

2013 Carbon Neutral Action Report

Vancouver Coastal Health



Executive Summary

Mary Ackenhusen

President and Chief Executive Officer

It is my pleasure to present Vancouver Coastal Health's 2013 Carbon Neutral Action Report (CNAR).

This marks the 4th consecutive year Vancouver Coastal Health (VCH) has been carbon neutral.

Over those four years, VCH has offset a total of 184,950 tonnes of Carbon Dioxide equivalent (tCO₂e). VCH's commitment to reduce its environmental impact doesn't stop at offsets. We strive to lead the province in energy reduction measures: Our health authority completed 17 energy conservation projects, with a savings of 475 tCO₂e and \$431,000, in 2013, and another 15 projects are planned for completion in 2014. These projects will achieve a savings of 876 tCO₂e and \$447,000.

VCH is the only health authority in British Columbia to show innovation in the creation and implementation of the Green Fund. The Green Fund is a revolving fund that reinvests savings achieved through conservation projects back into additional energy reduction measures. In 2012 and 2013 the Green Fund will support the achievement of 7.1 gigawatt hours (GWh) of savings. In addition, the Green Fund, in 2014, will support energy conservation projects, which will save the organization 3.2 GWh.

Lastly, I am proud to state that the new St. Mary's Hospital in Sechelt, seeking a LEED Gold rating, was built to be the Greenest Hospital in Canada. With 19-kilowatt photovoltaic solar panels on the roof, a geo-exchange energy system in the ground nearby, and a combination of green and white roofs, St. Mary's is projected to achieve 40% greater energy savings than other LEED Gold Hospitals.

As 2014 progresses, I will continue to support the innovation and entrepreneurialism, which drives VCH's commitment to reducing our carbon footprint.

Vancouver Coastal Health GHG Emissions and Offsets for 2013 (tCO₂e)

GHG Emissions created in calendar year 2013	
Total Emissions	44,491
Total Emissions for Offsets	44,474
Adjustments to GHG Emissions Reported in Previous	
Total Emissions	681
Total Emissions for Offsets	681
Credit owing from PCT at end of 2012 reporting year	
Credit Owing	0
Total Emissions for Offsets for the 2013 Reporting Year:	45,155

Table 1

45,155 (tCO₂e) is

Vancouver Coastal Health's (VCH) 2013 Carbon Footprint

0%

Change in Usable VCH Facility Space since 2010

-5%

Change in VCH's Carbon Footprint since 2011

-3.5% Change in emissions per meter square of VCH facility space since 2010

Our CO₂ Footprint

2013 GREENHOUSE GAS EMISSIONS BREAKDOWN AND OFFSETS APPLIED TO BECOME CARBON NEUTRAL

Vancouver Coastal Health (VCH) reports the organizational carbon footprint based on guidelines provided by the B.C. Climate Action Secretariat (CAS).

CAS uses various elements of reporting, based on the GHG Protocol Corporate Standard, which has classified carbon reporting into three scopes. Of these three scopes and various elements within each, CAS has determined Vancouver Coastal Health's carbon footprint to comprise of six different greenhouse gases, which are converted to tonnes of carbon dioxide equivalent (tCO₂e). These gases are categorized in three main categories:

1. Stationary Fuel Combustion
2. Mobile Fleet Combustion
3. Supplies (Paper)

Vancouver Coastal Health

VCH's 2013 Carbon adjusted footprint offset was 45,155 tonnes of carbon dioxide equivalent (tCO₂e). That represents a 5% decrease in the carbon footprint offset since 2011. Over 96% of Vancouver Coastal

Health's in-scope emissions are attributed to the building portfolio.

To become carbon neutral in 2013, Vancouver Coastal Health purchased carbon offsets from the Pacific Carbon Trust at a total cost of \$1,185,319.

CHANGES TO FACILITY SQUARE FOOTAGE AND WEATHER ADJUSTMENT

VCH has stabilized its growth over the last four years. VCH's "useable" facility space has hovered around 818,000 sq. meters and the Full-time equivalent staff population has maintained at around 13,600.

The vast majority of Vancouver Coastal Health's carbon footprint is related to the energy consumption from its owned and leased buildings. Natural gas is the predominant fossil fuel used for space heating, hot water and process loads. The carbon emissions associated with our Natural Gas use is approximately 90% of the total building emissions,

The carbon emissions reported are not adjusted for changes in climate temperatures. Adjustment for temperatures would have an effect on the total emission and reduce the emissions per m² of usable floor space in 2013 to level slightly below that of 2010.

Definition and Implications

In accordance with CNGR, the Climate Action Secretariat of British Columbia has outlined the types and sources of emissions that are in scope and which are out of scope.

All Health Authorities are required to report emissions from buildings (direct combustion, indirect purchased electricity, & fugitive emissions from HFC's), fleet, and paper.

In Scope

Six Green House Gases are in scope for measuring & reporting:

Carbon Dioxide - CO₂
Methane - CH₄
Nitrous Oxide - N₂O
Sulphur Hexafluoride - SF₆
Per fluorocarbons - PFCs
Hydro fluorocarbons - HFCs

Out of Scope

All other GHG gases are considered out of scope

BUILDINGS, FTE AND WEATHER	2010	2011	2012	2013
Distinct FHA Buildings	132	143	149	150
% Owned	82%	82%	82%	82%
% Leased	18%	18%	18%	18%
Usable Square Meters	667,654	677,965	686,512	711,701
Full-Time Employee Equivalents	13,626	14,900	13,660	14,539
Weather (summarized in Heating Degree Days)¹	2,617	2,982	2,855	2,823

¹ Building energy consumption is influenced by climate conditions. Vancouver has a climate which predominately requires heating to satisfy internal building temperatures. Heating Degree Days (HDD's) is a measurement designed to reflect the demand for energy needed to heat a building.

Table 2

Actions Taken To Reduce Our CO₂ Footprint

2013 LIST OF ACTIONS TAKEN TO REDUCE CO₂ FOOTPRINT

Stationary Fuel Combustion, Electricity (Buildings)
 VCH completed 17 energy savings projects in 2013 for a total estimated savings of **4.87 GWh of electricity, 6,901 GJ of natural gas, and a reduction of 475 tCO₂e of GHG.**

The greatest emissions reduction was from a Continuous Optimization (COP) energy reduction initiative at VGH. This project saved a total of 1.9 million kWh of electricity, 3,790 GJ of natural gas,

Our Carbon Footprint (in tCO₂e)		2010	2011²	2012²	2013
CO₂	Mobile Fuel Combustion (Fleet & other mobile equipment)	126	139	96	126
	Stationary Fuel Combustion & Electricity (Buildings)	36,233	40,501	40,190	38,626
	Supplies (Paper)	1,056	1,081	1,065	1,320
	Emissions Which Do Not Require Offsets ¹	0	-11	-11	-17
	Total Carbon Footprint (tCO₂e)	37,424	41,721	41,351	40,055
	Adjustments / Corrections To Previous Year's Data	0	0	0	-301
Carbon Footprint (needing offsetting) in tCO₂e		37,424	41,710	41,340	39,754
\$	Purchased Carbon Offsets ²	\$ 933,720	\$ 980,975	\$ 1,052,650	\$ 993,850
	Purchased Carbon Offsets +HST / GST	\$ 1,045,947	\$ 1,098,692	\$ 1,105,283	\$ 1,043,543
KPI	Emissions per Full-Time Employee	2.75	2.80	3.03	2.76
	Emissions per Meter Square Facility Space	0.056	0.062	0.060	0.056

¹ Biomass Emissions that do not require offset.

² Carbon Footprint adjusted in 2010, 2011 and 2012 and correction applied in 2013.

Table 3

and a reduction of 242 tCO₂e of GHG.

This initiative is still in progress and will be completed in June, 2014 with a final **estimated savings of 2.3 million kWh of electricity, 5,729 GJ of natural gas and a reduction of 349 tCO₂e of GHG.**

In addition, VCH completed 9 lighting retrofits in 2013 at 9 different facilities. This will result in a **total savings of 1.753 million kWh hours of electricity and estimated savings/reductions of 46.1 tCO₂e of GHG.**

Mobile Fleet Combustion (Fleet and other vehicles)

VCH supported the hiring of a Transportation Demand Management Coordinator to improve, promote and establish alternative transportation opportunities.

VCH installed 4 electric vehicle charging stations across 2 core sites.

Supplies (Paper)

The Green + Leaders (G+L) behaviour change program recruited 19 new VCH volunteers in the fall of 2013. This program now has nearly 300 health care volunteers across the lower mainland.

As part of the G+L paper/waste reduction campaign volunteers were supplied with

Paperless Meeting Toolkits to encourage their colleagues to reduce paper use.

VCH continues to support the GreenCare Community (GCC) site, which provides tips and toolkits on using less paper, such as promoting paperless meetings.

Actions That Fall Outside the Scope of the Carbon Neutral Government Regulations

- Encouraged teleconferencing for meetings by installing web-conferencing hardware / software at various sites
- Encouraged the use of the internally organized Jack Bell shuttle when traveling between various sites.
- Education and Awareness Communication / stories published in various internal communication channels / newsletters
- Supported green teams by implementing a Green+Leaders program to support individual staff members, who join the program, with resources and training.
- Provided resources and a dedicated staff to support the Green+Leaders program and various green teams
- Maintained a sustainability / green recognition program for the Green+Leaders
- Support green professional development through workshops and educational sessions sponsored by BC Hydro

FUTURE WORK TO REDUCE THE ORGANIZATION'S CO₂ FOOTPRINT

In **2014** VCH plans to continue reducing GHG emissions and Energy use by:

- 24 energy projects in-progress and/or approved for a total GHG reductions of 2,396 tCO₂e.

Planned for **2015**:

- 15 energy projects will be implemented for an estimated GHG reductions of 876 tCO₂e

Planned for **2016**:

- 12 projects to be implemented for an estimated reductions and 1,372 tCO₂e of GHG.

Of the above projects, over 60% of them projects are targeted towards boilers and building control systems.

SUCCESS STORY

St Mary's Hospital expansion project was completed in early 2013 and was occupied in March 2013. The new 60,000 square foot, 44-bed facility in Sechelt is a three storey building and the first LEED Gold certified building for VCH.

It has been praised as the greenest hospital in Canada and a state-of-the-art building,

which celebrates a connection to nature that promotes health and healing.

Energy Management

John Manougian, Energy Manager for Vancouver Coastal Health, states that the St Mary's Hospital new extension building went through BC Hydro's New Construction Program (Energy Modelling). "We implemented energy savings and "green" measures, which are projected at annual savings of 360,501 kWh in electricity, 193 GJ in natural gas and GHG emissions reductions of 19 tCO₂e (19,000 kg). The electricity savings alone equate to the annual electrical needs of about 36 households (according to the BC Hydro average)", explains Manougian. "The cost savings are estimated at \$34,000 annually and will be increasing as BC Hydro rates go up."

Energy saving features

Energy saving features include radiant heat piping in the ground slab that can either heat, or remove excess heating and cool the building in the summer months. The main heating system uses heat pumps connected to the geothermal field. The double envelope construction system exploits the thermal properties of air to enhance the energy performance of the building.

St Mary's is using 26.7% less energy annually.

Based on the energy data collected to

date, it is estimated that the new addition will consume much less (26.7%) energy annually than a typical health care facility in British Columbia, according to Natural Resources Canada (NRCAN) Office of Energy Efficiency (2012 report).

Looking forward, compared with our main VCH hospitals and facilities, St Mary's Hospital expansion project demonstrates great saving potential of 44.5% less energy than the average VCH Acute Care facilities, and 25.6% less energy when compared with our 7 VCH Residential Care facilities, and 42.8% from VCH total combined 16 Core Acute and Residential Care facilities.

As well, the 78 solar panels installed on the roof of St Mary's by Terratek Energy Solutions are estimated to save 21,450 kWh of energy annually, which equates to the annual energy use of 2 average households. The installation of the solar panels is an extra source of power for the hospital, and even on cloudy days the solar modules have the capacity to turn light into electricity to offset consumption.

Energy modelling, the integration of the solar system, as well as a focus on passive strategies like providing occupants access to natural daylight and ventilation, all work together to achieve a push-the-envelope hospital that VCH can be proud of.



2013 Carbon Neutral Action Report (CNAR) - Part 2 ACTIONS

Created Thursday, May 29, 2014

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<https://fluidsurveys.com/surveys/cas-z/2013-cnar-form-bps-actions/84d0aace7322f37a43ebbfdc67d57974/>

Page 1

Please complete the following sections of the 2013 Carbon Neutral Action Report form. Save your work frequently to prevent it from being lost. You can also save a copy for your own use as either a WORD or PDF file using the buttons at the bottom of each page.

This is Part 2 of the Carbon Neutral Action Report form. This section reports on actions taken to reduce emissions during the 2013 calendar year. This information will be included in your final Carbon Neutral Action Report posted on the Ministry of Environment website.

When the form is complete press the submit button on the last page to automatically submit the information to the Climate Action Secretariat (CAS). Do not press submit before you are ready – this may result in a loss of work.

In addition to completing this survey (Part 1 2), you are required to submit your completed Overview (Executive Summary) and Self-Certification Checklist. The 2013 Overview template was included in the email sent and can also be found on the LiveSmart leaders Community.

Please ensure you meet the following reporting deadlines:

A DRAFT 2013 CNAR is due to CAS by March 31, 2014. The draft is comprised of the Overview ONLY (no executive sign-off required).

The FINAL 2013 CNAR is due to CAS by May 30, 2014. The final 2013 CNAR includes Part 1 Part 2 survey form and Overview.

The Self-Certification Checklist is due to CAS by May 15, 2014.

For more information about the Carbon Neutral Government process, please refer to *Becoming Carbon Neutral 2013*, or should you have any questions please contact climateactionsecretariat@gov.bc.ca.

Organization Name

Vancouver Coastal Health

Actions Taken to Reduce Emissions

1) Stationary Fuel Combustion, Electricity (Buildings):

Indicate which actions were taken in 2013:

Performed energy retrofits on existing buildings

Yes

Built or are building new LEED Gold or other "Green" buildings.

Yes

Undertook an evaluation of overall building energy use.

Yes

Please list any other actions taken to reduce emissions from Buildings:

- 1. We are working closely with our Strategic Planning and Capital Project teams as well our Facilities Maintenance and Operations (FM&O) staff to advise on energy management issues and provide guidelines and lighting standards to maximize energy utilities savings and GHG reductions for new builds as well facilities renovations*
- 2. Continue to promote energy conservaion and GHG emissions reductions through awareness and behaviour change programs such as Green+Leaders, GreenCare community and the BC hydro Conservation Agreement program*

2) Mobile Fleet Combustion (Fleet and other vehicles):

Indicate which actions were taken in 2013:

Do you have a fleet?

Yes

Replaced existing vehicles with more fuel efficent vehicles (gas/diesel)

No

Replaced existing vehicles with hybrid or electric vehicles

No

Reduced the overall number of fleet vehicles

No

Took steps to drive less than last year

Yes

Please list any other actions taken to reduce emission from fleet:

No further actions taken

3) Supplies (Paper):

Indicate which actions were taken in 2013:

Used less paper than previous year

Yes

Used only 100% recycled paper

No

Used some recycled paper

Yes

Used alternate source paper (Bamboo, hemp, etc.)

No

Please list any other actions taken to reduce emissions from paper use:

The Green + Leaders (G+L) behaviour change program had 35 volunteers as of December 30, 2013, with 12 joining in January, 2013 and another 6 in September, 2013. As part of the paper/waste reduction campaign, the volunteers were supplied with Paperless Meeting Toolkits to encourage their colleagues to reduce paper user

Our online Community (GCC) site includes content and provides tips on using less paper, such as promoting paperless meetings

Actions Taken to Reduce Emissions - continued

Explain how you plan to continue minimizing emissions in 2014 and future years:

VCH plans to continue to reduce energy utilities and GHG emissions reduction by:

- 1. Implementing 15 energy projects in 2014 (assumes availability of funding for 4 lighting retrofits and 4 mechanical projects) for energy savings and 918 tCO₂e of GHG reductions*
- 2. Implementing 16 planned energy projects in 2015 (assumes availability of funding) for energy utility savings and GHG reductions of 1,281 tCO₂e per annum.*
- 3. Working with our internal strategic planners and capital project managers to implement energy conservation measures in their projects.*
- 4. Engaging and working with our internal staff through our existing Green + Leaders program (G+L), GreenCare Community (GCC), and the BC Hydro Workplace Conservation Agreement (WCA)*
- 5. Working with external key stakeholders, consultants and our partners BC Hydro and FortisBC to identify energy reduction targets as well as financial incentive opportunities to support our continued energy and GHG reduction targets and opportunities.*
- 6. Investigating renewable and clean cost effective energy solutions*
- 7. Exploring clean energy opportunities*
- 8. Building partnership with our P3 partners to help them to identify and implement energy conservation opportunities.*
- 9. Building partnerships with Cities and Municipalities to investigate District Energy Systems opportunities with alternative energy solutions.*

If you wish to list any other "sustainability actions" outside of buildings, fleet, paper and travel check "yes". This reporting is optional.

Yes

Actions to Promote Sustainability and Conservation - Optional

The following are actions that fall outside the scope of the *Carbon Neutral Government Regulation*, but which many organizations still undertake and may wish to report on. This section is optional for reporting.

Business Travel

Created a low-carbon travel policy or travel reduction goal (Low-carbon: Lowest emission of greenhouse gases per kilometre per passenger)

No

Virtual Meeting Technology

Installed web-conferencing software (e.g., Live Meeting, Elluminate, etc.)

Yes

Made desktop web-cameras available to staff

Yes

Encourage alternative travel to meetings (e.g., bicycles, public transit, walking)

Yes

Encourage carpooling to meetings

Yes

Education and Awareness

Have created Green, Sustainability, Energy Conservation, or Climate Action Teams.

Yes

Provided resources and/or dedicated staff to support these teams

Yes

Provided behaviour change education/training for these teams (e.g., community-based social marketing)

Yes

Established a sustainability/green awards or recognition program

Yes

Support green professional development (e.g., workshops, conferences, training)

Yes

Planning for Climate Change

Have assessed whether extreme weather events and/or long term changes in climate will affect our organization's business areas

No

Long term changes in climate have been incorporated into our organization's decision making.

No

Actions to Promote Sustainability and Conservation - Optional (continued)

Staff Awareness and Education

Provided education to staff about the science of climate change

Yes

Provided education to staff about the conservation of water, energy, and raw materials

Yes

Provided green tips on staff website or in newsletters

Yes

Alternate Work/Commuting Options

Allow for telework/working from home

No

Staff have the option of a compressed work week

No

Commuting by foot, bicycle, carpool or public transit is encouraged

Yes

Shower or locker facilities are provided for staff/students who commute by foot or by bicycle

Yes

Secure bicycle storage is provided

Yes

Other Sustainability Actions

Establish a water conservation strategy which includes a plan or policy for replacing water fixtures with efficient models

No

Put in place a potable water management strategy to reduce potable water demand of building-level uses such as cooling tower equipment, toilet fixtures, etc. and landscape features

No

Have put in place an operations policy to facilitate the reduction and diversion of building occupant waste from landfills or incineration facilities

Yes

Have implemented a hazardous waste reduction and disposal strategy (Hazardous Waste: E.g., electronics including computer parts and monitors, batteries, paints, fluorescent bulbs)

No

Have incorporated minimum recycled content standards into procurement policy for consumable, non-paper supplies (e.g., writing instruments, binders, toner cartridges, etc.)

No

Established green standards for goods that are replaced infrequently and/or may require capital funds to purchase (e.g., office furniture, carpeting, etc.)

No

Incorporated lifecycle costing into new construction or renovations

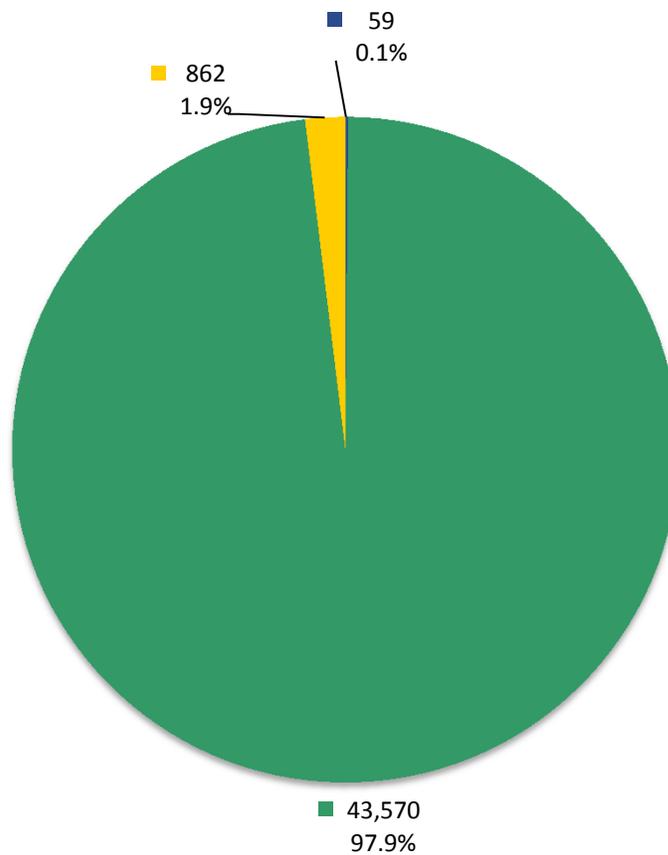
No

Please list and other sustainability actions you wish to report not included in the previous list.

Other sustainability actions include:

- 1. Completion of an Environmental Accountability Report, including goals and targets for 10 strategic focus areas.*
- 2. Employment of a dedicated Transport Demand Coordinator.*
- 3. Installation of 4 electric vehicle charging stations across the region*
- 4. Continuation of roll out of the Recycling Program across the region*

Vancouver Coastal Health Authority Greenhouse Gas Emissions by Source for the 2013 Calendar Year (tCO₂e*)



Total Emissions: 44,491

- 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 2013 (Generated May 26, 2014 10:29 AM)

Total offsets required: **44,474**. Total offset investment: **\$1,111,850**. Emissions which do not require offsets: **17** **

*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.