



GreenCare™
2018
Environmental Performance
Accountability Report

**Environmental
sustainability
is everyone's story.**

Vancouver 
CoastalHealth



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Our Story

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Welcome to the seventh annual Environmental Performance Accountability Report (EPAR). This report represents an opportunity to acknowledge the hard work, leadership, and willingness of everyone at Vancouver Coastal Health to support sustainability. It also speaks to the staff's dedication to providing the best health care to the communities that we serve. We can all be proud of and inspired by these values.

The willingness of Vancouver Coastal Health staff to support and advance GreenCare initiatives and strategies is also a testament to the fact that environmental sustainability is everyone's story. In order to address the challenges of the new climate reality at Vancouver Coastal Health, in each of the Lower Mainland health care organizations, and in the broader world, we must work together. From emergency rooms to lunch rooms, each of us can take a leading role in transforming health care through our everyday decision making.

Accordingly, this year's EPAR acknowledges the importance of decision making at Vancouver Coastal Health via three key objectives: Awareness & Accountability, Desire & Decision Making, and Reinforcement & Recognition.

In being aware and accountable, we can be leaders in ensuring environmental stewardship by being responsible to our key target audiences and accountable for our choices and actions.

We can also be leaders by promoting the desire to achieve greater environmental stewardship within health care, and making decisions that ensure that this desire drives positive outcomes.

Finally, we can support sustainable change by reinforcing and recognizing projects and people that are leading by example.

These objectives are not abstracts. We've seen real success in this strategy as Vancouver Coastal Health has, through strategic energy management planning, avoided an estimated \$16 million in energy and emission costs since 2008. In 2018, Vancouver Coastal Health spent approximately \$10 million on electricity, \$6 million on natural gas and other fuels, and \$2 million on water and sewage.

In this report, you will find successes and challenges, work completed and work yet to be done, good news stories and pressing concerns, and targets met and targets to achieve. But most of all, the report shows that because our decisions make a real difference to our workplace and communities, each of us has an important role to play in the story that is environmental sustainability.

Downloads

**Vancouver Coastal
Health CNAR** ↕

**Vancouver Coastal
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**Lower Mainland Health
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Mauricio A. Acosta
 Executive Director,
 Business Performance
 & Corporate Support

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2.1 Vancouver Coastal Health: “Healthy lives in healthy communities.”

Established in 2001, Vancouver Coastal Health is a regional health authority that serves more than one million residents of the Vancouver and Central and Sunshine Coast areas. These areas encompass 12 municipalities, four regional districts, and 14 Indigenous communities, including Central and Sunshine Coast (Sea-to-Sky, Sunshine Coast, Powell River, Bella Bella, and Bella Coola), Richmond, Vancouver, North Vancouver, and West Vancouver. Vancouver Coastal Health provides extensive services, including primary, secondary, tertiary and quaternary care, home and community care, population and preventive health care, mental health services, and substance use services.

With 13 hospitals, three diagnostic and treatment centres, and 15 community health centres under its jurisdiction, Vancouver Coastal Health operates Vancouver General Hospital, Canada’s second largest hospital, which offers specialized health care services locally and across the province. It is also a teaching hospital affiliated with the University of British Columbia, and home to one of the largest research institutes in Canada.

[View Vancouver Coastal Health’s 2018 Carbon Neutral Action Report \(CNAR\)](#)

Key Stats

709,753_{m²}

Usable facility space^A

184

Distinct buildings

15,121

Full-time equivalent staff^B



A. As reported in the annual Vancouver Coastal Health Carbon Neutral Action Report. Usable facility space is determined and aligned with a formula used in reporting in the annual Climate Action Secretariat’s mandated Carbon Neutral Action Reports.

B. FTE data point is aligned with what is reported in the Carbon Neutral Action Reports and includes all designated groups reported in Health Sector Compensation Information System: Physicians (doctors on staff), Executive/Excluded, Non-Union, and Bargaining Unit Employees (Community, Facilities, Health Science Professionals, Nurses, and Residents).

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2.2 Sustainability successes

Overview of Vancouver Coastal Health’s Environmental Sustainability Milestones and Awards

Vancouver Coastal Health has achieved significant success in its energy and environmental sustainability work across the

various regions and health care sites, as highlighted by the following key Environmental Sustainability milestones and awards:

2018

- Completed the organization's first climate report, [“Moving Towards Climate Resilient Health Facilities for Vancouver Coastal Health”](#)
- Development of the first site specific Energy and Emissions Master Plan

2017

- FortisBC Award, Energy in Action
- Fortis BC Award, Energy Specialist Program Achievement in Program Participation
- Wood Design Awards Environmental Performance Award (Bella Bella)
- BC Hydro Leaders in Energy Management Top Performing Customer Recognition for the Health Sector

2016

- 100% implementation of the Recycling Renewal Program across acute and long-term care health care sites
- FortisBC Energy Specialist Program Achievement Award
- Green and Healthy Hospitals’ Climate Champions Award (Silver for GHG reduction)
- HUB’s Bike to Work Award, Best in Health Care
- Launch of the [Climate Resilience & Adaptation Program](#)

2014

- HUB Cycling Coalition Award—Three Bike Friendly Business Awards
- BC Hydro Power Smart Leadership Excellence Award

2013

- BC Hydro Outstanding Service Award, “Green+Leaders”
- GreenCare Community website launched

2012

- BC Hydro Power Smart Leadership Excellence Award
- Urban Agriculture (community garden) program created
- Launch of the Green Revolving Fund

2011

- GreenTech Award
- Sustainability Policy adopted

2009

- BC Hydro Power Smart Leader Award
- BC Hydro Power Smart Workplace Conservation Award

2007

- Energy Commitment Letter adopted
- GreenCare created

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Building for Energy and Environmental Sustainability

In the construction and renovation of facilities, Vancouver Coastal Health prioritizes supporting the highest level of human and environmental health and wellbeing. Often, this means new construction projects strive for certification in Leadership in Energy and Environmental Design (LEED), administered by the Canadian Green Building Council.



LEED Projects - Lower Mainland Facilities Consolidation

Registration Date	Certification Date	Project Name	Certification Level	Project City	Project Size m ²
2009-08-11	2015-01-13	Sechelt (St. Mary's) Hospital	Gold	Sechelt	5,300
2011-10-27	TBD	Djavad Mowafaghian UBC Centre for Brain Health	TBD	Vancouver	13,466
2012-01-31	2016-04-15	Lions Gate Hospital - HOpe Centre	Gold	North Vancouver	8,805
2013-05-07	2018-04-20	Joseph and Rosalie Segal Family Centre	Gold	Vancouver	12,251
2016-10-20	TBD	Creekstone Residential Care Facilities (leased site)	TBD	North Vancouver	13,354
2016-10-20	TBD	Hamilton Village Residential Care Facility (leased site)	TBD	Richmond	8,200
2016-10-20	TBD	Silverstone Residential Care & Hospice Facility (leased site)	TBD	Sechelt	8,600

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**Lower Mainland Health
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2.3 A real need for action

Our region is undergoing environmental changes that present challenges to Vancouver Coastal Health. As we continue to work toward a healthier future, there are several key areas for action.

Transportation

Every day, health care staff provide life saving care to the population of British Columbia, but the vast majority of these staff drive to work in single occupancy (fuel-based) vehicles.

Health care organizations have an environmental responsibility to reduce the resulting air pollution and an opportunity to improve the active health of their staff.

“A 2008 study by the Canadian Medical Association estimated that almost 3,000 Canadians die annually from short-term exposure to air pollution, while another 18,000 die annually due to long-term effects of polluted air.”^C



Energy & Water

Health care sites and operations often run 24/7 and require large amounts of energy and water to maintain the highest level of care to a growing population across the Lower Mainland of British Columbia.

Health care organizations have an environmental and fiscal responsibility to reduce energy and water use and the resulting carbon footprint.

“Canadians are the world’s second largest per capita users of water.”^D



C. https://www.healthyenvironmentforkids.ca/sites/healthyenvironmentforkids.ca/files/No_Breathing_Room.pdf

D. <http://publications.gc.ca/Collection-R/LoPBdP/BP/bp333-e.htm>

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Material Waste

Quality patient care requires a vast amount of supplies, which results in large amounts of material waste. The decline in global recycling markets, the differences in regionally accepted materials, and the real and perceived contamination risks in the recycling streams accepted by local vendors has limited ability to reduce the material waste sent to landfills or incineration.

Health care organizations have an environmental responsibility to reduce the amount of waste sent to landfills or incineration by focusing on reducing the amount of materials procured and put into waste streams.

Safer Chemicals

Chemicals are a part of health care. They are used in construction and maintenance, in building materials and furnishings, for cleaning and disinfection, and in the treatment of our patients, and they end up in our waste. That's why it's important that we work towards reducing and eliminating staff, patient, and visitor exposure to harmful chemicals by improving chemical purchases, and management, use, and disposal practices.

Health care organizations have an environmental responsibility to work within the Canadian Environmental Protection Act to increase management of and exposure to chemicals in products and operations.



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2.4 Our new climate reality

Climate change and its associated environmental problems are a real, clear, and present danger to which neither Canada nor British Columbia is immune.

In fact, according to [Canada's Changing Climate Report](#), commissioned by Environment and Climate Change Canada, Canada's rate of warming is twice that of the world rate, with an average over land temperature increase of 1.7°C since 1948. Average precipitation is also increasing. In turn, our country is facing increased risk of seasonal flooding, more powerful wildfires, seasonal water shortages, and rising sea levels leading to coastal flooding.^E

Our province is not immune. If climate change is not mitigated, it is anticipated that B.C. will face a further temperature increase of 1.3°C by 2050, resulting in longer growing seasons but more frequent, harsh droughts; outbreaks of new infectious diseases and pests; heat waves; decreased quality and quantity of drinking water; competition for resources, including electricity; strain on drainage and sewer systems; encroachment by seawater on aquifers; and more severe weather events.^F

All of these conflicts will have significant, negative impacts on individual and population health.

Since our new climate reality affects social and environmental determinants of health, it often results in poorer physical and mental health outcomes via increased and more

severe injury, mental health challenges, illness, and disease.^G For example, studies indicate that as B.C.'s wildfire season grows longer with bigger, more frequent fires, asthma, emphysema, and other respiratory conditions are expected to worsen.^H

With our new climate reality having such direct effects on health, the health care system will face new challenges, even as weather events and consequent damage to infrastructure, disruption of supply chains, and changes to energy systems affect health care facilities and health services.^I From acute shocks (“sudden, sharp events that can compromise health service delivery”^J) such as flooding to roadways and health care facilities, to chronic stresses (“slow-moving disasters that can weaken the fabric of health facilities and systems over time”^J) such as heat waves that make maintaining air temperature and quality a challenge, climate change means a new reality.

The effects of climate change are well-documented and immediate, but so too is the willingness of Vancouver Coastal Health staff and leadership to take action. By continuing to build on strategies and solutions that have already been uncovered at Vancouver Coastal Health, we can make environmental sustainability a reality.



E. <https://www.cbc.ca/news/technology/canada-warming-at-twice-the-global-rate-leaked-report-finds-1.5079765>

F. <https://www2.gov.bc.ca/gov/content/environment/climate-change/adaptation/impacts>

G. https://www2.gov.bc.ca/assets/gov/environment/climate-change/adaptation/health/final_climate_and_health_background_communities.pdf

H. https://www2.gov.bc.ca/assets/gov/environment/climate-change/adaptation/health/final_climate_and_health_background_frontline_health_care.pdf

I. https://bcgreencare.ca/system/files/resource-files/VCH%202-pager_executive-summary_May2019.pdf

J. <https://www.egbc.ca/getmedia/10a2c62e-2815-40f5-830e-e844441c5add/VCH-ClimateReport-Appendices-Final-181025.pdf.aspx>

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2.5 Future of Health Care survey

Early in 2019, a “Future of Health Care” survey, administered by the GreenCare Energy & Environmental Sustainability team, was conducted across Fraser Health, Providence Health Care, Provincial Health Services Authority, and Vancouver Coastal Health.

This biennial survey was conducted for the following purposes:

Respondent breakdown

Clinical staff: **59%**
 Operational (corporate) staff: **33%**
 Support services staff: **4%**
 Facilities management staff: **4%**

To measure

To measure performance
and influence of Vancouver
Coastal Health environmental
sustainability targets and goals



To inform

To inform the energy &
environmental sustainability
strategic framework and overall
related program strategy



To build

To build staff awareness and
enable change towards greater
environmental stewardship
within the workplace



About the Survey

The margin of error is plus-or-minus 4%, 19 times out of 20. This indicates a high level of confidence that the results are representative of the organization at large.

The results led to a high level of confidence, with Fraser Health, Provincial Health Services Authority, and Vancouver Coastal Health data being representative of the organization at large.

Although Providence Health Care had a higher margin of error, its results do provide an indication of trends in behaviours and beliefs. However, these results need to be further researched and understood to accurately determine the results with a small margin of error.

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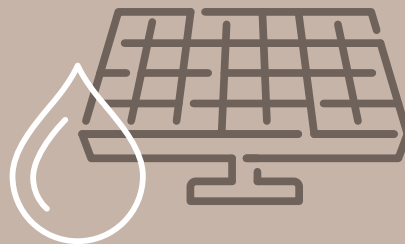
**Lower Mainland Health
Authorities Dashboard** ⌵

2.5 What do Vancouver Coastal Health staff have to say about environmental sustainability?

Staff respondents indicated their support for environmental sustainability actions in the workplace, reporting the following:

Energy & Water

On average, staff feel that education campaigns for energy conservation should be Vancouver Coastal Health's priority for the Smart Energy & Water Focus Area.



Waste & Toxicity

On average, staff feel that developing new methods of material waste diversion (e.g. recycling) should be Vancouver Coastal Health's priority for the Zero Waste & Toxicity Focus Area.

Workplace Leadership

On average, staff feel that funding opportunities for greening one's workspace should be the main priority for the Workplace Leadership Focus Area in Vancouver Coastal Health.



Active & Clean Transportation

In terms of how Vancouver Coastal Health could better provide resources/incentives for clean transportation:

64%

of staff would like public transit discounts.

34%

of staff would like telecommuting/ opportunities to work from home.

30%

of staff would like a financial incentive to use a bicycle for commuting or work purposes.

30%

of staff would like walking incentives.

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2.5 What do Vancouver Coastal Health staff have to say about climate resilience and adaptation?

In addition to the focus areas, Climate Resilience & Adaptation is an important part of taking meaningful action in response to the new climate reality.

- The majority of staff (**55%**) reported being unaware of climate change-related negative impacts them or their work (e.g. heat, wildfires, rain, snow, drought, or floods).
- For those who said that they were aware of such impacts of climate change, wildfires (**30%**), air quality (**20%**), extreme weather (**14%**), and extreme temperature (**12%**) were cited.
- The vast majority (**79%**) of staff reported feeling unprepared for and unsupported to deal with climate-related negative impacts.



In terms of how staff felt Vancouver Coastal Health could better prepare them for climate-related negative impacts:

57%

said awareness and education.

8%

said contingency planning.

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3.0 This Is Who We Are.

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Everyone at Vancouver Coastal Health has a part to play in supporting the sustainability of health care and the quality of life of both our workforce and the communities we serve.

Through expertise, hard work, and commitment to health care, we can all continue to support GreenCare goals, maintain accountability in environmental performance, and ensure that Vancouver Coastal Health responds to the new climate reality and its effect on both the health authority and the region.

When surveyed, Vancouver Coastal Health staff recognized the valued role of leadership in the environmental sustainability story, with 85% strongly agreeing that Vancouver Coastal Health should demonstrate leadership when it comes to environmental health and wellness in the workplace and our communities.

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3.1 Senior executive team^A



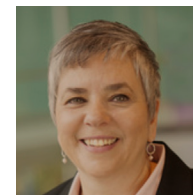
Mary Ackenhusen
 President and Chief Executive Officer

Mary Ackenhusen leads the largest academic and tertiary health authority in British Columbia, serving a population of 1 million, with a budget of \$3.4 billion.



Dr. Patricia Daly
 Vice President
 Public Health, Chief Medical Health Officer

With the mandate to improve population health through prevention and health promotion, Dr. Patricia Daly oversees communicable disease control, health protection, care facility licensing, population health, and public health surveillance.



Vivian Eliopoulos
 Vice President
 Vancouver-Richmond, Acute



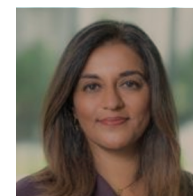
Dr. Marshall Dahl
 HAMAC Chair and
 Executive Lead,
 Physician Engagement



Karin Olson
 Chief Operating Officer,
 Coastal



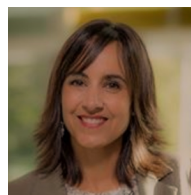
Charlene Chiang
 Vice President of
 Communications and
 Strategic Partnerships



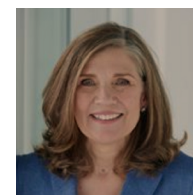
Yasmin Jetha
 Vice President,
 Community Services



Helen Yung
 Chief Financial Officer



Darcia Pope
 Vice President and Chief
 Transformation Officer



Barb Lawrie
 Vice President,
 Professional Practice
 and Chief Clinical
 Information Officer



Laura Case
 Vice President,
 Vancouver-Richmond,
 Community & Employee
 Engagement



Dr. Dean Chittock
 Vice President, Medicine,
 and Quality and Safety



Ron Quirk
 Chief Information Officer

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3.2 The GreenCare Team

Transforming health care for a thriving environment of health and wellness.

Under the guidance of the Consolidated Lower Mainland Facilities Management, Fraser Health, Providence Health Care, Provincial Health Services Authority, and Vancouver Coastal Health have adopted similar sustainability policies to help govern and bring accountability to environmental sustainability work across their organizations. In addition, these policies provide a high-level statement of commitment to efforts to improve the sustainability of these health organizations.

As per these policies, the Energy and Environmental Sustainability (EES) team was created in 2010 to ensure a collaborative energy and environmental sustainability approach that systematically embeds environmental, economic, and social sustainability policies, principles, and processes across the four Lower Mainland health care organizations. In partnership with many other groups, EES integrates and enhances sustainability infrastructure and practices in a variety of programs. These programs include energy and carbon reduction, climate resilience and adaptation, recycling and waste reduction, safer chemicals, active and clean transportation, and workplace leadership. The overall mission is to upgrade infrastructure, raise awareness of and build capacity for sustainability practices in health care, foster collaborations, and educate, engage, and inspire participation in a variety of areas for a thriving, healthy environment.

Vancouver Coastal Health's Environmental Sustainability Policy

Achieving energy and environmental sustainability is a priority for Vancouver Coastal Health becoming an efficient patient care provider by minimizing environmental impact and creating healthy communities. It helps to achieve sustainability by focusing on three areas: building healthy communities, establishing financial stability within the health authority, and reducing our environmental impact.

Lower Mainland Health Care Organizations

Fraser Health	Providence Health Care
Provincial Health Services Authority	Vancouver Coastal Health

Lower Mainland Facilities Management

Brent Kruschel Vice President Informatics, Technology and Facilities
 Paul Becker Chief Facilities Management Officer
 Mauricio Acosta Executive Director, Business Performance & Corporate Support

Energy & Environmental Sustainability Team*

Robert Bradley Director of Energy & Environmental Sustainability	
Sabah Ali Energy Coordinator	Sonja Janousek Sustainability Consultant, Environmentally Preferable Purchasing and Safer Chemicals
Sarah Currie Sustainability Consultant, Workplace Leadership	Kori Jones Energy Manager, VCH
Marianne Dawson Sustainability Consultant, Recycling and Waste Reduction	Jeson Mak Energy Manager, FH
Ghazal Ebrahimi Sustainability Consultant, High Performance Buildings	Cathy McDonald Energy Specialist
Glen Garrick Sustainability Manager	Jacob Vu Energy Specialist
Alex Hutton Energy Manager, PHSA and PHC	Richard Wellwood Energy Specialist
	Angie Woo Climate Resilience & Adaptation Lead

* As of 2018.12.31

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3.3 Frontline health care professionals

The employees, physicians, nurses, volunteers, and health care partners of Vancouver Coastal Health are committed to the values of respect, caring, and trust in pursuit of providing the best health care possible to every individual across the Vancouver Coastal Health region.

Across its 21 core sites^B, Vancouver Coastal Health has approximately 14,000 full-time and part time staff, including 5,500 nurses and 2,700 physicians in our hospitals and community health centres, 3,000 active volunteers, and more than 900 principal investigators conducting clinical and discovery research at Vancouver Coastal Health Research Institute. Many of these individuals understand and are taking action

to mitigate the effects of the new climate reality, particularly through their support of and participation in Energy and Environment Sustainability strategies and programs in the workplace. They have made environmental sustainability their story, as demonstrated by the success stories in [Section 4.4](#). Given the tools and opportunity to continue to build on their actions, they will continue to play a key role in transforming health care.

B. Core sites are defined as health care facilities that are actively monitored for energy, water, and/or waste efficiency (primarily owned and operated sites).

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4.1 Our GreenCare initiative

Embedding Environmental Health and Wellness

At the core of its work, the EES team has created guidelines for health care facility design, construction, and operations to ensure that our strategies for environmental (and human) health and wellness are embedded into the design and processes of our facilities. Implementation of these strategies is supported by the Consolidated Lower Mainland Facilities Management.

The following best practices in design and construction are considered in the creation of these guidelines:

- 1 [Leadership in Energy and Environmental Design for Health Care \(LEED HC\)](#): LEED HC is a global green-building rating system that provides a framework for creating healthy, sustainable, energy- and cost-efficient health care buildings. A LEED certification is recognized globally as a sustainability achievement. The final designation (rating) is determined by the independent Green Building Council.
- 2 Healthy Built Environment: [The Healthy Built Environment Linkages Toolkit](#) is maintained by the Population and Public Health team at the BC Centre for Disease Control, under the leadership of the BC Healthy Built Environment Alliance Steering Committee. The Toolkit is intended to support the inclusion of health considerations within community planning and design.

A. While this is one of the focus areas, the EES team is re-evaluating the programs and overall work being conducted in support of achieving regenerative design.

The GreenCare Strategic Framework

The GreenCare Strategic Framework outlines the following focus areas and associated missions:

- 1 Smart Energy & Water: Minimize energy and water consumption, as well as GHG emissions, to reduce costs and environmental impacts, helping to ensure the health, wellness, and resiliency of our living environments.
- 2 Zero Waste & Toxicity: Minimize waste generated and toxic chemicals used by the health care system and supporting operations.
- 3 Active & Clean Transportation: Ensure a health care system in which employees travel between sites in a manner that reduces GHG-related pollutants, minimizes the need for on-site parking, and increases overall health and wellness.
- 4 Workplace Leadership: Together, we will reach, engage, and inspire staff in health care to be leaders that share a commitment to and passion for sustainable and thriving healthy communities, workplaces, and environments.
- 5 Regenerative Design^A: Create sustainable and resilient built-environments that enhance the health and wellness of the people they serve, as well as the ecosystems they inhabit.

During this time no formal goals, targets, or programs will be organized. It is planned that in 2019 a refreshed regenerative design portfolio of work will be launched.



Vancouver Coastal Health CNAR

Each year, along with all public sector organizations, B.C.'s health authorities submit a Carbon Neutral Action Report (CNAR) to the Climate Action Secretariat of the provincial government. In this mandated reporting of greenhouse gas emissions and other data, and current and planned actions to reduce GHG emissions, CNARs detail our progress toward carbon neutrality.

Download:

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4.2 These are our GreenCare Focus Areas.

Each of the following focus areas has an associated target and measurable Key Performance Indicator (KPI) for that goal. The targets and KPIs provide a baseline, measure, and direction for reaching specific 2020 and 2030 goals.

Smart Energy & Water



Zero Waste & Toxicity



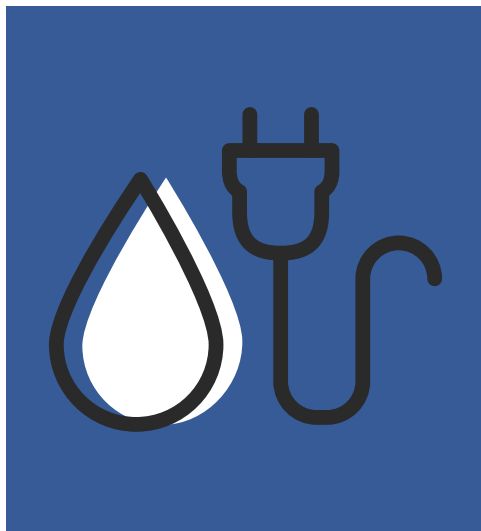
Active & Clean Transportation



Workplace Leadership



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1. Smart Energy & Water^B

The use of energy and water—what these resources are used for and how much of them are consumed—affects human health through its impact on the environment.

In generating energy, fossil fuel combustion pollutes the air we breathe and contributes to a negative impact on the environment and, consequently, human health. Minimizing energy and water consumption and greenhouse gas (GHG) emissions to reduce environmental impacts and costs can help to ensure the health and wellness of our living environments.

Achieving the Smart Energy & Water goals means stewarding these resources and their utilities. The Lower Mainland health care organizations are continually looking for opportunities to reduce the amount and intensity of energy and water use and greenhouse gas emissions from health care operations. Efficiency measures and water-conserving infrastructure do more with less, thereby lowering our environmental footprint without compromising patient care or employee comfort.

Our Goals

- 1 Reduce energy use intensity (EUI) of core sites.
- 2 Reduce absolute in-scope GHG emissions.
- 3 Reduce absolute in-scope GHG emissions intensity.
- 4 Reduce water use intensity (WUI) of core sites.

Current programs include:

- [Energy Management](#)
- [Greenhouse Gas Emissions Management](#)
- [Water Management \(under development\)](#)

B. We report our carbon footprint based on guidelines provided by the Carbon Neutral Government Regulation and Climate Action Secretariat in British Columbia. The Climate Action Secretariat uses various elements of reporting, based on the Greenhouse Gas Protocol Corporate Standard which has classified carbon

reporting into three scopes. Of these three scopes and various elements within each scope, the Climate Action Secretariat has determined that Vancouver Coastal Health's carbon footprint comprises six different greenhouse gases that are converted to tonnes of carbon dioxide equivalent (tCO₂e). The main sources

of emissions are categorized into three main groups which include Stationary Fuel Combustion and Electricity (buildings); Mobile Fleet Combustion (fleet and other equipment); and Supplies (paper).

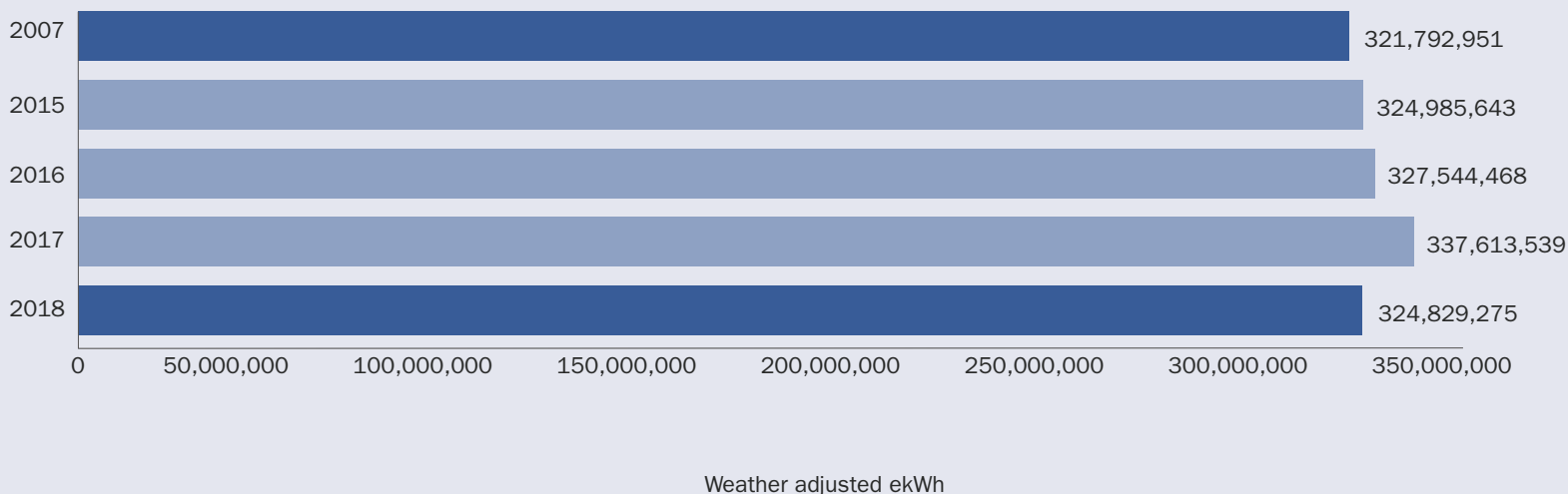
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Context

Energy consumption of core health care sites (weather adjusted ekWh)^{C,D}

1% ↑

The increase in overall energy consumption from 2007 to 2018, despite the amount of facility space monitored for energy consumption going up 18% since 2007



C. Data includes electrical, natural gas, and fuel oil. Data is also normalized according to weather. Data is for core sites only.

D. Core sites refers to health care sites that are actively monitored and reported on separately for energy, water, and/or waste.

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Performance

Energy use intensity (EUI)
 (ekWh/m²) of core sites^E

14.1% ↓

The decline in energy use
 intensity since 2007



E. Core sites refers to health care sites that are actively monitored and reported on separately for energy, water, and/or waste.

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Performance

Vancouver Coastal Health has achieved carbon neutrality every year since 2010.

Organizational carbon footprint in tCO₂e^{F,G}

18.6% ↓

The decrease in CO₂ footprint since 2007

\$1,069,189

The total value of carbon offsets paid by Vancouver Coastal Health to become carbon neutral for the reporting year of 2018



F. Annual total includes reductions for BioCO₂, for which no offsets are required.

G. The carbon footprint is derived by analyzing the data from all Vancouver Coastal Health sites. Measure includes all core and non-core sites.

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Performance

**Organizational CO₂e footprint intensity
(tCO₂e/usable sq. metre of facility space)^H**

30.8% ↓

The decrease in CO₂ footprint intensity since 2007



H. The carbon footprint is derived by analyzing the data from all core and non-core Vancouver Coastal Health sites.

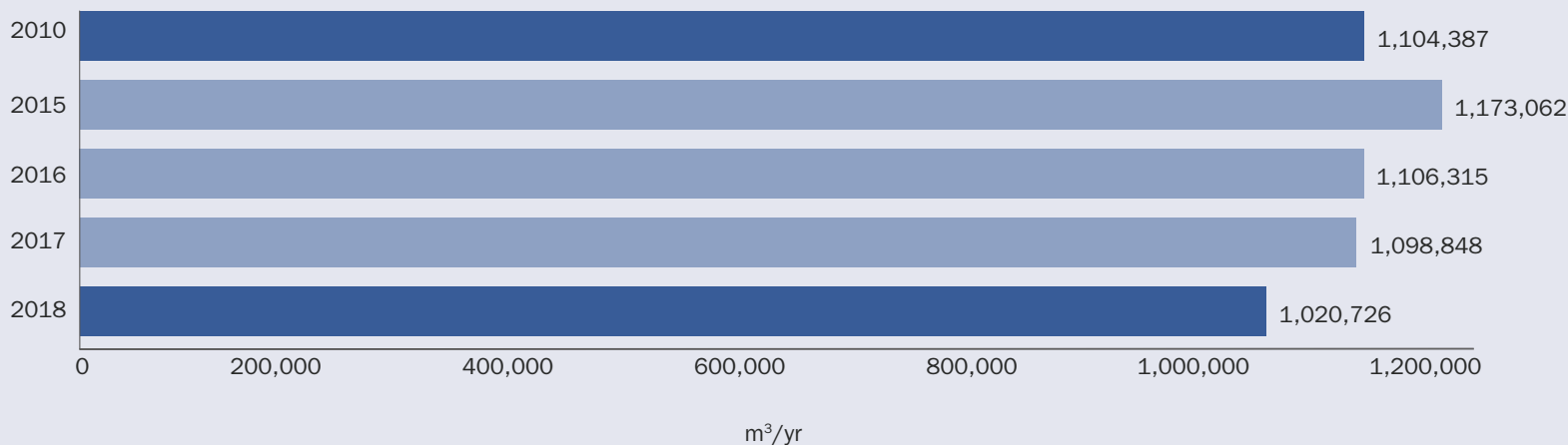
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Context

Building water consumption (m³/yr)

7.6% ↓

The decline in overall water consumption since 2010, despite a 7% increase in the total amount of facility space monitored for water consumption



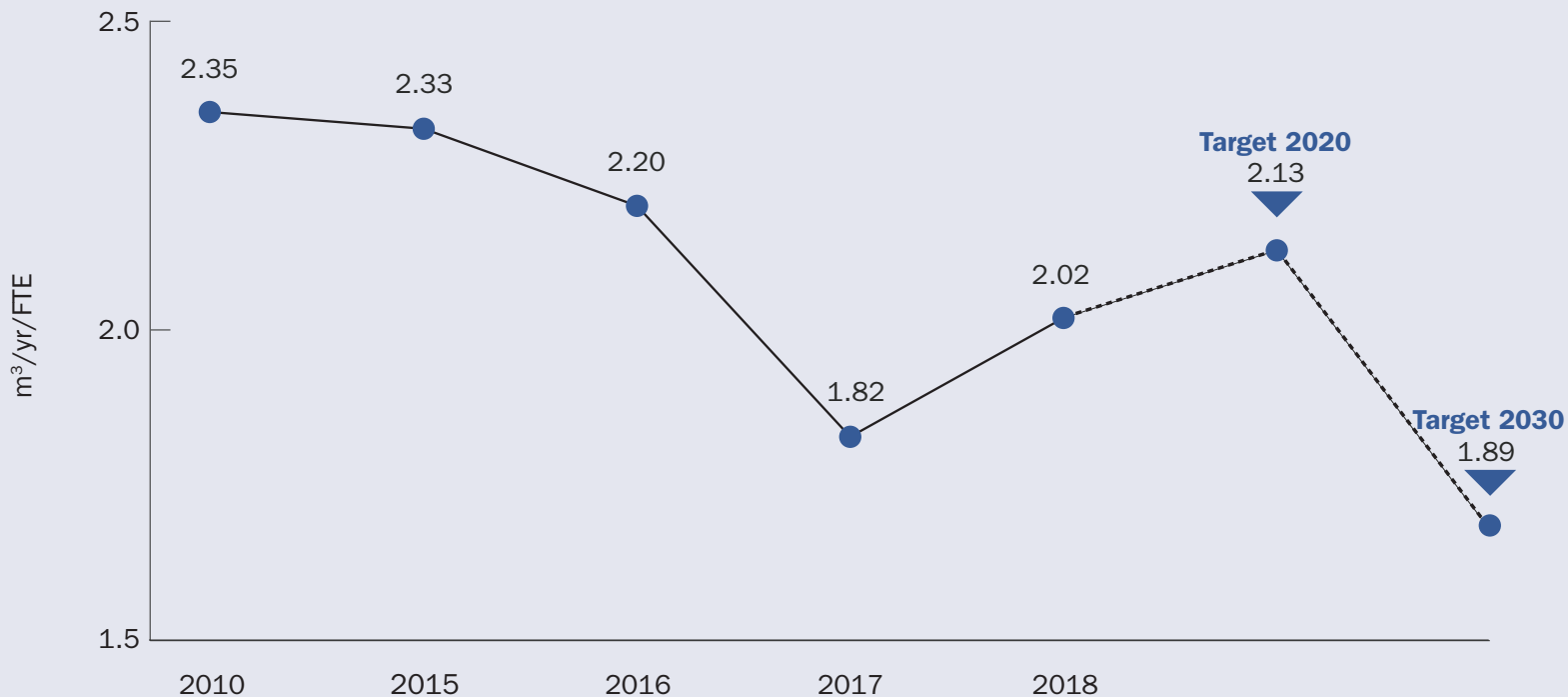
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Performance

Building water performance intensity (BWPI) ($\text{m}^3/\text{yr}/\text{m}^2$)

14% ↓

The decrease in building water performance intensity since 2010



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What do Vancouver Coastal Health staff have to say about energy and water consumption?

Our staff are already taking action to conserve energy and water, and would welcome the opportunity to do more to advance environmental sustainability.

According to our survey of Vancouver Coastal Health staff, while the majority of staff **(65%)** feel personally responsible for the amount of energy they use at work, **19%** remain undecided, and **15%** expressed that they do not feel personally responsible for

their energy use at work. However, less than half **(44%)** of staff feel they have the ability to control the amount of energy they use at work, **22%** remain undecided, and over a third **(35%)** feel they do not have the ability to control their energy use at work.

- The majority **(63%)** of staff reported always turning off the desk light/office light when away, and **10%** said that they want to do this more.
- **39%** of staff reported always turning off their computers overnight or when they are away from their computers for a long time, and **18%** said that they want to do this more.
- Only **27%** of staff reported always taking the stairs instead of the elevator, and **18%** said that they want to do this more.
- While only **26%** of staff reported always generally looking for ways to save energy in their workspace, **22%** said that they want to do this more.
- While only **1%** of staff reported always working remotely/telecommuting, **30%** said that they want to do this more.



Education

Staff were asked to rank how they feel Vancouver Coastal Health should prioritize initiatives within Smart Energy & Water. The average ranking of priorities that emerged is as follows:

- 1 Education campaigns for energy conservation
- 2 Education campaigns for water conservation
- 3 Education campaigns for climate change, risk, and resilience
- 4 Education campaigns for carbon emissions

What's happening at Vancouver General Hospital?

It should be noted that individual self-reported energy and water consumption rates varied per site within Vancouver Coastal Health.

- The majority **(52%)** of staff reported always turning off the desk light/office light when away, and **13%** said that they want to do this more.
- **29%** of staff reported always turning off their computers overnight or when they are away from their computers for a long time, and **19%** said that they want to do this more.

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2. Zero Waste & Toxicity

In health care settings, reducing waste and exposure to toxins produces better health outcomes for staff and patients, decreasing the risk of disease.

In the broader environment, scaling down the use of toxic chemicals and waste decreases greenhouse gas emissions and negative impacts on water, soil, and air, thereby reducing associated health impacts such as respiratory and cardiovascular disease, cancer, endocrine disruption, and birth defects.

Vancouver Coastal Health is working to reduce the negative environmental and health impacts of waste and toxins by focusing on programs that avoid and reduce material waste from being generated in the first place, divert material waste to recycling streams and reuse programs, and reduce and monitor

the use of toxic chemicals in health care construction, furnishings, maintenance, cleaning, and patient care.

Our Goals

- 1 Increase waste diversion rates at existing acute and long-term care sites.
- 2 Decrease waste intensity rates at existing acute and long-term care sites.
- 3 Increase waste diversion rates at all new health care construction projects.

Current programs include:

- [Blue Bin](#)
- [Environmentally Preferable Purchasing \(EPP\)^I](#)
- [Safer Chemicals^I](#)

I. Currently, there are no targets for EPP and Safer Chemicals.

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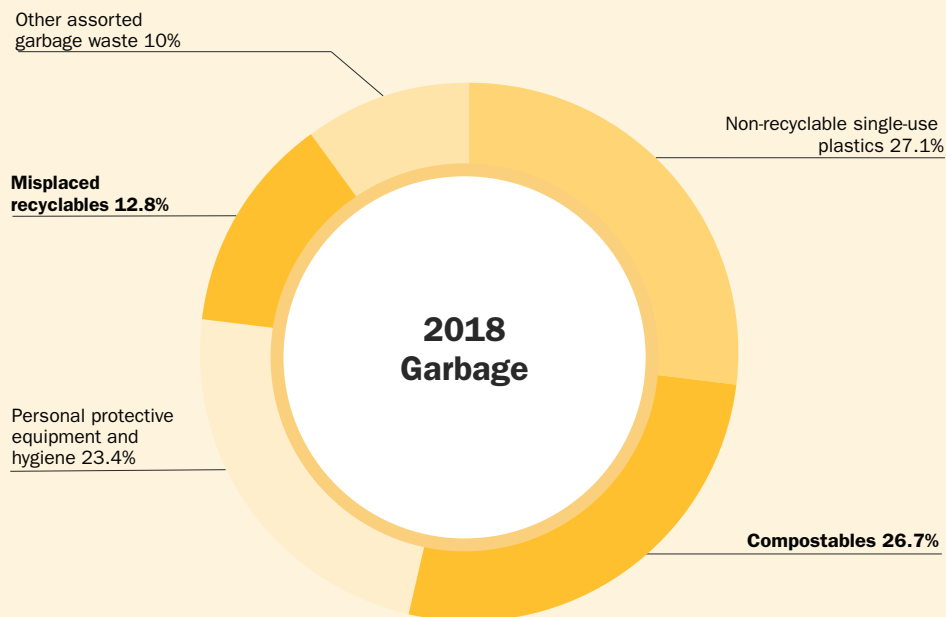
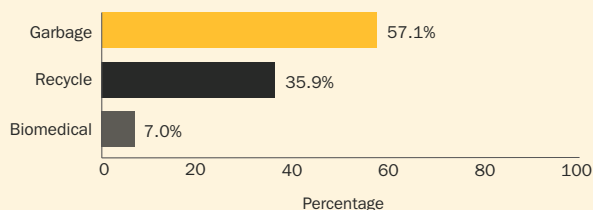
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**Lower Mainland Health
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Context

There are opportunities for Vancouver Coastal Health owned facilities to reduce garbage by properly disposing of **compostables** and **misplaced recyclables**.

Waste proportions for Vancouver Coastal Health owned facilities^J



J. Data is assumed for all acute and long-term care facilities and is based on composition data from a 2018 study of clinical units in one Lower Mainland acute care site.

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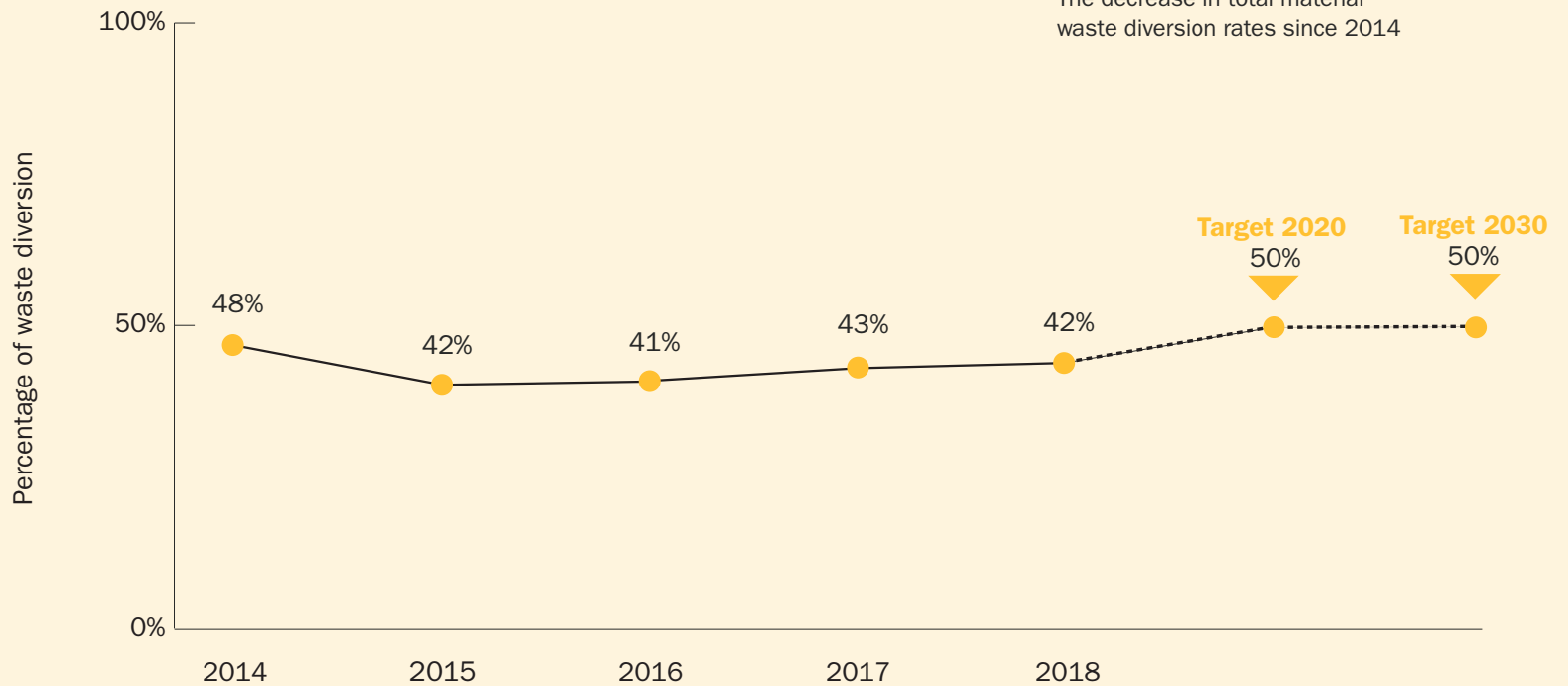
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Performance

Due to circumstances around current global recycling markets and the prioritization of internal infection control, opportunities to increase waste diversion rates within the health care sector has been challenging. The long-term objective is to consistently maintain diversion rates above 50%. Until external circumstances change and stronger behaviors

and processes are established internally, it is felt that the 2020 and 2030 targets should be maintained at the same level.

Waste diversion rates at existing acute and long-term care sites^K



3% ↓

The decrease in total material waste diversion rates since 2014

K. Diversion rates were negatively impacted in 2014 with the changing of recycling vendors and the elimination of soft plastics being recycled.

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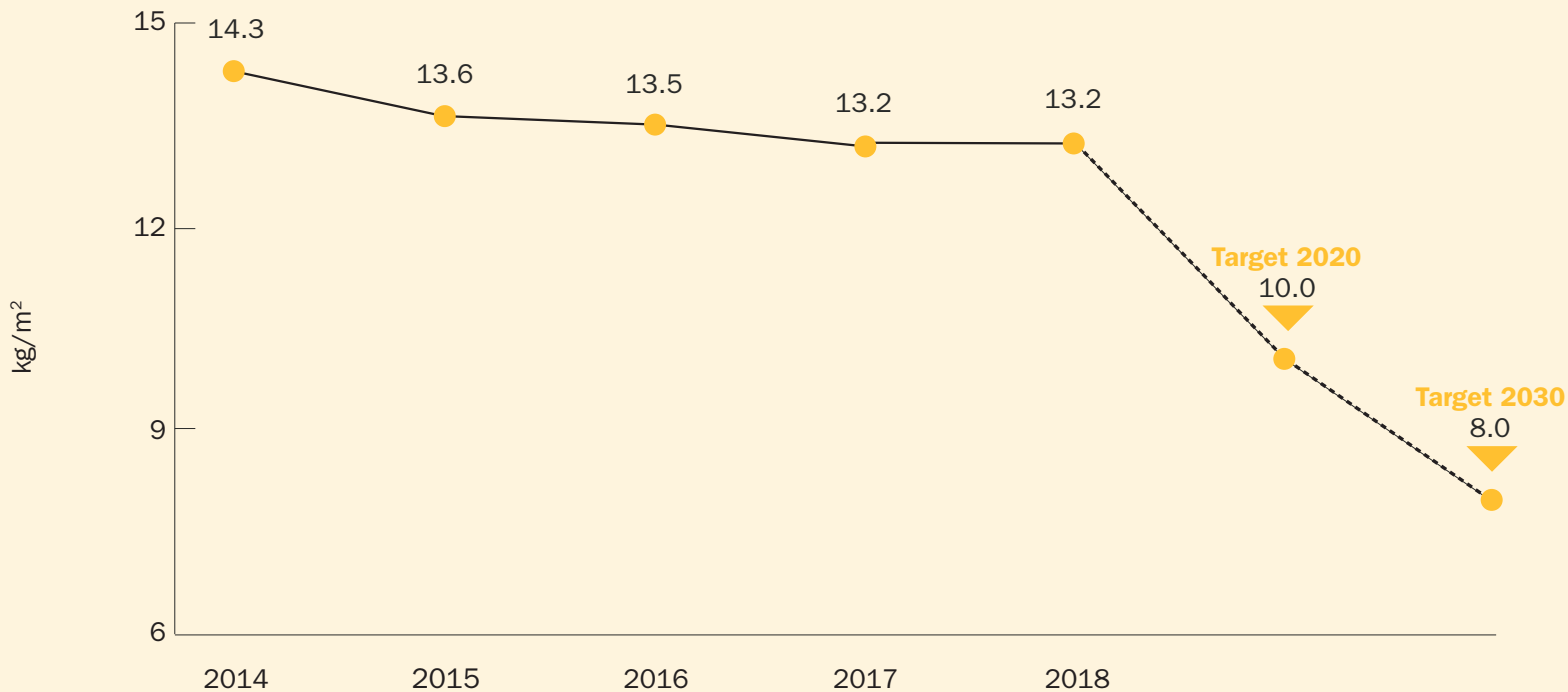
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Performance

Waste intensity rates at existing acute and long-term care sites (kg/m²)^L

7.6% ↓

The decrease in waste intensity rates since 2014



L. Includes (core) Vancouver Coastal Health acute and long-term care facilities

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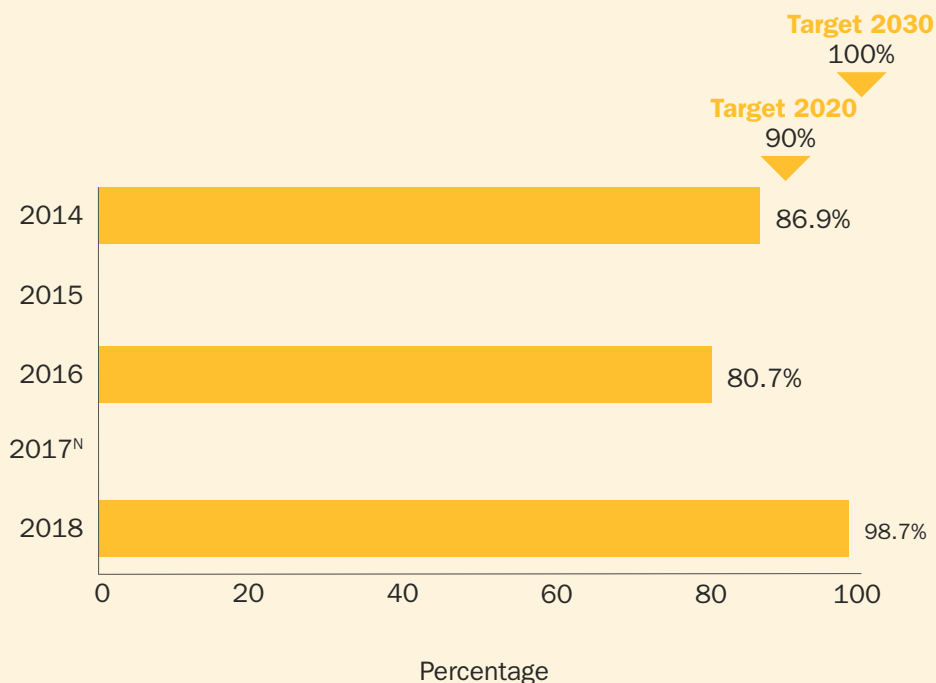
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Performance

Waste diversion rates for construction projects^M

Vancouver Coastal Health strives, through recovering, reusing, and/or recycling, to reduce construction and demolition waste, which is sent to landfills and/or incineration facilities. At present, reliable performance data is only obtained from projects seeking LEED certification and pursuing

the Construction and Demolition Waste Management Planning credit. This information is communicated through the report analysis and awarding of LEED certification. From 2016 through 2018, no Vancouver Coastal Health projects achieved LEED certification.



M. Waste diversion rates only measured on LEED registered projects

N. No new construction projects were completed in 2017.

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What do Vancouver Coastal Health staff have to say about waste and toxicity?

In the survey, Vancouver Coastal Health staff clearly indicated that they support environmentally sustainable decision making, and are already changing their behaviours.

- **76%** of staff said that they always recycle mixed paper.
- **72%** of staff said that they always recycle beverage containers.
- **72%** of staff said that they always choose tap/filtered water instead of individually bottled water.
- **62%** of staff said that they always recycle mixed containers (e.g. hard plastic and tin).
- While only **35%** of staff said that they always divert/compost organic waste, **19%** said that they want to do this more.

Education

Staff were asked to rank how they feel Vancouver Coastal Health should prioritize initiatives within Zero Waste & Toxicity. The following were determined to be the top four priorities within Zero Waste & Toxicity:

- 1 Develop new methods of material waste diversion (e.g. recycling).
- 2 Develop a repurposing process for waste items in good condition.
- 3 Develop department-specific environmentally preferable purchasing toolkits (e.g. guides to green purchasing).
- 4 Develop a chemicals-of-concern policy statement for our hospitals and health care sites.



What's happening at Vancouver General Hospital?

It should be noted that individual self-reported recycling and waste diversion rates varied per site within Vancouver Coastal Health.

- **53%** of staff said that they always ensure hazardous items are disposed of correctly (e.g. batteries and pharmaceutical waste), and **14%** said that they want to do this more.
- While only **20%** of staff said that they always divert/compost organic waste, **29%** said that they want to do this more.



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3. Active & Clean Transportation

Active transportation (walking and cycling) helps to reduce the risk of disease, the effects of psychological stress, and the negative physical impact of a sedentary lifestyle.

Clean transportation (walking, cycling, carpooling, and transit) reduces greenhouse gas emissions and contributes to environmental and human health by reducing consumption of fossil fuels and resulting air pollution. For instance, if all employees of Vancouver Coastal Health were to commute via an active and clean manner, approximately 500 fewer metric tonnes of carbon dioxide would enter the environment annually.

To achieve Active & Clean Transportation goals, our employees must be supported in their choice to use active and clean transportation. Vancouver Coastal Health is committed to providing infrastructure that supports the use of sustainable modes of transportation.

Goals

- 1 Improve health care staff commutes via cleaner and healthier means (i.e. other than single occupancy vehicles).
- 2 Increase portion of core sites that provide end-of-trip (EOT) bicycle facilities/ storage options.

Current programs include:

- [Active and Clean Transportation](#)

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Context

Health care staff that commute via cleaner and healthier means (%)

3.6% ↑

The increase in staff commuting via cleaner and healthier means since 2016



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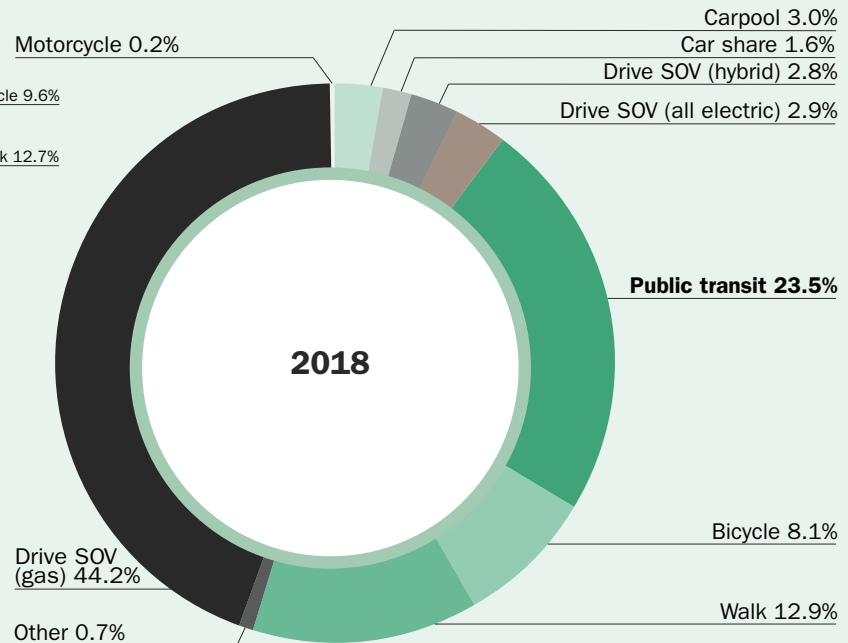
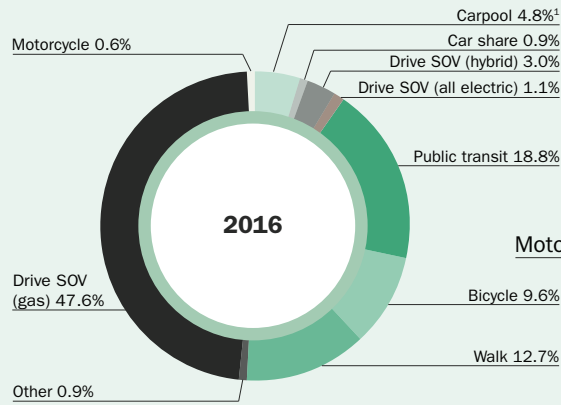
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Performance

Staff commute: percentage of time per mode



4.7%↑

The increase in public transit use from 2016 to 2018

Considered healthy options

- Carpool: carpool.ca, etc.
- Car share: Car2go, Evo, Modo, Zipcar
- Drive: single occupancy vehicle (hybrid)
- Drive: single occupancy vehicle (all electric)
- Public transit: bus, rail, ferry/sea bus —includes walk to train/bus stop
- Bicycle: pedal and electric
- Walk
- Other: scooter, shuttle, etc.

Considered unhealthy options

- Drive: single occupancy vehicle (gas)
- Motorcycle

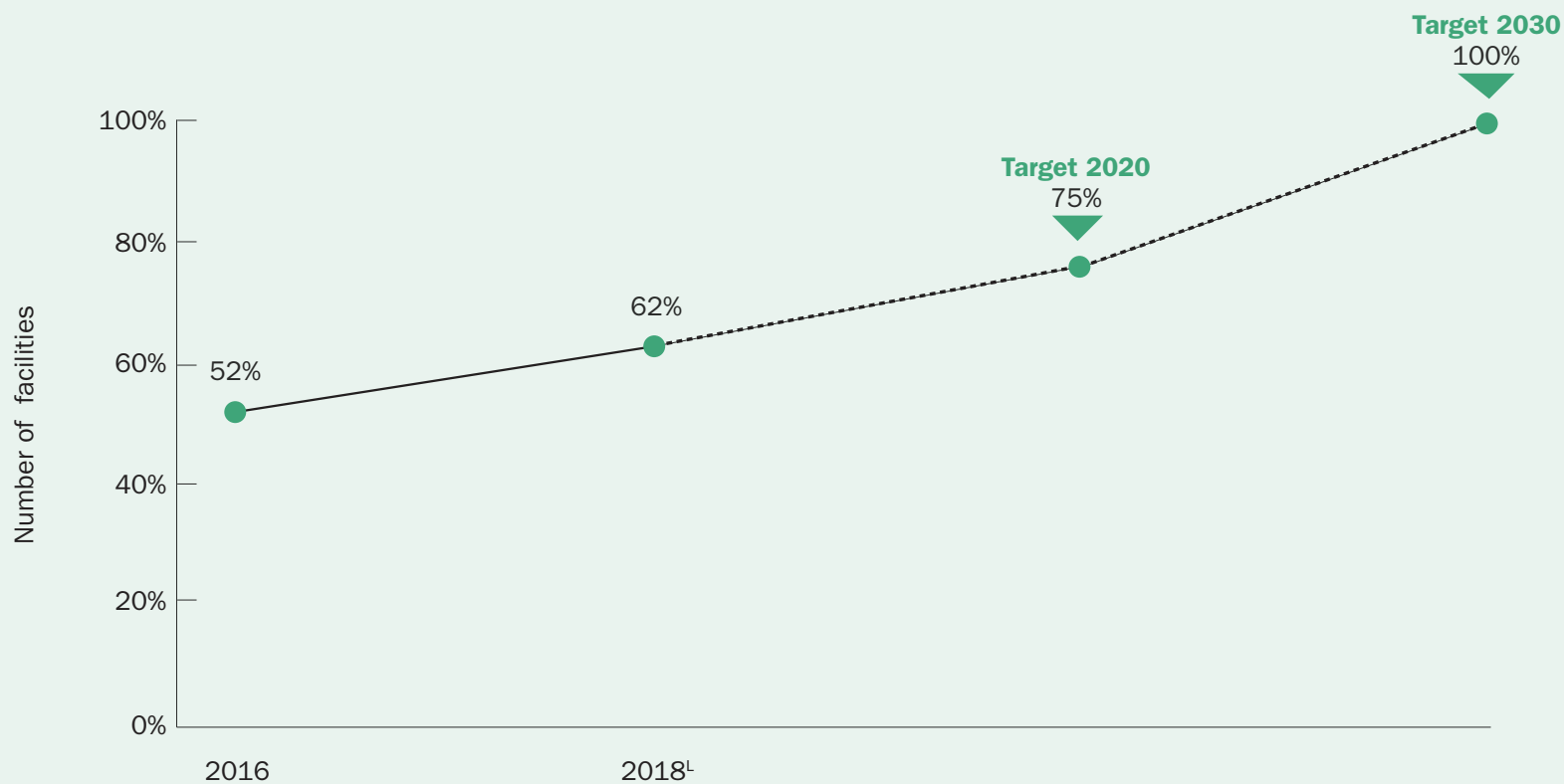
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Performance

Number of health care sites with end-of-trip (EOT) bicycle facilities⁰

10% ↑

The increase in sites with EOT facilities since 2016



0. EOT bicycle facilities are defined as facilities providing secure space for bicycle racks, lockers, and/or change rooms where cyclists, joggers, and walkers can shower, change, and secure their personal belongings. Bicycle storage or parking areas should be accessible to

users and located within the facility or on site within reasonable walking distance of a primary entrance of the site.

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Context

Vancouver Coastal Health supports annual fall and springtime Bike to Work Weeks. Though not directly stated as a goal with targets, participation rates of staff and their kilometres ridden and greenhouse

gases (GHG) avoided are important to note. Vancouver Coastal Health staff are continuing to make a difference through their everyday decision making.



257

Staff registered to ride in the spring/fall Bike to Work Weeks in 2018 (compared to 244 staff registered in 2017)

2,531

Trips logged by staff in the spring/fall Bike to Work Weeks in 2018 (compared to 2,619 trips in 2017)

20,968_{km}

Total distance biked by staff participants in the spring/fall Bike to Work Weeks in 2018 (compared to 19,955 km in 2017)

4,546_{kg}

Greenhouse gases (GHG) avoided via staff participation in the spring/fall Bike to Work Weeks in 2018 (compared to 4,327 kg in 2017)

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What do Vancouver Coastal Health staff have to say about active & clean transportation?

In the survey of Vancouver Coastal Health staff, when asked, “How far do you commute (round trip) in one typical work day?”, **20%** of staff said 11-20 km, **19%** said 6-10 km, **18%** said 21-40 km, **18%** said 2-5 km, **13%** said less than 2 km, and **12%** said 41+ km.

Staff reported commuting to work via driving a single occupancy gas vehicle **44%** of the time, via public transit (bus, rail, etc.) **23%** of the time, via walking **13%** of the time, and via a manual bicycle **8%** of the time over the course of a year.

With regards to transportation areas that staff wish Vancouver Coastal Health would provide more resources/incentives for:

- | | |
|---|---|
| ■ 64% of staff would like public transit discounts. | ■ 16% of staff would like showers and lockers associated with/adjacent to the bike facility. |
| ■ 34% of staff would like telecommuting/opportunities to work from home. | ■ 16% of staff would like hospital shuttle service opportunities. |
| ■ 30% of staff would like a financial incentive to use a bicycle for commuting or work purposes. | ■ 15% of staff would like electric vehicle (EV) charging stations. |
| ■ 30% of staff would like walking incentives. | ■ 15% of staff would like carpooling/ridesharing opportunities. |
| ■ 18% of staff would like carsharing opportunities (e.g. Modo, Zipcar, Car2go, etc.) | ■ 14% of staff would like secure bike facilities. |



What's happening at Vancouver General Hospital?

It should be noted that individual self-reported transportation rates varied per site within Vancouver Coastal Health.

For instance, VGH staff reported commuting to work via driving a single occupancy gas vehicle **31%** of the time, via public transit (bus, rail, etc.) **30%** of the time, via walking **22%** of the time, and via manual bicycle **9%** of the time over the course of a year.

The Future of Electric Vehicle (EV) Ownership

34%

of staff plan to own an EV.

35%

of staff do not own an EV and do not plan to own one.

27%

of staff are unsure about owning an EV.

4%

of staff currently own an electric vehicle.

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1776

Total number of Vancouver Coastal Health staff that have registered on the GreenCare website

4. Workplace Leadership

Formerly called “Culture Change”, this focus area was renamed after a series of discussions and feedback sessions.

Culture change is the desired outcome of effective workplace leadership, and this can be experienced at all levels in health care. Focusing on Workplace Leadership emphasizes the importance of people, self, and the impact that true leadership can have on workplace culture, and fostering leadership at various levels of an organization.

The Workplace Leadership team has learned from staff that inadequate awareness of the range of ways to participate and engage in environmental sustainability workplace practices presents a real barrier to the realization of project ideas that would support the collaborative greening of workplaces and processes. To achieve Workplace Leadership

goals, all employees, in all departments, and at all levels of Lower Mainland health care organizations must be exposed to relevant information and ideas via on-point communication tactics; offered training that enables them to lead and influence their colleagues; provided opportunities to contribute in areas of programmatic interest; and actively involved in the advancement of current and evolving sustainability policies.

The [GreenCare Community website](#) is a primary tool currently used to engage staff across the Lower Mainland health care organizations.

Goals

- 1 Decrease the GreenCare Community website bounce rate through stronger awareness of brand and resources.
- 2 Increase the e-newsletter click rate^P by improving the deeper effectiveness, beyond simple open rates,^Q of the GreenCare online engagement levels.
- 3 Increase the number of Green+Leaders across the organization through direct training of staff.
- 4 Increase the number of health care staff actively aware of and informed on how workplace decisions and processes can support environmental conservation and greenhouse gas (GHG) reduction.

Current programs include:

- [Green+Leaders](#)

^P Click rate is a percentage that tells you how many successfully delivered e-newsletters registered at least one click.

^Q Open rate refers to the percentage of a number of subscribers who open an email.

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Performance

BC GreenCare Community website % bounce rate^R

8.8%↑

The increase in bounce rate since 2014. A refresh is needed.



R. Bounce rate refers to the percentage of visitors who enter the site and then leave after viewing only one page.

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Performance

GreenCare e-newsletter click rate^S

Since 2017 the Mailchimp web tool has been used to deliver and monitor click rates of the e-newsletter.



S. Click rate is a percentage that tells you how many successfully delivered e-newsletters registered at least one click or view from the Internet.

T. In 2016, newsletters were Microsoft Outlook generated and the EES team was unable to determine click rates for that year.

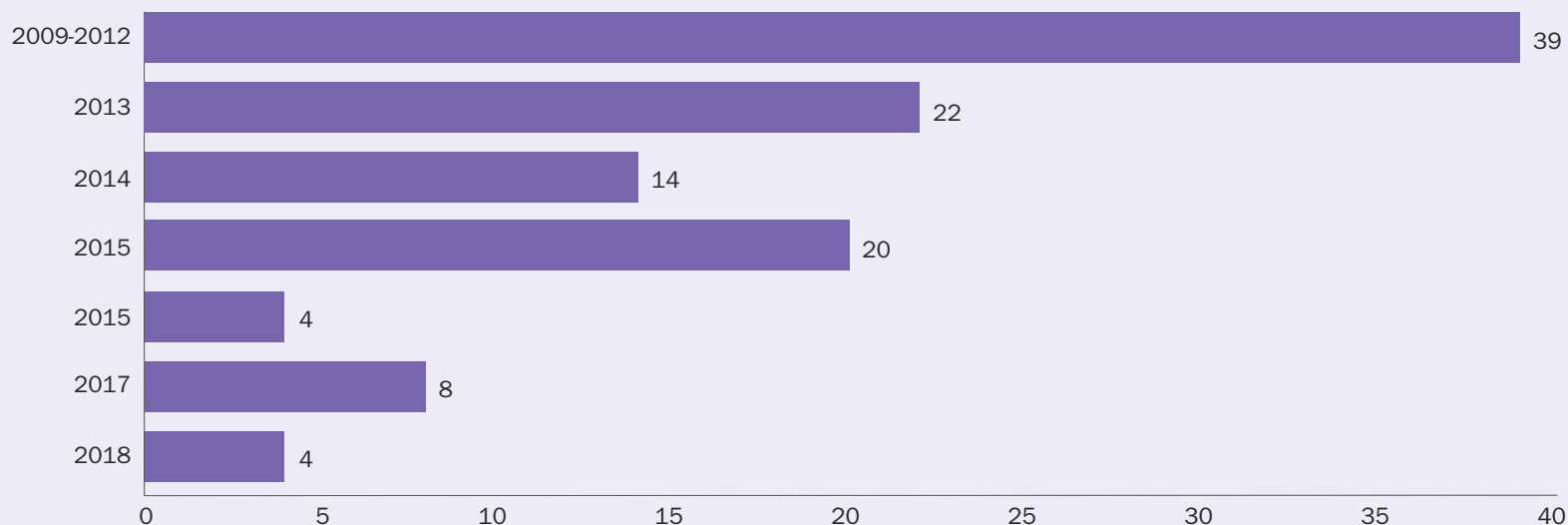
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Performance

Number of new, trained Green+Leaders

111

The number of Vancouver Coastal Health Green+Leaders trained to date. With a 50% drop in staff engagement rates from 2017 to 2018, it is expected the engagement rates will rebound in 2019.



Number of Trained Green+Leaders

Target 2020
 10% increase

Target 2030
 30% increase

A year over year percentage increase in the number of trained Green+Leaders.

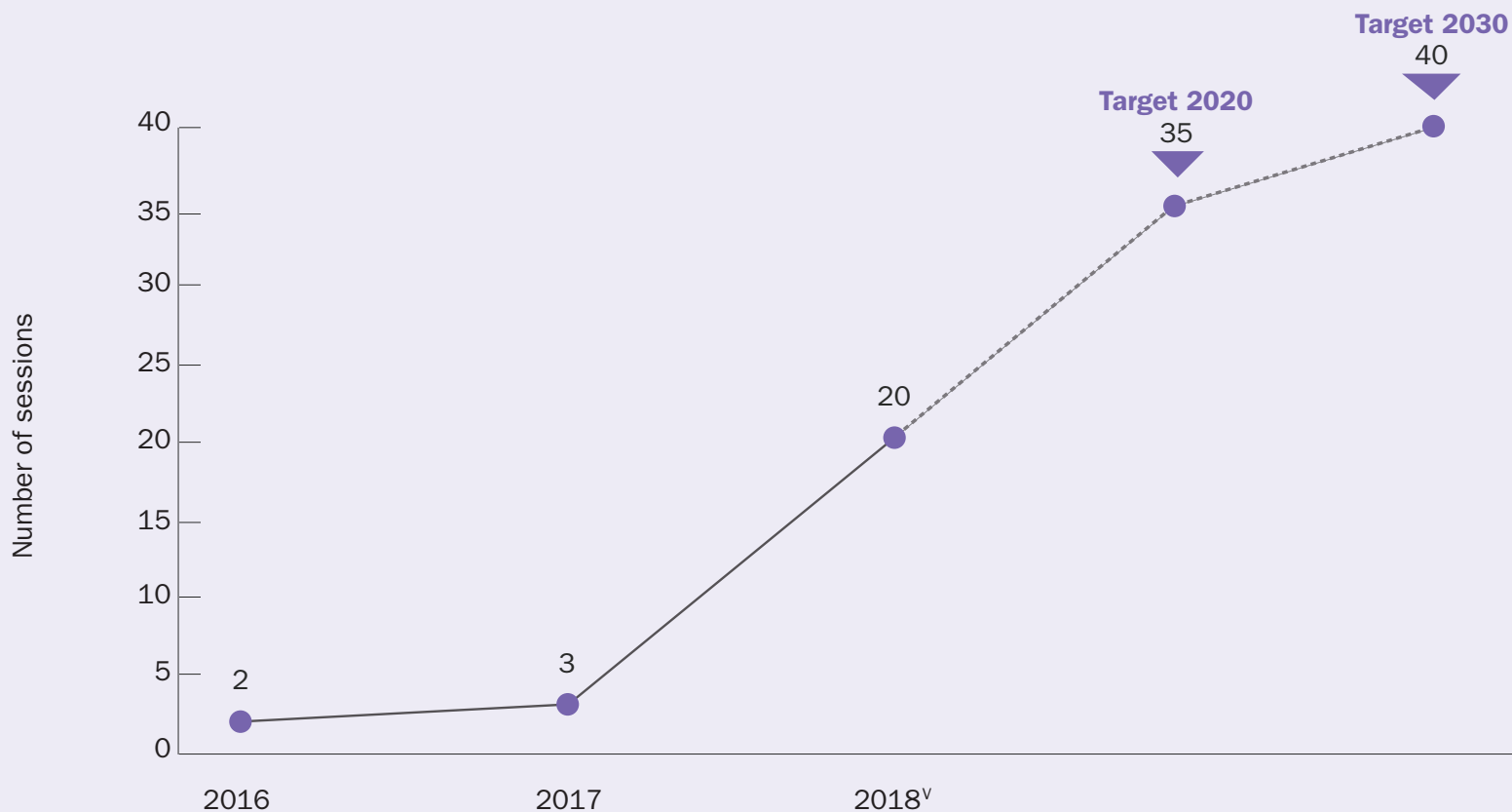
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Performance

Number of GreenCare education or training sessions^U

17

The increase in GreenCare education sessions from 2017 to 2018



U. Since 2012, BC Hydro has sponsored two different energy conservation programs directed at staff behaviour ("Workplace Conservation Awareness" and "EnergyWise").

V. In 2018, several EES programs consolidated efforts around presentations and educational/training sessions.

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What do Vancouver Coastal Health staff have to say about workplace environmental policies and programs?

In the survey of Vancouver Coastal Health staff, in regards to familiarity with policies and programs to address the new climate reality within the workplace, staff expressed a need to know more:

- **79%** of staff said they are not at all familiar with the Health Authority Environmental Sustainability Policy, but **12%** said that they would like more information on this.
- **71%** of staff said they are not at all familiar with the Health Authority GreenCare initiative, but **15%** said that they would like more information on this.
- **91%** of staff said they are not at all familiar with the Health Authority Energy & Environmental Sustainability (construction) Design Guidelines, but **12%** said that they would like more information on this.
- **79%** of staff said they are not at all familiar with the Health Authority Green+Leaders program, but **12%** said that they would like more information on this.
- **76%** of staff said they are not at all familiar with the GreenCare Community website, but **13%** said that they would like more information on this.



Prioritizing Workplace Leadership

Staff were asked to rank how they feel Vancouver Coastal Health should prioritize initiatives within Workplace Leadership. The average ranking of priorities that emerged is as follows:

- 1 Funding opportunities for the greening of your workplace
- 2 Staff coaching and mentorship on greening of your workplace
- 3 In-person sessions to share knowledge, success stories, and best practices
- 4 Creation of an online learning hub on environmental sustainability in health care



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4.3 This is what we've done: the 2018 Dashboard.

Goals ^A	Key Performance Indicators (KPIs) and Baseline (if applicable)	2018 Results	2020 Targets	"Traffic Light"	2030 Targets
--------------------	--	--------------	--------------	-----------------	--------------



Smart Energy & Water

Minimize energy & water consumption and GHG emissions to reduce costs and environmental impacts, helping ensure the health and wellness of our living environments.

Reduce energy use intensity (EUI) of core sites. ^B	EUI (ekWh/m ² /year) (2007 Baseline)	14.1%	15%	●	25%
Reduce absolute in-scope GHG emissions. ^C	GHG emissions (tCO ₂ e/year) (2007 Baseline)	18.6%	25%	●	40%
Reduce in-scope GHG emissions ^C intensity.	GHG emissions intensity (tCO ₂ e/year/m ²) (2007 Baseline)	30.8%	30%	●	50%
Reduce building water (use) performance intensity (BWPI) of core sites. ^B	BWPI (m ³ /m ² /year) ^D (2010 Baseline)	13.9%	10%	●	20%



Zero Waste & Toxicity

Minimize waste generated and toxic chemicals used by the health care system and supporting operations.

Increase waste diversion rates at existing acute and long-term care sites. ^E	Percentage of waste diverted (annual average)	44%	50%	●	50%
Decrease waste intensity rates at existing acute and long-term care sites. ^F	WI (metric tonnes/m ² /year)	13.2	10	●	8
Increase waste diversion rates at all new health care construction projects. ^G	Percentage of waste diverted (annual average)	98.7%	90%	●	100%

- Work on track, ahead of schedule, or exceeding
- Work on track but requires monitoring
- Work in progress but falling behind schedule

- A. The goals/targets are derived through a review of best practices and stakeholder engagement.
- B. Facilities that are actively monitored for energy and water efficiency (primarily owned and operated sites).
- C. "Absolute" emissions refers to total emissions regardless of growth change. "In-scope" emissions are from owned and leased buildings, fleet travel, and paper use (as defined in relation to the GHG Reduction Targets Act). VAncoeur Coastal Health's absolute emissions have

- gone up in relation to expanded services, including an increase in facilities space and staffing. But overall intensity has gone down.
- D. It is recognized that water consumption is more directly influenced by staff count per facility. Due the uncertain and changing nature of staff counts, for the time being facility space is used for the intensity metric.
- E. Waste diversion data does not include segregated bio-medical waste.

- F. This is a new goal as of 2018.
- G. "New" construction projects is defined as any completely new builds and does not currently include renovations because determining the performance data on renovations is seen as too inconsistent and difficult at this time. The \$150,000 value aligns with the Facilities Owner Project Requirements threshold.

Goals	Key Performance Indicators (KPIs) and Baseline (if applicable)	2018 Results	2020 Targets	"Traffic Light"	2030 Targets
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Active & Clean Transportation

Ensure a health care system in which employees commute/travel between sites in a manner that reduces GHG-related pollutants, minimizes the need for onsite parking, and increases overall health and wellness.

Increase the % of health care staff that commute via cleaner and healthier means (i.e. alternatives to single occupancy vehicles) ^H	Percentage of annual staff commute via cleaner and healthier means (2016 Baseline)	55.3%	60%	●	75%
Increase portion of core sites that provide end-of-trip (EOT) bicycle facilities/storage options ^I	Percentage of core sites with EOT facilities	61.9%	75%	●	100%



Workplace Leadership^J

Together, we will reach, engage, and inspire staff in health care to be leaders that share a commitment to and passion for sustainable and thriving healthy communities, workplaces, and environments.

Decrease the GreenCare Community website bounce rate through stronger awareness of brand and resources. ^K	Annual BC GreenCare website percentage bounce rate ^L	56.8%	45%	●	35%
Increase the e-newsletter click rate by improving the deeper effectiveness, beyond simple open rates, of the GreenCare online engagement levels. ^K	Average annual click rate of the Green+Leaders e-newsletter ^M	11.5%	15%	●	30%
Increase the number of Green+Leaders across the organization through the direct training of staff.	A year-over-year percentage increase in the number of trained Green+Leaders	3.7%	10%	●	15%
Increase the number of health care staff actively aware and informed on how work place decisions and processes can support environmental conservation and GHG reduction. ^{K,N}	The annual number of BC GreenCare related presentations, and educational and/or training sessions	20	35	●	40

- Work on track, ahead of schedule, or exceeding
- Work on track but requires monitoring
- Work in progress but falling behind schedule

H. The performance data for staff commuting is determined through an annual survey of staff across the health care organizations. Using a confidence interval of 95%, the survey attained the following margins of error: maximum amount by which the results are expected to differ from those of the actual population, for Fraser Health (3%), Providence Health Care (10%), Provincial Health Services Authority (4%), and Vancouver Coastal Health (4%).

I. End-of-trip facilities must include a minimum of 1 on-site shower/changing facility and a minimum of bicycle secure storage for 5% of on-site staff.

J. Though the Workplace Leadership focus pertains to all targets in all focus areas, specific targets have been set for this topic area.

K. These goals are new but seen as more accurate measures of success in this focus area.

L. Bounce rate refers to the percentage of visitors who enter the site and then leave after viewing only one page.

M. Click rate is a percentage that tells you how many successfully delivered e-newsletters registered at least one click.

N. This performance data indicator includes only the number of GreenCare education or training sessions conducted by the Energy & Environmental Sustainability team.

4.4 There's still a lot that we need to do.

Under the guidance of the Consolidated Lower Mainland Facilities Management, much work has been done to implement GreenCare programs to help each of Fraser Health, Providence Health Care, Provincial Health Services Authority, and Vancouver Coastal Health meet their GreenCare targets and objectives.

The work isn't finished. Continuing to make decisions that support and advance these programs will support environmental sustainability across Vancouver Coastal Health, as will efforts and ideas that fall outside of these programs. We're all part of the story of environmental sustainability. Tips, suggestions, and feedback are always welcome at the [GreenCare website](#).

Our Programs

Energy Management

Health care is one of the most energy intensive sectors of the economy, which makes responsible energy management a critical area of environmental focus. The Energy Management program seeks to reduce reliance on fossil fuels and overall energy consumption, thereby reducing negative environmental impacts and supporting human health.

The program develops strategic partnerships and strong relationships with a wide range of stakeholders—particularly maintenance and operations teams, projects and planning teams, consultants, and utility providers—to identify and implement energy reduction opportunities. It also undertakes measurement and reporting on key energy performance indicators and benchmarks,

connects with internal sustainability consultants on systemic and behavioural change initiatives, and monitors and tracks project funding.

A few initiatives included in the energy reduction strategy are as follows:

- Energy studies to determine project opportunities
- Boiler plant upgrades and district energy solutions
- Control system optimization
- Heat recovery chiller installations
- Behavioural change pilot campaigns for energy conservation

Program staff partner with FortisBC and BC Hydro to attract funding support for energy conservation and efficiency projects, with the incentives received from industry partners used to supplement the project funding. The implementation of these projects directly reduces operating expense and the environmental impact of Lower Mainland health care organization sites.



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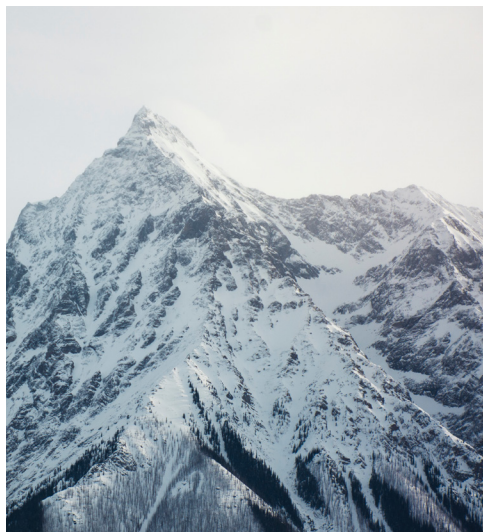
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Greenhouse Gas Emissions Management

The focus of the Greenhouse Gas Emissions Management program is to reduce greenhouse gas (GHG) emissions and align with the Climate Change Accountability Act and CleanBC. Of the total measured emissions generated by Lower Mainland health care sites, over 95% are from buildings while the remaining 5% are from supplies (paper usage) and transportation (fleet and other vehicles) combined. The GreenCare goals and targets for carbon neutral operations will be achieved, generally, by reducing GHG (carbon) emissions and purchasing carbon offsets.

Emission-Reduction Strategies for Buildings

- Reduce operational energy (natural gas and electrical) consumption.
- Optimize existing plants and controls.
- Build new facilities to aggressive performance standards.

- Use district energy and off-site renewable energy generation.
- Embed energy management principles into operating standards.
- Educate and engage employees on energy conservation.
- Reinvest energy savings into projects for further reductions.

**Emission-Reduction Strategies
for Transportation, Supplies, and
Clinical Processes**

- Reduce fleet size and means of fuel consumption.
- Install bicycle infrastructure and encourage clean means of commuting.
- Install electric vehicle charging stations to encourage staff use of electric vehicles.
- Reduce the consumption of supplies such as paper.
- Reduce or recapture anesthetic agents (currently not considered a part of Lower Mainland health care organizations' carbon footprint).

The Greenhouse Gas Emissions Management program supports and works alongside B.C.'s provincial mandate for carbon neutrality across all public sector organizations. Each B.C. health care organization is required by the Province to produce an annual Carbon Neutral Action Report (CNAR) that provides a measure of their carbon footprint along with the steps taken to reduce and neutralize that footprint.

Download the Carbon Neutral Action Reports (CNARs) for British Columbia health care organizations below:

- [Fraser Health CNAR](#)
- [Providence Health Care CNAR](#)
- [Provincial Health Services Authority CNAR](#)
- [Vancouver Coastal Health CNAR](#)
- [Interior Health Authority](#)
- [Vancouver Island Health Authority](#)
- [Northern Health Authority](#)

Water Management

The management of water use is a growing priority not only for health care organizations but for all B.C. residents. Vancouver Coastal Health's Water Management program is an integral part of the Province's strategy to address the recurring issue of water shortage across B.C.

The Water Management program, which is still under development, is being created to actively plan, develop, distribute, and optimize the use and possible reuse of water resources by Lower Mainland health care sites. Focused largely on conservation, this program looks to:

- Optimize landscape irrigation.
- Eliminate once-through cooling systems.
- Capture/reuse rainwater.
- Optimize water use through behavioural change.
- Manage sewage and wastewater with the eventual goal to recycle or reuse grey water where applicable.

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Blue Bin

The Blue Bin program, administered in partnership with Business Initiatives & Support Services, aims to increase material waste diversion at all owned hospital and long-term care sites, with the target of reaching 50% waste diversion by 2020. The program provides health care sites with recycling equipment and signage, and staff education. As a standardized recycling program, it operates in the same way at every site, making it easier for staff, physicians, patients, volunteers, and visitors to recycle correctly. Clear signage attached to each bin helps to reduce confusion and error at the time of disposal.

Recycling is undertaken in both (appropriate) clinical and non-clinical areas of Lower Mainland sites for the following material waste streams:

- Mixed containers
- Mixed paper
- Organics

**Environmentally Preferable
Purchasing (EPP)**

Purchasing items that consume unnecessary packaging, contain toxic chemicals, and must be disposed of in the garbage or hazardous waste (not recyclable) contributes to the extraction of unnecessary natural resources, greenhouse gas emissions, and air pollution, which are associated with health problems such as asthma, endocrine disruptors, and mental illness. The EPP program aims to decrease the negative impact of building materials and patient care equipment and supplies on environmental and human health.

The program includes the following actions to support the achievement of environmental sustainability goals and targets related to reduced energy and water use, GHG emissions, waste generation, and harmful chemicals:

- Collaboration with clinicians and key departments such as PHSA Supply Chain, Infection Prevention and Control, Workplace Health & Safety, and Facilities Maintenance, in order to signal to health care vendors the importance of environmental and human health
- Making changes to our procurement processes. In 2018, weighted environmental questionnaires were included in procurement processes related to human waste management systems, nursing trays, and adult disposable incontinence.

Safer Chemicals

The Safer Chemicals program aligns with international efforts to recognize that there are chemicals of concern contained in man-made products, including those used in our hospitals for construction, furnishing, maintenance, cleaning, disinfection, and patient care. Chemicals of concern

refer to chemicals that, through credible evidence, have or can have adverse health effects to people or the environment, including carcinogenic and reproductive/development toxicants, and those that are persistent, bioaccumulative, and toxic to the environment.

The Safer Chemicals program aims to develop a strategy across the four Lower Mainland health care organizations that:

- Aligns health care sites with work undertaken by Workplace Health and Safety, Infection Control, and other clinical stakeholders in order to develop toxicity reduction targets and create a pathway towards safer chemicals
- Identifies potential chemicals of concern, including using requests for proposals to ask vendors to declare chemicals of concern in their products
- Develops a list of chemicals of concern for health care site construction and operations

Active & Clean Transportation

This program, administered in partnership with Integrated Protection Services, encourages employees to use active and sustainable modes of transportation to get to work and to travel between sites. These modes contribute to health by offering the benefit of exercise and stress reduction, and by reducing greenhouse gas emissions, road congestion, and parking demand, thereby contributing to a cleaner, pedestrian-friendly environment.

Ongoing initiatives of the Commuter Services program include the following:

- Carpool/rideshare matching
- Electric vehicle charging stations

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- Interhospital shuttle services
- Public transit support
- Bicycle storage services
- A “bike/walk/ride” GreenCare Community Group that brings staff together to share information about events and campaigns with interested employees
- Participation in the annual Bike to Work Week event organized by HUB (an external, Vancouver organization dedicated to the promotion of cycling)

Green+Leaders

The Green+Leaders program provides direct engagement and support for health care staff in their efforts to create environmentally sustainable workplaces. With approval from their managers, staff volunteers train for and commit to the representative position of Green+Leader for their unit or site. They then set a certain number of hours per week in which to evaluate their

work area for opportunities to reduce its environmental impact and facilitate a positive transformation.

Green+Leaders make a significant contribution to the improvement of the environmental performance of the Lower Mainland health care organizations, with more than 500 trained staff volunteers (working in all areas of health care) now participating in the Green+Leaders program. These individuals are agents of change, encouraging environmentally sustainable behaviour, improving existing processes, and helping to create an overall culture of environmental health and wellness inside and outside the workplace.

The program focuses on behaviour change in the following areas:

- Zero waste and toxicity
- Energy and water conservation
- Active and clean transportation
- Climate resilience and adaptation
- Workplace culture

It also supports Workplace Leadership efforts while providing the following benefits to staff volunteers:

- Training, tools, and leadership development
- Support from a community of like-minded colleagues
- Participation in inspiring and educational events

- Opportunities for making a positive, meaningful impact on workplace and community

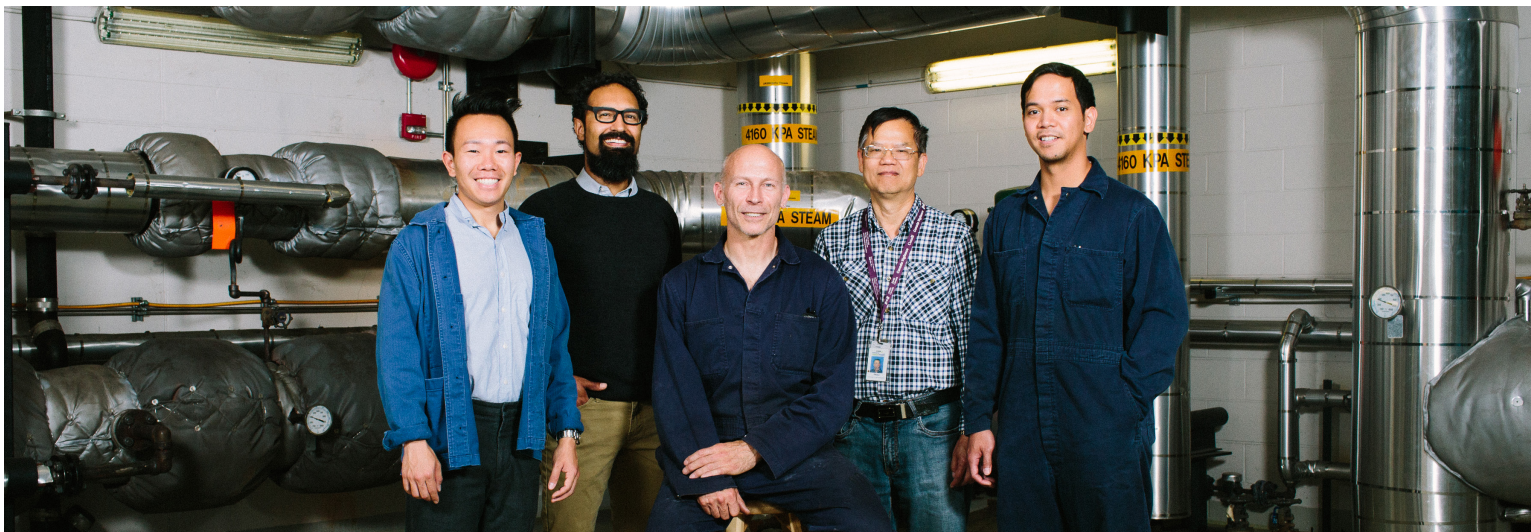
Climate Resilience & Adaptation

Launched in March 2016, the Climate Resilience & Adaptation program aims to reduce risks and build resilience at the building, health campus (or “site”), and community (or “off-site”) levels to help ensure that major investments in patient care help us to weather expected and unexpected events in our new climate reality.

Understanding climate hazards, risks, and vulnerabilities are key initial steps in a collaborative and iterative adaptation process that begins during project planning and design. Identification and prioritization of low-carbon adaptation options that are impactful, cost effective, and future forward are essential to creating viable adaptation pathways that extend to the end of infrastructure lifecycles. Planning and implementation paired with monitoring and evaluation will serve to increase the long-term resilience of our health campuses and organizations to climate shocks and stresses.

Health system collaboration among facilities, public health, emergency management, and other building blocks is key to preparing communities for our new climate reality while building resilience for the organization as a whole, and opportunities to seek co-benefits with improved human health and reduced greenhouse gas emissions are identified and integrated into plans and actions wherever possible.^{w,x}

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Energy and Water Management Success

VGH Energy Centre: Steam Plant Optimization

A pump and piping redesign was developed and validated through an energy study and engineering design process, with the FMO team actively participating at each stage of the project.

The end result showed significant natural gas and electricity savings and captured an incentive from Fortis BC, and the final project moved ahead and included the following energy and emission savings measures:

- Piping of a standby boiler preheating system: Treated hot water (from boilers) that would have otherwise gone down the drain was instead injected into the standby boiler to keep the boilers warm.
- Improved staging of the existing three boilers based on actual demand: Control sequencing and programming was

implemented to determine boiler efficiency and demand needs.

- Addition of a new low load steam feed water pump: A new pump was installed to support the plant during the shoulder heating seasons when lower flows are required.

By implementing these measures, it is estimated that this project will save 241,000 kilowatt hours and 5,600 gigajoules annually, alongside reducing carbon emissions by 280 tCO₂e per year.

The co-benefits of this project include reduced water consumption, improved recovery time of the boiler, and a significant reduction of emission-related health impacts and contribution to climate change. An ongoing monitoring and verification is in process to validate the level of energy savings. This project is a great example of an organizational, integrated team approach with significant benefits to the Vancouver Coastal Health and the populations served.

There has been ongoing collaboration with the FMO and EES team and a second energy study has been initiated at the VGH Energy Centre.

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Waste Diversion Success

Styrofoam Recycling Begins at VGH

Expanded polystyrene packaging (commonly known as Styrofoam) is a ubiquitous packaging material because it is lightweight, hardy, and long-lasting.

Styrofoam is necessary in some parts of health care operations (e.g. as a packing material for sensitive equipment and coolers to keep specimens safe). When reuse isn't an option, Styrofoam has been thrown into the garbage since previously there was no recycling program for it. Clifford Almeida and Tricia McDonnell championed a change.

Styrofoam is a priority material for Vancouver Coastal Health to divert from landfill, so, in 2018, Vancouver General Hospital (VGH) hired a company to recycle it. Many other Vancouver Coastal Health sites are also

getting on board with the goal of having every site recycle its Styrofoam rather than throw it away. Staff are supporting this action for environmental sustainability by placing their Styrofoam packaging aside for housekeeping to transfer to the loading dock, where it is picked up for recycling and can be turned into fireproofing material, picture frames, decorative mouldings, fencing, and more.

Since this program began, along with the obvious benefits to the environment via waste reduction, we've seen improved staff morale, engagement, and workplace culture.

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Climate Resilience & Adaptation Success

Climate Projections Report

At the [BC Public Sector Leadership Climate Symposium](#) in December 2017, Florrie Levine, Senior Facilities Project Manager, asked a question that sparked a new approach to understanding risks to Lions Gate Hospital (LGH) and Vancouver Coastal Health Communities of Care in our new climate reality: “Can we create together a climate projections report for our Vancouver Coastal Health region, similar to Metro Vancouver’s, to inform how we plan and design our health facilities?”

Over the next six months, Florrie teamed up with Susan Scrivens (Perioperative Clinical Planning Lead), Kori Jones (Vancouver Coastal Health Energy and Carbon Manager), and Angie Woo (Climate Resilience & Adaptation Lead) to explore this question through an interdisciplinary lens.

Health system stress tests featuring climate scenarios in the year 2035 were carried out with subject matter experts in climate science, architecture, engineering, and sustainable building certification to achieve a better understanding of climate risks and impacts on cooling and ventilation systems, building design and operations, and critical services (i.e. power, energy, and water supply). These informed a workshop with health system colleagues to explore cascading impacts on patient care and communities of care (e.g. population and public health, and regional programs including critical care & medicine, trauma & emergency, patient safety & learning, physician quality improvement & assessment, emergency management, and risk management).

Moving Toward Climate Resilient Health Facilities for Vancouver Coast Health, a climate projections report intended to inform design and operations, was launched in fall 2018. Climate data and maps specific to LGH and ten other Vancouver Coastal Health health facilities develop a deeper understanding of how climate risks and impacts are presented at the human and community scales. With this report, Vancouver Coastal Health health facilities can undertake actions and plans to reduce climate risks today and everyday to ensure that we continue to deliver high-quality, cost-effective, and resilient patient care in our new climate reality.

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Active & Clean Transportation Success

Happier: Cycling Newbie Conquers his 22 km Commute

It all started one morning last year with a casual conversation between colleagues about age. Jeff (Facilities Management, Vancouver General Hospital) was surprised to learn that Arthur (Healthy Transportation Lead) was older than him! Jeff said that he was interested in cycling to work, but when invited to start, he expressed common concerns: "I'm overweight, not in good shape, and I'd be too nervous about what route to take."

Viewing these issues as challenges, not barriers, Arthur offered to bike with Jeff on his first ride and guide him along the safest route. "This really meant the world to me; that he would offer his time to come and help—who else has work friends like that?" Jeff said, "I feel so lucky."

"No problem," Arthur said, and then asked where Jeff lived.

It turns out that Jeff lives in Steveston, which means a 22 kilometre commute. Regardless, Arthur felt that he needed to keep his bike buddy promise for Jeff's first commute. In advance, Jeff began some dry land training at the VGH Wellness and Fitness Centre, and got his bike tuned up and ready to roll.

The date for the first cycling commute was set for April 26, 2018, at a start time of 5:30 a.m. The early start allowed for a leisurely pace and double the time suggested in a Google Maps search. An unhurried pace made sure that Jeff gained comfort on the road. For the first few blocks, Arthur rode

behind to watch Jeff's positioning with respect to parked cars, intersections, and turning lanes—skills that any Vancouver Coastal Health staff member can learn in the cycling safety courses this April and May.

The first ride was just short of two hours, including a sit-down stop for coffee. Before long, Jeff managed to bike to work in just over an hour, which is only 10 minutes longer than a commute by transit. Jeff hopes to improve his cycling time, and is eager to try an e-bike on his commute to see how much time he can save. The cycling and road safety tips he's learned have also changed how Jeff drives his car: he looks out for bikes even when he's driving.

A special thanks to Jeff for sharing his cycling story with all of us!

Thinking of pedaling to or from work?

- Sign up for a cycling safety course in April and May. It's highly recommended to any bike commuter, especially new and novice cyclists.
- Check out the e-bike promo for Vancouver Coastal Health staff.
- Start with learning the safest route and practicing a couple of times on the weekend.
- Buddy up! Can one of your colleagues show you a route, or join you for part of the way?



- Our GreenCare initiative
- These are our GreenCare Focus Areas.
- This is what we've done: the 2018 Dashboard.
- There's still a lot that we need to do.



Workplace Leadership Success

Inspiring a Nature Culture in the Workplace

In 2017, The Green+Leaders program piloted a funding initiative to support Green+Leaders in kick-starting change projects related to energy and environmental sustainability in their workplace.

With the help of this “pot of seed money”, Caroline Heisler, Culture & Change Advisor and Green+Leader, saw an opportunity to start a community garden on the patio of her building, located at 601 West Broadway.

Together with her colleagues, Caroline planted seeds, and staff took turns watering and tending to the garden. Not only did this spark a nature culture in the workplace,

some herbs, vegetables, and fruit they grew were sold by donation. Caroline and her team raised approximately \$200 which was donated to charity.

Commenting on the Green+Leaders, Caroline noted, “The Green+Leaders program is a supportive network of staff volunteers who take action, share ideas, and inspire others to create a healthy workplace for us all.”

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5.0 Writing the Story We Want, Now and in the Future

Environmental sustainability
is everyone's story.

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5.1 Future actions

As demonstrated by the success stories outlined in the previous section, we can see how staff engagement and actions are already leading to meaningful change in the workplace. Likewise, as the following GreenCare initiatives are put into place, they will lead to more success in our overall story of environmental sustainability.

■ Energy Management

- Green Design Strategies for health campuses and communities, with UBC
- LEED Assessment and Planning for Resilience pilot credit
- Ensuring that net zero energy/emissions analysis is included at the concept phase for all major redevelopment projects

■ Climate Resilience & Adaptation

- Climate risk and vulnerability assessments of health facilities
- Integrated Climate and Health Vulnerability Assessment and Adaptation Plan
 - This is a three year joint project, funded by Health Canada with Population and Public Health and Health Emergency Management BC.

- Developing standards and guidelines for climate resilient facilities
- Developing Climate Resilience & Adaptation program webpage
- 2nd Annual Facilities, Maintenance and Operations Extreme Events Survey

■ Greenhouse Gas Emissions Management

- Building on the key partnerships with operations staff to continue to identify and reduce energy/GHG reduction opportunities
- Building key partnerships with the Facilities Projects and Planning teams to ensure that energy/GHG performance and life cycle analysis are high prioritizes in new construction projects

■ Water Management

- Rolling out the Water Management program

■ Workplace Leadership

- GreenCare Community website refresh and relaunch

■ Zero Waste & Toxicity

- Cafeteria waste diversion project at UBC Hospital and Lions Gate Hospital
- Health authority-wide vinyl banner upcycling project
- Waste generation study at Richmond Hospital



- Future actions
- Everyone's story
looks a little different



5.2 Everyone's story looks a little different.

Thank you for your ongoing support.

From the success stories in Vancouver Coastal Health to the challenges still faced, it's clear: **environmental sustainability is everyone's story**. If we are to overcome the impacts of the new climate reality, ensure that we are making responsible choices for our environment, and continue to offer our staff, volunteers, and patients the very best quality

of life possible, **together we must all take a leading role in transforming health care through our decision making**.

To find out more about what you can do to support and advance environmental sustainability at Vancouver Coastal Health, please contact: greencare@vch.ca