

Vancouver Coastal Health Authority's 2017 Carbon Neutral Action Report



Declaration Statement

This Carbon Neutral Action Report for the period January 1st, 2017 to December 31st, 2017 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2017 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2018 and beyond.

In 2010 Vancouver Coastal Health, Fraser Health, Providence Health Care and Provincial Health Services Authority consolidated their efforts towards environmental sustainability to create the GreenCare Community. By June 30, 2018 Vancouver Coastal Health's final Carbon Neutral Action Report will be posted to the GreenCare Community website at bcgreencare.ca

The cover photo is of the exterior of the Joseph and Rosalie Segal & Family Health Centre (VGH).

Executive Summary

Vancouver Coastal Health Carbon Neutral Action Report 2017

Mary Ackenhusen, President and Chief Executive Officer



I am pleased to present Vancouver Coastal Health (VCH)'s 2017 Carbon Neutral Action report.

As part of the provincial public sector commitment to achieve net-zero emissions, Vancouver Coastal Health (VCH) has achieved carbon neutrality for the eighth consecutive year.

In 2017, VCH's carbon dioxide equivalent (tCO₂e) emissions footprint was 44,141 tonnes which equates to an 11.8 percent decrease from the 2007 baseline.

In an effort to continue to pursue an effective response to climate change and limit our emissions, 13 energy saving projects and 17 energy and emission related studies were initiated this past year. These projects are estimated to reduce electricity consumption by 2.1 gigawatt hours and natural gas by 18,275 gigajoules. This will directly reduce our carbon footprint by 930 tCO₂e.

VCH purchased carbon offsets from the Ministry of Environment at a total cost of \$1,157,888 to maintain carbon neutral status.

I am proud to state that I, along with over 1,766 other Vancouver Coastal Health staff, have joined our internal GreenCare Community in pursuit of reducing our operational energy and environmental impact. Reducing our impact will ultimately add to the health of our clients, staff, facilities, and benefit the wellbeing of the extended communities we serve.

As 2018 progresses, I will continue to support our innovative and collaborative approach towards reducing VCH's environmental and carbon footprint which drives our commitment to create sustainable health care.

A handwritten signature in blue ink, appearing to read 'Mary Ackenhusen', written in a cursive style.

Mary Ackenhusen, President and Chief Executive Officer



Our CO₂ Footprint

2017 GREENHOUSE GAS EMISSIONS BREAKDOWN AND OFFSETS APPLIED TO BECOME CARBON NEUTRAL

Vancouver Coastal Health reports its 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 (tCO₂e). These main sources of emissions are categorized in three main groupings: Stationary Combustion and Purchased Energy (buildings), Mobile Combustion (Fleet), and Supply (Paper).

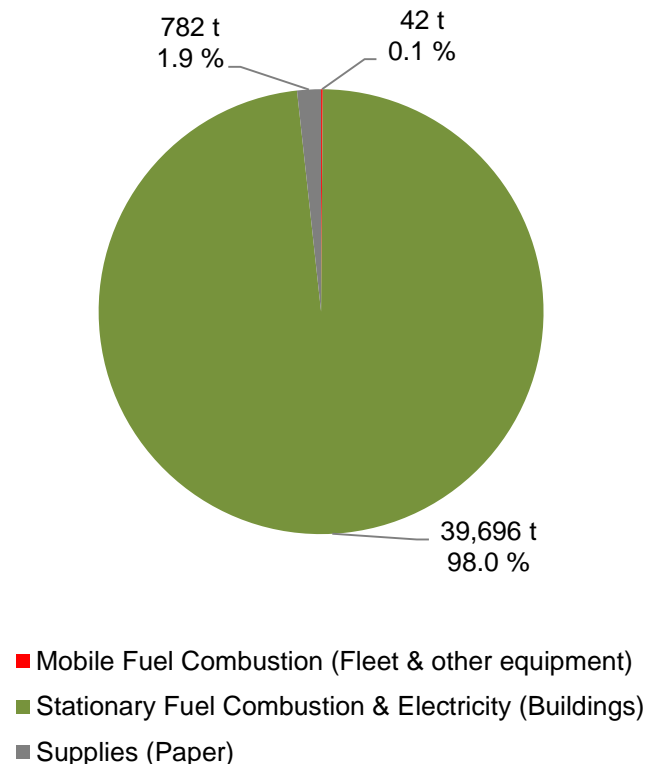
As shown in the chart on the right, 98 percent of Vancouver Coastal Health's in-scope emissions are attributed to the owned and leased buildings stationary combustion, and purchased energy; the largest area to focus our mitigation efforts.

Vancouver Coastal Health's 2017 carbon emissions were 44,141 tCO₂e. To become carbon neutral in 2017, Vancouver Coastal Health purchased carbon offsets from the Ministry of Environment at a total cost \$1,157,888.

“The environmental impact from healthcare facilities, operations, and services affects the health of the populations and patients they are meant to serve.”

- Adapted from World Health Organisation & Healthcare without Harm

2017 VCH Emission by Source



CHANGES TO VANCOUVER COASTAL HEALTH'S PORTFOLIO

Vancouver Coastal Health has been able to maintain significant energy and GHG reductions while increasing our portfolio and expanding our services to serve our growing regional population. This success has largely been due to the energy retrofit and conservation programs in our existing buildings and the integration of high energy efficiency guidelines standards in the new buildings.

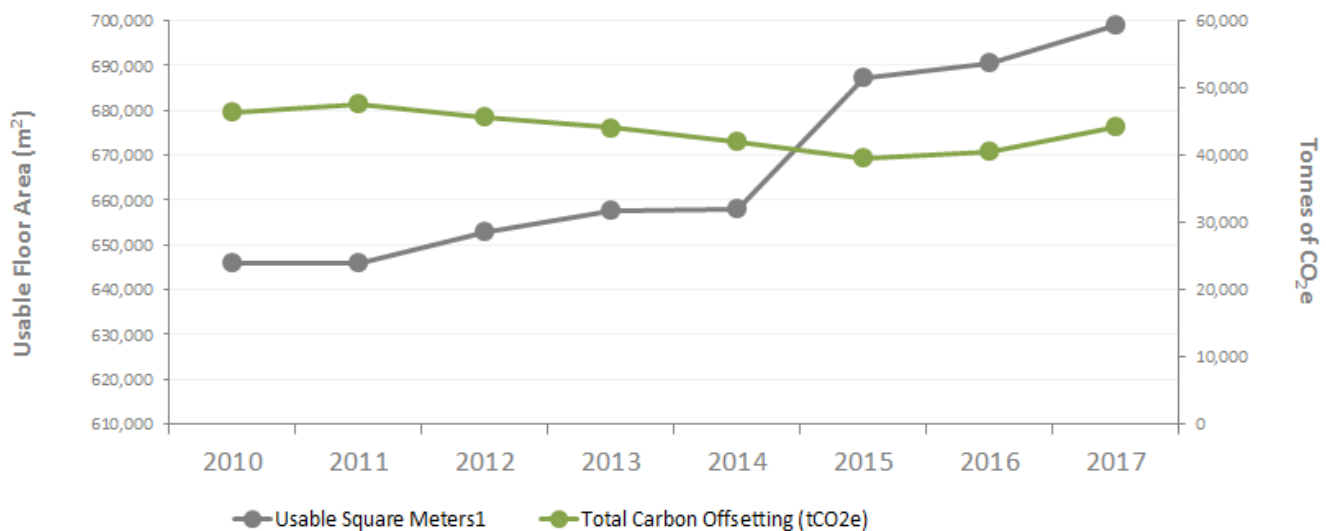
VCH (includes Bella Coola and RW Large)

BUILDINGS, FTE AND WEATHER	2007	2014	2015	2016	2017
Distinct VCH Health Buildings	n/a	163	165	165	171
% Owned	84%	85%	88%	88%	88%
% Leased	16%	15%	12%	12%	12%
Usable Square Meters ¹	602,766	657,905	687,180	690,374	698,979
Full-Time Employee Equivalents ²	12,738	14,343	14,355	14,568	14,810
Weather (Heating Degree Days) ³	2,870	2,627	2,490	2,537	2,922

Vancouver Coastal Health had a staff population of 14,810 full-time equivalent (FTE) staff in 2017, a 1.7 percent increase from the previous year as shown in the table below. The FTE count has been growing steadily since 2012 and compared to 2007 there has been an FTE increase of 16.3 percent.

Vancouver Coastal Health has increased its useable facility area growth since 2007 by 16 percent; a growth of 8.2 percent has occurred since 2010 and this trend is presented in the following graph.

Useable Floor Area and Emissions (2010-2017)



¹ Usable area excludes roof tops, interstitial spaces, and parking areas.

² Full-Time Employee data was provided by the Ministry of Health and includes all designated groups reported in HSCIS (i.e., Physicians (doctors on staff), Executive/Excluded, Non-Union, and Bargaining Unit Employees (Community, Facilities, Health Science Professionals, Nurses, Residents)).

³ Building energy consumption is influenced by climate conditions. Vancouver has a climate which predominantly requires heating to satisfy internal building temperatures. Heating Degree Days (HDDs) is a measurement designed to reflect the demand for energy needed to heat a building.

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 93.8 percent of the total building emissions. Although our priority actions are focused on our natural gas combustion plant, there are many drivers to continue reducing purchased energy (electricity) and other in-scope emission sources.

There has been an 11.8 percent decrease in the carbon footprint since 2007, as shown in the table below. It should be noted that with absolute emissions there is no consideration to weather impacts or other external drivers that impact emissions. Depending on these independent variables the year-over-year change in emissions may not fully reflect the mitigation efforts, emission avoidance projects and initiatives, across the portfolio.

VCH (including Bella Coola and RW Large)					
Our Carbon Footprint (in tCO₂e)	2007	2014	2015	2016	2017
Mobile Fuel Combustion (Fleet)	104	58	48	42	42
Stationary Fuel Combustion & Electricity (Buildings)	48,536	41,955	38,619	39,666	43,356
Supplies (Paper)	1,402	797	824	782	762
Total Carbon Footprint (tCO₂e)	50,042	42,810	39,491	40,489	44,160
Emissions Which Do Not Require Offsets^{4,5}	-19	-23	-21	-24	-19
Total Carbon Offsetting (tCO₂e)	50,023	42,787	39,470	40,465	44,141

Total emissions from previous years are subject to minor adjustments / corrections following annual reviews.

The carbon emissions reported are not normalized annual weather fluctuations. The use of Heating Degree Days (HDD) is a metric designed to reflect the demand for energy required to heat a building. The HDDs for 2017 were 15.2 percent greater than those recorded in 2016, therefore, natural gas and resultant emissions were in part influenced due to HDD. Heating Degree Days are the number of degrees that a day's average temperature is below the baseline temperature set by the organization.

For example, Vancouver Coastal Health currently uses 15° as its baseline temperature. If one day's temperature was 12°, this would equate to three heating degree days, because it is 3° below the baseline temperature. That number is then summed up in a period and for the CNAR, it looks at all of the HDDs from January 1, 2017 to December 31, 2017.

⁴ 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.

⁵ As outlined in the Carbon Neutral Government Regulation of the Greenhouse Gas Reductions Target Act, some emissions do not require offsets.

Actions Taken To Reduce Our CO₂ Footprint

2017 ACTIONS TAKEN TO REDUCE CO2 FOOTPRINT

Stationary Emissions (Buildings)

In 2017, Vancouver Coastal Health completed 13 projects which are estimated to reduce electricity consumption by 2.1 gigawatt hours and natural gas by 18,275 gigajoules; resulting in a carbon footprint reduction of 930 tCO₂e.

This year's carbon neutral capital program (CNCP) project was a high efficiency heating plant upgrade at Minoru Residence, located in the Richmond Community of Care, which will reduce the natural gas by over 4,300 gigajoules and mitigate 217 tCO₂e. To support our long term emission reduction efforts 17 energy studies, lighting audits, and site assessments were also completed.

Vancouver Coastal Health continues to embed sustainability across the organization by supporting staff engagement initiatives such as the GreenCare Community site and provides tips and toolkits on energy reduction and other environmental initiatives. The Green+Leaders (G+L) program continues to train Vancouver Coastal Health staff as sustainability champions, along with the BC Hydro Energy Wise Network Program (EWN), which helps support the G+L program and also providing tools and resources for other awareness initiatives, such as our Facilities Maintenance and Operations (FMO) engagement strategy.

Mobile Fleet Combustion (Fleet and other vehicles)

In 2017, Vancouver Coastal Health's Transportation Demand Management Coordinator and Active Transportation Facilitator worked to improve, promote and establish alternative transportation opportunities for Vancouver Coastal Health staff.

Supplies (Paper)

In collaboration with BC Clinical and Support Services (BCCSS), Vancouver Coastal Health has continued to discuss the procurement of wheat based paper supplies and will explore a proposal to convert the bulk of paper purchased to 30% recycled content. There is an ongoing effort across the organization to assess how to minimize our paper purchases and develop a culture around how we use paper in our day to day work flow.

CONINTUED ACTIONS TO REDUCE CO2 FOOTPRINT

Vancouver Coastal Health will continue to act as leaders in environmental stewardship and emission mitigation in the following ways:

- Planning and implementing energy and emission reduction projects in our building portfolio by utilizing the Carbon Neutral Capital Program funds, internal capital funds, and utility incentive programs;
- Engaging with design engineers to ensure our new builds adopt energy efficient design principles;
- Continue to explore low emission energy supply options, opportunities for demand reduction, and leading technology applications;
- Engaging and educating our staff, via the G+L program, GreenCare Community and BC Hydro EWN

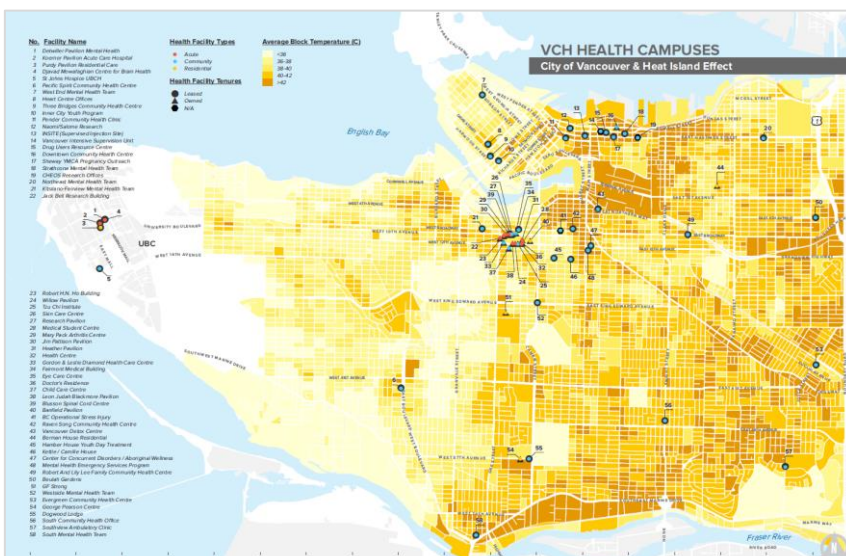
Feature Initiative

CLIMATE CHANGE PROJECTION REPORTING

The Energy and Environmental Sustainability team initiated an internal project to develop the first climate projections report in BC specific to one regional health authority's service delivery area. The VCH Climate Resilient Health Facilities Report is being developed in collaboration with the business plan development team for a major construction projection in North Vancouver, with the support of an experienced climate mitigation and adaptation facilitator and report-writer, and utilizing projections to 2050 and 2080 provided by the Pacific Climate Impacts Consortium.

Inspired by the 2017 BC regional government projections reports, this health facility focused report is intended to provide the following:

- (i) Guide development of climate-smart design thresholds for new and existing health infrastructure in VCH's Communities of Care;
- (ii) Help to better understand primary, secondary and cascading impacts on health service delivery both on- and off-campus;
- (iii) Support deeper collaboration and alignment among key departments responsible for functions and services critical to reducing impacts of and increasing resilience to climate shocks and stresses;
- (iv) Enable co-development of low carbon adaptation measures with measurable health co-benefits to support informed decision-making.



The figure above shows an early draft map that highlights the heat island effect on VCH Health Campuses in Vancouver.

The report builds on the foundation of the high-level resilience assessments conducted on three VCH health facilities in 2016. Both the assessments, and the extreme weather impact survey completed in 2017, produced qualitative information describing the diverse and complex impacts experienced by health staff, and pointed to specific measures for reducing risks and increasing resilience.

This work also highlighted many areas for further exploration and necessary collaboration, so we can uncover, collect and analyze the data required to support the business case for resilience investments.

Part 1: CNAR Survey

1. General Information

Name: Kori

Contact Email: Jones

Organization Name: Vancouver Coastal Health

Sector: Health

2. Stationary Sources (eg. Buildings, Power Generators): Fuel Combustion, Electricity use, Fugitive Emissions.

During 2017, did your organization take any of the following actions to support emissions reductions from buildings? (please select all that apply)

Conducted an energy audit/study of building(s) in the organization's portfolio.; Performed energy retrofits of the organization's building(s); Built, or are building new LEED Gold or other "Green" buildings

2. Stationary Sources - Other? Please specify: In additional to retrofits we started to develop a site cooling plant strategy to aid future decision to support to recent heat recovery chiller investments and build system resiliency. We also started a hospital campus energy and emission master planning exercise to integrate current site planning with longer term energy and emission site targets.

If you selected "*Performed energy retrofits of the organization's building(s)*":

How many buildings were retrofitted?: 11

If you selected "*Built, or are building new LEED Gold or other "Green" buildings*":

How many new "Green" buildings?: 1

Did your Organization perform any retrofits during 2017? Please describe briefly:

We initiated 4 lighting retrofits, 2 control upgrades, 1 envelope upgrade, 4 mechanical upgrades. Including the projected saving from our new construction project, an estimated to reduce electricity consumption by 2.1 gigawatt hours and natural gas by 18,275 gigajoules.

2a. Stationary Sources (eg. Buildings, Power Generators): Fuel Combustion, Electricity use, Fugitive Emissions.

Please briefly describe your organization's plans to continue reducing emissions from its stationary sources:

a) Over the next 1-5 years

Vancouver Coastal Health is developing a 3 year Strategic Energy Management Plan (SEMP), complete with details of our Energy & GHG use, reduction targets and planned actions to achieve these targets. Although this is a 3 year rolling plan, the SEMP is reviewed and updated annually. We will also be actively seeking funding and leverage partnerships to integrate emission benefits into the site master planning and rezoning processes in a supporting role.

b) Over the following 6-10 years

Promotion of Energy Conservation via our Policy & Strategic Framework;

- Site specific energy studies and audits will continue to be carried out on inefficient processes and plant;
- Energy conservation measures will be identified and technical projects implemented;
- Existing buildings will continue to be optimized;
- Energy awareness and educational strategies will be implemented;
- Energy efficient solutions will be recommended for new construction and major renovation.

3. Mobile Sources (Vehicles, Off-road/portable Equipment): Fuel Combustion:

During 2017, did your organization take any of the following actions to support emission reductions from its mobile sources? (please select all that apply)

None of the above

If you selected "*Replaced existing vehicles with more fuel efficient vehicles (gas/diesel)*":

How many vehicles?:

If you selected "*Replaced existing vehicles with hybrid or electric vehicles*":

How many vehicles?:

3a. Mobile Sources (Vehicles, Off-road/portable Equipment): Fuel Combustion:

Please briefly describe your organization's plans to continue reducing emissions from its mobile sources:

a) Over the next 1-5 years

1. Fleet vehicles to be replaced by more fuel efficient model or disposed of, as and when required.
2. The successful UBC-VGH staff / patient shuttle will be continued for the foreseeable future

b) Over the following 6-10 years

Continuing to work with Fleet Procurement and Transportation Demand Management Coordinator to improve, promote, and establish low carbon transportation opportunities.

4. Supplies (Paper): Indicate which actions your PSO took in 2017:

During 2017, did your organization take any of the following actions to support emissions reductions from paper supplies? (please select all the apply)

Had an awareness campaign focused on reducing office paper use

If you selected "*Had a policy requiring the purchase of recycled content paper*":

State the required recycled content here (30%, 50%, 100%):

If you selected "*Had a policy requiring the purchase of alternate source paper (bamboo, hemp, wheat, etc)*", which type of alternate source paper did you use?

Please briefly describe your organization's plans to continue reducing emissions associated with its office paper use in future years.

As part of the paper/waste reduction campaign within the Green+Leaders (G+L) behaviour change program, volunteers were supplied with Paperless Meeting Toolkits to encourage their colleagues to reduce paper use. There are now 93 active G+Ls in Vancouver Coastal Health and affiliates.

In collaboration with BC Clinical and Support Services (BCCSS), Vancouver Coastal Health has continued to discuss the procurement changes to improve recycled content.

5. Other Sustainability Actions

a) Business Travel

During 2017, did your organization take any of the following actions to support emissions reductions from business travel? (please select all that apply)

Created a low-carbon travel policy or travel reduction goal (low-carbon = lowest emission of greenhouse gas per kilometre per passenger)

5) Other Sustainability Actions - Other? Please specify:: Staff participated in the 2017 Commuter Challenge. Staff at VCH continued to utilise the carpool / ride match program.

b) Education/Awareness

During 2017, did your organization have any of the following programs or initiatives to support sustainability education and awareness? (please select all that apply)

A Green, Sustainability or Climate Action Team; Support for professional development on sustainability (e.g. workshops, conferences, training); Supported or provided education to staff about the science of climate change, conservation of water, energy and/or raw materials

c) Other Sustainability Actions

During 2017, did your organization have any of the following programs or initiatives to support sustainability? (please select all that apply)

An operations policy or program to facilitate the reduction and diversion of building occupant waste (e.g., composting, collection of plastics, batteries) from landfills or incineration facilities; Lifecycle costing of new construction or renovations

5b) Other Sustainability Actions - Other? Please specify:: - Continued with the successful Green+Leaders (G+L) behaviour change program, with a focus on fostering sustainable behaviours in four key areas: Zero Waste, Energy Conservation and Climate Neutral, Active & Clean Transportation and Social Sustainability. In 2017, 8 volunteers joined the Green+Leader program, making a total of 92 trained Green+Leaders .

- Lower Mainland Facilities Management GreenCare Community (GCC) site is used to communicate all EES projects and initiatives, as well as engage health care staff with the EES themes and offer a place for staff to collaborate.

- Continued with the sponsored BC Hydro Energy Wise Network. This program supports the G+L program and also provides tools and resources for other awareness initiatives, such as our Facilities Maintenance and Operations (FMO) engagement strategy.

- The Lower Mainland Energy Environment and Sustainability team educated 193 employees on waste management process and trained seven to become recycling champions.