

# Providence Health Care's 2016 Carbon Neutral Action Report



## Declaration Statement

This Carbon Neutral Action Report for the period January 1st, 2016 to December 31st, 2016 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2016 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2017 and beyond.

By June 30, 2017 Providence Health Care's final Carbon Neutral Action Report will be posted to our website at [bcgreencare.ca](http://bcgreencare.ca)

The cover photo is the exterior of the existing St. Paul's Hospital in Downtown Vancouver.

# Executive Summary



## Executive Summary: Providence Health Care, CNAR 2016

Dianne Doyle, President & Chief Executive Officer


It gives me great pleasure to present Providence Health Care's (PHC) seventh annual Carbon Neutral Action Report (CNAR) for 2016.

For seven consecutive years, PHC has been proud to be carbon neutral. As an organization driven by innovation and social justice, we believe that our role as health care providers goes beyond caring for individuals and to caring for the environment, too.

With over one hundred years of service to the local community, we consider our role as stewards to be one of our most deeply held responsibilities. For us, that includes taking personal responsibility for the carbon footprint produced by our operations and facilities.

In 2016, PHC had a carbon footprint of 10,972 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e), which was offset at a total cost of \$288,015. This represents a 4.9 percent decrease from the 2007 PHC carbon footprint. Compared to the first year we paid offsets (2010), PHC's carbon offset cost has decreased by \$40,229.

In 2017, we will continue to improve our environmental performance through improved energy efficiency, coordinated efforts, and education. These projects have a positive impact; saving energy, decreasing air pollution, and ultimately adding to the health and wellness of facilities, workplaces and the communities we serve.



*Dianne Doyle*

Date: May 25<sup>th</sup> 2017

Dianne Doyle  
President & Chief Executive Officer  
Providence Health Care

Healthy people  
Healthy planet





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

## 2016 GREENHOUSE GAS EMISSIONS BREAKDOWN AND OFFSETS APPLIED TO BECOME CARBON NEUTRAL

Providence Health Care 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 Providence Health Care 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)

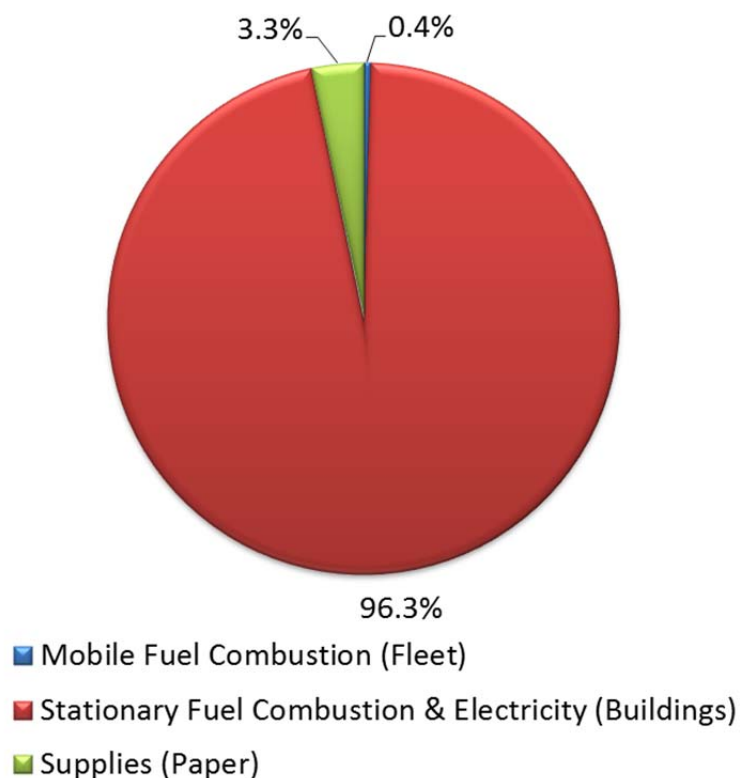
### Providence Health Care

PHC's 2016 Carbon footprint offset was 10,972 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e). That represents a 4.9% decrease in PHC's carbon footprint since 2007.

Over 95% of Providence Health Care's in-scope emissions are attributed to the building portfolio.

To become carbon neutral in 2016, Providence Health Care purchased carbon offsets at a total cost of \$288,015.

### 2016 Providence Health Care's Greenhouse Gas (In-Scope) Emissions by Source



**“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

## CHANGES TO PROVIDENCE HEALTH CARE'S PORTFOLIO

PHC's useable facility space (measured in usable square meters) has increased by almost 2% since 2007. During the same time, the number of staff (measured in full time equivalents) has increased by 15%.

Providence Health Care										
	BUILDINGS, FTE AND WEATHER		2007	2010	2011	2012	2013	2014	2015	2016
	Distinct PHC Buildings		n/a	35	39	37	40	37	36	36
		% Owned	n/a	94%	93%	93%	91%	92%	92%	92%
		% Leased	n/a	6%	7%	7%	9%	8%	8%	8%
	Usable Square Meters <sup>1</sup>		174,002	182,161	182,994	176,186	179,222	178,157	177,216	177,159
	Full-Time Employee Equivalents <sup>2</sup>		4,038	4,208	4,490	4,977	4,748	4,580	4,686	4,760
	Weather (summarized in Heating Degree Days) <sup>3</sup>		2,870	2,621	2,963	2,859	2,820	2,627	2,489	2,537

<sup>1</sup> Usable area excludes roof tops, interstitial spaces, and parking areas.

<sup>2</sup> Full-Time Employee data was provided by the Ministry of Health.

<sup>3</sup> Heating Degree Days (HDD's) is a measurement designed to reflect the demand for energy needed to heat a building.

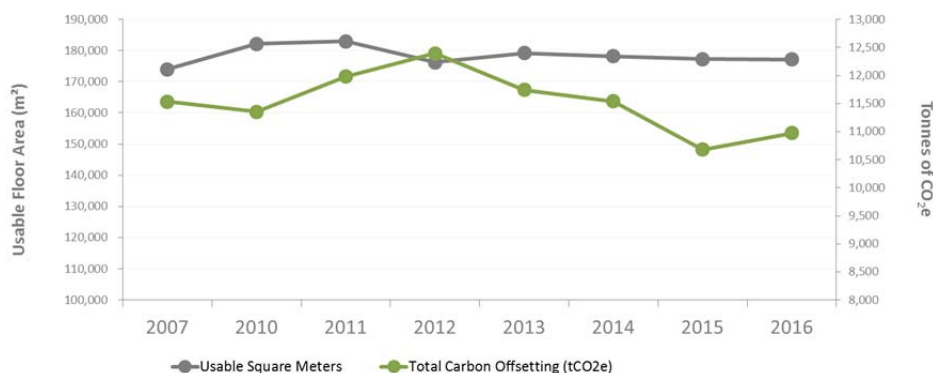
Despite increases in floor area and staff, PHC's carbon footprint has decreased since 2007. PHC's 2016 emissions per full-time employee (2.30 tCO<sub>2</sub>e/FTE) have decreased by 17% since 2007. PHC's 2016 emissions per unit of floor area (0.06 tCO<sub>2</sub>e/m<sup>2</sup>) have decreased 6% since 2007.

The carbon emissions reported are not adjusted for changes in weather. The use of Heating Degree Days (HDD's) is a metric designed to reflect the demand for energy required to heat a building. The HDD's for 2016 were 12% below those recorded in 2007, which reduced the demand for space heating and associated natural gas usage compared to 2007; this was a factor contributing to PHC's GHG reduction results.

Providence Health Care									
CO <sub>2</sub>	Our Carbon Footprint (in tCO <sub>2</sub> e)	2007	2010	2011	2012	2013	2014	2015	2016
	Mobile Fuel Combustion (Fleet)	15	15	21	47	47	43	45	48
	Stationary Fuel Combustion & Electricity (Buildings)	11,448	11,265	11,892	12,081	11,440	11,145	10,267	10,569
	Supplies (Paper)	70	70	72	271	260	358	371	359
	Total Carbon Footprint (tCO <sub>2</sub> e)	11,533	11,351	11,985	12,400	11,747	11,546	10,682	10,975
	Emissions Which Do Not Require Offsets <sup>1, 2</sup>	-1	-1	-4	-7	-5	-5	-5	-4
	Total Carbon Footprint (tCO <sub>2</sub> e)	11,532	11,350	11,981	12,393	11,742	11,542	10,677	10,972
	Adjustments / Corrections	0	0	0	0	0	0	0	0
	Total Carbon Offsetting (tCO <sub>2</sub> e)	11,532	11,350	11,981	12,393	11,742	11,542	10,677	10,972
\$	Purchased Carbon Offsets	\$ -	\$ 293,075	\$ 289,550	\$ 309,575	\$ 294,525	\$ 288,550	\$ 266,925	\$ 274,300
	Purchased Carbon Offsets +HST / GST	\$ -	\$ 328,244	\$ 324,296	\$ 325,054	\$ 309,251	\$ 302,978	\$ 280,271	\$ 288,015
KPI	Emissions per Full-Time Employee	2.86	2.70	2.67	2.49	2.47	2.52	2.28	2.30
	Emissions per Meter Square Facility Space	0.066	0.062	0.065	0.070	0.066	0.065	0.060	0.062

Overall since 2007, PHC's carbon footprint has decreased, while usable floor area has increased.

PHC Useable Floor Area and Emissions (2007-2016)



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

## 2016 LIST OF ACTIONS TAKEN TO REDUCE CO2 FOOTPRINT

### Stationary Emissions (Buildings)

- PHC initiated the implementation phase of BC Hydro's Continuous Optimization Program at two sites in 2016; at St. Vincent's Langara and Holy Family Hospital as well as the investigation phase at St. Paul's Hospital campus, specifically focused on the Providence Phase I and Phase II buildings
- PHC completed a heat recovery project at St. Paul's Hospital campus, which was initiated in 2015 using the Carbon Neutral Capital Program (CNCP) funding
- PHC initiated a boiler replacement project at St. Vincent's Youville residential care facility in 2016 using CNCP funding
- The PHC energy management team began to roll out an engagement strategy with Facilities Maintenance and Operations (FMO) departments, focused initially at St. Paul's Hospital, with plans to expand to all major owned sites over time. The outreach focuses on reviewing energy use in buildings, identification of reduction opportunities, and optimization of existing equipment/plants.
- PHC's Energy Management team were involved in further refinements to GreenCare's Energy and Environmental Sustainability Design Guidelines for New Construction and Major Renovation projects with the intent of ensuring health care related new construction and major renovation projects are built to the highest standard of energy efficiency and conservation, within financial constraints.
- PHC's energy team continue to promote energy conservation and GHG emissions reduction through awareness and behaviour change programs, such as Green+Leaders, GreenCare Community website, the BC Hydro Energy Wise Network program, and FortisBC's Communication Education and Outreach program.

## Mobile Fleet Combustion (Fleet and other vehicles)

- PHC has one 120v electric vehicle charging station at St. Paul's Hospital, which is located downtown Vancouver in the West End (51 regular plug-ins are also available throughout the parkade).
- PHC partners with Provincial Health Services Authority and Vancouver Coastal Health to provide a shuttle service between sites. In 2016, 22,861 PHC staff used the shuttle from various Vancouver sites.
- 56 PHC staff participated in the 2016 Clean Commuter & Wellness Challenge (CCWC); a campaign to motivate PHC staff to leave their car at home and commute in an active and clean way.
- PHC added 9 new bike parking stalls, for a total of 235.

## Supplies (Paper)

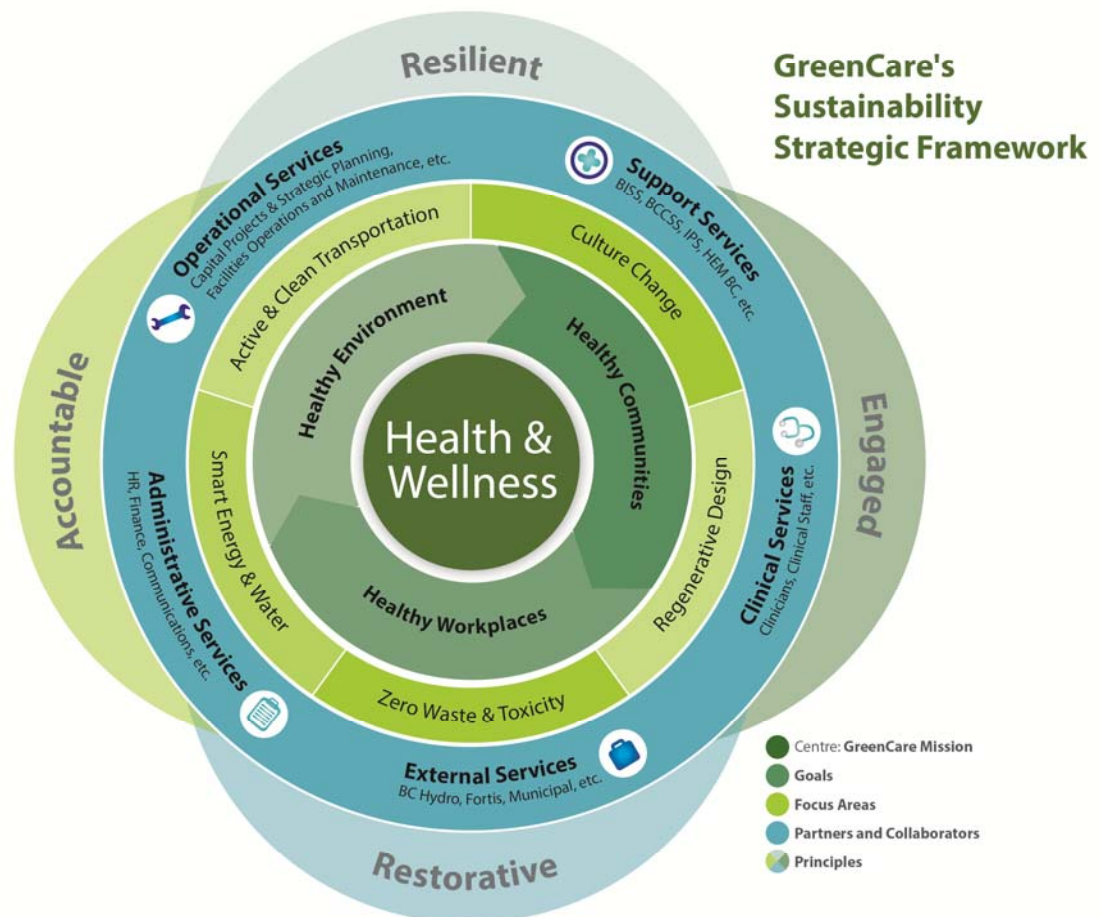
- As part of the Green+Leader program, a paper/waste reduction campaign supports volunteers with Paperless Meeting Toolkits to encourage their colleagues to reduce paper use.
- PHC encouraged teleconferencing for meetings by installing web- conferencing hardware / software at various sites.

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

- The Green+Leaders (G+L) behaviour change program at PHC now has a total of 16 active staff volunteers who help improve the environmental sustainability of PHC operations, and a total of 22 have been trained over the years.
- PHC continues to support the GreenCare Community (GCC) site, which provides tips and toolkits on using less paper, as well as other environmental sustainability initiatives linked to health and wellness. In 2016, PHC had 467 staff registered on the site.
- Education and awareness communication via the GreenCare Community, as well as stories published in PHC news and various internal communication channels, continue to champion behaviour change and celebrate environmental sustainability success.

## Providence Health Care plans to continue reducing GHG emissions and Energy in the following ways:

- **Optimizing our Existing Buildings:** Planning and implementing GHG / Energy reduction projects in our existing building portfolio by utilizing the Carbon Neutral Capital Program (CNCP) as our primary funding source.
- **Efficient New Construction:** Implementing project-specific energy performance targets to ensure that our new buildings are as energy efficient as possible.
- **Systemic Change:** Leveraging and promoting our Sustainability Policy, and implementing standards, guidelines, and processes to embed energy management principles further into standard operations.
- **Behaviour Change:** Engaging and educating our staff, via the existing Green + Leaders program, GreenCare Community and the BC Hydro Energy Wise Network and FortisBC's Communication, Engagement and Outreach program.
- **Innovation and Demonstration:** Promoting innovative approaches and taking other small "seedling actions" to prepare for larger innovation as appropriate opportunities arise.
- **Align with our Core Mandate:** Working with GreenCare's refreshed Strategic Framework; Providence Health Care will strive to advance health care practices that respect environmental stewardship, noting that the environmental impact from health care facilities, operations and services influence the health of populations and patients we serve. Providence Health Care will engage in a collaborative approach to create a sustainable and environmentally responsible health care system, which continues to advance health and wellness in its broadest sense.





# Success Story

## Bobbie Bees, 4th Class Power Engineer at St. Paul's Hospital.

The Facilities Maintenance and Operations (FMO) staff at Providence Health Care are pivotal in their role of supporting energy efficiency projects and upgrades that contribute to healthier facilities, stronger communities and a healthier environment.

Read our interview between PHC's Energy Manager, Alex Hutton (AH) and Bobbie Bees (BB). You'll learn how Bobbie, a 4th Class Power Engineer working at the St. Paul's Hospital campus, is using his knowledge and passion for efficiency is helping to ensure patient comfort and simultaneously identify energy saving opportunities.

**AH: "Tell us about yourself and describe your role within health care."**

**BB:** "I'm a former military dependant and I moved around a lot as a kid. I've made my home in Vancouver since 1992. I've been involved with commercial property management since back in the '90s when I started off performing maintenance for a small property management firm in Richmond. Since then it's been a steady climb up the ladder. The most prominent building that I was responsible for was the Vancouver Block at 736 Granville St. As I was the Chief Engineer with the management company I had direct input into the \$13.5 million dollar upgrades that were undertaken at the building.

My current role in health care is to ensure that the St. Paul's Hospital facility is as safe and as comfortable as possible by ensuring that the HVAC systems run as intended at all times."

**AH: "As a 4th Class Power Engineer at SPH, what do you do?"**

**BB:** "My job is primarily to ensure that our large ventilation systems run as intended with the least amount of downtime. I've also been given the responsibility of ensuring that all of our combination fire and smoke dampers are operating as required so that in the event of an emergency they will function as required and hopefully prevent injuries and minimize property damage. I have also been involved with recent upgrades to the HVAC equipment in order to bring as much efficiency and reliability to the physical plant as is feasible."

**AH: "What support do you receive for energy management at PHC?"**

**BB:** "I am asked to participate in meetings to voice my ideas and concerns. I am also encouraged to increase my knowledge of advancements in energy management by attending seminars."

**AH: "What are you proud of in your work?"**

**BB:** "I am the most proud of being the "go to" guy whenever the managers of the other departments need straight answers. My opinions and ideas are often taken into account, such as the recent cooling tower replacement project and the heat recovery project."

*Bobbie's input into the review of a potential cooling tower replacement project at SPH was invaluable in helping to ensure that the team arrived at an optimal solution that would replace aging equipment while also helping to solve some existing challenges while also improving energy efficiency.*

*Bobbie's input was also critical to the heat recovery project at SPH that was completed using Carbon Neutral Capital Program (CNCP) funding.*

**AH: “What do you see as the benefits of the recent heat recovery project at SPH, aside from the energy savings?”**

**BB:** “Chiller #2 is not functioning optimally, primarily due to the fact that too many different chilled water loops were attached to the machine. Separate to the heat recovery upgrade, but triggered none the less by the heat recovery upgrade, the chiller's chilled water loop will be re-piped in such a manner that it will have specific loads that it will be responsible for, and it will no longer be directly tied into the main loops.

This should allow for us to utilize the recovered heat energy that currently is discharged into the atmosphere to instead to pre-heat our supply air in the Phase I building. This also means that we will be able to shut down chillers #1 and #3 during the winter months.”

**AH: “Are there any other comments or anecdotes that would like to share regarding energy management at SPH?”**

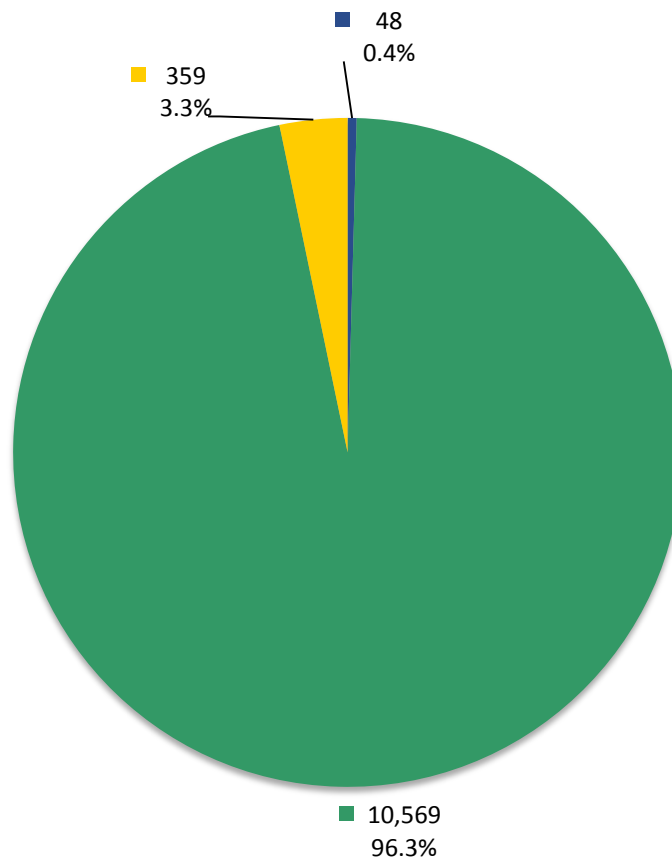
**BB:** “I would love to see more green technologies put to use in the facilities. The Phase I and Phase II roofs would be perfect for either a photovoltaic farm or a solar hot water heating farm. Even if the photovoltaics didn't power the entire facility, they should be able to handle the 120 volt lighting in the towers. Or if a Hot water solar array was put in, it should be able to contribute significantly to the DHW systems in Phase I and Phase II which would hopefully reduce our steam consumption from Cascadia Energy.”

**AH: “Thanks again for your active engagement in our efforts towards improving energy management.”**

*Bobbie's ideas regarding installation of a solar photovoltaic and solar hot water arrays are something the energy management team has on their radar and which we intend to explore further at sites which are more certain to remain in Providence's portfolio for the foreseeable future. Such projects are more likely to be viable now that the CNCP enables funding for carbon reduction projects that would otherwise be virtually impossible to fund within the constraints of other funding streams that are focused on meeting immediate clinical needs.*



**Providence Health Care  
Greenhouse Gas Emissions by Source  
for the 2016 Calendar Year (tCO<sub>2</sub>e\*)**



**Total Emissions: 10,975**

- 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 2016 (Generated May 16, 2017 9:33 AM)**

Total offsets required: **10,972**. Total offset investment: **\$274,300**. Emissions which do not require offsets: **4** \*\*

\*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.

# 2016 Carbon Neutral Action Report Survey

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Part One (external)

Contact Name(s):

*Alex Hutton*

Organization Name:

*Providence Health Care*

Please select your sector:

- Health Authority or Affiliate

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

During 2016, did your organization take any of the following actions to support emissions reductions from buildings?

Select all that apply

- Conducted an energy audit/study of building(s) in the organization's portfolio
- Performed energy retrofits of the organization's buildings.: A retrofit project was completed at one site and one retrofit project initiated at another site in 2016.
- Built, or are building new LEED Gold or other "Green" buildings.: The new Saint Paul's hospital and integrated health campus, to be located on Station Street, is currently in the indicative design planning stage. PHC has begun comprehensive redevelopment planning of our residential care homes. The project's scope includes planning for new buildings on Providence's St. Vincent's: Heather site in Vancouver and looking at renewal of some of our current residential care homes.
- Other actions? Please describe briefly.: (1) Continued with Implementation phase of the BC Hydro Continuous Optimization (C.Op.) program at 2 sites and started the Investigation phase at 1 new site. (2) Began to roll out Energy Engagement Strategy with FMO staff. (3) Promoted the use of our Energy and Environmental Sustainability (EES) Design Guidelines for New Construction and Major Renovation projects. (4) Continued to promote energy conservation and GHG emissions reduction through awareness and behaviour change programs.

Briefly describe your organization's plans to continue reducing emissions from its stationary sources in future years.

*Providence Health Care has a Strategic Energy Management Plan (SEMP), last published in 2015, with details of our energy consumption and greenhouse gas emissions, reduction targets and planned actions to achieve these targets. This plan includes actions that can be summarized as follows:*

*1) Optimizing our Existing Buildings: Planning and implementing GHG / Energy reduction projects in our existing building portfolio by utilizing the Carbon Neutral Capital Program (CNCP) as our primary funding source.*

*2) Influencing New Construction: Implementing project-specific energy performance targets to ensure that our new buildings are as energy efficient as possible.*

*3) Systemic Change: Leveraging and promoting our Sustainability Policy, and implementing standards, guidelines, and processes to embed energy management principles further into standard operations.*

*4) Behaviour Change: Engaging and educating our staff, via the existing Green + Leaders program, GreenCare Community and the BC Hydro Energy Wise Network and FortisBC's Communication, Engagement and Outreach program.*

*5) Innovation and Demonstration: Promoting innovative approaches and taking other small "seedling actions" to prepare for larger innovation as appropriate opportunities arise.*

During 2016, did your organization participate in utility-sponsored energy demand management program(s) (e.g. BC Hydro's Energy Management (Manager))?

Yes

If yes, please describe briefly:

*In 2016 PHC continued to participate in the BC Hydro Energy Manager program and the Fortis BC Energy Specialist Program.*

*Participation in other utility-sponsored energy demand management programs over the years has also included:*

- 1. BC Hydro and Fortis BC Continuous Optimization (C.Op.) program*
- 2. BC Hydro and Fortis BC New Construction (NC) program*
- 3. BC Hydro Business Energy Savings Incentive (BESI) program*
- 4. BC Hydro Energy Study & Audit program*
- 5. BC Hydro Energy Wise Network (EWN) program*
- 6. Fortis BC Communication, Engagement and Outreach (CEO) program*
- 7. Fortis BC Commercial Custom Design program*
- 8. Fortis BC Efficient Boiler program*
- 9. Fortis BC Efficient Commercial Water Heater program*

2) Mobile Sources (Vehicles, Off-road/Portable Equipment): Fuel Combustion.

During 2016, did your organization take any of the following actions to support emission reductions from its mobile sources?

Select all that apply

- Other actions? Please describe briefly.: PHC continues to partner with Provincial Health Services Authority and Vancouver Coastal Health to provide a shuttle service between sites. In 2016, tens of thousands of PHC staff used the shuttle from various Vancouver sites.

Briefly describe your organization's plans to continue reducing emissions from its mobile sources in future years.

*1) As fleet vehicles require replacement, they will be replaced with more efficient vehicles.*

*2) The successful patient shuttle services will be continued for the foreseeable future.*

### 3) Supplies (Paper):

During 2016, did your organization take any of the following actions to support emissions reductions from paper supplies?

Select all that apply

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- Awareness campaign focused on reducing office paper use.

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- Other actions? Please describe briefly.: 1) 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. 2) The online GreenCare Community (GCC) site provides tips and toolkits on using less paper, such as promoting paperless meetings.

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

*BC Clinical and Support Services (BCCSS) will explore a proposal to convert the bulk of paper purchased to 30% recycled content. The current contract expires in November 2017. For context, in 2016 ~ 15% of the paper purchased had 30% recycled content.*

#### 4) Other Sustainability Actions:

##### Business Travel:

During 2016, did your organization take any of the following actions to support emissions reductions from business travel?

Select all that apply

- |  |
|--|
| <ul style="list-style-type: none"><li>• Encouraged alternative travel for business (e.g. bicycles, public transit, walking)</li></ul>  |
| <ul style="list-style-type: none"><li>• Encouraged or allowed teleworking or working from home</li></ul>   |
| <ul style="list-style-type: none"><li>• Other, please describe briefly: 1) PHC have a number of Electric Vehicle charging stations installed. 2) The Energy &amp; Environmental Sustainability (EES) team coordinated and delivered a Lower Mainland Clean Commuter Challenge (campaign to encourage staff to choose alternative healthier modes of commuting)</li></ul> |

##### Education Awareness:

During 2016, did your organization have any of the following programs or initiatives to support sustainability education and awareness?

Select all that apply

- |  |
|--|
| <ul style="list-style-type: none"><li>• Green, Sustainability or Climate Action Team</li></ul>   |
| <ul style="list-style-type: none"><li>• Support for professional development on sustainability (e.g. workshops, conferences, training)</li></ul>   |
| <ul style="list-style-type: none"><li>• Supported or provided education to staff about the science of climate change, conservation of water, energy and/or raw materials</li></ul>   |
| <ul style="list-style-type: none"><li>• Other, please describe briefly: 1) 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 &amp; Clean Transportation and Social Sustainability. 2) At the end of 2016, over 450 PHC employees were registered on the Lower Mainland Facilities Management GreenCare Community (GCC) site. This website 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. (3) Continued with the sponsored BC Hydro Workplace Conservation Awareness Program (WCA), which is being rebranded as the Energy Wise Network (EWN) program moving forward. 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. (4) Educated 73 PHC employees on Waste Management processes</li></ul> |

#### Other Sustainability Actions:

During 2016, did your organization have any of the following programs or initiatives to support sustainability?

Select all that apply

- |  |
|--|
| <ul style="list-style-type: none"><li>• 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</li></ul> |
| <ul style="list-style-type: none"><li>• Lifecycle costing of new construction or renovations</li></ul>   |