



Environmental Performance
Accountability Report

Environmental sustainability is everyone's story.



Provincial Health
Services Authority
Province-wide solutions.
Better health.

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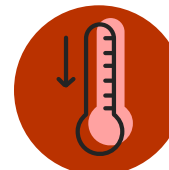
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Our Focus Areas



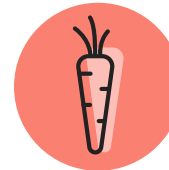
Leadership and Innovation



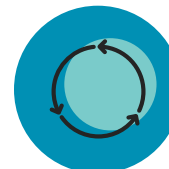
Climate Change



Energy and Carbon



Food



Materials



Transportation



Water



This is an interactive report. Easily navigate to different sections by **clicking** on the text headings.

To view a different health organization report, select it from the navigation bar to the left.

This report was written by the Energy and Environmental Sustainability (EES) team, a regional collaboration of four health organizations that works in partnership with the BC Cancer Planetary Health Unit, the Medical Staff Association’s Planetary Health Committee at BC Children’s Hospital and BC Women’s Hospital + Health Centre, the PHSA Supply Chain Sustainability Working Group and Green+Leaders. It focuses on collaborative actions and achievements in relation to low-carbon, climate resilience and environmental sustainability, but it does not include all of our partners’ additional actions and achievements undertaken in the shared journey toward planetary health.

The EES team also partners with clinical and non-clinical departments and health-care and medical staff for impact in diverse areas. Our team’s role is about raising awareness and building capacity, in part by uniting efforts and amplifying achievements across the Lower Mainland region and beyond. You will see much of this work on the [GreenCare Network website](#).

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Teck Acute Care Centre in Vancouver, B.C.

Welcome to the 11th annual Environmental Performance Accountability Report (EPAR). This body of work acknowledges efforts underway across the Provincial Health Services Authority (PHSA) to achieve environmental sustainability and climate resilience in all areas of our health system. It also identifies opportunities for improvement and illustrates how, through a blend of innovation and sustained effort, we can achieve our goals.

Throughout 2022, B.C. residents faced many climate-related challenges. From atmospheric rivers and floods to wildfires and heat events, climate change negatively impacted all regions of our province, in particular rural, remote and Indigenous communities. In the face of these events, our health system needed to be dynamic, responding to emerging needs and planning for what might come next.

Each of us at PHSA understands this responsibility to respond quickly and well, regardless of the role we hold. But over the past year, I have witnessed a growing desire to contribute in meaningful ways to restoration of planetary health. Coast Salish Knowledge Keeper Sulksun would tell us this is a calling to *Eyhh Slaxin*, to be good medicine for the land, water, ecosystem and all living things. In the spirit of this teaching,

we are exploring new ways to address supply chain sustainability; leverage the co-benefits, connections and resources between current initiatives; and, increasingly, prioritize sustainability in executive and board decision-making, all while building capacity for this work across the provincial health system.

Through this work and other initiatives, we stand to make progress that benefits the health and well-being of the patients, clients, families and communities we serve, as well as our own employees. The progress we are making is tangible. Through passion, commitment and ingenuity, PHSA and its partners have achieved so much, including:

- Receiving Leadership in Energy and Environmental Design (LEED) certification, Gold level, for the Red Fish Healing Centre for Mental Health and Addiction;
- Partnering with CASCADES on innovative work to measure scope 3 greenhouse gas emissions, which are the emissions associated with waste generation, purchased goods and services, business travel, and more;
- Embedding climate resilience into major capital projects with the purpose of adapting to climate change;

- Launching a 50% transit incentive for staff TransLink users in the Lower Mainland;
- Reducing our emissions footprint by 20% since 2007; and
- Achieving 46% waste diversion at BC Cancer Centre – Vancouver.

I hope people draw inspiration from this work, and in it, feel optimism about all that we can accomplish going forward — learning, growing and supporting one another and drawing upon the best of science and Indigenous knowledge systems, so that all may thrive. The opportunity before us is immense, but so too is our collective will. I thank you for being part of this journey.



David Byres, RN, DNP, FCAN, ICD.D, CHE
 President and Chief Executive Officer
 Provincial Health Services Authority

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1.1 Milestones and Achievements

Here's a summary of our 2022 milestones and achievements, and what to watch out for throughout 2023 and beyond:

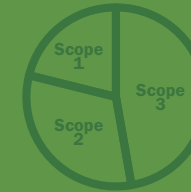
First ever!



Physicians at BC Cancer established a **Planetary Health Unit** to provide education and resources to engage and inspire clinicians with the goal of establishing **low-waste, low-carbon health care** across BC Cancer.



Through a **collaborative study** between the radiology department at BC Cancer – Vancouver, Facilities Maintenance & Operations, PHSA Energy and Carbon Management teams, and BC Hydro, we completed a **quantitative assessment** of **CT scanner energy use** and **cost savings** through overnight and **weekend power shutdown**, with the results published in the **Canadian Association of Radiologists Journal**.



Partnered with **CASCADES** on **innovative work** to measure **scope 3 greenhouse gas emissions**, which are the emissions associated with **waste generation, purchased goods and services, business travel**, and more.

Environmentally preferable decision-making

- Added environmental questions to the mobile MRI and CT scanner procurement process, which resulted in a published [toolkit](#)
- Supported the Facilities Management Procurement team in adding environmental questions for procuring construction services
- PHSA Supply Chain Sustainable Procurement Working Group initiated in partnership with B.C. health authority Planetary Health and Environmental Sustainability teams

2022 sustainability highlights

Red Fish Healing Centre for Mental Health and Addiction received **Leadership in Energy and Environmental Design (LEED) certification, Gold level**



Registered

38



new **Green+Leaders**, who encourage environmentally sustainable behaviour, improve existing processes, and help create an overall **culture of environmental health and wellness**



Sunny Hill Health Centre received a **Canadian Coalition for Green HealthCare award** as a **top scorer** in the **Non-Acute peer group for the Water – Canada Wide category**, as well as an honourable mention in the **Non-Acute peer group for the Waste – Canada Wide category**

Reduced PHSA's emissions footprint by

20%



since 2007, which is the equivalent of removing **1,471 passenger vehicles** from the road^A

10 grants, totalling approximately

\$10,000



awarded to PHSA staff through the **Green+Leaders program**, in partnership with the **Health Promotion Initiatives Fund team**

BC Cancer Centre – Vancouver **achieved**

46%



waste diverted to recycling instead of landfill

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2.0 Our Sustainability Story



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2.1 PHSA's Commitment to Sustainability

With climate change posing a serious threat to human health, the urgency to focus on sustainability and build climate resilience is clear. In alignment with the B.C. Ministry of Health Mandate Letter and [the CleanBC Roadmap to 2030](#), PHSA is accelerating its activities to significantly reduce harmful environmental impacts of the health system, and adapt to be resilient to climate shocks and stressors.

Achieving energy and environmental sustainability is a priority for PHSA. Our [Environmental Sustainability Policy](#) highlights the importance of developing a triple-bottom-line approach to sustainability, which balances ecological, societal and economic imperatives, and recognizes the link between a healthy environment and a healthy population. As such, we recognize our duty to minimize our environmental impact through leadership and strategic partnerships, facility construction and operations.

Furthermore, agencies and departments across PHSA are defining their own commitments and looking for ways to contribute. Long-standing Green teams, the BC Cancer Planetary Health Care Unit, the PHSA Supply Chain Sustainability Working Group,⁶ and the newly formed BC Children's and Women's Planetary Health Committee are demonstrating incredible leadership, commitment and innovation. It is heartening to see that these efforts align with and are supported by many PHSA staff who believe they have the ability to decrease negative environmental impacts in their workplace.

“

The effects of climate change cannot be overestimated, and health organizations have a fundamental role to play in leading the way in mitigation and adaptation. I'm encouraged and motivated by the work already being undertaken by so many people across PHSA, and committed to advancing and building on their efforts to ensure that sustainability is front and centre in all that we do.

– Scott MacNair, Executive Vice President,
Business Operations

RECOGNIZING INDIGENOUS NATIONS AND COMMUNITIES

PHSA provides specialized health-care services to communities across British Columbia on the territories of many distinct First Nations. We are grateful to all the First Nations who have cared for and nurtured the lands and waters around us for all time, including the xʷməθkʷəy̓əm (Musqueam), Skwxwú7mesh Úxwumixw (Squamish Nation) and səliłwətaʔ (Tsleil-Waututh Nation) on whose unceded and ancestral territory our head office is located.

We acknowledge that there is much to be learned about environmental stewardship from these nations and communities.



Interior of BC Children's Hospital in Vancouver, B.C.

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2.2 Building and Operating for Energy and Environmental Sustainability

In operating our current facilities, and in the design and construction of new facilities, PHSA is supporting the highest level of human and environmental health and well-being by:

- ▶ Evaluating and reducing the impacts of climate change on a facility and the surrounding community (e.g. wildfires, extreme heat, floods and storms)
- ▶ Assessing how the design, construction and operation strategies of a facility will impact the environment and human health
- ▶ Drawing on credible evidence that links health outcomes to planning and design of the built-environment
- ▶ Implementing low-carbon, climate resilience and environmental-sustainability strategies
- ▶ Collaborating with project compliance teams to ensure energy and carbon performance targets are embedded into design and construction agreements
- ▶ Achieving LEED certification (a globally recognized green-building rating system administered by the Canadian Green Building Council)
- ▶ Meeting and exceeding environmental and climate change legislation

Our buildings^C

491,754 m²

usable facility space

80

distinct buildings

13,459

full-time equivalent staff^D

101,813 m²

LEED Gold-certified facility space

Our LEED projects

LEED certification is a globally recognized symbol of sustainability achievement and leadership.

To learn more about PHSA'S LEED projects, click [here](#).



Red Fish Healing Centre for Mental Health
and Addiction in Coquitlam, B.C.

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3.1 The 2022 Dashboard

Setting targets helps us all to recognize achievements and act to transform our health-care system toward environmentally sustainable and climate resilient care. A target may be provincially or regionally mandated, or be PHSA-developed and based on past trends and current resourcing.

Regulatory guidance

The [Climate Change Accountability Act](#) (CCAA) has set ambitious greenhouse gas (GHG) emissions reduction targets (from a 2007 baseline) for public sector organizations:

40%

by 2030

60%

by 2040

80%

by 2050

These targets include emissions from owned and leased buildings, and from the use of fleet vehicles and paper consumption. For reference, 95% of PHSA's come from buildings, while the rest come from fleet and paper.

The government's [CleanBC plan and Roadmap](#) is the pathway to achieve these targets and has set even more aggressive targets:

50%

reduction in emissions for public sector buildings by 2030

40%

reduction in fleet vehicle emissions by 2030

Measuring results

The 2022 dashboard captures 11 key performance indicators (KPIs). It is a snapshot in time of our progress and, this year, includes links to trends in previous years and how we will meet our targets.

However, the dashboard alone doesn't tell the entire story. Environmental sustainability is a journey, and there are many process-related KPIs and qualitative efforts that are not included in this dashboard. In addition, some Focus Areas are not represented because of active work to identify the current situation and collaborate on the development of performance targets. To learn more, see [4.0: Our Actions: Finding Solutions Together](#).

For information on the methodology behind the KPIs in the dashboard on the following pages, see the [Energy and Environmental Sustainability \(EES\) Methodology and Context for Calculating Key Performance Indicators on the GreenCare website](#).

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Energy and Carbon

Goal: Reduce our carbon footprint by increasing energy efficiency and reducing reliance on fossil fuels.

Key Performance Indicator (Metric)	2022 Results	2025 Target	2030 Target & Traffic Light
CCAA legislated target: Reduce in-scope* GHG emissions from the 2007 baseline (tCO ₂ e/year)	20.0%	16%	40% ▼
CleanBC plan target: Reduce building GHG emissions of owned and leased properties from the 2007 baseline (tCO ₂ e/year)	20.6%	16%	50% ▼
Reduce owned and leased building GHG-emissions intensity from the 2007 baseline (tCO ₂ e/m ² /year)	37.2%	35%	50% ▼
Reduce owned and operated building** energy-use intensity from the 2007 baseline (ekWh/m ² /year)	21.5%	25%	30% ■

Want to see the trends? Go to the [Energy and Carbon graphs](#) in Appendix B.

New construction activity increases our impact on the environment and is growing at a fast pace.

How we will reach our targets

- Partnering with Facilities Maintenance & Operations teams presents an opportunity to identify ways to integrate energy and emissions reduction strategies and support optimization and renewal of infrastructure and equipment.
- In collaboration with internal and external partners, we are seeking and implementing a combination of net zero emission designs for new construction and aggressive energy retrofits to existing facilities.
- As we renew our energy infrastructure and assets, we have the opportunity to make system-level changes and shift to lower-impact facilities.

- On track to meet 2030 target
- ▼ Minimal or slow progress towards 2030 target
- Behind schedule to meet 2030 target, and requires attention

- * In-scope refers to emissions from owned and leased buildings, and from the use of fleet vehicles and paper consumption.
- ** Does not include leased buildings.

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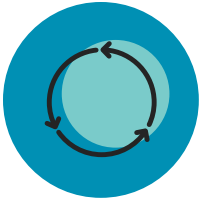
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Materials

Goal: Choose materials and products that contribute to human and environmental health, while avoiding waste and unnecessary chemicals.

Recycling options are shaped by **global market demand, ability of local processors, complexity of materials and facility logistics.**

How we will reach our targets

- A shift away from recycling alone and toward overall waste reduction is required, including choosing reusables over disposables and exploring ways to share or donate usable items to prevent them from going into landfill. Collaboration and close partnership with clinical and procurement staff will be key ingredients in this journey.

Key Performance Indicator (Metric) *	2022 Results**	2025 Target	2030 Target & Traffic Light
Increase waste-diversion rates at acute care owned and operated sites ^E (% of waste diverted, annual average)	25%	28%	40% ▼
Increase waste-diversion [†] rates at non-acute care owned and operated sites ^E (% of waste diverted, annual average)	41%	45%	60% ▼
Decrease waste-intensity [§] rates at acute care owned and operated sites (kg/m ² /year)	4.7	4.2	3.8 ▼
Decrease waste-intensity rates at non-acute care owned and operated sites (kg/m ² /year)	4.5	4.0	3.6 ▼

Want to see the trends? Go to the [Materials graphs](#) in Appendix B.

- On track to meet 2030 target
- ▼ Minimal or slow progress towards 2030 target
- Behind schedule to meet 2030 target, and requires attention

- * Does not apply to leased buildings because waste management is the responsibility of the property manager and out of the hands of PHSA.
- ** In 2022, recycling has slowly returned to BC Children’s Hospital and BC Women’s Hospital + Health Centre, but has not yet reached pre-2020 service levels. Long-term care sites are almost back to normal.
- † Waste diversion refers to waste going to recycling or compost instead of landfill.
- § Waste intensity refers to how much total waste (landfill, recycling and compost) is generated compared to the size of a facility, and helps to measure overall waste reduction at a site.

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Transportation

Goal: Increase access to and use of transportation modes that reduce negative environmental impacts and benefit human health and wellness.

Key Performance Indicator (Metric)	2022 Results	2025 Target	2030 Target & Traffic Light
Increase proportion of staff commuting by active transportation modes such as cycling, walking and rolling* (as reported in the GreenCare survey;  annual average)	19%	25%	30% 
Increase proportion of staff commuting by clean transportation modes such as hybrid and electric single occupancy vehicles, public transit, carshare, carpool and hospital shuttle (as reported in the GreenCare survey;  annual average)	36%	35%	45% 

Want to see the trends? Go to the [Transportation graphs](#) in Appendix B.

Access to sustainable commuting is shaped by the municipal and regional transportation infrastructure between home and work locations.

How we will reach our targets

Continuing to work collaboratively across the health system with internal and external partners to strategically develop and prioritize efforts will:

- Increase electric vehicle (EV) and cycling (including scooters, e-bikes, etc.) infrastructure (including charging stations, safe storage for bicycles and gear, and showers and change rooms).
- Facilitate carpooling and promote public transit.
- Engage and empower staff to choose clean or active transportation to commute and while working.



On track to meet 2030 target



Minimal or slow progress towards 2030 target



Behind schedule to meet 2030 target, and requires attention

*

e.g. wheelchair, seated electric scooter

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Water

Goal: Minimize water consumption to reduce demand on natural resources and impact on our living environments.

Key Performance Indicator (Metric)	2022 Results*	2025 Target	2030 Target & Traffic Light
Reduce building water (use) performance intensity** (m ³ /m ² /year) from the 2010 baseline	26.7%	35%	40% ▼

Want to see the trends? Go to the [Water graphs](#) in Appendix B.

Water supports many clinical and non-clinical activities, including activities in our kitchens, and in our sterilization processes.

How we will reach our targets

- Working collaboratively across health-system departments to enhance our understanding of water usage and saving opportunities at PHSA facilities will support our strategy to prioritize water management planning efforts and allocation of resources.

- On track to meet 2030 target
- ▼ Minimal or slow progress towards 2030 target
- Behind schedule to meet 2030 target, and requires attention

- * Due to a number of issues at BC Children’s Hospital and Women’s Hospital + Health Centre, we don’t have an accurate water reading for 2022. Instead, we have based 2022 data on a three-year average from 2019 to 2021.
- ** The total of all indoor water metres in volume divided by the building metres squared.

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4.1 Focus Areas

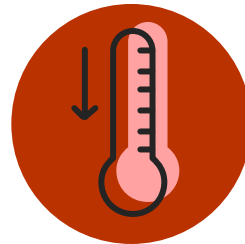
The Energy and Environmental Sustainability (EES) team works to drive change across the health system, and has categorized efforts to advance environmentally sustainable and climate resilient health care into seven Focus Areas. The selection of actions, achievements and stories in each Focus Area represents the work of the EES team, as well as collective efforts. The EES team cannot do this work alone, and works in collaboration and partnership with teams, departments, and health-care staff and medical staff. For a full list of partners, see [Appendix A](#).

In working together to find solutions that restore and regenerate planetary health, it is important to note that leadership and innovation are essential elements for meaningful transformation of the health-care system, particularly in driving engagement, education and relationship-building. As we all move along our low-carbon, climate resilience and environmental sustainability journey, efforts made as part of the Leadership and Innovation Focus Area will intersect with and impact all other Focus Areas.

Just like the connections between human and environmental health, these Focus Areas are interrelated in that efforts and progress made in one will impact the others.



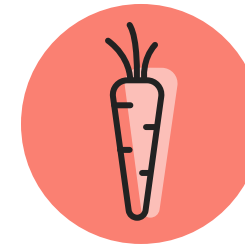
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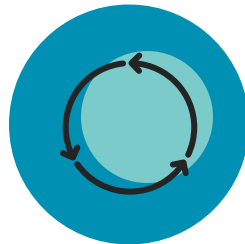
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Want to read stories or find information and resources related to these Focus Areas? Visit [here](#).

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1. Leadership and Innovation

Our goal: Collaboratively foster a culture of transformative leadership and innovation for environmental sustainability in health care.

LEARN MORE

Snapshot in numbers

300

Green+Leaders from over 70 different facilities have joined since 2009

8

Green+Leader orientation sessions

7

virtual coffee conversations for Green+Leaders

7

GreenCare network Lunch and Learn events hosted

The 2022 Green+Leaders Annual Report recognizes all staff and medical staff working to decrease the environmental footprint of their workplaces and health systems.

Select 2022 actions and achievements

- ▶ 38 new PHSA staff registered for the Green+Leaders community
- ▶ The BC Cancer Planetary Health Unit initiated a variety of projects, including eliminating the routine use of exam-table paper in outpatient clinics, working with diagnostic imaging to lower the energy use of CT scanners, and improving recycling and clinical waste management
- ▶ 40 staff participated in the Green at Home, Green at Work BINGO campaign, which was created to motivate and educate staff about the small but smart choices they can make to reduce their carbon footprint and combat climate change
- ▶ 10 grants, totalling approximately \$10,000, awarded to PHSA staff through the Green+Leaders program, in partnership with the Health Promotion Initiatives Fund team; successful projects demonstrated strategies to advance and embed sustainability in the workplace, while simultaneously improving staff well-being
- ▶ Partnered with CASCADES on innovative work in the Canadian health-care context to measure scope 3 greenhouse gas emissions, which are the emissions associated with waste generation, purchased goods and services, business travel, and more
- ▶ PHSA Supply Chain and representatives from B.C. health authority Environmental Sustainability and Planetary Health teams formed a working group to share initiatives and explore sustainable procurement opportunities
- ▶ Supported implementation of the B.C. Ministry of Health's direction on Carbon Neutral and Climate Resilient Health Care Facilities and Environmental Sustainability and LEED Gold Certification in the Health Capital Policy Manual as part of business planning for the Slocan Site Redevelopment Project and subsequent phases of the business project delivery cycle

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Dr. Maura Brown, BC Cancer – Vancouver

OUR STORY

Climate crisis management: Bringing BC Cancer together for a healthier planet

Dr. Maura Brown, a staff radiologist at BC Cancer – Vancouver, co-founded the BC Cancer Planetary Health Unit to reduce the environmental impact of health care and address the impacts of climate change on health.

[Read more ▶](#)

“
If we can inspire the majority of people to see how simple changes will improve their health [and] benefit their families and communities, we may start to see the system change that will lead to a cleaner, greener and more just world for all.

– Dr. Maura Brown, Staff Radiologist, BC Cancer – Vancouver



BC Cancer Research Centre in Vancouver, B.C.

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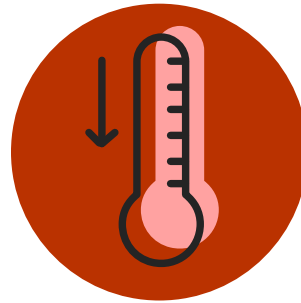
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2. Climate Change

Our goal: Move toward a climate resilient health system in facility design and operations.

LEARN MORE

Snapshot in numbers

1
facility exposure screen
to identify potential climate hazards

1
climate risk assessment
to prioritize climate impacts

**The Climate Change
Accountability Act requires
public sector organizations to
“manage the risks to the public
sector organization that could
reasonably be expected to result
from a changing climate”.**

Select 2022 actions and achievements

- Embedded climate resilience into major capital projects, including the Slocan Site Redevelopment Project, with the purpose of adapting to climate change
- Completed energy studies for BC Cancer – Surrey and BC Cancer – Kelowna, using future climate projections to add a climate resilience lens to energy management
- Recommissioned the cooling plant at BC Cancer – Vancouver to increase overall cooling capacity and improve resilience to extreme heat events
- Collaborated on the federally funded [HealthADAPT project](#) (2019-2022), and worked with partners to develop a [Climate Change & Health Adaptation Framework](#), outlining current actions and identifying new priorities
- Engaged in the B.C. Ministry of Health's From Risk to Resilience initiative, with a specific focus on the extreme heat, wildfire and flood events of 2021
- Continued seasonal readiness planning activities, ensuring a coordinated approach to communication and action before, during and after extreme weather events
- Delivered a Green+Leaders [Lunch and Learn event](#) to raise awareness about the potential health implications of climate change on long-term care facility occupants, along with [a corresponding publication](#)

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OUR STORY

Keeping health facilities from getting heated

Heat waves have become a regular occurrence during Vancouver summers, posing significant dangers to vulnerable populations such as children, the elderly and individuals with pre-existing health conditions. Recognizing the critical importance of addressing this issue at BC Cancer – Vancouver, PHSA's Facilities Maintenance & Operations team and the Energy and Environmental Sustainability team have joined forces to assess the site's strengths, vulnerabilities and potential solutions.

[Read more ►](#)



Building control devices at
BC Cancer – Vancouver

“**We believe that strategic thinking and planning will significantly enhance the facility’s cooling capacity, ensuring the comfort of patients and staff as temperatures continue to rise.**”

– Ghazal Ebrahimi, Energy and Emissions
Manager for PHSA



Heating ventilation and air conditioning (HVAC) system at Red Fish Healing Centre for Mental Health and Addiction in Coquitlam, B.C.

What do PHSA staff have to say about the impact of climate change hazards on their work?

Based on GreenCare Survey ⁶ results, there were 776 responses indicating that job duties were impacted by extreme weather events.

The most common impacts on job duties were:

- Physically unable to get to work
- Impacts on physical or mental well-being for staff and their families
- Supply chain disruptions
- Patient surges from extreme weather events

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3. Energy and Carbon

Our goal: Reduce our carbon footprint by increasing energy efficiency and reducing reliance on fossil fuels.

LEARN MORE

Snapshot in numbers

\$418,154

invested in energy efficiency and carbon reduction initiatives from the Green Revolving Fund

\$1,682,468

invested in carbon reduction projects from Carbon Neutral Capital Program funding

\$504,053

in carbon offsets paid to become carbon neutral

\$617,111

in utility incentives received from BC Hydro and FortisBC in fiscal year 2022/2023

24

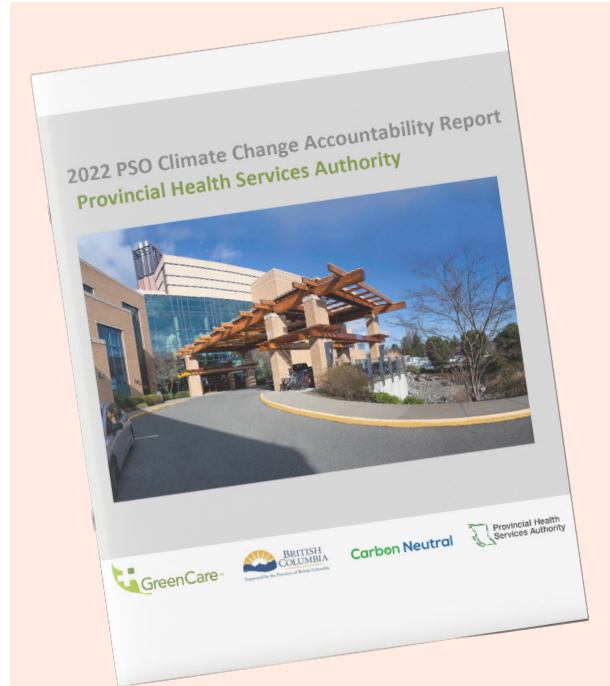
initiatives, including mechanical and lighting energy studies, feasibility assessments, and monitoring and verification studies

6

energy and carbon retrofit projects completed or advanced

1,141 tCO₂e

of projected carbon emissions reduction, equivalent to the carbon emissions of 350 passenger vehicles^A



The PHSA Climate Change Accountability Report

Each year, along with all public sector organizations, B.C.'s health organizations submit a Climate Change Accountability Report (CCAR) to the Climate Action Secretariat of the provincial government. This is a mandated reporting of greenhouse gas (GHG) emissions and other data, and current and planned actions to reduce GHG emissions.

In 2022, PHSA had a 37.2% decrease in GHG-emissions intensity from our building portfolio compared to the base reporting year 2007.

[Download the PHSA Climate Change Accountability Report](#)

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Select 2022 actions and achievements

It is important to note that energy and carbon management initiatives work hand in hand through coordinated efforts.

- ▶ Completed a quantitative assessment of CT scanner energy use and cost savings, with the results published in the [Canadian Association of Radiologists Journal](#), which indicated that turning off the studied CT scanner after work hours would decrease electricity use by 14,000 kWh per year
- ▶ Expanded a heat recovery system at the BC Children's Hospital and BC Women's Hospital + Health Centre campus, and completed heat recovery and carbon reduction projects at the BC Cancer Research Institute and the BC Cancer Centres in Victoria and Surrey
- ▶ Started another major heat recovery and energy upgrade project at BC Cancer – Vancouver, which is anticipated to save approximately 13,000 GJ of natural gas, while the BC Cancer – Victoria heat recovery and energy upgrades project is expected to reduce site emissions by approximately 80 per cent
- ▶ Multiple energy studies commenced and progressed towards completion for various buildings in the PHSA portfolio, with the goal of identifying further opportunities for reducing energy use and carbon emissions, while enhancing occupants' comfort and satisfaction with indoor environmental quality
- ▶ Completed lighting upgrades projects at the BC Cancer Research Institute, the BC Cancer Centre – Surrey, and the Shaughnessy Building at BC Children's and BC Women's, which are expected to save more than 1 GWh of electricity
- ▶ Launched a series of workshops with Facilities Maintenance & Operations (FMO) site leads and other stakeholders to discuss the outcomes of PHSA's energy management assessment and seek input on how to further enhance collaboration between the FMO team and the Energy and Carbon Management team

“

PHSA's energy and carbon initiatives have been gaining momentum year after year ... identifying more opportunities to reduce carbon emissions, enhance climate resilience, implement electric vehicle charging infrastructure and promote renewable energy generation at BC Cancer facilities.

– Ghazal Ebrahimi, PHSA Energy and Emissions Manager



Thermal energy recovery system infrastructure at BC Cancer – Victoria

OUR STORY

Charting a greener future

In 2022, BC Cancer sites around the province took significant steps in advancing planetary health. Building on past successes with BC Cancer stakeholders — including site leads, physicians groups and FMO staff — the Energy and Environmental Sustainability team found creative and innovative ways to reduce carbon emissions and enhance climate resilience.

[Read more ►](#)

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SPECIAL STORY

Anesthetic gas is a greenhouse gas

Research shows that eliminating the use of the inhaled anaesthetic gas desflurane would significantly lower carbon dioxide emissions.

In the summer of 2022, UBC Sustainability Scholar Alpamys Issanov worked with the Energy & Environmental Sustainability (EES) team to research the environmental impacts of anesthetic gases at Fraser Health, Providence Health Care, Provincial Health Services Authority and Vancouver Coastal Health. The study looked at the associated greenhouse gas emissions of the three most commonly used volatile anesthetic agents in hospital settings — desflurane, sevoflurane and isoflurane — with a focus on desflurane, which has the highest heat trapping effect and global warming potential.

Alpamys' study found that emissions from anesthetic gases were greater than emissions from fleet vehicles and paper purchasing in three of four health authorities studied. These findings align with other estimates that anesthetic gases contribute five to nine per cent of emissions from acute health-care settings.

Interviews with anesthesiologists supported the statistical analysis, and a recommendation to ban the use of desflurane was one of the key findings. The interviewed anesthesiologists also recommended education, data collection and publications to raise awareness about the environmental impact of anesthetic gases.

B.C. health authorities are required by the *Climate Change Accountability Act* to report emissions from buildings, fleet and paper, but emissions from health-care-significant sources don't have to be reported or monitored. While the role of anesthetic gases in advancing global warming is not well understood or documented in B.C., England's National Health Service has already announced the decommissioning of desflurane by 2024. The EES team hopes that the data and best practices uncovered in this research will contribute to more understanding and support, and empower practitioners and their colleagues to embrace environmentally conscious anesthesia practices.

Moving forward, the study's findings will be brought to the health authority anaesthesiology departments, and the Lower Mainland Pharmacy will support reporting out on anesthetic gas purchasing annually.



Surgical procedure using an artificial lung ventilator

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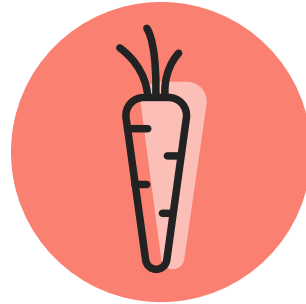
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4. Food

Our goal: Develop plant-based, local, culturally relevant and equitable food service to advance food as medicine.

LEARN MORE

Snapshot in numbers^H

275,000

hospital in-patients served/year

825,000

patient meals served/year

95,530 kg

of organic waste generated
from cafeterias/kitchens

10%

of protein on regular patient
(first choice) menu is plant-based

30%

of food produced or processed within B.C.

Select 2022 actions and achievements

- Carried out cross-departmental planning sessions focused on increasing sustainable and traditional food options for staff purchase and on in-patient food trays, as well as staff education
- Delivered two GreenCare Lunch and Learn events, featuring food projects by Eileen Wong and Elaine Chu
- Engaged Capital Project, Food Services and clinical staff to identify infrastructure requirements for sustainable food in health-care new construction
- The Slocan Site Redevelopment Project included food assets, such as gardens and fruit trees, in campus design
- Awarded a \$5,000 Nourish Innovation Scaling Grant to develop a roadmap for sustainable infrastructure and operations
- Awarded \$2,000 for the Health Promotion Initiatives Fund Green Stream to support healthy food

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The kitchen after the upgrade

OUR STORY

Sharing lunch in the green kitchen

Staff members of the Complex Chronic Diseases Program at BC Children's Hospital and Women's Hospital + Health Centre in Vancouver established a new "green kitchen" to promote their own health and wellness at work. The updated kitchen space has changed the way staff approach coming to work, with many now bringing non-prepared food from home and assembling salads for lunch. It has also reduced kitchen waste and made recycling easier.

[Read more ►](#)

The 2022 GreenCare Survey^G
results show that

60%

of 699 staff surveyed are "extremely willing" or "very willing" to try sustainable plant-based food at health-care cafeterias.

“
**We generate less plastic
waste now, as more team
members bring fresh food
from home and prepare it
in the kitchen.**

– Jennifer Mauritz, Occupational Therapist, Complex Chronic Diseases Program, BC Children's Hospital and Women's Hospital + Health Centre



Kitchen staff preparing patient food

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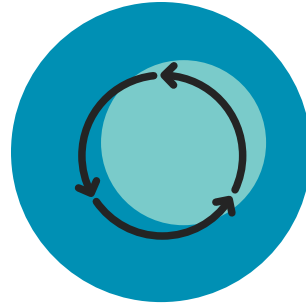
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5. Materials

Our goal: Choose materials and products that contribute to human and environmental health while avoiding waste and unnecessary chemicals.

LEARN MORE

Snapshot in numbers

759

staff took the [Waste Management module](#)
on the Learning Hub.

1,312

tonnes of non-hazardous waste were
generated, equivalent to 262 elephants.!

Select 2022 actions and achievements

- BC Cancer – Vancouver achieved the highest waste diversion of all PHSA facilities, at 46%
- Supported a request for proposal for a provincial personal protective equipment recycling program that will provide PHSA facilities an opportunity to reduce the amount of waste sent to landfill
- Advanced efforts towards environmentally preferable purchasing by:
 - Including environmental questions and criteria in Facilities Management Procurement pre-qualification of construction services
 - Incorporating environmental questions and criteria in the mobile MRI and CT scanner procurement process, resulting in a toolkit for action in the Radiological Society of North America's Journal: Radiology ([published 2023](#))
 - Creating and sharing a [Circular Health Care Opportunities Guide](#) intended to provide tangible actions for PHSA to avoid and reduce waste

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Child using hand sanitizer

OUR STORY

Sourcing sustainable skin care

Since 2019, the Energy and Environmental Sustainability team has been collaborating with others to better understand the ecological, environmental and human health implications of hundreds of ingredients found in common skin care products, including cleansers, shampoos and lotions, and to identify the cleanest skin care for B.C. health-care patients.

[Read more ►](#)



Hospital waste at Urban Impact recycling depot

“
**This is likely the only skin ingredient
inventory of its kind in Canada.**

– Shannon Handfield, Provincial Professional Practice Wound Ostomy Continence, Vancouver Coastal Health

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6. Transportation

Our goal: Increase access to and use of transportation modes that reduce negative environmental impacts and benefit human health and wellness.

LEARN MORE

Snapshot in numbers

7

Level 2 electric vehicle (EV) charging stations,
and 4 Level 1 charging stations*

52,607

shuttle rides provided to staff in 2022

2,153

People participated in the transit incentive
(on average per month)

2

core sites have secure bicycle storage (i.e. a
bike room or cage) and showering facilities

* Level 2 chargers are 240-volt outlets that provide
a full charge to an electric vehicle in 6-14 hours.
Level 1 chargers are standard 120 volt outlets
that provide a full charge to an electric vehicle
in 12-20 hours. ([source](#))

Select 2022 actions and achievements

- Launched a 50% transit incentive for staff using TransLink
- Formed a regional EV steering committee in order to support regional collaboration to provide EV charging
- The Energy and Environmental Sustainability (EES) team initiated EV feasibility studies at BC Cancer – Vancouver, BC Cancer Research Centre, Red Fish Healing Centre for Mental Health and Addiction, and the Forensic Psychiatric Hospital
- EES and BC Emergency Health Services worked together and completed assessments of EV charging infrastructure at four ambulance stations (in Victoria, Burnaby, Vancouver and Surrey) to identify options to increase fleet electric vehicles by 2028
- Completed a cycling assessment at BC Children's Hospital and BC Women's Hospital + Health Centre, and received a Bike Friendly Building Award from Hub Cycling
- Hosted GoByBike Celebration stations in the spring and fall at BC Children's and BC Women's

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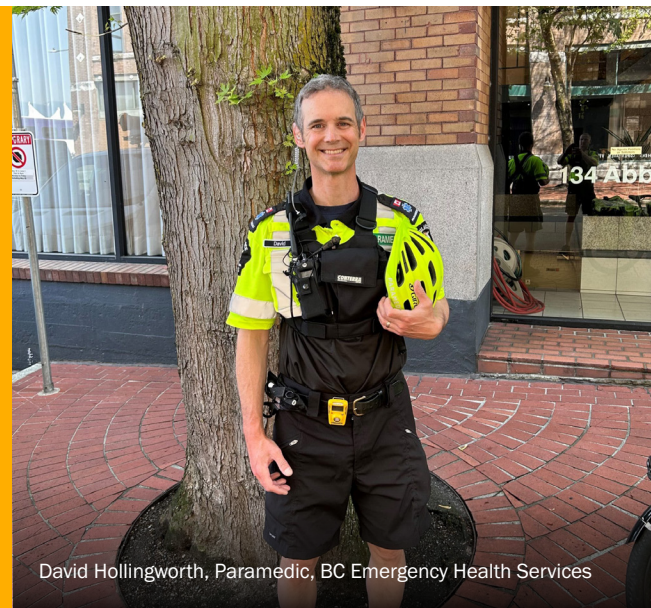
EV charging station

OUR STORY

Greening the future of emergency services

The BC Emergency Health Services Bike Squad — a team of paramedics responding to emergency calls and seeking out patients needing treatment in Vancouver’s Downtown Eastside — is cycling on the job. These paramedics are not only highly mobile, they’re also reducing carbon emissions.

[Read more ►](#)



David Hollingworth, Paramedic, BC Emergency Health Services

What do PHSA staff surveyed have to say about EVs?

Based on GreenCare Survey^A results:

14%

of 679 staff surveyed currently own an EV.

41%

of 663 staff surveyed plan to own
an EV in the next five years.

“
**The work of environmental
advocacy can be difficult,
emotional and time-
consuming, but it’s all part
of the process and it’s okay
to feel emotional.**

– David Hollingworth, Paramedic, BC Emergency
Health Services

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7. Water

Our goal: Minimize water consumption to reduce demand on natural resources and impact on our living environments.

LEARN MORE

Snapshot in numbers

4

energy-saving projects completed that contribute to water savings

2

LEED water efficiency points (at a minimum) targeted for the new Slokan Redevelopment Project, reducing outdoor water use and adding water sub-metering

1

acute care site working towards a five-year Pollution Prevention Plan to improve and reduce wastewater effluent, in compliance with Metro Vancouver bylaws

Select 2022 actions and achievements

- Achieved water use reduction points for the Red Fish Centre for Mental Health and Addictions LEED certification
- Addressed a serious water leak at the BC Children's Hospital and Women's Hospital + Health Centre swimming pool
- Investigated and promoted the use of low-flow devices, where applicable
- Promoted water conservation actions through a staff engagement and behaviour change campaign: Green At Home, Green At Work Energy Wise BINGO (40 staff members signed up and 18 completed the activity)



Red Fish Healing Centre for Mental Health and Addiction in Coquitlam, B.C.

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Gigi Wong, Clinical Pharmacy Specialist for Quality
with Lower Mainland Pharmacy Services

OUR STORY

Safeguarding waterways

As part of her “green pharmacy” work, pharmacist Gigi Wong is spearheading a movement to educate her peers about the detrimental impacts that drug contamination can have on waterways. Her main focus is to raise awareness about the harmful effects of drugs on non-target organisms, particularly aquatic life, and how this ultimately impacts human health.

[Read more ►](#)

“**Drugs improperly disposed of or flushed down the drain can have far-reaching consequences for our waterways and the organisms that rely on them.**”

– Gigi Wong, Clinical Pharmacy Specialist for Quality, Lower Mainland Pharmacy Services



Fish in a river

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

Thank you for your
ongoing support.

Given our climate reality and the urgency of restoring planetary health, it's clear that environmental sustainability is everyone's story. If we are to continue to offer staff, volunteers and patients the very best quality of life and care possible, and support the health and well-being of our families and communities, we must all take responsibility for the environment.

As the many achievements at PHSA demonstrate, much is already being done by so many. But as this report also shows, much more remains to be done. PHSA invites the whole health-care community to take actions that will restore and regenerate the interdependent health of people, place and planet — now and for future generations.

MAKE A DIFFERENCE.

Learn more about climate change and sustainability in B.C. health care:

Subscribe to the [GreenCare Network](#) for updates and newsletters, or visit bcgreencare.ca for more information.

Get involved in sustainability activities in your health organization:

Join the [Green+Leaders](#) community and make a difference in your workplace.

Transform our processes and health system away from business as usual:

Access [toolkits](#) and [resources](#) to engage your team in discussion and action toward environmentally sustainable practices for your department.

Inspire:

Share your environmental sustainability story [here](#).

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BC Housing

BC Hydro

BC Ministry of Energy, Mines and Low Carbon
Innovation

BC Ministry of Environment and Climate Change
Strategy

BC Ministry of Health

BC Ministry of Health Capital Services Branch

BC Patient Safety & Quality Council

Business Initiatives Support Services

C

Canadian Coalition for Green Health Care

CASCADES Canada

Clinical and non-clinical direct-care staff

Clinical dietitians

Communications

E

Environment and Climate Change Canada

Environmental Vendor Services

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Facilities Maintenance & Operations

Facilities Management Procurement

Finance

First Nations Health Authority

Food Services

FortisBC

H

Health Canada

Health Emergency Management BC

I

Indigenous Health

Infection Prevention and Control

Integrated Protection Services, Commuter Services

Interior Health

Island Health

L

Local and regional governments

N

National Research Council of Canada

Northern Health

Nourish Leadership

P

Pacific Climate Impacts Consortium

People and Culture

PHSA Supply Chain

Population and Public Health

Projects & Planning teams

Provincial Nursing Skin and Wound Committee

Q

Quality Improvement

S

Simon Fraser University

U

University of British Columbia

W

Workplace Health & Safety

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Appendix B: Our Progress



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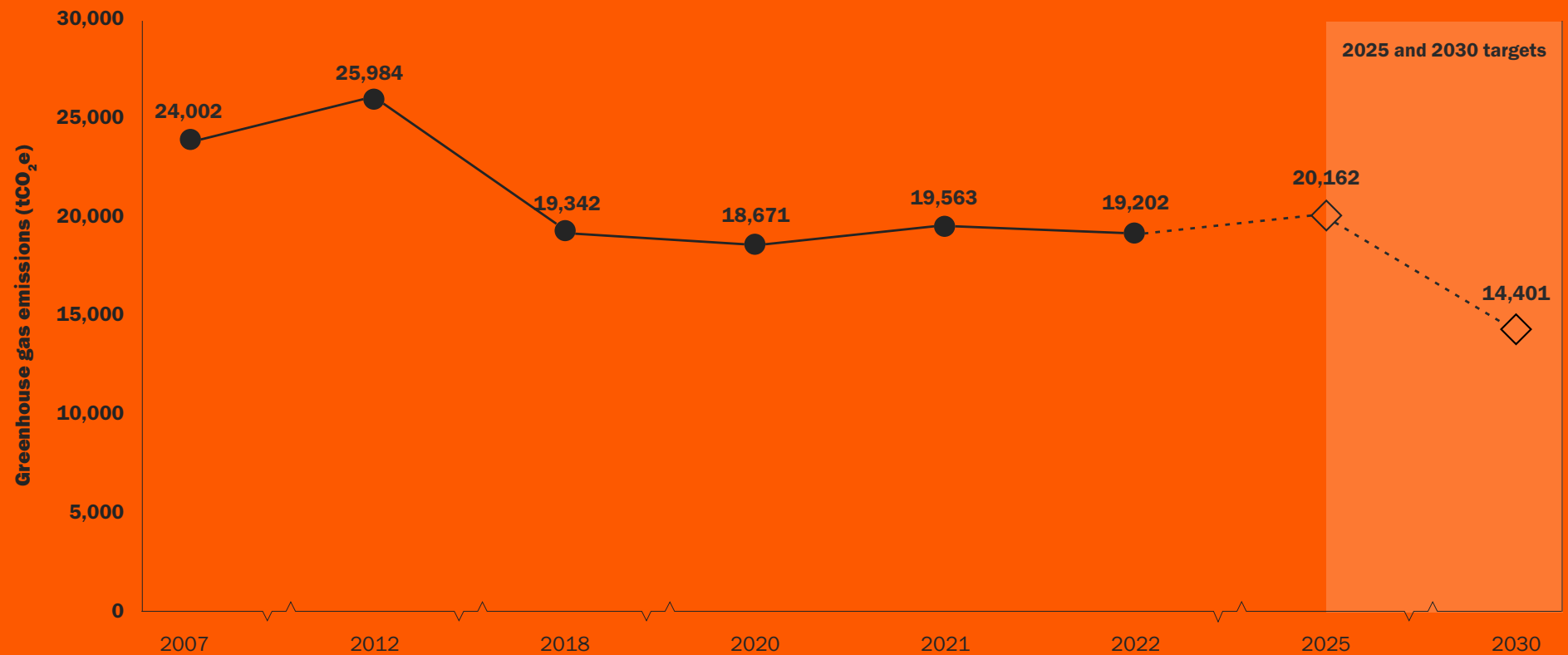
Greenhouse Gas Emissions (In Scope)

Visit the Energy and Environmental Sustainability
(EES) Methodology and Context for Calculating Key
Performance Indicators on the GreenCare website.

GHG emissions have **decreased** by

20%

since 2007.



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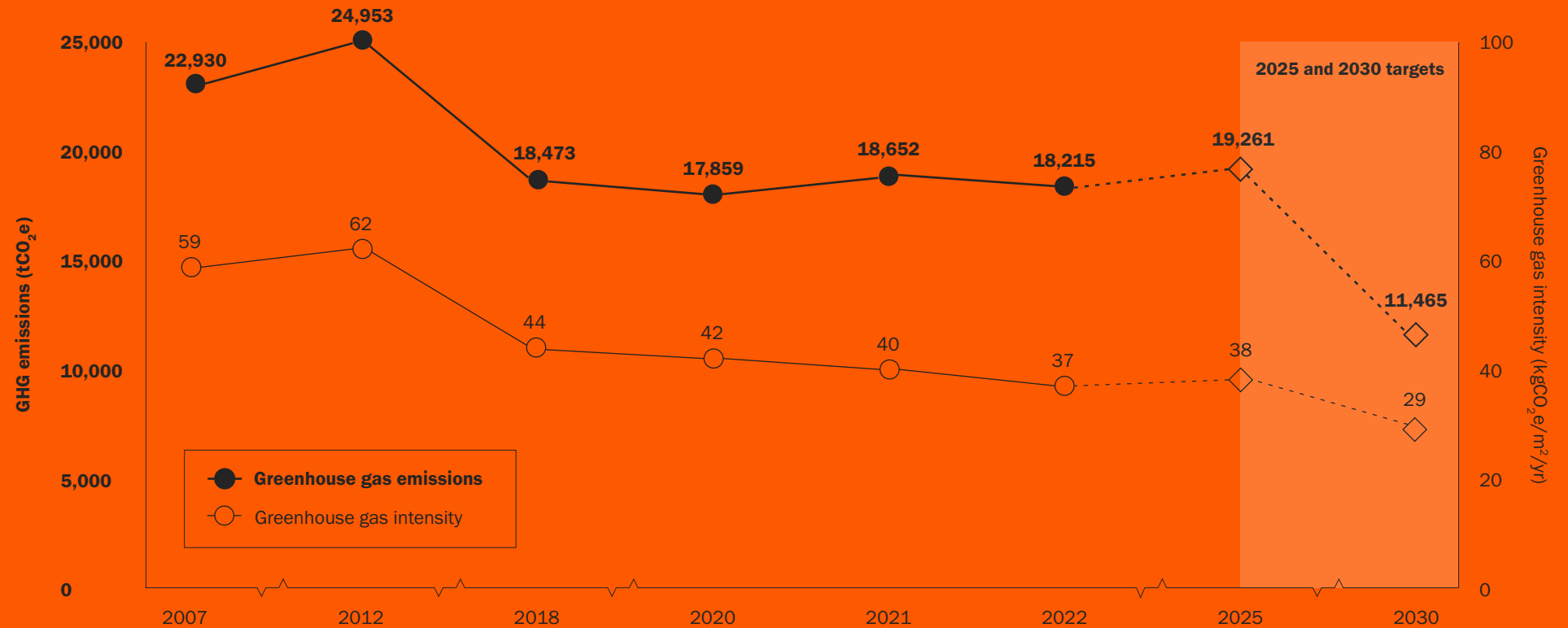
Greenhouse Gas Emissions and Intensity (Buildings Only)

Visit the Energy and Environmental Sustainability
(EES) Methodology and Context for Calculating Key
Performance Indicators on the GreenCare website.

GHG emissions in buildings
have **decreased** by

20.6%

since 2007, despite a **26% increase**
in total **usable facility space**.
This equates to a **37.2% decrease**
in **GHG-emissions intensity**.



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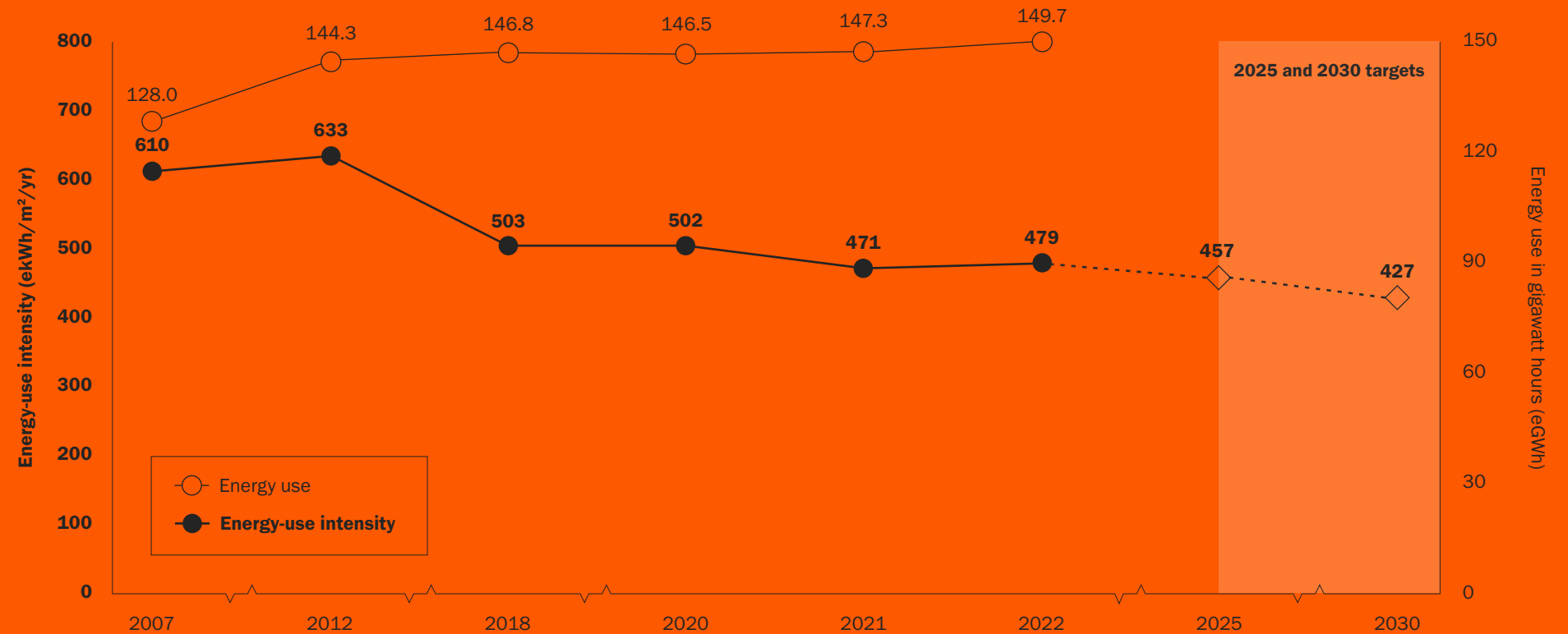
Energy Use and Intensity

Visit the Energy and Environmental Sustainability
(EES) Methodology and Context for Calculating Key
Performance Indicators on the GreenCare website.

Energy-use intensity has **decreased** by

21.5%

since 2007, and, despite an **increase
of 49%** in core facility space, our
energy use **only increased by 15%.**



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Waste-Diversion Rates

Visit the Energy and Environmental Sustainability (EES) Methodology and Context for Calculating Key Performance Indicators on the GreenCare website.

At **acute** care sites,^E we are

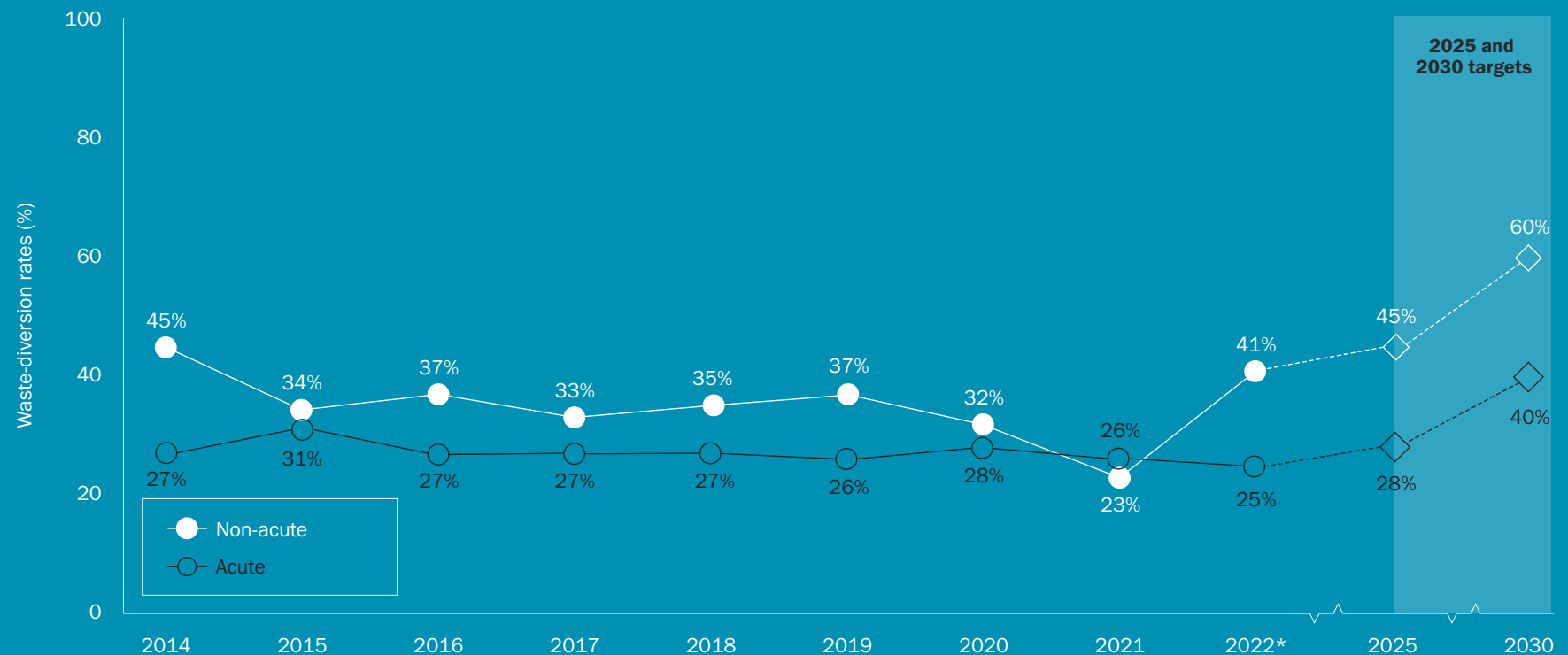
15%

away from our **2030 target.**

At **non-acute** sites,^E we are

8%

away from our **2030 target.**



* In 2022, recycling bins were returned to patient care areas, but recycling diversion rates have not yet reached pre-2020 service levels. Between 2014 and 2019,

acute care waste-diversion rates were stagnant at around 38-40%, with a drop due to COVID-19, and they have not yet recovered.

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Waste-Intensity Rates

Visit the Energy and Environmental Sustainability
 (EES) Methodology and Context for Calculating Key
 Performance Indicators on the GreenCare website.

Total waste intensity has **decreased** by

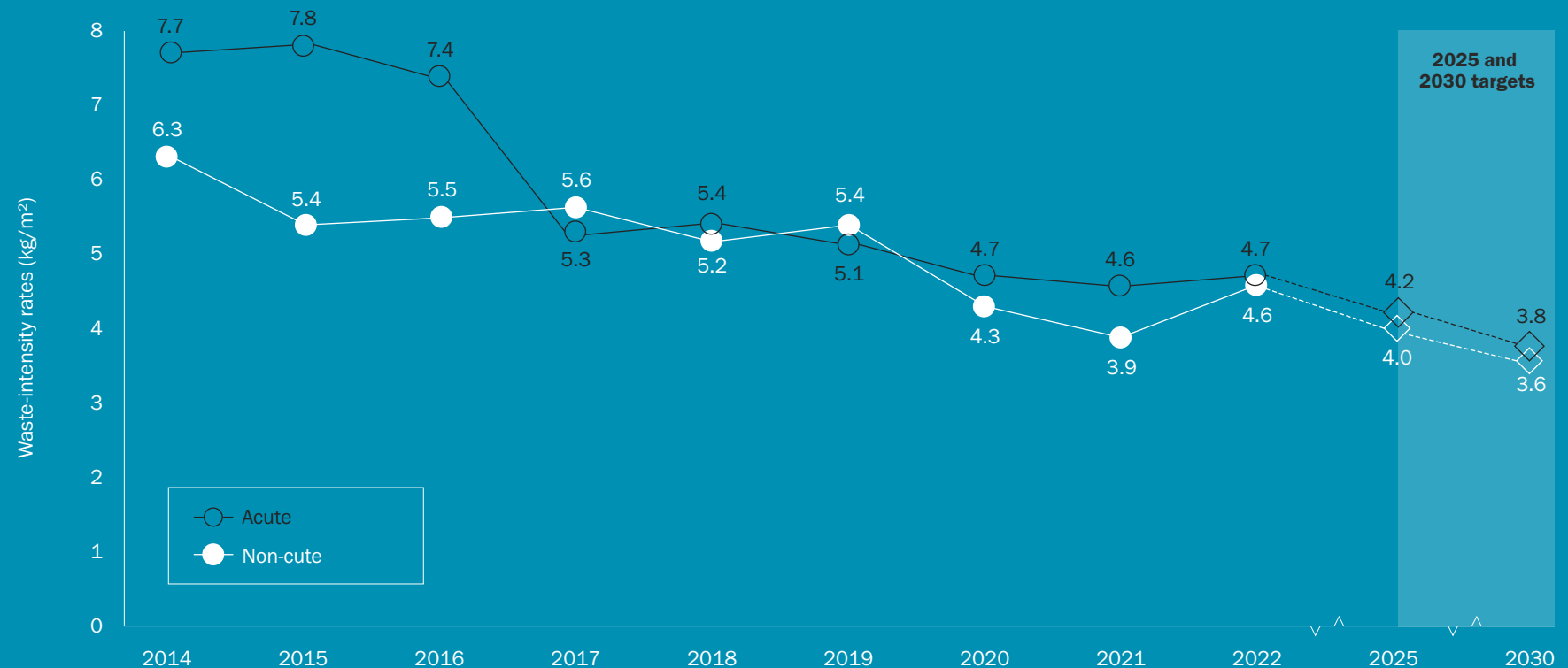
39%

at **acute care sites^F** since data
 collection was initiated in 2014.

Total waste intensity has **decreased** by

28%

at **non-acute care sites^F** since data
 collection was initiated in 2014.



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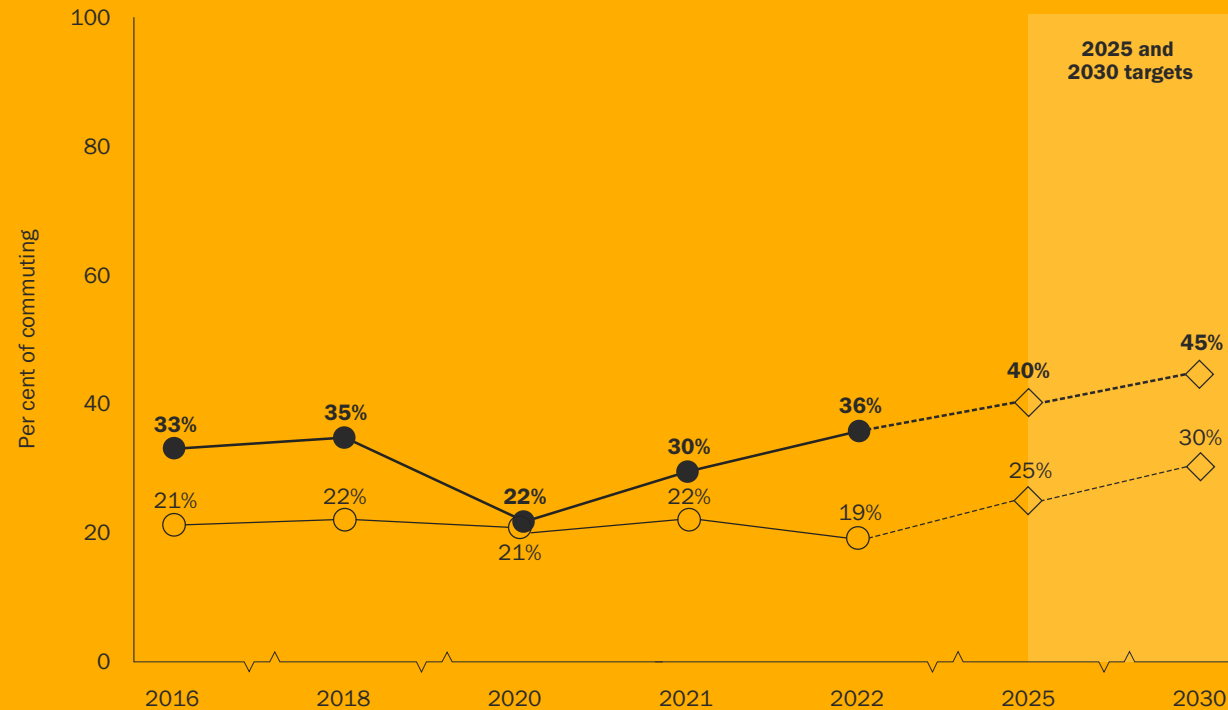
Providence Health Care EPAR

Vancouver Coastal Health EPAR

Active and Clean Commuting

Data shown in the graph is based on health-care and medical staff self-reported commuting proportions in the annual GreenCare survey.⁹

[Visit the Energy and Environmental Sustainability \(EES\) Methodology and Context for Calculating Key Performance Indicators on the GreenCare website.](#)



Active commuting by PHSA staff is

11%

away from the **2030 target.**

Clean commuting by PHSA staff is

14%

away from the **2030 target.**

● Per cent of commuting by clean transportation*

○ Per cent of commuting by active transportation**

* Clean transportation refers to hybrid or electric single occupancy, public transit, carsharing, carpools and hospital shuttles.

** Active transportation refers to bicycles (regular/non-electric, pedal-assist/electric, bike share) and walking/rolling (e.g. wheelchairs, seated electric scooters).

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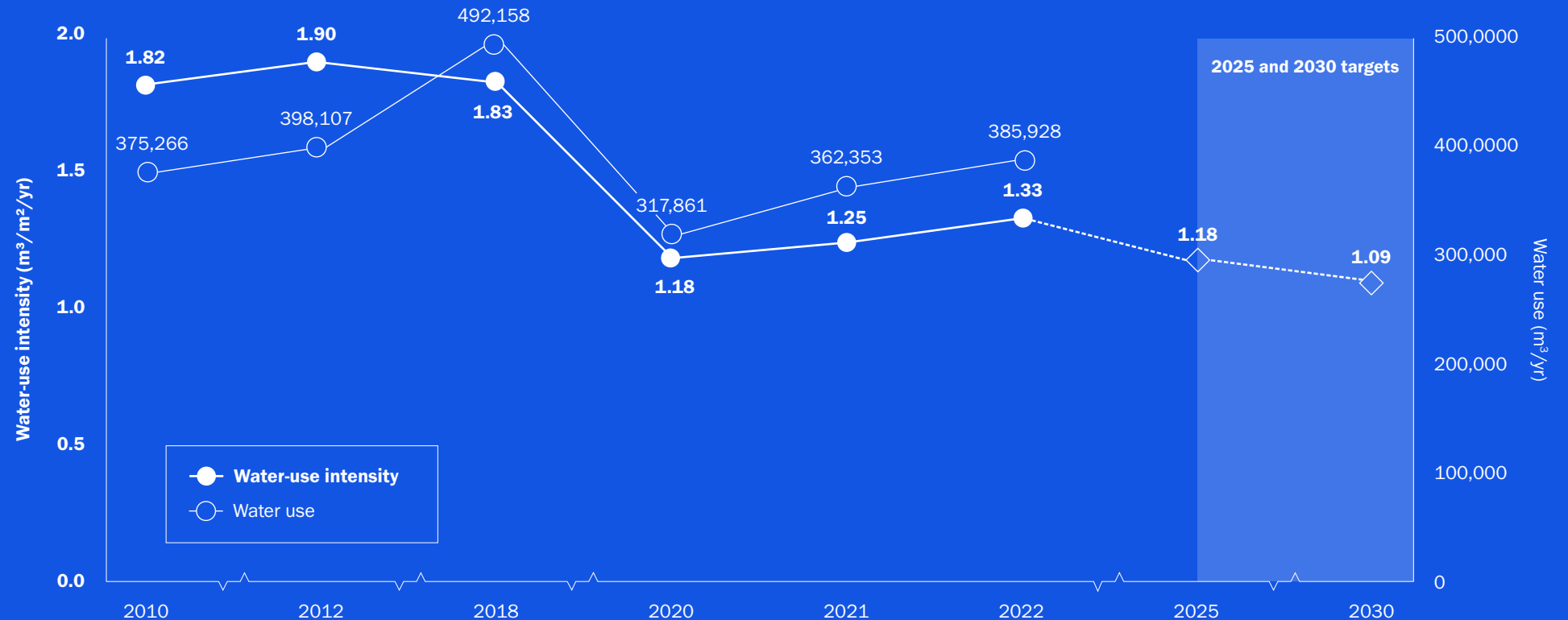
Water Use and Intensity

Visit the Energy and Environmental Sustainability
(EES) Methodology and Context for Calculating Key
Performance Indicators on the GreenCare website.

Water-use intensity has
decreased by

26.7%

since 2010, and, despite an
increase of 40% in core facility
space,* water use has only
increased by 3%.**



* Water use is not metered in all areas of facility space, which explains the difference in facility space noted in the energy and carbon metrics.

** The 2022 data is based on a three-year average (2019-2021) due to water meter issues at the BC Children's Hospital and Women's Hospital + Health Centre site.

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- A Natural Resources Canada - Office of Energy Efficiency - Demand Policy and Analysis Division. Greenhouse gas equivalencies calculator [Internet]. Government of Canada; 2017 [cited 2023 June 8]. Available from: <https://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/calculator/ghg-calculator.cfm#results>
- B PHSA Supply Chain is the procurement group for all B.C. health authorities.
- C ARCHIBUS and PHSA Real Estate Department
- D Full-time equivalent staff includes all designated groups reported in the Health Sector Compensation Information System (HSCIS). This includes physicians (doctors on staff), executive/excluded, and non-union and bargaining unit employees. It excludes affiliate employers and BC Emergency Health Services (BCEHS) employees. (Source: Health Employers Association of BC)
- E PHSA acute care sites are:
 - BC Children’s Hospital and BC Women’s Hospital + Health Centre
- F PHSA non-acute sites are:
 - BC Cancer Research Centre
 - BC Cancer – Vancouver
 - Red Fish Healing Centre for Mental Health and Addiction
- G The GreenCare survey is an annual survey (biennial prior to 2020) for all staff working within Fraser Health, Providence Health Care, Provincial Health Services Authority and Vancouver Coastal Health. The survey collects information on staff perspectives, familiarity with, and actions related to planetary health, climate change and environmental sustainability efforts in areas such as transportation and food. The data is used to measure trends and progress, and develop programs that will meet staff needs.
- H These numbers are estimates for BC Children's Hospital and BC Women's Hospital + Health Centre, BC Cancer Centres, Forensic Psychiatric Hospital, and Red Fish Healing Centre for Mental Health and Addiction.
- I Based on the assumption that an adult elephant weighs 5,000 kg.

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