

2014 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 2014 Carbon Neutral Action Report (CNAR).

This marks the 5<sup>th</sup> consecutive year Vancouver Coastal Health (VCH) has been carbon neutral.

Over those five years (2010-2014), VCH has offset a total of 229,283 tonnes of Carbon Dioxide equivalent (tCO<sub>2</sub>e). 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 12 energy conservation projects in 2014, with a savings of 343 tCO<sub>2</sub>e and \$162,000. Another 29 projects are planned for completion in 2015. These projects will achieve a savings of 1,464 tCO<sub>2</sub>e and \$660,000.

VCH was the first 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. From 2012 to 2014 the Green Fund achieved a total of 9.2 gigawatt hours (GWh) of savings. The Green Fund in fiscal 2014/2015 implemented energy conservation projects, which reduced 2.4 GWh of electricity.

Lastly, I am proud to state that the new HOpe Centre, which is a 14,000 sq. meters four-storey mental health and addictions facility located on the southeast corner of the Lions Gate Hospital campus in North Vancouver, is seeking LEED Gold certification.

As 2015 progresses, I will continue to support the innovation and entrepreneurialism, which drives VCH's commitment to create sustainable health care.



**24%**  
decrease in tonnes CO<sub>2</sub>/m<sup>2</sup> of facility space at VCH since 2007



**43,600**  
(tCO<sub>2</sub>e) is VCH adjusted 2014 Carbon Footprint.



**14.3%**  
decrease in tonnes CO<sub>2</sub> / staff FTE at VCH from 2007.

**12.7%**  
increase in VCH's facility space since 2007.



# Our CO<sub>2</sub> Footprint

## 2014 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 Carbon Neutral Government Regulation (CNGR) and 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 (tCO<sub>2</sub>e). These gases are categorized in three main categories:

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

### Vancouver Coastal Health

VCH's 2014 Carbon footprint offset was 43,600 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e). That represents a 13.7% decrease in VCH's carbon footprint since 2007.

Over 98% of Vancouver Coastal Health's in-scope emissions are attributed to the building portfolio.

To become carbon neutral in 2014, Vancouver Coastal Health purchased carbon offsets at a total cost of \$1,142,791.

The Climate Action Secretariat of British Columbia had determined which GHGs are in scope and which ones are out of scope.

In Scope	Out of Scope
<ul style="list-style-type: none"><li>• Six Green House Gases (GHG) are in scope for measuring and reporting:<ul style="list-style-type: none"><li>• Carbon Dioxide - CO<sub>2</sub>,</li><li>• Methane - CH<sub>4</sub>,</li><li>• Nitrous Oxide - N<sub>2</sub>O,</li><li>• Sulphur Hexafluoride - SF<sub>6</sub>,</li><li>• Per fluorocarbons - PFCs,</li><li>• Hydro fluorocarbons - HFCs</li></ul></li></ul>	<ul style="list-style-type: none"><li>• All other GHG gases are considered out of scope.</li></ul>

## CHANGES TO FACILITY SQUARE FOOTAGE AND WEATHER INFLUENCE

VCH has increased its "useable" facility space growth since 2007 by 79,657 sq. meters (12.7%). VCH's Full-time equivalent staff population has averaged at around 11,817 over the past 8 years (2007-2014).

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 93.5% of the total building emissions.

The carbon emissions reported are not adjusted for changes in climate temperatures. If the adjustment for weather temperature were made, the emissions per m<sup>2</sup> would be around 18% less than 2007.

# Actions Taken To Reduce Our CO<sub>2</sub> Footprint

## 2014 LIST OF ACTIONS TAKEN TO REDUCE CO<sub>2</sub> FOOTPRINT

### Stationary Fuel Combustion, Electricity (Buildings)

VCH completed **12 energy savings projects** in 2014 for a total estimated savings of **2.16 GWh of electricity, 5,680 GJ of natural gas, and a reduction of 343 tCO<sub>2</sub>e of GHG.**

An additional 29 energy projects will begin implementation in 2015 at a number of VCH facilities. When completed, these projects will result in a total estimated savings of 4.0 GWh of electricity, 27,008 GJ of Natural Gas and a reduction of 1,464 tCO<sub>2</sub>e of GHG. The GHG savings represent emissions reduction of 3.68% from the 2014 Carbon Offsets totals at VCH.

### 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. This individual is now complimented with the full time support of a VGH Commuter Centre manager.

VCH opened a Cycle Centre at Vancouver General Hospital (VGH) in 2014. The VGH Cycling Centre provided access to a state-of-the-art end-of-trip facility, with more than 170 indoor bicycle parking spots, including 12 electric bicycle spots, lockers, showers, towel service, a lounge and a bike repair room for maintenance and tune-ups.

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

VCH (includes Bella Coola and RW Large)							
	Our Carbon Footprint (in tCO <sub>2</sub> e)	2007	2010 <sup>3</sup>	2011 <sup>3</sup>	2012	2013 <sup>3</sup>	2014
CO <sub>2</sub>	Mobile Fuel Combustion (Fleet & other mobile equipme	104	107	49	89	59.48	57.48
	Stationary Fuel Combustion & Electricity (Buildings)	49,048	45,366	46,432	45,447	43,880	42,768
	Supplies (Paper)	1,402	1,402	1,435	636	871	797
	Total Carbon Footprint (tCO <sub>2</sub> e)	<b>50,554</b>	<b>46,875</b>	<b>47,916</b>	<b>46,172</b>	<b>44,811</b>	<b>43,623</b>
	Emissions Which Do Not Require Offsets <sup>1, 2</sup>	-19	-20	-22	-25	-25	-23
	Total Carbon Footprint (tCO <sub>2</sub> e)	50,535	46,855	47,894	46,147	44,786	43,600
	Adjustments / Corrections	0	-9	-12	0	-7	0
	<b>Total Carbon Footprint - for offsetting (tCO<sub>2</sub>e)</b>	<b>50,535</b>	<b>46,846</b>	<b>47,882</b>	<b>46,147</b>	<b>44,779</b>	<b>43,600</b>
\$	Purchased Carbon Offsets	\$ -	\$1,137,180	\$1,148,380	\$1,101,154	\$1,066,423	\$1,089,325
	<b>Purchased Carbon Offsets +HST / GST</b>	<b>\$ -</b>	<b>\$1,194,038</b>	<b>\$1,205,799</b>	<b>\$1,156,212</b>	<b>\$1,119,744</b>	<b>\$1,143,791</b>
KPI	Emissions per Full-Time Employee	4.31	4.02	4.02	3.88	3.80	3.69
	Emissions per Meter Square Facility Space	0.081	0.070	0.071	0.067	0.065	0.062

<sup>1</sup> It was estimated that Fugitive Emissions from cooling equipment do not comprise more than 0.01% of VCH'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.

<sup>2</sup> As outlined in the Carbon Neutral Government Regulation of the Greenhouse Gas Reductions Target Act, some emissions do not require offsets.

<sup>3</sup> Carbon Footprint adjusted for 2010, 2011 and 2013 due to building data corrections from the Climate Action Secretariat.

## Supplies (Paper)

The Green+Leaders (G+L) behaviour change program recruited 12 new VCH volunteers in the fall of 2014. This program now has 56 staff volunteers across VCH.

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. In 2014 VCH had 1,451 staff registered on the site.

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

- 126 VCH staff participated in the 2014 Clean Commuter Challenge, which is a campaign to get staff out of their single occupancy vehicle commuting.
- 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. In 2014, 45,100 health care staff were shuttled from VCH 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.

## VCH (includes Bella Coola and RW Large)

<b>BUILDINGS, FTE AND WEATHER</b>	<b>2007</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
<b>Distinct VCH Health Buildings</b>	n/a	270	255	230	231	230
<b>% Owned</b>	n/a	81%	81%	81%	81%	81%
<b>% Leased</b>	n/a	19%	19%	19%	19%	19%
<b>Usable Square Meters</b>	626,469	670,526	673,660	687,068	688,296	706,126
<b>Full-Time Employee Equivalents</b>	11,738	11,657	11,911	11,907	11,795	11,816
<b>Weather (summarized in Heating Degree Days) <sup>1</sup></b>	2,870	2,621	2,963	2,859	2,820	2,627

<sup>1</sup> Building energy consumption is influenced by climate conditions. Vancouver has a climate which predominantly 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.

- 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 CO<sub>2</sub> FOOTPRINT

In **2015** VCH plans to continue reducing GHG emissions and Energy use through:

- 29 energy conservation projects, which are in-progress and/or approved for a total GHG reductions of 1,464 tCO<sub>2</sub>e.

Planned for **2016**:

- 21 energy projects will be implemented for an estimated GHG reductions of 317 tCO<sub>2</sub>e



## SUCCESS STORY

In 2014 VCH completed construction on a new 14,000 sq. meters \$62.2-million acute mental health facility, the Greta & Robert H.N. Ho Centre for Psychiatry and Education (HOpe Centre) at Lions Gate Hospital.

The HOpe Centre was built seeking a LEED Gold certification.

The facility, for Mental Health & Addictions (MH&A) patients, will not only provide an environment with more natural daylight and better air circulation; it will do so using less energy than a typical building.

### Energy saving features

The HOpe Centre will be powered by the North Vancouver's Lonsdale Energy Corporation (LEC). The LEC is an energy provider that uses renewable sources such as solar and geothermal in the various energy portfolios.

The LEC, a project of the City of North Vancouver, has developed a system of underground piping and mini-plants to circulate and distribute hot water in order to heat the residential and commercial buildings in the region. This type of networked system is termed as district energy.

In addition to using alternative energy sources, using the LEC energy reduces the need for creating facility space to establish on-site energy generation. Without this need, and being tied to the Lions Gate Hospital back-up energy system, the HOpe Centre is able to make greater use of the facility space to create more patient care areas.

The HOpe Centre participated in BC Hydro's New Construction Program (Energy Modeling) to achieve maximize energy conservation. Eight (8) Energy Efficient Measures will generate an expected annual electricity savings of 1,130,735 kWh per annum when compared to ASHRAE 90.1 (2004) baseline model.



Figure 1: HOpe Center, North Vancouver

The energy conservation efforts at the HOpe Centre do not end with district energy.

Larger windows for greater use of daylight and a careful choice of materials used for construction will also lead to a more efficient energy usage.

For example, the wood-style siding on the side of the facility, will act as a significant insulator as it helps to maintain and regulate temperatures in the patient rooms.

Specially designed Louvered shades, which are seen on the side of the facility, reduces heat transfer from the sun but will not reduce the positive effects of natural light as well. ■

# 2014 Carbon Neutral Action Report (CNAR)

## - Part 2 ACTIONS

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### Organization Name

Vancouver Coastal Health

### Actions Taken to Reduce Emissions

#### 1) Stationary Fuel Combustion, Electricity (Buildings): Indicate which actions were taken in 2014:

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. Participated in New Construction, Major and Minor Renovations projects to ensure that energy savings in mechanical and lighting retrofits are implemented and optimized.
2. Design Guidelines to maximize energy savings are provided for all new Construction and Major Renovations projects at VCH. These include mechanical as well as lighting standards
3. Energy Management staff provide support and provide guidance to facility maintenance and project management staff to implement energy efficient retrofits
4. Continue to promote energy conservation and GHG emissions reductions through awareness and behaviour change programs such as Green+Leaders, GreenCare Community (GCC) website, and

the

BC Hydro Workplace Conservation Agreement program (WCA).

**2) Mobile Fleet Combustion (Fleet and other vehicles):Indicate which actions were taken in 2014:**

Do you have a fleet?

Yes

Replaced existing vehicles with more fuel efficient 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:

N/A

**3) Supplies (Paper):Indicate which actions were taken in 2014:**

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:

As part of the paper/waste reduction campaign, the Green+Leaders volunteers are supplied with paper reduction toolkits to encourage staff to reduce paper use. Paper reduction toolkits are also available to staff at [www.bcgreencare.ca](http://www.bcgreencare.ca)

Our online GreenCare Community (GCC) site also provides tips on using less paper and promotes paperless meetings

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## Actions Taken to Reduce Emissions - continued

Explain how you plan to continue minimizing emissions in 2015 and future years:

VCH will continue to reduce energy consumptions and GHG emissions by:

1. Implementing GHG/Energy reductions retrofit projects in our facilities within our available resources  
by utilizing the Carbon Neutral Program Funding (CNCP) , through the BC Hydro Green Revolving Funds (GRF) and other 3rd party funding.
2. Engaging our site Maintenance and Operations (FMO) staff, external consultants and service providers to identify energy savings and GHG reductions opportunities.
3. Working with and providing guidelines and support to Planners, Capital Project Managers and



facilities Maintenance and Operations managers and staff to ensure that energy savings are optimized in all planned and implemented projects, renovations, and equipment retrofits.

4. Engaging and educating staff through the Green+Leaders program, GreenCare Community and the

BC Hydro Workplace Conservation Agreement (WCA).

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

Yes

#### Page 4

**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)

Yes

**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

Yes

**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**

Yes

**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**

Yes

**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)**

Yes

**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

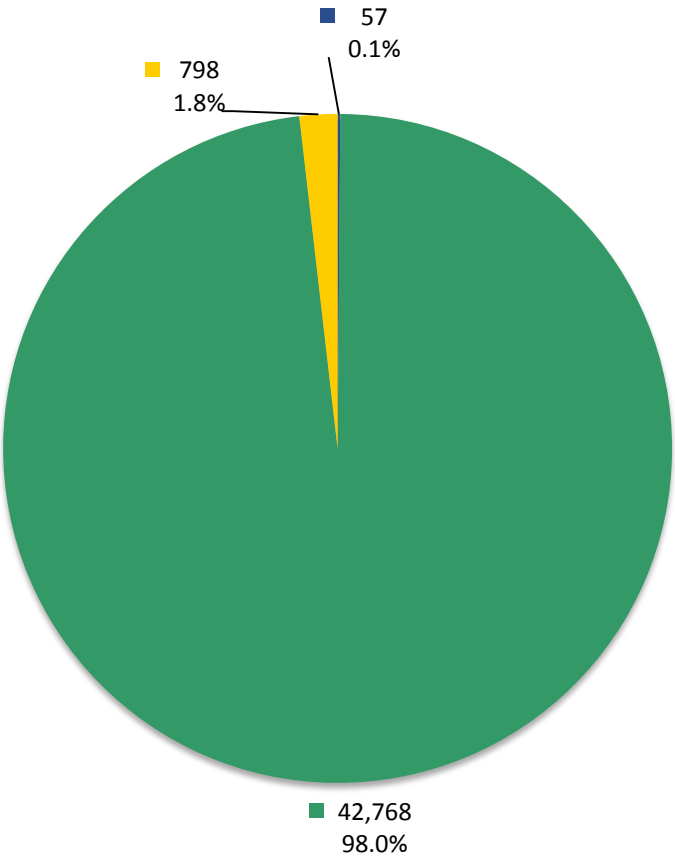
**Incorporated lifecycle costing into new construction or renovations**

Yes

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

1. Annual update of our Environmental Accountability Report, including goals and targets for 10 strategic focus areas.
2. The continued success of the Recycling Program across our region.
3. The continued effort to reduce single occupancy vehicle commuting through the Clean Commuter challenge.
4. Increase in secure bicycle storage areas.
5. Installation of electrical car charging stations.

**Vancouver Coastal Health Authority  
Greenhouse Gas Emissions by Source  
for the 2014 Calendar Year (tCO<sub>2</sub>e\*)**



**Total Emissions: 43,623**

- 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 2014 (Generated June 25, 2015 9:27 AM)**

Total offsets required: **43,600**. Total offset investment: **\$1,090,000**. Emissions which do not require offsets: **23** \*\*

\*Tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) 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.