



GreenCare™
2018
Environmental Performance
Accountability Report

Environmental sustainability is everyone's story.



Providence
HEALTH CARE

How you want to be treated.



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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 Providence Health Care 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 Providence Health Care 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 Providence Health Care, 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 Providence Health Care 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 make 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 Providence Health Care has, through energy conservation work, avoided over \$1 million in energy costs since 2010. With Providence Health Care spending \$4.8 million on energy costs and \$850 thousand on water costs each year, implementing effective strategies to reduce utility costs has significant environmental and fiscal benefits, ultimately contributing to better patient care. This is but one example of sustainability in action.

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.



Mauricio A. Acosta
Executive Director,
Business Performance
& Corporate Support

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2.1 Providence Health Care: “Driven by compassion and social justice, we are at the forefront of exceptional care and innovation.”

Providence Health Care is an independent society and faith-based care provider formed in 2000 through the consolidation of the previous CHARA Health Care Society, Holy Family Hospital, and St. Paul's Hospital. It is sponsored by the Archdiocese of Vancouver and has an affiliation agreement with Vancouver Coastal Health.

Operating 17 sites (including three hospitals, five seniors' homes, and a hospice) offering acute care, research, rehabilitation, palliative care/hospice, and long-term health care, Providence Health Care provides highly specialized quaternary and tertiary programs serving people with heart, lung, and kidney diseases; mental illnesses; HIV/AIDS; urban health issues (homelessness, malnutrition, and drug- and alcohol-related issues); and age-related care needs (seniors and geriatrics).

St. Paul's Hospital is a prominent acute care, teaching and research facility located in downtown Vancouver. It is home to many world-class medical and surgical programs, and has more than 600,000 encounters annually with patients from throughout B.C., including

many of the province's most vulnerable and marginalized populations. In 2015, Providence Health Care announced that the current St. Paul's Hospital site will be closed and replaced by a new facility at an 18.5-acre site in the East False Creek Flats area of Vancouver.

Providence Health Care places a priority on patient-, resident-, and family-centred care. The planning, delivery and evaluation of health care are grounded in mutually beneficial partnerships between health care providers, the people cared for, and their families. Patients and families are treated with respect and dignity, ensured access to information regarding their care, and invited to participate in clinical decision-making (at the level they choose) and collaborate as partners on committees.

[View Providence Health Care's 2018 Carbon Neutral Action Report \(CNAR\)](#)

Key Stats

181,751 m²

Usable facility space^A

39

Distinct buildings

4,914

Full-time equivalent staff^B

A. As reported in the annual Providence Health Care 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 Providence Health Care's Environmental Sustainability Milestones and Awards

Providence Health Care 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

- Rezoning application submitted for New St. Paul's Hospital redevelopment

2017

- New St. Paul's Hospital Redevelopment receives positive result from Vancouver city council
- Youville Boiler Replacement

2016

- 100% implementation of the Recycling Renewal program across all acute and long-term care health care sites
- Launch of the [Climate Resilience & Adaptation Program](#)

2015

- St. Vincent's Langara Domestic Hot Water Boiler Replacement

2013

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

2012

- Mount St. Joseph Boiler Replacement and Controls Upgrade

2011

- Sustainability Policy adopted

2007

- Go Green Campaign created
- Energy Commitment Letter adopted

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**Building for Energy and
Environmental Sustainability**

In the construction and renovation of facilities, Providence Health Care 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
2005-05-31	2006-11-09	St. Paul's Hospital 9A Mental Health Unit (Providence Health Care Society)	Certified	Vancouver	799
2019-02-20	TBD	The New St. Paul's Hospital	TBD	Vancouver	137,000
2011-05-09	2015-03-18	PHC BCCFE West Wing Renovation	Gold	Vancouver	652

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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 Providence Health Care staff and leadership to take action. By continuing to build on strategies and solutions that have already been uncovered at Providence Health Care, 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 Providence Health Care's 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 10%, 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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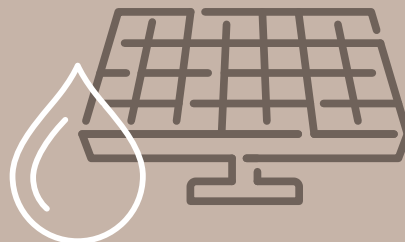
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2.5 What do Providence Health Care staff have to say about environmental sustainability?

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

Energy & Water

The majority of staff feel that education campaigns for energy conservation should be Providence Health Care’s priority for the Smart Energy & Water Focus Area.



Waste & Toxicity

The majority of staff feel that developing department-specific environmentally preferable purchasing toolkits (i.e. guides to green purchasing) should be Providence Health Care’s priority for the Zero Waste & Toxicity Focus Area.

Workplace Leadership

The majority of staff feel that staff coaching and mentorship on greening of one’s workplace should be the main priorities in this Focus Area at Providence Health Care.



Active & Clean Transportation

In terms of how Providence Health Care could better provide resources/incentives for clean transportation:

68%

of staff would like public transit discounts.

39%

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

19%

of staff would like walking incentives.

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2.5 What do Providence Health Care 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.

- With regards to the Climate Resilience & Adaptation Focus Area, the vast majority (**72%**) of staff reported feeling unprepared for and unsupported to deal with climate-related negative impacts, but explained that awareness and education (**47%**) and contingency planning (**15%**) would help them feel more prepared.
- Further, the majority (**59%**) of staff reported being unaware of climate change-related negative impacts on them or their work (e.g. heat, wildfires, rain, snow, drought, or floods). Of the less than half (**41%**) of staff who said they are aware of such impacts, wildfires (**34%**), air quality (**27%**), health impacts (**17%**), and extreme temperature (**12%**) were the commonly cited themes.



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

47%

said awareness and education.

15%

said contingency planning.

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Everyone at Providence Health Care 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 Providence Health Care responds to the new climate reality and its effect on both the health authority and the region.

When surveyed, Providence Health Care staff recognized the valued role of leadership in the environmental sustainability story, with 87% strongly agreeing that the Lower Mainland health care organizations should demonstrate leadership when it comes to environmental health and wellness in the workplace and our communities.



3.1 Senior leadership team^A



Fiona Dalton

President and Chief Executive Officer

Fiona Dalton took on this role on April 23, 2018, and she brings more than 23 years of health care experience to Providence Health Care.



Leanne Heppell

Chief Operating Officer
 Acute Care and Chief of
 Professional Practice
 and Nursing



Deborah Mitchell

Vice President Seniors
 Care, Organizational
 Strategy and Partnerships



Shaf Hussain

Vice President
 Public Affairs,
 Communications and
 Stakeholder Engagement



Brian Simmers

Chief Financial Officer



Christopher E. De Bono
 Vice President of Mission,
 People and Ethics



Dr. Ronald Carere,
 Acting Vice President,
 Medical Affairs



Dr. Darryl Knight
 Vice-President, Research
 and Academic Affairs

- Senior leadership team
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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.

Providence Health Care Commitment to Sustainability

Providence Health Care is mindful of the importance of developing a triple-bottom-line approach to sustainability, one that balances ecological, societal, and economic imperatives and recognizes the link between a healthy environment and a healthy population. As such, Providence Health Care recognizes a duty to minimize its 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

- Senior leadership team
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3.3 Frontline health care professionals

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

The 6,000 staff, 1,000 medical staff/physicians, 200 researchers, and 1,600 volunteers who work at our 7 core sites^B also 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.



Providence Health Care 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 (GHG) emissions and other data, and current and planned actions to reduce GHG emissions, CNARs detail our progress toward carbon neutrality.

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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



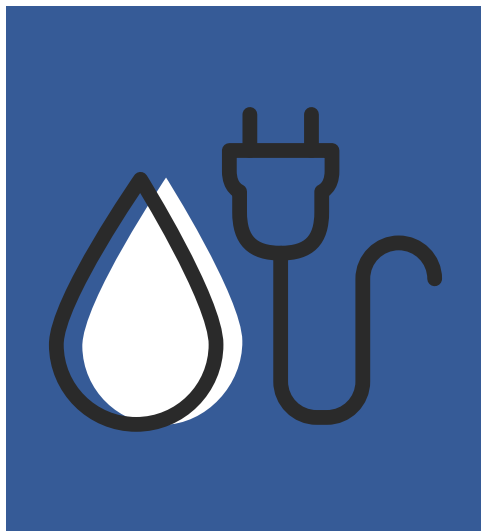
Active & Clean Transportation



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 Providence Health Care's carbon footprint comprises six different greenhouse gases that are converted to tonnes of carbon dioxide equivalent (tCO₂e). The main sources

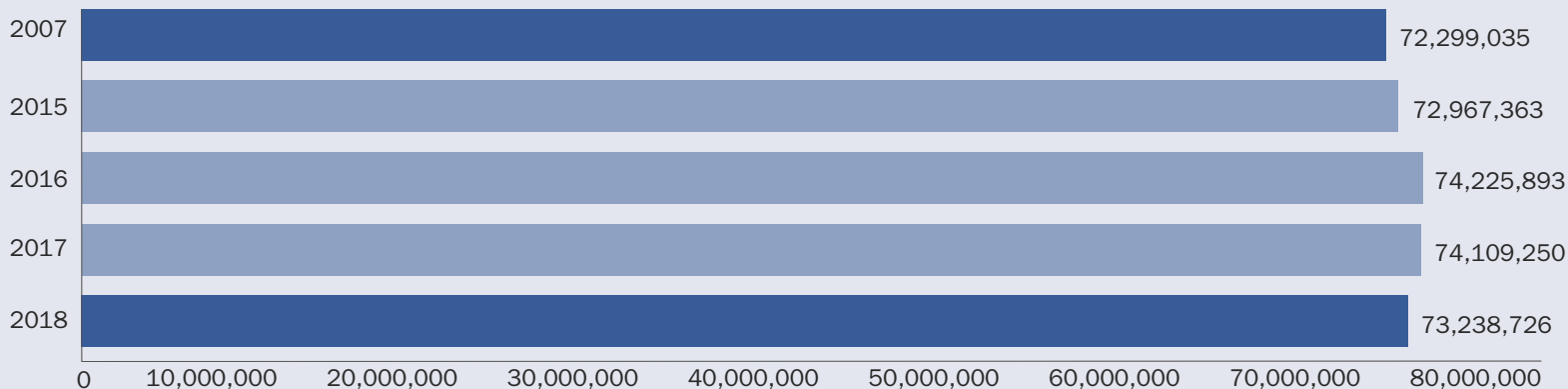
of emissions are categorized into three main groups which include Stationary Fuel Combustion and Electricity (buildings); Mobile Fleet Combustion (fleet and other equipment); and Supplies (paper).

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Context

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

Energy consumption at Providence Health Care has largely gone unchanged since 2007.



Weather adjusted ekWh

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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Downloads

Providence Health Care CNAR ↕

Providence Health
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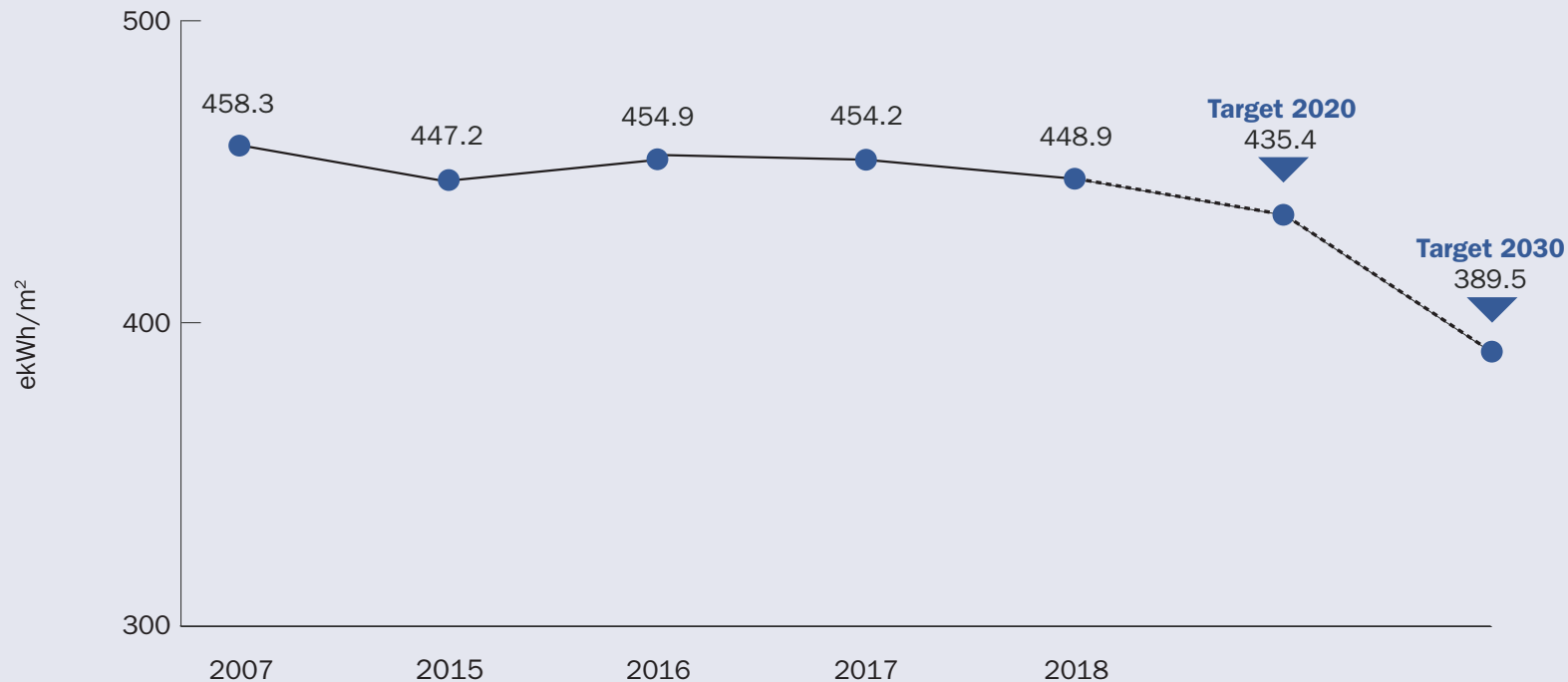
Lower Mainland Health
 Authorities Dashboard ↕

Performance

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

2% ↓

The decline in energy use intensity
 from 2007 to 2018



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

0.9%↑

The increase in absolute CO₂ footprint since 2007

Organizational carbon footprint in tCO₂e^{F,G}

Providence Health Care has achieved carbon neutrality every year since 2010.

\$334,136

The total value of carbon offsets paid by Providence Health Care 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 Providence Health Care 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**

3.4% ↓

The decrease in CO₂ footprint
 intensity since 2007



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

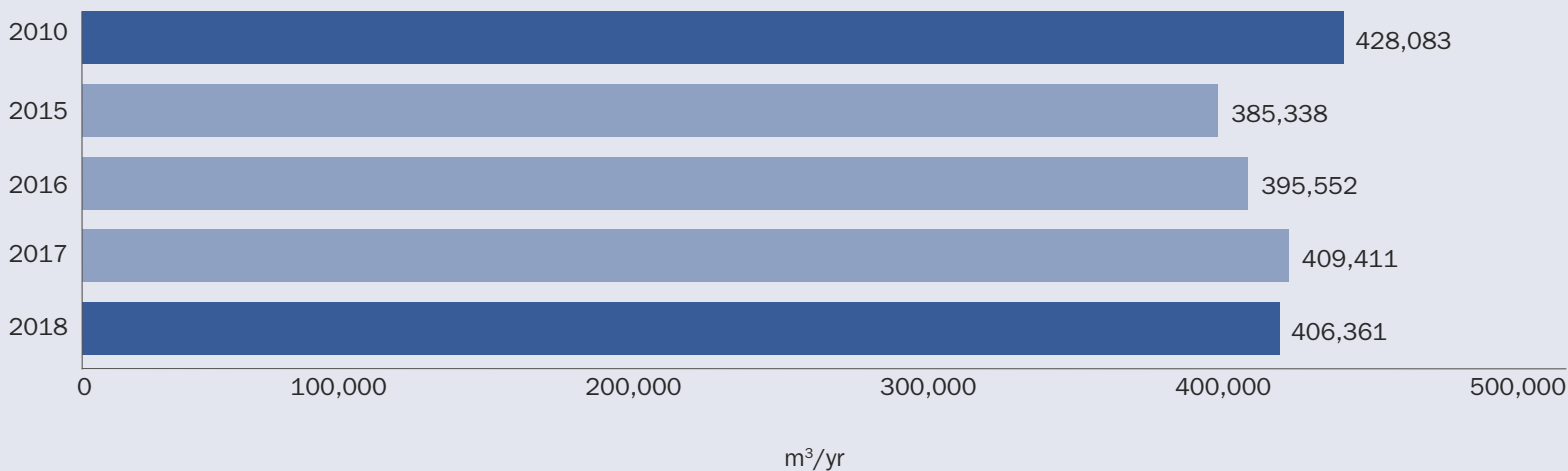
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Context

Building water consumption (m³/yr)

7.1% ↓

The decline in overall water consumption since 2010



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Performance

Building water performance intensity (BWPI) (m³/yr/m²)

1.9 ↓

Decline in building water performance
 intensity since 2010



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What do Providence Health Care 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 Providence Health Care staff, in terms of energy use, while the majority of staff (**53%**) feel personally responsible for the amount of energy they use at work, **26%** remain undecided, and **21%** expressed that they do not feel personally responsible for their energy use at work. However, just over a third (**37%**) of staff feel

they have the ability to control the amount of energy they use at work, a third (**33%**) remain undecided, and nearly a third (**31%**) feel they do not have the ability to control their energy use at work.

- The majority (**68%**) of staff reported always turning off the desk light/office light when away, and **8%** said that they want to do this more.
- The majority (**58%**) of staff reported always refraining from using a personal heater or fan/AC unit in their workspace, and **8%** said that they want to do this more.
- **40%** of staff reported always turning off their computers overnight or when they are away from my computer for a long time, and **20%** said that they want to do this more.
- While less than a quarter (**22%**) of staff reported always taking the stairs instead of the elevator, **19%** said that they want to do this more.
- While only **19%** of staff reported always generally looking for ways to save energy in their workspace, **27%** said that they want to do this more.
- The majority (**52%**) of staff reported that they never work remotely/telecommute, and **32%** said that they want to do this more.



Education

Staff were asked to rank how they feel Providence Health Care should prioritize initiatives within Smart Energy & Water, from one representing the highest priority to five representing the lowest priority. On average, staff identified priorities in the following order:

- 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

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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.

Providence Health Care 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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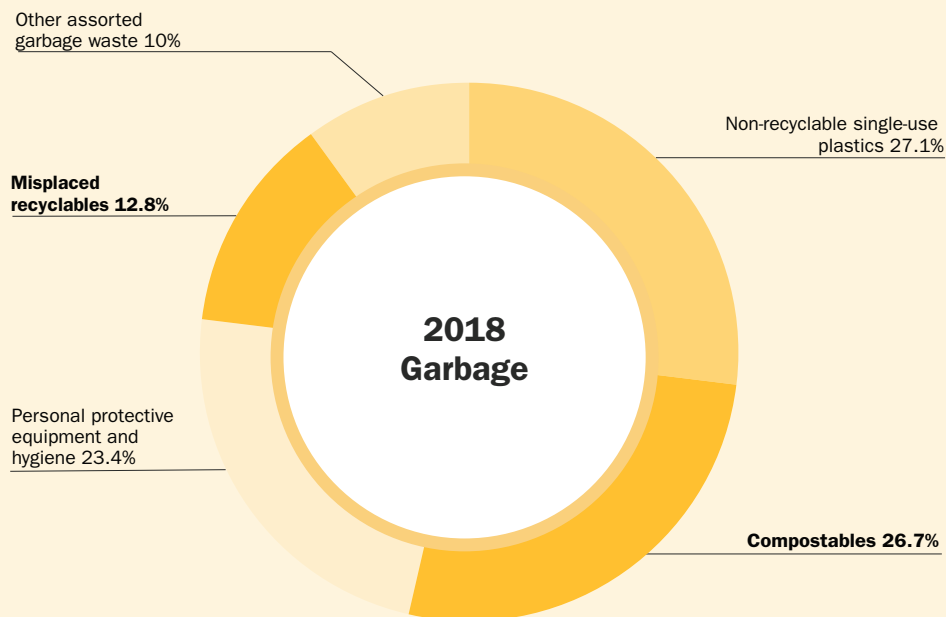
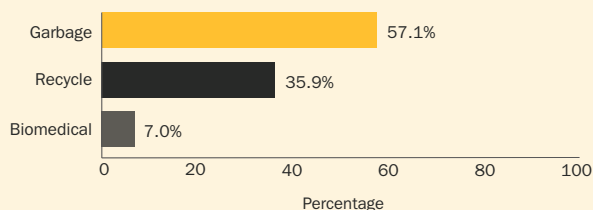
Providence Health Care Dashboard ⌵

Lower Mainland Health Authorities Dashboard ⌵

Context

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

Waste proportions for Providence Health Care 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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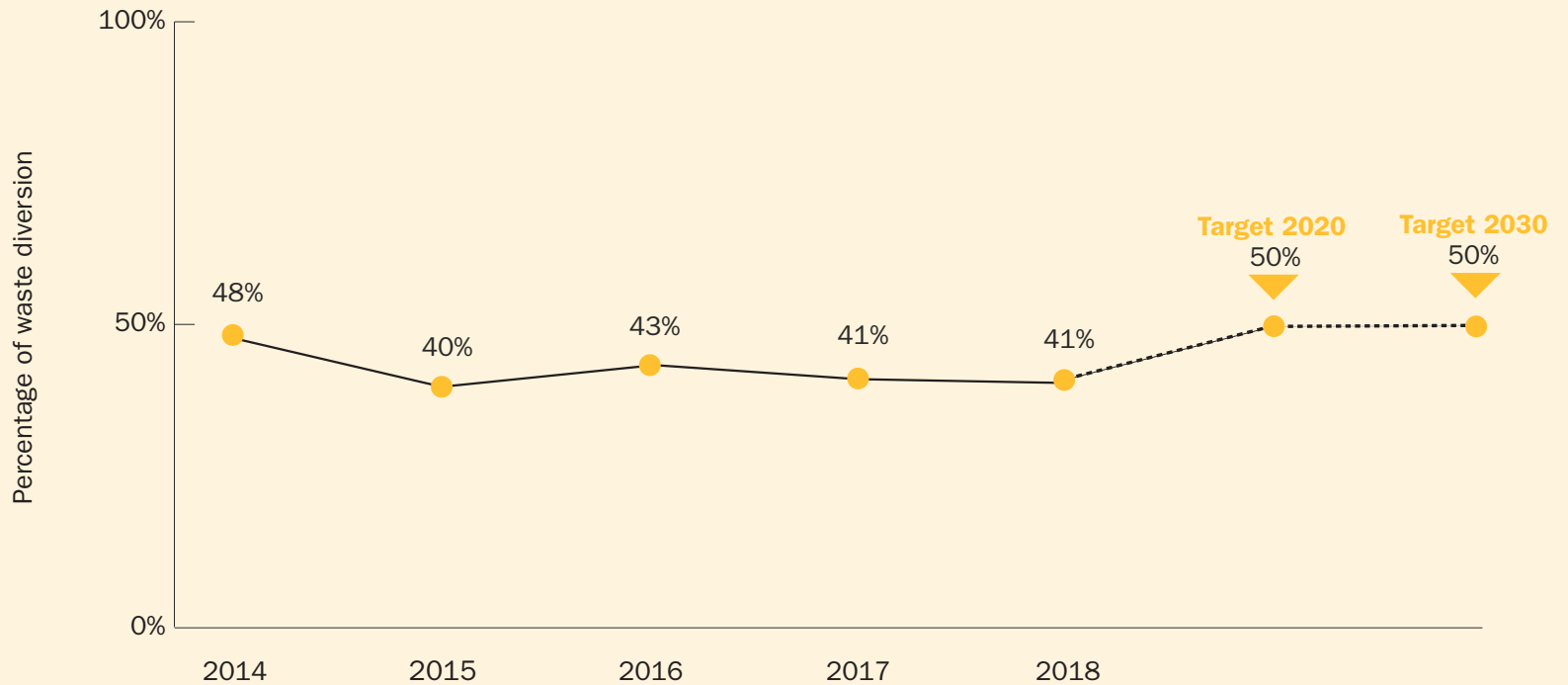
Due to circumstances around current global recycling markets and the prioritization of internal infection control, opportunities to increase waste diversion rates within the health care sector has been challenging. The long-term objective is to consistently

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.

7% ↓

Providence Health Care's decrease in waste diversion rates since 2014

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



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

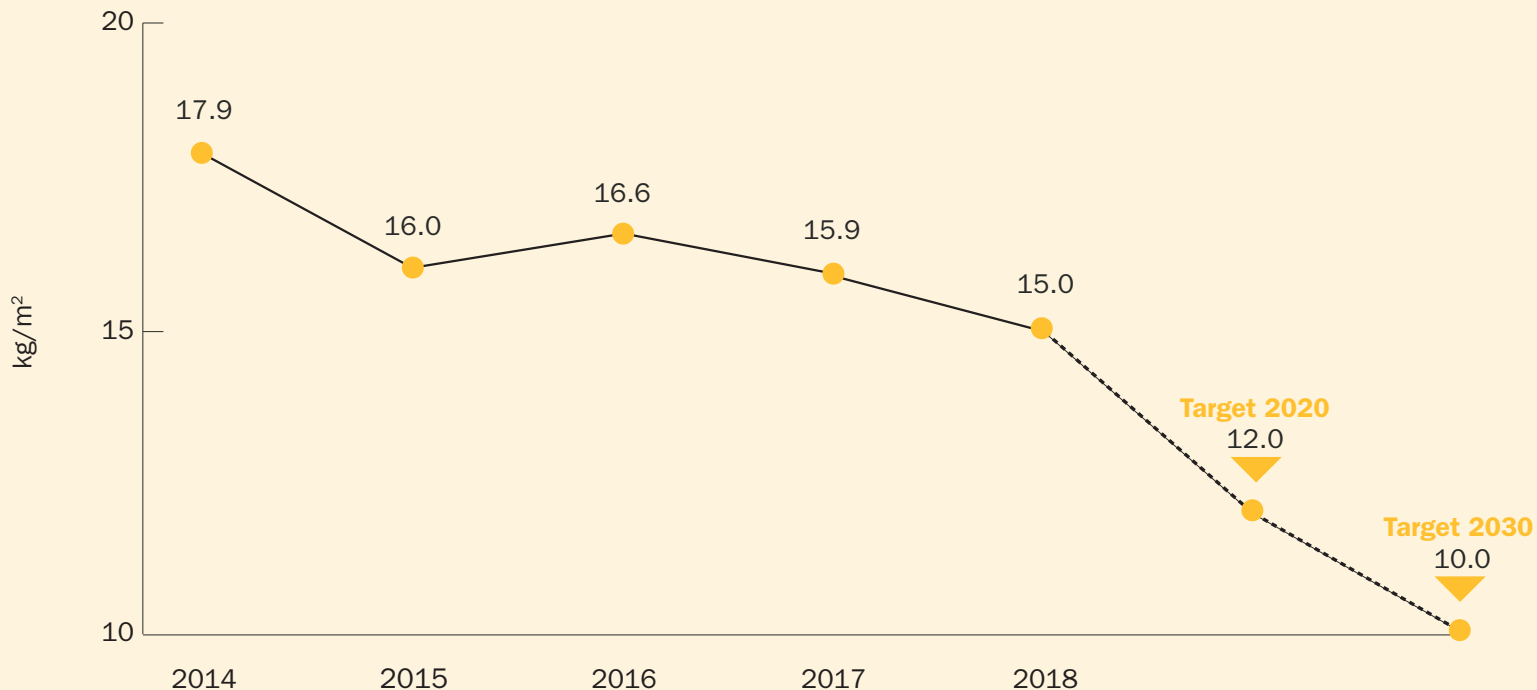
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Performance

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

16.5% ↓

Providence Health Care's decrease
 in waste intensity since 2014



L. Includes (core) Providence Health Care acute and long-term care facilities

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Artist rendering of Vancouver's new St. Paul's Hospital and health campus

Context

Providence Health Care 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 Providence Health Care projects achieved LEED certification.

2024

The new St. Paul's Hospital presents an excellent opportunity for Providence Health Care to achieve LEED certification on a construction project. If everything goes to plan, it will be completed by 2024.

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What do Providence Health Care staff have to say about waste and toxicity?

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

- **73%** of staff said that they always recycle mixed paper, and **5%** said that they want to do this more.
- **57%** of staff said that they always choose tap/filtered water instead of individually bottled water, and **4%** said that they want to do this more.
- Less than half (**43%**) of staff said that they always recycle mixed containers (e.g. hard plastic and tin), and **9%** said that they want to do this more.
- **52%** of staff said that they always use reusable food and beverage containers for lunch and drinks, and **16%** said that they want to do this more.
- While **25%** of staff said that they always divert/compost organic waste, **19%** said that they want to do this more.
- While only **20%** of staff said that they always file documents and emails in electronic format instead of printing them, **16%** said that they want to do this more.
- While only **3%** of staff said that they always conduct paperless meetings, **22%** said that they want to do this more.
- While most staff (**85%**) said that they never participate in a community or therapeutic garden on site, **15%** said that they want to do this more.



Prioritizing Workplace Leadership

Staff were asked to rank how they feel Providence Health Care should prioritize initiatives within Zero Waste & Toxicity from one representing the highest priority to five representing the lowest priority. On average, staff identified the priorities to be in the order as follows:

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

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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 Providence Health Care 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. Providence Health Care 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](#)

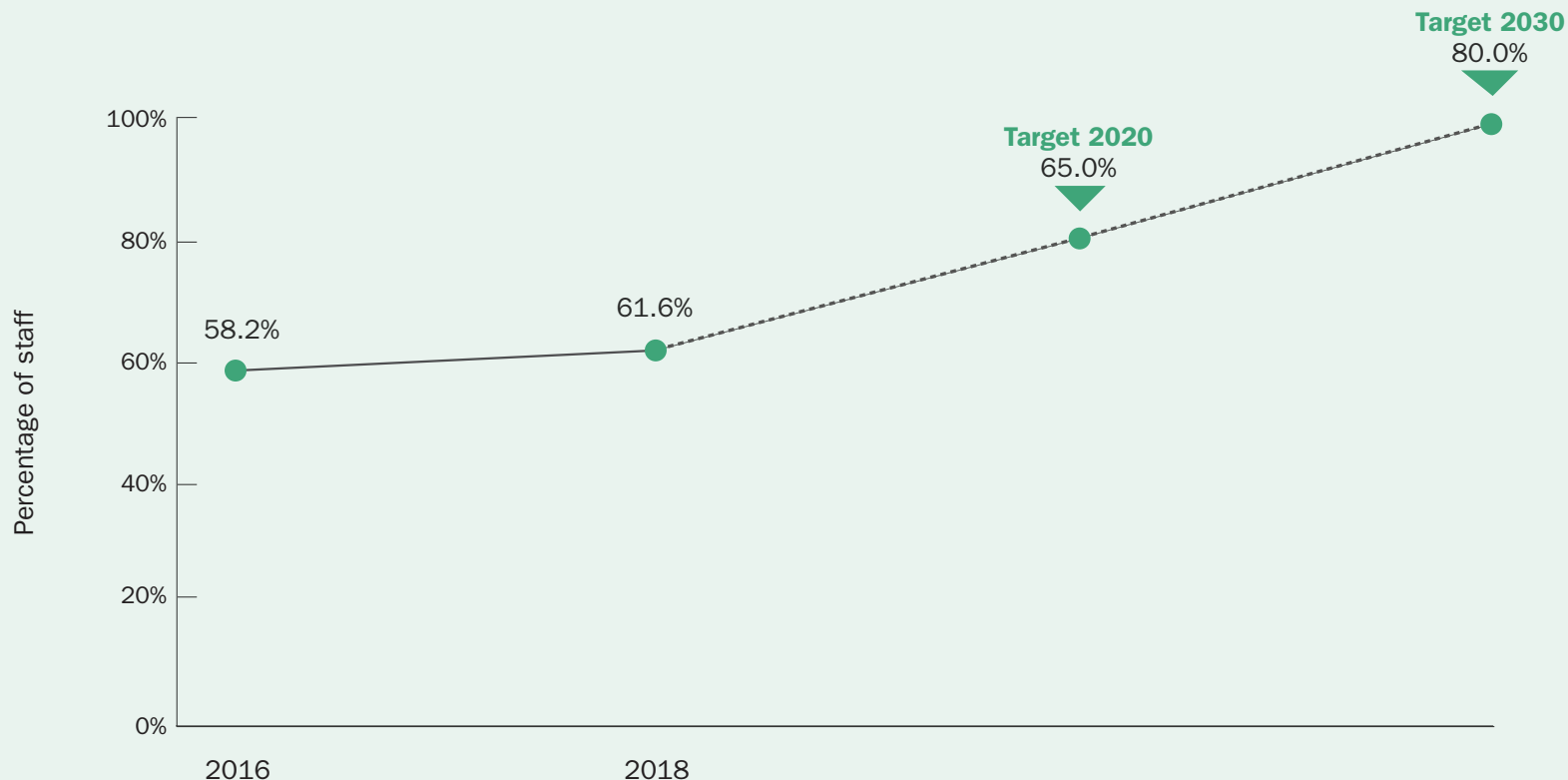
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Context

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

3.5% ↑

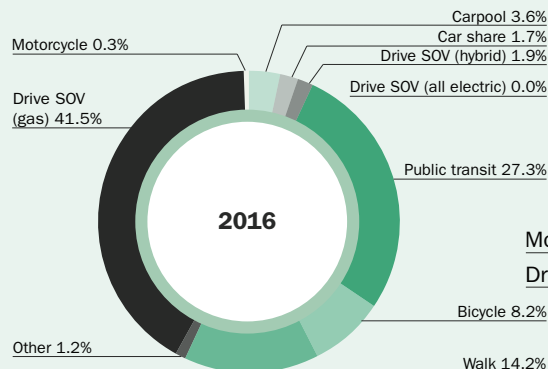
The increase in Providence Health Care staff commuting via cleaner and healthier means since 2016



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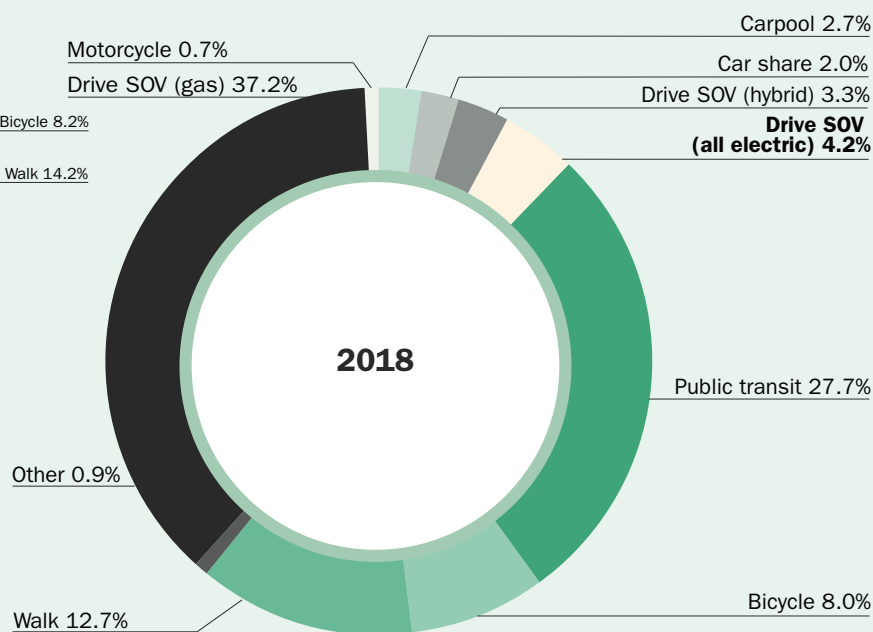
Context

Staff commute: percentage of time per mode



4.2%↑

The increase in electric vehicle 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

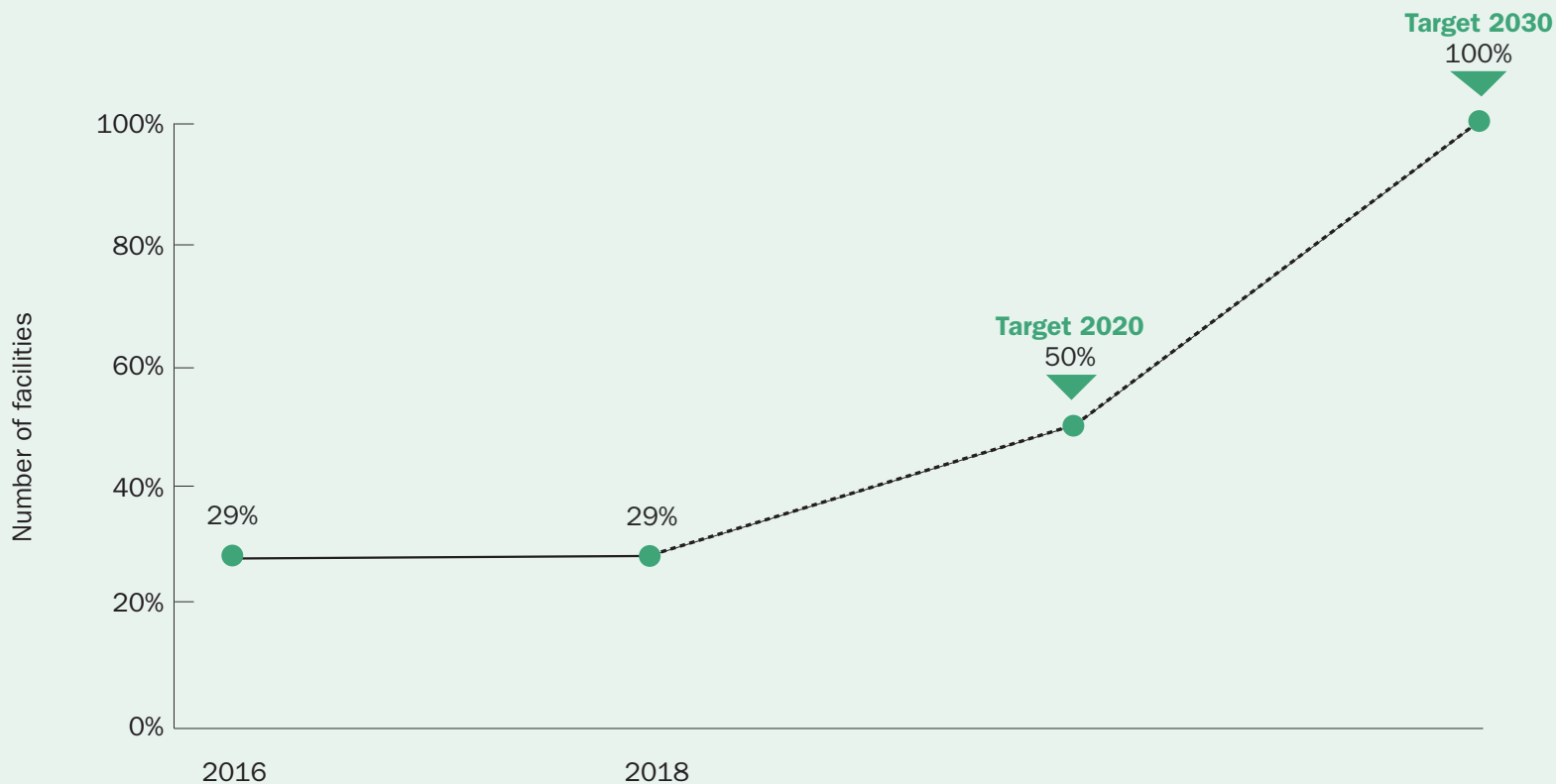
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Performance

Number of health care sites with end-of-trip (EOT) bicycle facilities^M

0%

The change in the number of sites with end-of-trip facilities from 2016 to 2018



M. 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

Providence Health Care 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. Providence Health Care staff are continuing to make a difference through their everyday decision making.



49

Staff registered to ride in the spring/fall Bike to Work Weeks in 2018 (compared to 50 staff registered in 2017)

454

Trips logged by staff in the spring/fall Bike to Work Weeks in 2018 (compared to 438 trips in 2017)

3,848_{km}

Total distance biked by staff participants in the spring/fall Bike to Work Weeks in 2018 (compared to 3,676 km in 2017)

834_{kg}

GHG avoided via staff participation in the spring/fall Bike to Work Weeks in 2018 (compared to 798 kg in 2017)

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What do Providence Health Care staff have to say about active and clean transportation?

In the survey of Providence Health Care staff, when asked, “How far do you commute (round trip) in one typical work day?”, **25%** of staff said 2-5 km, **23%** said 6-10 km.

Staff reported commuting to work via driving a single occupancy gas vehicle **37%** of the time, via public transit **28%** of the time, by walking **13%** of the time, and via bicycle **8%** of the time.

In terms of how Providence Health Care could better provide resources/incentives for clean transportation:

- **68%** of staff would like public transit discounts.
- **39%** of staff would like telecommuting/opportunities to work from home.
- **29%** of staff would like walking incentives.



The Future of Electric Vehicle (EV) Ownership

31%

of staff plan to own an EV.

35%

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

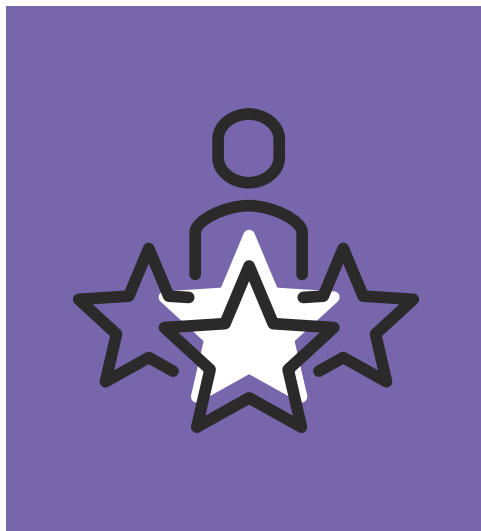
27%

of staff are unsure about owning an EV.

7%

of staff currently own an electric vehicle.

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486

Total number of Providence Health
Care 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^N by improving the deeper effectiveness, beyond simple open rates,^O 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](#)

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

O. 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^P

20%↑

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



^P 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^Q

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



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

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

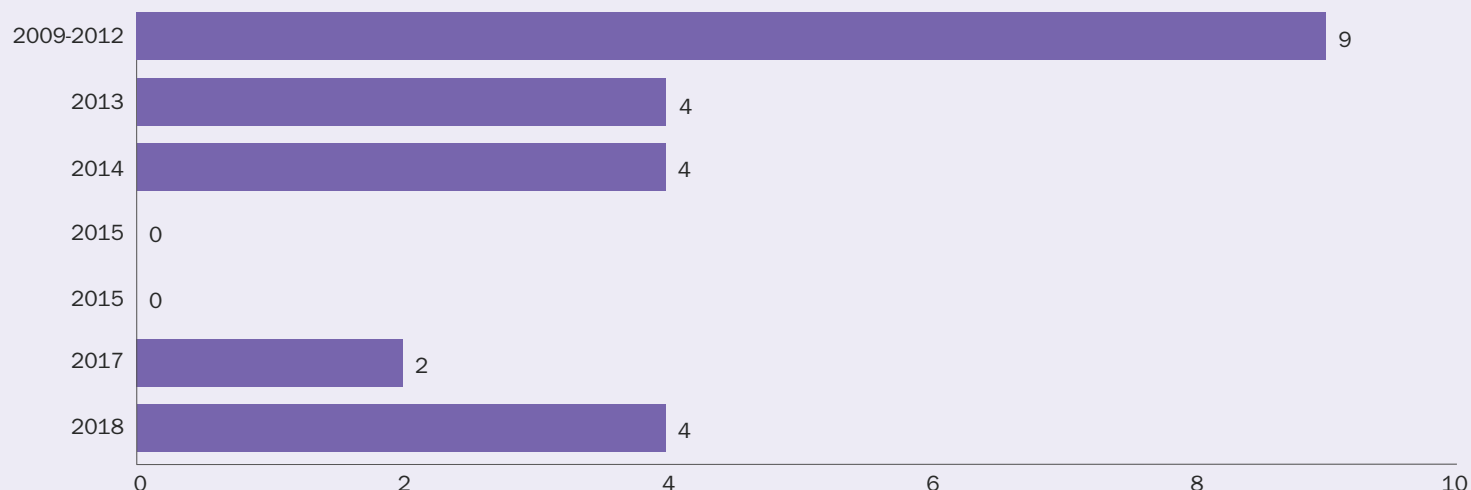
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Performance

Number of new, trained Green+Leaders

23

The number of Providence Health Care Green+Leaders trained to date. This includes a 100% increase from 2017 to 2018.



Target 2020

 10% increase

Target 2030

 30% increase

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

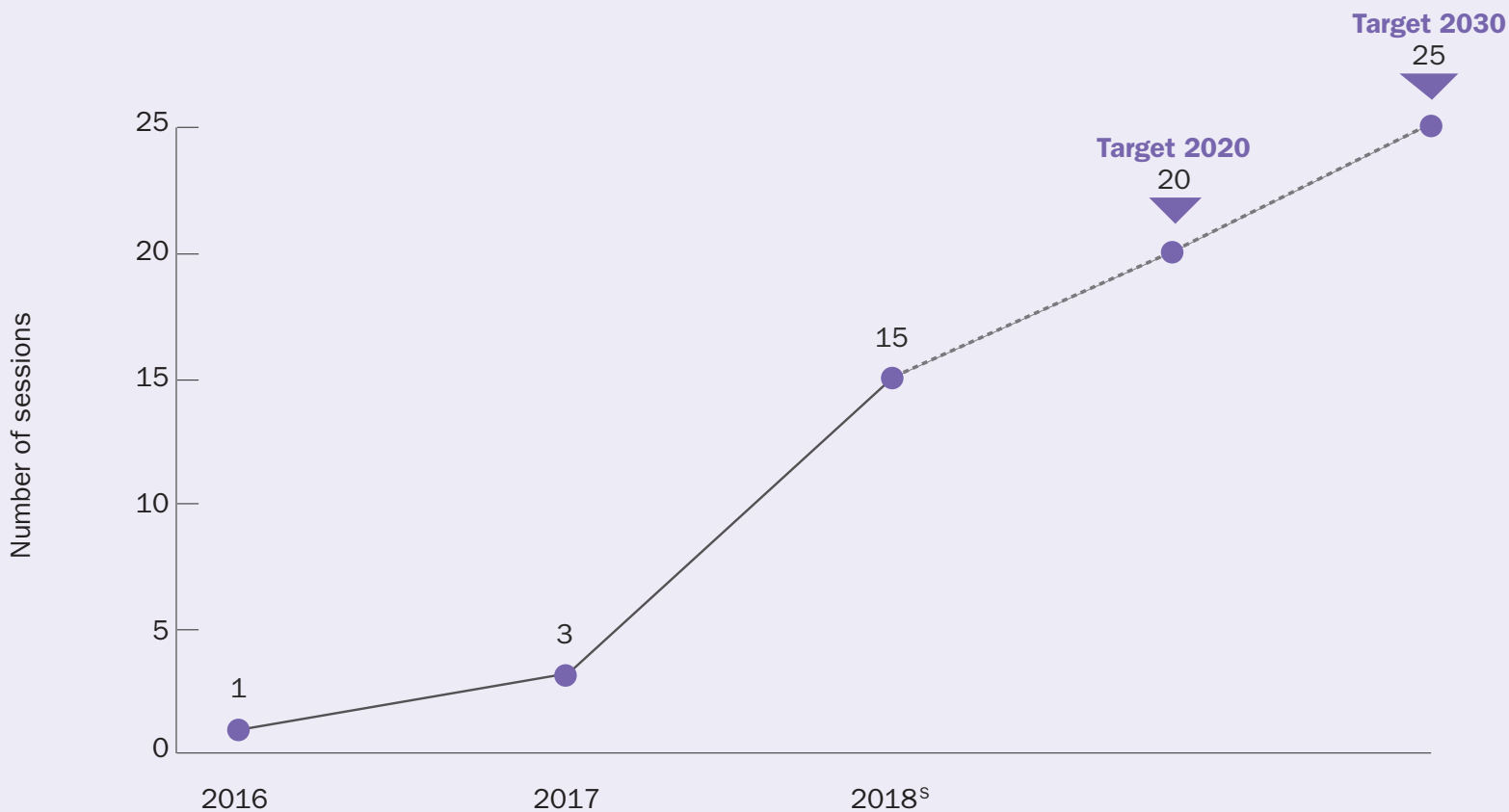
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Performance

Number of GreenCare education or training sessions^T

12

The increase in GreenCare education sessions from 2017 to 2018



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

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

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What do Providence Health Care staff have to say about workplace environmental policies and programs?

In the survey of Providence Health Care 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:

- **74%** of staff said they are not at all familiar with the Health Authority Environmental Sustainability Policy, and **13%** said that they want more information on this.
- **61%** of staff said they are not at all familiar with the Health Authority GreenCare initiative, but **17%** said that they want more information on this.
- **87%** of staff said they are not at all familiar with the Health Authority Energy & Environmental Sustainability (construction) Design Guidelines, but **12%** said that they want more information on this.
- **74%** of staff said they are not at all familiar with the Health Authority Green+Leaders program, and **12%** said that they want more information on this.
- **73%** of staff said they are not at all familiar with the GreenCare Community website, but **13%** said that they want more information on this.



Prioritizing Workplace Leadership

Staff were asked to rank how they feel Providence Health Care should prioritize initiatives within Workplace Leadership. On average, staff identified the priorities in the order that follows:

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



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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
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Smart Energy & Water

Minimize energy & water consumption and GHG emissions to reduce costs and environmental impacts, helping to 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)	2.0%	5%	●	15%
Reduce absolute in-scope GHG emissions. ^C	GHG emissions (tCO ₂ e/year) (2007 Baseline)	0.9%	10%	●	20%
Reduce in-scope GHG emissions ^C intensity.	GHG emissions intensity (tCO ₂ e/year/m ²) (2007 Baseline)	3.4%	15%	●	50%
Reduce building water (use) performance intensity (BWPI) of core sites. ^B	BWPI (m ³ /m ² /year) ^D (2010 Baseline)	1.9%	15%	●	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)	41%	50%	●	50%
Decrease waste intensity rates at existing acute and long-term care sites. ^F	WI (metric tonnes/m ² /year)	15	12	●	10
Increase waste diversion rates at all new health care construction projects. ^G	Percentage of waste diverted (annual average)	n/a ^H	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). Provincial Health Care'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 to 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 are defined as any completely new builds and do 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.
- H. No new construction projects were completed in 2018.

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) ^J	Percentage of annual staff commute via cleaner and healthier means (2016 Baseline)	79.9%	65%	●	80%
Increase portion of core sites that provide end-of-trip (EOT) bicycle facilities/storage options ^J	Percentage of core sites with EOT facilities	28.6%	50%	●	100%



Workplace Leadership^K

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. ^L	Annual BC GreenCare website percentage bounce rate ^M	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. ^L	Average annual click rate of the Green+Leaders e-newsletter ^N	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	3.1%	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. ^{L,O}	The annual number of BC GreenCare related presentations, and educational and/or training sessions	20	20	●	25

- Work on track, ahead of schedule, or exceeding
- Work on track but requires monitoring
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I. 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%).

J. 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.

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

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

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

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

O. 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 Providence Health Care, 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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Downloads

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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 CNAR](#)
- [Vancouver Island Health Authority CNAR](#)
- [Northern Health Authority CNAR](#)

Water Management

The management of water use is a growing priority not only for health care organizations but for all B.C. residents. Provincial Health Care'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.

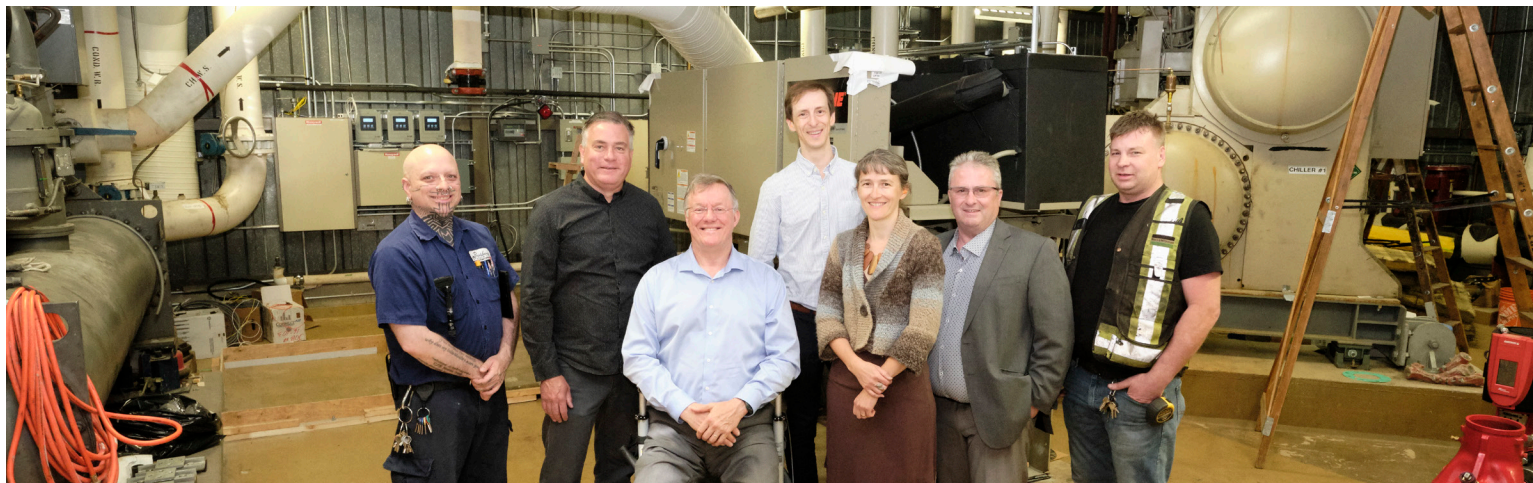
Understanding climate hazards, risks, and vulnerabilities are key initial steps in a collaborative and iterative adaptation process that begins during project planning and design. Identification and prioritization of low-carbon adaptation options that are impactful, cost effective, and future forward 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.^{U,V}

U. <https://bcgreencare.ca/program/climate-resilience-adaptation-program>

V. <https://bcgreencare.ca/climate-resilience-health/executive-summary>

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Energy Management Success

Collaborative Asset Management at St. Paul's Hospital Yields Value

In 2018, a major capital project spanning two fiscal years was initiated at St. Paul's Hospital, supported by two years of funding through the Carbon Neutral Capital Program (CNCPP).

This project is the result of collaboration between numerous different stakeholders and departments, including Providence Health Care's Facilities Maintenance and Operations (FMO) team, Providence Health Care Finance, and the Energy Management and Capital Projects teams responsible for the Providence Health Care portfolio.

The opportunity first emerged in 2017 when an existing chiller (Chiller 2) failed. Rather than simply replace the chiller with the same or similar equipment, the Energy Management team suggested exploring options to replace the asset while also reducing energy consumption, carbon emissions, and operational costs.

A study was completed in 2018 to explore options, and quantify costs and savings. A highly experienced team was hired to complete the study, led by Bernie Nelson of C.E.S. Analytics Ltd. and in collaboration with TC Thermenex Ltd. BC Hydro funding was leveraged in order to secure 50 per cent reimbursement for the study, thus reducing the cost to Providence Health Care.

The study confirmed that a significant opportunity existed to recover waste heat, thereby reducing energy consumption, carbon emissions, and operational costs. The study proposed to replace Chiller CH-2 (89-ton, dual screw compressor-chiller), which had rejected heat to the atmosphere, with a larger capacity heat reclaim chiller incorporating

an innovative Thermenex Thermal Gradient Header (TGH) system in order to utilize rejected condenser heat to preheat service hot water (for faucets, etc.), and provide air handling unit outside air preheat as well as hot deck preheat.

The project is currently underway with all indications to date confirming that anticipated utility savings will be realized. The project is being implemented in conjunction with a broader cooling system upgrade, which includes replacement of cooling towers and piping modifications to resolve persistent flow issues. Total estimated utility cost savings for this project are estimated at \$243,000, with an estimated carbon reduction of 586 tCO₂e.

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Waste Diversion Success

Reducing plastic bag waste in the ED

Tracy Waldron, a porter ward aide at Mount Saint Joseph Hospital's Emergency Department, was inspired to reduce soft plastics in her department after the discontinuation of soft plastic recycling in 2014 and recent news reports of plastics in landfills and oceans.

Part of Tracy's job is to ensure the department is well supplied and that things are organized for doctors and nurses. As a porter ward aide, she has the opportunity to initiate special projects—such as swapping soft plastic garment bags for paper ones.

Tracy sourced a paper alternative to the plastic garment bags given to patients, getting support from her operations leader and seeking input from the clinical nurse leader. Then, she informed Stores that the department would no longer be ordering the

soft plastic bags. Stores ensured that the re-order number was changed in the supply room. One of the Stores employees became a partner in helping make the switch from plastic to paper garment bags in Endoscopy, and Tracy has initiated the switch in Radiology, too.

The project hasn't had any significant challenges. One reason for this may be that Emergency is a small department, and Tracy used face-to-face communication to let colleagues know about the switch to paper

bags. Tracy suggests that departments undertaking similar projects implement changes as a trial, and that they move ahead with making change and deal with issues as they come up, not beforehand.

Approximately 8,750 soft plastic bags each year are no longer being disposed in landfill. In addition, paper bags are recyclable as "mixed paper" and therefore diverted from landfill.

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Green+Leaders Success

A Waste Reduction Change Agent: An Interview with Green+Leader Kay McQueen

As a dietitian for the Healthy Heart program and a Green+Leader, Kay McQueen is a strong advocate for environmental practices in her department at Providence Health Care. We sat down with Kay to find out more.

Q. What inspired you to become a Green+Leader?

I've always thought it's important for everyone to do their bit [for the environment]. Five years ago, that's exactly what I did after winning the draw for an iPad by filling out the You and the Environment Survey. I felt that as a winner, I should give back, so I signed up for

the Green+Leaders program, and became a recycling champion as part of that role.

Q. What does waste reduction in the Healthy Heart program look like?

We have recycling bins throughout the Healthy Heart program. Most have blue bins at their desk. Many staff have their own coffee mugs and, in fact, a few years

ago all staff were provided with their own mug as part of a Healthy Heart program anniversary celebration. Our patients in the Cardiac Rehab program are encouraged to bring their own water bottles to their exercise classes and the Healthy Heart Helpers (the volunteers) provide water bottles to patients when needed and requested.

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Q. What has been your biggest challenge yet?

I think what I sometimes find difficult is that I feel like I am nagging. I find myself removing garbage from the blue bins and taking recycling out of the garbage. I have put up signage about what goes in the blue bins. I encourage double-sided photocopying and paperless meetings. We have a busy clinic with a large number of patients that come through the program. Not everyone may be familiar with our recycling program, but I appreciate that it is important to respect where everyone is coming from.

Q. What are your future goals as a recycling champion?

Over the next year, I would like to dedicate more time to the Green+Leaders events as this is where my inspiration comes from. The leaders are amazing and all have their reasons for doing what they do. It is great to hear their stories. Maybe my story can inspire others, too.

Q. Do you have any words of advice for your colleagues?

Do your bit. The little things matter (carrying your own mug, turning off the lights, unplugging your phone recharger cord when finished, and turning off your computer monitor at the end of the day). Take one less car trip per week, ride your bike, take the bus, start a carpool. It is all a step in the right direction, and it matters. One change can lead to another.



Q. How do green behaviours such as recycling affect patient care?

As a dietitian in the Healthy Heart program, I counsel and educate patients and their families about heart healthy eating. One aspect of the diet is to encourage patients to consume a vegetarian meal that includes plant-based proteins, such as legumes, at least once per week. This type of eating is good not only for health but for the health of the planet. Every little bit helps.

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

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

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

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

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

- Initiate a Green Revolving Fund
- Climate Resilience & Adaptation
 - Develop Climate Resilience & Adaptation program webpage
 - 2nd Annual Facilities, Maintenance and Operations Extreme Events Survey
 - Climate risk and vulnerability assessments of health facilities
 - Mobilizing Building Adaptation & Resilience (MBAR) pilot project with BC Housing
 - LEED Assessment and Planning for Resilience pilot credit

■ Greenhouse Gas Emissions Management

- Complete St. Paul's Hospital Chiller 2 and Heat Recovery Project
- 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 priorities in new construction projects
- Safer Chemicals Strategy Development
 - A strategic partnership with the Fraser Health Workplace Health and Safety Exposure Prevention Team, Infection Control, and other internal partners.

■ Water Management

- Roll-out of the water management program

■ Workplace Leadership

- GreenCare Community Website refresh and relaunch

■ Zero Waste & Toxicity

- Organization wide vinyl banner upcycling project



- 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 Providence Health Care 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 Providence Health Care, please contact: greencare@providencehealth.bc.ca