Upgrade the DDC systems at the Sunny Hill Health Centre, Fraser Valley Cancer Centre, and C&W Mental Health Building, and GF Strong. Implementing the Continuous Optimization Program at BC Cancer Research Centre	2010	No End Date (Continuous)
Improve building insulation (including windows) during retrofits	Ongoing/In Progress	5	% of retrofits since start year indicated had insulation improvements	PHSA is analyzing to implement when possible	Consider this measure in any new retrofit	2009	No End Date (Continuous)
Install an on-site renewable energy demonstration project	In Development	0	% of retrofits since start year indicated had on-site renewable energy components		Look for opportunities to install solar systems for space and pool heating.	2010	No End Date (Continuous)
Leased buildings							
Develop a green lease policy that requires green features to conserve energy be included in all lease negotiations	Ongoing/In Progress			A Tenant Improvement Handbook incorporating some elements of Green Lease policies developed in 2007 and updated in 2009 is in the process of additional updates to incorporate the different standards for all of the 2010 consolidation of the lower mainland health authorities facilities Management (VCH, FHA, PHSA, and PHC) for all new and renewed leases where feasible. As part of the update, Facilities Energy & Environmental Sustainability staff are incorporating green strategies in this handbook. Final edit and approval by the Steering Committee is anticipated for April/May 2011	Continue working in the Tenant Improvement Handbook	2007	No End Date (Continuous)
IT power management							
Install power management software which shuts down computers outside of regular business hours	Ongoing/In Progress	2	% of computers shut down automatically outside of regular business hours	Software was purchased and installed at the Children's Foundation.	Evaluate, monitor, and readjust settings.	2009	No End Date (Continuous)
Implement server virtualization	Ongoing/In Progress	80	% of servers have been virtualized since start year indicated	PHSA has completely adopted server virtualization. PHSA is creating virtual servers rather than physical servers wherever possible for new installs. Existing infrastructure has already been optimized. PHSA is now refreshing the original virtualized batch with more powerful and more efficient servers.	Continue this process to virtualize 100 % of the servers	2006	No End Date (Continuous)
Apply auto-sleep settings on computer monitors and CPUs	Ongoing/In Progress	90	% of computers have auto-sleep settings applied	On-going process	Monitoring and evaluation	2006	No End Date (Continuous)
Remove stand-alone printers, copiers, and/or fax machines and install multi-function devices	Ongoing/In Progress	70	% reduction in printers, copiers, and/or fax machines since start year indicated	PHSA is implementing central and multi-function devices	On going practice to reach 100% of devices	2009	No End Date (Continuous)

Provincial Health Services Authority - 2011 Carbon Neutral Action Report

Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Apply auto-sleep settings on printers, copiers, fax machines, and/or multi-function devices	Ongoing/In Progress	100	% of devices have auto-sleep settings applied	PHSA has implemented this measure as a standard policy	On going practice	2009	No End Date (Continuous)
Replace computers with ENERGY STAR models during regular computer upgrades	Ongoing/In Progress	100	% of computers are ENERGY STAR rated	PHSA has implemented this measure as a standard policy	On going practice	2010	No End Date (Continuous)
Appliances and electronic devices							
Replace refrigerators with ENERGY STAR models or source ENERGY STAR models for future purchases	Ongoing/In Progress	30	% of fridges are ENERGY STAR rated	All new devices to be replaced following Energy Star criteria	On going practice	2007	No End Date (Continuous)
Replace other appliances or electronic devices with ENERGY STAR models or source ENERGY STAR models for future purchases	Ongoing/In Progress	30	% of fridges are ENERGY STAR rated	All new devices to be replaced following Energy Star criteria	On going practice	2008	No End Date (Continuous)
Behaviour change program							
Ask staff to unplug electrical equipment or switch off power bars when not in use	Ongoing/In Progress			Green+Leaders behaviour change program runs an annual energy reduction campaign which features a tool to get staff to "turn it off".	Continue practice	2009	No End Date (Continuous)
Ask staff to close blinds at end of work day to reduce heating/cooling demands	Ongoing/In Progress			Included in the Green+Leaders energy reduction campaign	Continue practice	2009	No End Date (Continuous)
Encourage staff to use air dry setting on dishwashers	Ongoing/In Progress			Included in the Green+Leaders energy reduction campaign	Continue practice	2009	No End Date (Continuous)
Provide tips to staff on saving energy in the office while working outside of regular business hours	Ongoing/In Progress			Green+Leaders tools and monthly newsletters includes green tips related to energy conservation	Continue practice	2009	No End Date (Continuous)
Encourage use of stairs instead of elevators	Ongoing/In Progress			Included in the Green+Leaders energy reduction campaign	Continue practice	2009	No End Date (Continuous)
Provide reminders for turning off lights (e.g., signs, stickers, messages)	Ongoing/In Progress			Green+Leaders behaviour change program runs an annual energy reduction campaign which features a tool to get staff to "turn it off".	Continue practice	2009	No End Date (Continuous)
Promote hot water conservation	Ongoing/In Progress			Included in the Green+Leaders energy reduction campaign	Continue practice	2009	No End Date (Continuous)
Other Stationary Fuel Combustion, Electricity, and Fugitive Emissions Actions							
Trained 115 housekeepers at six major PHSA sites in electricity conservation.	Completed in 2011			Developed and implemented training program.	Program will repeat every two years.	2011	No End Date (Continuous)
Supplies (Paper)							
Paper Type							
Purchase 30% post-consumer recycled paper	Ongoing/In Progress			30% post-consumer recycled paper is encouraged throughout the organization	Continued encouragement of 30% post-consumer recycled paper usage	2010	No End Date (Continuous)
Purchase 40% post-consumer recycled paper	In Development			Investigating the feasibility of encouraging 40% post-consumer recycled paper	Continued investigation of the feasibility of encouraging 40% post-consumer recycled paper	2010	No End Date (Continuous)
Purchase 100% post-consumer recycled paper	In Development			Investigating the feasibility of encouraging 100% post-consumer recycled paper	Continued investigation of the feasibility of encouraging 100% post-consumer recycled paper	2010	No End Date (Continuous)

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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)		Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Printer/document settings							
Switch networked printers and photocopiers to automatic double-sided	Ongoing/In Progress	50	% of network printers or photocopiers are set to automatic double-sided	Followed up with Printer Works and HSSBC to ensure program is still on track.	Continue follow-up.	2009	No End Date (Continuous)
Apply "print and hold" settings to networked printers to eliminate unclaimed print jobs	In Development				Under evaluation	2011	No End Date (Continuous)
Electronic media in place of paper							
Use electronic document library for filing common documents	Ongoing/In Progress			Shared drives and electronic document libraries are available to most staff at PHSA. Green+Leaders materials reduction campaign includes an electronic filing tool.	Practice will continue	2009	No End Date (Continuous)
Post materials online that were previously printed	Ongoing/In Progress			Many departments have adopted this process.	More departments will do so.	2008	No End Date (Continuous)
Switch to an electronic payroll notification system in place of paper pay stubs	In Development			Business case developed and approved.	Implementation and maintenance.	2011	No End Date (Continuous)
Behaviour change program							
Encourage staff to hold paperless meetings or presentations (i.e., no handouts)	Ongoing/In Progress			Green+Leaders materials reduction campaign included a focus on paper reduction.	On-going and part of the paper reduction campaigns strategies. Green+Leaders program includes a paper reduction campaign that includes a tool on paperless meetings. Will be implemented in 120 departments by end of 2013.	2009	No End Date (Continuous)
Encourage re-use of scrap paper	Ongoing/In Progress			Green+Leaders materials reduction campaign included a focus on paper reduction.	On-going and part of the paper reduction campaigns strategies	2009	No End Date (Continuous)

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Actions to Reduce Provincial Emissions and Improve Sustainability

The actions listed below contribute to a reduction in greenhouse gas emissions from sources that fall outside of the reporting requirements defined in the carbon neutral government regulation of the *Greenhouse Gas Reduction Targets Act*. Public sector organizations can optionally use this section to report on actions that will help British Columbia meet its provincial greenhouse gas reduction targets, engage the public, and improve environmental sustainability across all aspects of their organization.

Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)	Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Business Travel						
Virtual meeting technology						
Install web-conferencing software (e.g., Live Meeting, Elluminate, etc.)	Ongoing/In Progress		PHSA is implementing this measure to avoid Staff traveling	On going practice	2009	No End Date (Continuous)
Install video-conferencing units in meeting rooms or provide mobile video-conferencing units	Ongoing/In Progress	30 % of meeting rooms have access to video-conferencing equipment	PHSA is implementing this measure to avoid Staff traveling	On going practice	2009	No End Date (Continuous)
Behaviour change program						
Train staff in web-conferencing	Ongoing/In Progress		Phsa has been doing this for several years	On going practice	2008	No End Date (Continuous)
Train staff in video-conferencing or provide technical support for video-conferencing set-up	Ongoing/In Progress		PHSA has a leading edge program in Telehealth	On going practice	2002	No End Date (Continuous)
Encourage staff to consider virtual attendance/presentation at events where possible	Ongoing/In Progress		Green+Leaders sustainable transportation campaign includes a tool to encourage staff to hold virtual meetings.	Maintain practice where possible. Part of the Green+Leaders program will include encouraging staff to hold virtual meetings as part of the sustainable transportation focus.	2009	No End Date (Continuous)
Encourage carpooling to meetings	Ongoing/In Progress		Green+Leaders sustainable transportation campaign includes a tool to encourage staff to carpool to meetings.	Practice to continue. Green+Leaders program will include encouraging staff to carpool as part of the sustainable transportation focus.	2009	No End Date (Continuous)
Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)	Ongoing/In Progress		Green+Leaders sustainable transportation campaign includes a tool to encourage staff to take sustainable alternatives to meetings.	Practice to continue. Part of the Green+Leaders program will continue to encourage alternatives to SOVs when travelling to meetings.	2009	No End Date (Continuous)
Education, Awareness, and Engagement						
Team-building						
Create Green, Sustainability, Energy Conservation, or Climate Action Teams with executive endorsement	Ongoing/In Progress		Green + Leaders program incorporates all of these features	Expand Green+ Leaders program to 100 Departments	2009	No End Date (Continuous)
Provide resources and/or dedicated staff to support teams	Ongoing/In Progress		PHSA has a full time Coordinator for its Green + Leaders Program	Practice to continue	2009	No End Date (Continuous)
Providing behaviour change education/training to teams (e.g., community-based social marketing)	Ongoing/In Progress		Green + Leaders program incorporates all of these features	Expand Green+ Leaders program to 100 Departments	2009	No End Date (Continuous)
Awards/Recognition						
Establish a sustainability/green awards or recognition program	Ongoing/In Progress		Recognition event held for Green+Leader program annually	Practice to continue	2009	No End Date (Continuous)
Staff Professional Development						
Support green professional development (e.g., workshops, conferences, training)	Ongoing/In Progress		Green + Leaders program offers 6 hours of training to Staff	Practice to continue	2009	No End Date (Continuous)

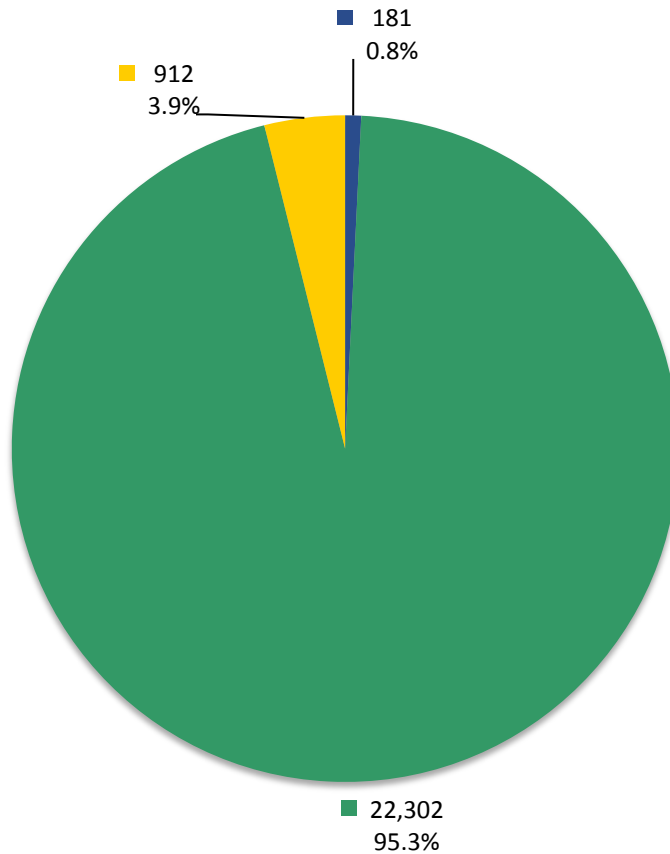
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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)	Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Include green options in employee performance measurement system	In Development			Plan to implement	2012	No End Date (Continuous)
Staff awareness/education						
Provide education to staff about the science of climate change	Ongoing/In Progress		Through C3 and POD News Climate Change Education has been transmitted to Staff	On going practice	2009	No End Date (Continuous)
Provide education to staff about the conservation of water, energy, and raw materials	Ongoing/In Progress		Through C3 and POD News Climate Change Education has been transmitted to Staff	On going practice	2010	No End Date (Continuous)
Provide green tips on staff website or in newsletters	Ongoing/In Progress		Through C3 and POD News Climate Change Education has been transmitted to Staff	On going practice	2011	No End Date (Continuous)
Provide sustainability education during new staff orientation	Ongoing/In Progress		Presentation at new Staff orientation	On going practice	2008	No End Date (Continuous)
Other Education, Awareness, and Engagement Actions						
Mental Health Building on C&W campus won LEED silver certification. Publicity/tours were completed.	Completed in 2011		Completed application and registration process. Also created a tour and media materials for the building.	n/a	2008	2011
Other Sustainability Actions						
Waste reduction/diversion						
Put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities	In Development		Program designed and planned. Stakeholder engagement complete.	Implement at all PHSA acute care sites and residences.	2011	2012
Implement a hazardous waste reduction and disposal strategy	In Development		PHSA labs continued with their strategies.	The Environmental Sustainability Team will work with labs to assist in advancing further.	2012	No End Date (Continuous)
Procurement (non-paper supplies)						
Implement sustainable purchasing program for cleaning products, disposable paper products and trash bags	Ongoing/In Progress		Continuation.	Continuation.	2006	No End Date (Continuous)
Building construction, renovation, and leasing						
Establish a policy to reuse materials where possible and divert construction and demolition debris from landfills and incineration facilities	Ongoing/In Progress		Reviewing program.	Monitoring for continued opportunities.	2010	No End Date (Continuous)
Indoor air quality						
Incorporate low volatile organic compounds (VOCs) standards into procurement policy for products such as paints, carpets, and furniture	Ongoing/In Progress		Ongoing.	Ongoing.	2005	No End Date (Continuous)
Commuting to and from home						
Introduce telework/work from home policy	Ongoing/In Progress		Ongoing.	Ongoing.	2008	No End Date (Continuous)
Encourage commuting by foot, bicycle, carpool or public transit	Ongoing/In Progress		Green+Leaders sustainable transportation focus includes a campaign to encourage walking, cycling or public transit for work commute.	Maintainn campaign	2009	No End Date (Continuous)

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Action	Status (as of 12/31/11)	Performance to Date (as of 12/31/11)	Steps Taken in 2011	Steps Planned for 2012 -2014	Start Year	End Year
Provide shower or locker facilities for staff/students who commute by foot or by bicycle	Ongoing/In Progress		PHSA has provided showers in several locations	Plan to increase locations with showers	2009	No End Date (Continuous)
Provide secure bicycle storage	Ongoing/In Progress		PHSA has provided bicycle storage in several locations	Plan to increase locations with storage	2010	No End Date (Continuous)
Modify parking fees or parking availability for staff/students	Ongoing/In Progress		Raised parking rates.	Ongoing.	2010	No End Date (Continuous)
Other Sustainability Actions						
Launched Recycling Renewal Program at C&W and Sunnyhill	Ongoing/In Progress		All steps taken needed for pre-implementation.	Implement 6-stream recycling throughout the sites.	2011	2012

Provincial Health Services Authority Greenhouse Gas Emissions by Source for the 2011 Calendar Year (tCO₂e*)



Total Emissions: 23,395

- Mobile Fuel Combustion (Fleet and other mobile equipment)
- Stationary Fuel Combustion (Building Heating and Generators) and Electricity
- Supplies (Paper)

Offsets Applied to Become Carbon Neutral in 2011 (Generated May 18, 2012 10:57 AM)

Total offsets required: **23,387**. Total offset investment: **\$584,675**. Emissions which do not require offsets: **8** **

*Tonnes of carbon dioxide equivalent (tCO₂e) is a standard unit of measure in which all types of greenhouse gases are expressed based on their global warming potential relative to carbon dioxide.

** Under the *Carbon Neutral Government Regulation of the Greenhouse Gas Reduction Targets Act*, all emissions from the sources listed above must be reported. As outlined in the regulation, some emissions do not require offsets.