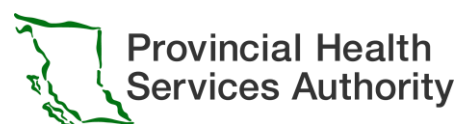


2021 Climate Change Accountability Report

Provincial Health Services Authority



Declaration Statement

This Climate Change Accountability Report for the period January 1, 2021 to December 31, 2021 summarizes our greenhouse gas (GHG) emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2021 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2022 and beyond.

By June 30, 2022 Provincial Health Services Authority's final 2021 Climate Change Accountability Report will be posted to our website at bcgreencare.ca. Final Climate Change Accountability Reports will be also posted on the BC Government CNG [website](#) by June 30, 2022 to meet legislative requirements.

Retirement of Offsets

In accordance with the requirements of the Climate Change Accountability Act and Carbon Neutral Government Regulation, Provincial Health Services Authority (**the Organization**) is responsible for arranging for the retirement of the offsets obligation reported above for the 2021 calendar year, together with any adjustments reported for past calendar years (if applicable). The Organization hereby agrees that, in exchange for the Ministry of Environment and Climate Change Strategy (**the Ministry**) ensuring that these offsets are retired on the Organization's behalf, the Organization will pay within 30 days the associated invoice to be issued by the Ministry in an amount equal to \$25 per tonne of offsets retired on its behalf plus GST.

Cover photo: Red Fish Healing Centre for Mental Health & Addiction located on səmiqʷəʔelə in Coquitlam, formerly the Riverview lands.



Executive Summary



David Byres, President & Chief Executive Officer

I am pleased to present the 12th annual Climate Change Accountability Report¹ that highlights the Provincial Health Services Authority's (PHSA) actions to reduce its carbon footprint.

As we become more aware of the impacts of environmental sustainability on public health and wellness, it's more important than ever to increase awareness and understanding of these issues with our staff, patients and the communities we serve. As PHSA has focused on reducing our carbon footprint over the past several years, I am pleased to report that our efforts have reduced PHSA's operational impact on the natural environment, all while reducing operational costs.

In 2021, PHSA had a carbon footprint offset of 19,563 tonnes of carbon dioxide equivalent (tCO₂e), which was offset at a total cost of \$512, 557.50². This represents a decrease of 18.5 per cent from the carbon footprint reported in 2007, the base year. Considering PHSA has assumed responsibility for more programs, services and staff over the past 14 years, this decrease is significant.

In 2021, we continued our carbon emission reduction efforts with three capital projects at the BC Children's Hospital and BC Women's Hospital + Health Centre, and five capital projects at BC Cancer: two at BC Cancer Research Institute, one at the BC Cancer centre in Victoria, and two at the BC Cancer centre in Surrey. When completed and fully commissioned, these projects are expected to reduce our carbon emissions by more than 1,500 tCO₂e per year. In our day-to-day operations, we continue to take action and look for opportunities to reduce our carbon footprint associated in our buildings, fleet and other mobile equipment, as well as supplies (paper) that are the three categories of our in-scope emissions. We have improved waste reduction, recycling and composting programs, implemented criteria to support environmentally preferable purchasing decisions, increased education and awareness opportunities for staff to encourage behaviour change through employee engagement campaigns, and encouraged climate resilience and adaptation.

I want to recognize PHSA's Energy and Carbon Management team who, as part of the Energy and Environmental Sustainability team, has worked closely with our capital projects as well as facilities maintenance and operations teams to reduce emissions. I would also like to recognize and thank all of our staff who support these continued efforts across the province in an effort to create a more sustainable health-care system. Thanks to your individual and team efforts, we can make positive changes that ultimately add to the health and wellness of our patients, employees and the communities we serve.

Date: May 31, 2022

David Byres
President & Chief Executive Officer
Provincial Health Services Authority

¹ Formerly known as Carbon Neutral Action Report

² This amount is calculated based on PHSA's 2021 carbon footprint offset of 19,563 tCO₂e and -37 tCO₂e adjustment from prior year (2020), using \$25 per tCO₂e, plus 5 per cent GST.



Our CO₂ Footprint

2021 GREENHOUSE GAS (GHG) EMISSIONS BREAKDOWN AND OFFSETS APPLIED TO BECOME CARBON NEUTRAL

PHSA reports its organizational carbon footprint based on guidance provided by B.C.'s Climate Change Accountability Act (CCAA), Carbon Neutral Government Regulation (CNGR) and the Climate Action Secretariat (CAS).

The CAS developed reporting guidance based on the Greenhouse Gas Protocol Corporate Standard. According to these guidelines, PHSA's carbon footprint is comprised of six different greenhouse gases, which are converted into a common metric of tonnes of carbon dioxide equivalent (tCO₂e). In scope carbon emissions are grouped in three main categories:

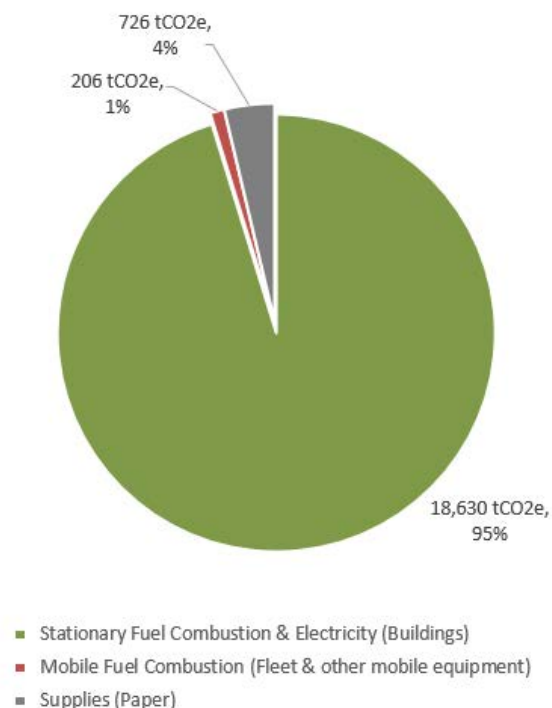
1. Stationary Fuel Combustion
2. Mobile Fuel Combustion
3. Supplies (Paper)

In 2021, PHSA's carbon footprint offset was 19,563 tonnes of carbon dioxide equivalent (tCO₂e). That represents an 18.5 per cent decrease in PHSA's carbon footprint offset since 2007.

Over 95 per cent of PHSA's in-scope emissions are attributed to the building portfolio, and 95 per cent of those emissions are associated with fossil fuel consumption.

To become carbon neutral in 2021, PHSA purchased carbon offsets at a total cost of \$512,557.50 from the Ministry of Environment and Climate Change Strategy. This amount is calculated based on PHSA's 2021 carbon footprint offset of 19,563 tCO₂e and -37 tCO₂e adjustment from prior year (2020), at \$25/ tonne CO₂e plus GST.

2021 PHSA
Greenhouse Gas (in-scope)
Emissions by Source



Provincial Health Services Authority 2021 GHG Emissions and Offsets Summary	
GHG Emissions created in Calendar Year 2021	
Total Emissions (tCO ₂ e)	19,592
Total BioCO ₂	28.7
Total Offsets (tCO ₂ e)	19,563
Adjustments to Offset Required GHG Emissions Reported in Prior Years	
Total Offsets Adjustment (tCO ₂ e)	-37
Grand Total Offsets for the 2021 Reporting Year	
Grand Total Offsets (tCO ₂ e) to be Retired for 2021 Reporting Year	19,526
Offset Investment (\$25 per tCO ₂ e)	\$ 488,150
[Total Purchased Carbon Offset +GST]	\$ 512,557.50

Notes for above table (provided by the Climate Action Secretariat):

- i. [Note, BioCO₂ is included in Total Emissions but not Total Offsets. For K-12 and post-secondary organizations, and BC Transit, Total Offsets will not equal Total Emissions minus Total BioCO₂ because offset-exempt emissions for buses are included within Total Emissions.
- ii. Emissions and offset investment amounts will be validated by CAS prior to distributing invoices.
- iii. You must round "Grand Total Offsets to be Retired" to a whole number (no decimal places) before multiplying by \$25 (e.g., 43.2 = 43, 43.5 = 44).]

CHANGES TO PROVINCIAL HEALTH SERVICES AUTHORITY'S PORTFOLIO

PHSA's usable facility space has increased 20 per cent since the 2007 base reporting year, which is largely due to the construction of the Teck Acute Care Centre, Red Fish Healing Centre, and an increase in leased spaces.

PHSA has controlled increases in facility space to accommodate increased staff by seeking opportunities to optimize existing space use while maintaining safety and efficiency.

BUILDINGS, FTE AND WEATHER	2007	2017	2018	2019	2020	2021
Distinct PHSA buildings	n/a	74	74	76	76	78
% Owned	n/a	73%	72%	72%	72%	70%
% Leased	n/a	27%	28%	28%	28%	30%
Usable square meters ¹	388,990	418,631	422,796	425,344	425,344	467,587
Full-time employee equivalents ²	5,491	10,977	11,435	11,928	12,119	12,977
Weather (summarized in Heating Degree Days) ³	2,870	2,922	2,720	2,844	2,759	2,875

Notes for above table:

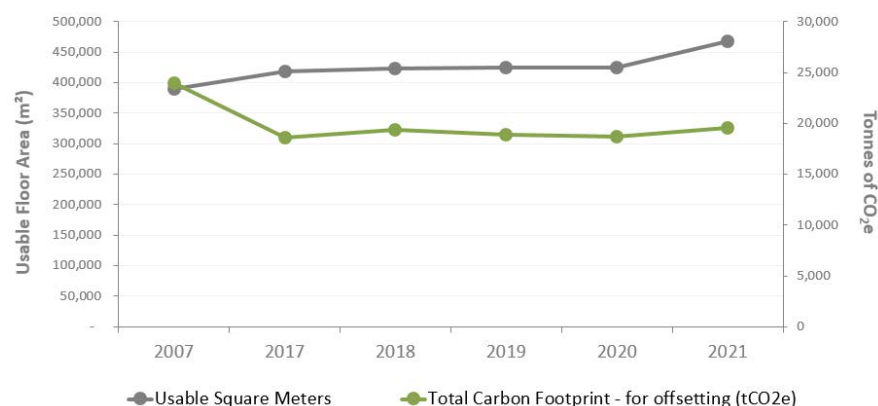
¹ Usable area excludes roof tops, interstitial spaces, and parking areas.

² Full-Time Employee data was provided by Health Employers Association of B.C. Full-Time Employee data include all designated groups reported in HSCIS and exclude affiliate employers and BCEHS employees. Full-Time Employee calculations are based on 1950 annual hours.

³ Heating Degree Days (HDD's) are based on YVR Airport data from Environment Canada and are intended to reflect the demand for heating. Although PHSA's facilities are located across B.C., the majority of buildings are in the metro Vancouver area, so HDD's for Vancouver were used.

Since 2007, PHSA's carbon footprint has decreased while usable floor area and staff have increased. As of 2021, emissions per full-time equivalent (1.51 tCO₂e/FTE) have decreased by 66 per cent since 2007, and emissions per unit of floor area (0.04 tCO₂e/m²) have decreased 32 per cent since 2007. The carbon emissions reported are not adjusted for changes in weather. Heating Degree Days (HDDs) is a metric designed to reflect the demand for energy required to heat a building. Emissions per HDD is a metric intended to summarize overall efficiency of delivering heating. PHSA's 2021 emissions per HDD (6.8 tCO₂e/HDD) are almost 19 per cent lower than the baseline year. This speaks to the improved efficiency of providing heat in our buildings

PHSA Usable Floor Area and Emissions (2007-2021)



Our Carbon Footprint (tCO₂e)		2007	2017	2018	2019	2020	2021
	Mobile fuel combustion (fleet & other mobile equipment)	189	189	180	175	203	214
	Stationary fuel combustion & Electricity (Buildings)	22,930	17,442	18,473	17,902	17,859	18,652
	Supplies (Paper)	891	927	703	791	617	726
	Total carbon footprint (tCO₂e)	24,010	18,558	19,356	18,868	18,679	19,592
	Total BioCO ₂ emissions (no offsets required) ^{1, 2}	-9	-9	-14	-7	-8	-29
	Total carbon footprint for offsetting (tCO₂e)	24,002	18,549	19,342	18,861	18,671	19,563
	Adjustments / Corrections ³	0	0	0	0	-498	-37
	Total Carbon Footprint - for offsetting after adjustments (tCO₂e)	24,002	18,549	19,342	18,861	18,173	19,526

	Purchased Carbon Offsets	\$ -	\$ 463,725	\$ 483,550	\$ 483,550	\$454,325	\$488,150
\$	Purchased Carbon Offsets +GST	\$ -	\$ 486,911	\$ 507,728	\$ 507,728	\$477,041	\$512,558

KPI's	Emissions per full-time employee (tCO ₂ e/FTE)	4.37	1.69	1.69	1.58	1.54	1.51
	Emissions per facility space (tCO ₂ e/m ²)	0.06	0.04	0.05	0.04	0.04	0.04
	Emissions per heating degree day (tCO ₂ e/HDD)	8.4	6.3	7.1	6.6	6.8	6.8

Notes for above table:

¹ As outlined in the Carbon Neutral Government Regulation of the Climate Change Accountability Act, some emissions do not require offsets.

² It was estimated that Fugitive Emissions from cooling equipment comprise less than 0.01 per cent of PHSA's total emissions and for this reason, emissions from this source have been deemed out-of-scope and have not been included in our total greenhouse gas emissions profile.

³ A total adjustment of -37 tCO₂e to offset required emissions in prior year (2020) is accounted for in 2021 Total Carbon Footprint for offsetting and 2021 purchased carbon offsets amount.

Actions to Reduce Our CO₂ Footprint

2021 LIST OF ACTIONS TAKEN TO REDUCE CO₂ FOOTPRINT

Stationary Sources (Buildings)

- **Continuous optimization:** PHSA completed the implementation phase of BC Hydro's Continuous Optimization Program at BC Cancer Research Institute and BC Cancer Victoria centre, and progressed with the implementation phase at the Shaughnessy Building. Also, the investigation phase of the Continuous Optimization Program started for multiple buildings at the BC Children's Hospital and BC Women's Hospital + Health Centre.
- **Waste heat recovery and energy upgrades:** PHSA completed one major heat recovery project at BC Children's Hospital Research Institute and worked toward completion of another one to expand the heat recovery system installed as part of the Phase 3 Redevelopment project, both at BC Children's and BC Women's campus. At BC Cancer Research Institute, a major heat recovery project progressed towards completion. At BC Cancer centres in Victoria and Surrey, energy efficiency and carbon reduction projects started to enhance and optimize the mechanical systems at these facilities. Three lighting upgrades were also under implementation in 2021, one at the BC Cancer Research Institute, one at BC Cancer centre in Surrey and one at the Shaughnessy Building on the BC Children's and BC Women's campus. Multiple energy studies also started 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 in our buildings, while enhancing occupants comfort and satisfaction with the indoor environmental quality.
- **Facilities Maintenance and Operations staff engagement:** The PHSA energy and carbon management team has continued to build an engagement strategy with Facilities Maintenance and Operations (FMO) departments at BC Children's and BC Women's and BC Cancer sites. The outreach focuses on reviewing energy use in buildings, identification of energy and carbon reduction opportunities, and optimization of existing equipment/plants.
- **Guidelines for Low Carbon Resilience and Environmental Sustainability in new construction projects:** PHSA's energy and carbon management team has been actively contributing to the Energy & Environmental Sustainability team's Guidelines for Low Carbon Resilience and Environmental Sustainability for new construction and major renovation projects in health care, with the intent of ensuring these projects are built to the highest standard of energy efficiency and carbon management within financial constraints. These guidelines are aligned with the provincial mandates and policies with regards to environmental sustainability. The previous version of these guidelines was used for the Red Fish Healing Centre for Mental Health & Addiction which was completed in 2021.
- **Behaviour change:** The Energy and Environmental Sustainability team continued to promote energy conservation, GHG emissions reduction and other aspects of environmental sustainability through awareness and behaviour change in two main ways: The GreenCare³ network and the Green+Leaders community. In addition, PHSA

³ <https://bcgreencare.ca/>

actively participated in the Energy Wise Network program and ran campaigns for staff to participate in energy and emissions focused initiatives. GreenCare is a network that unites efforts across the B.C. health-care community to advance our health-care system toward environmentally sustainable and resilient care for the health of people, place and planet.

Green+Leaders⁴ are staff volunteers from the health authority who help create healthy workplaces and a healthy planet. Every year, they make a significant contribution to the improvement of the environmental performance.



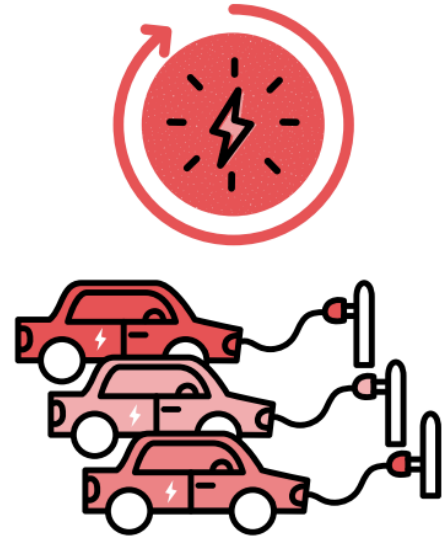
Image: rendering of the Red Fish Healing Centre for Mental Health & Addiction at the Riverview site, completed in 2021.

Mobile Sources (Fleet and other vehicles)

- PHSA actively encourages alternative modes of transportation to gas/diesel single occupancy vehicles. Inter-hospital shuttles are offered free of charge as a commuting option among several acute care sites. Shuttles are available to staff, patients and visitors. These shuttles reduce/eliminate the need for staff to rely on their own vehicles to travel between sites. In 2021, ridership for two PHSA-specific shuttles included: Children's and Women's Shuttle (34413 total rides by PHSA staff) and Vancouver General Hospital Shuttle (6019 total rides by PHSA staff).
- PHSA also encourages active and clean modes of transportation and has three bike rooms/cages, three showers, and capacity for the locking/storage of 476 bikes across its core sites. PHSA actively promotes Go By Bike Week, by hosting education stations at BC Children's Hospital and BC Women's Hospital + Health Centre. The Energy and Environmental Sustainability team, along with other departments including Facilities Maintenance and Operations, and Integrated Protection Services continue to work collaboratively on initiatives and projects that encourage active and clean modes of transportation across PHSA sites.

⁴ <https://bcgreencare.ca/our-progress/>

- PHSA is planning to provide additional electric vehicle charging stations at various sites including regular plug-ins. Currently PHSA has 6 Level 2 charging stations and 19 Level 1 charging stations available, primarily for PHSA employees.
- An Electric Vehicle Baseline and Feasibility Study was completed to inform a regional EV strategy, including PHSA fleet electrification. This study included staff/public charging within the scope of its investigation. The key recommendations resulting from this study will be actuated in 2022.
- Recommendations for fleet vehicle EV charging, as well as emergency vehicle (including ambulance) charging has been included in the Guidelines for Low Carbon Resilience and Environmental Sustainability for health-care new Construction⁵.



Supplies (Paper)

- In partnership with other B.C. health authorities, PHSA identified the benefits of purchasing post-consumer recycled (PCR) paper as opposed to virgin paper with the aim of reducing environmental impacts such as carbon emissions, water consumption and air pollution associated with paper supplies. PHSA continues to work with suppliers and vendors to identify PCR paper options at reasonable prices and identify ways to formally increase the volume of PCR paper in inventory. Engaging relevant departments across the health organization is one of the identified ways to act toward formally increasing the volume of PCR paper in inventory.
- As part of the Green+Leaders program, PHSA provides Paperless Meeting Toolkits⁶ to encourage and support eliminating the practice of printing documents to hand out at meetings.

Public Sector Leadership

Climate Risk Management

- In 2021, the Energy and Environmental Sustainability team supported planning and project teams to incorporate climate mitigation and resilience strategies into capital project design and construction, in line with the Climate Resilience Guidelines for BC Health Facility Planning & Design⁷ (released December 2020).
- Climate hazard exposure screen and a climate risk assessment were conducted for the Slocan Site Redevelopment at Slocan Street and 21 Ave in East Vancouver.
- Two climate risk and adaptation related research projects were completed and published in peer-reviewed scientific journals in 2021. One was focused on examining the impacts of wild fire smoke on indoor air quality at healthcare facilities⁸. The other research project was focused on identifying climate change impacts on occupants on long-term care facilities⁹.
- The Energy and Environmental Sustainability team contributed to policy updates in relation to climate change (e.g. Ministry of Health's Capital Policy 12 - Carbon Neutral and Climate Resilient Health Facilities).

⁵ <https://bcgreencare.ca/resource/guidelines/>

⁶ https://greencareenv.wpengine.com/wp-content/uploads/2021/09/GLToolkit_PaperlessMeetings.pdf

⁷ <https://bcgreencare.ca/resource/climate-resilience-guidelines-for-bc-health-facility-planning-design-2/>

⁸ [ijerph-18-09811-v2 \(1\).pdf](#)

⁹ <https://www.sciencedirect.com/science/article/pii/S2590252021000222>

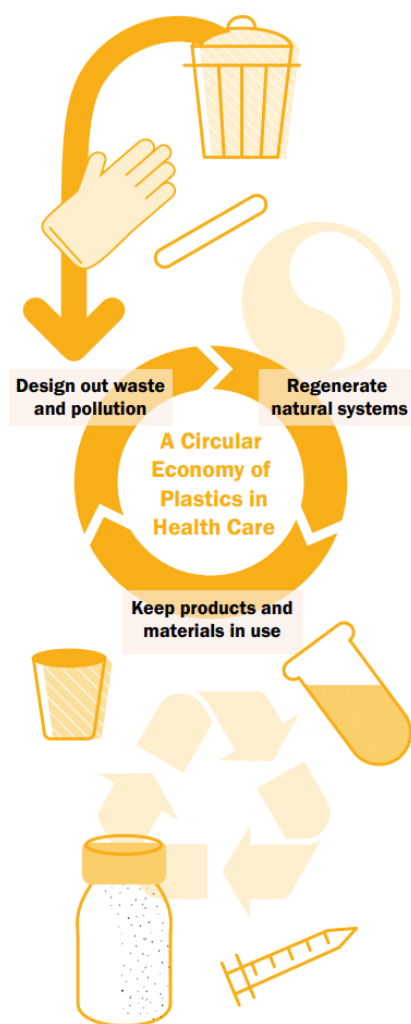
Other Sustainability Initiatives

- The Green+Leaders is a network of health-care staff volunteers who are engaged in advancing sustainability practices at PHSA. In 2021, PHSA continued to provide training, resources, toolkits and recognition to support the Green+Leaders program and various green teams within PHSA. In 2021, seven new Green+Leaders were added to the program, for a total of 134 active staff volunteers across PHSA and a total of 275 PHSA staff joined since 2009.
- In 2021, PHSA continued to have active “green committees” or green teams, led by Green+Leaders at various sites. These committees explore and implement a broader variety of sustainability initiatives utilizing the resources and coaching provided through the Green+Leaders program.
- PHSA staff can also become a part of the GreenCare network, and sign up to receive updates from the network, including invites to lunch and learn events, webinars and dialogue sessions. In addition, resources on the GreenCare website equip PHSA staff with the necessary tools and tactics to make environmental improvements at their worksite and contribute to health and wellness in areas of energy conservation, reducing paper and material waste, active and clean transportation etc.
- In alignment and active collaboration with the PHSA Communications team, education and awareness communication on the GreenCare network is also shared via PHSA’s internal communication channels such as newsletters and intranet. These efforts continue to advance sustainability practices and celebrate PHSA staff successes.
- In 2021, nine grants were sponsored by the GreenCare sustainability stream of the Health Promotion Initiatives Fund (HPIF), and approximately \$7,500 in total was distributed to recipients of the grant. Projects that qualified for the fund were required to coordinate a healthy living project in the workplace, and promoted themes of active and clean transportation, local and sustainable food, with several co-benefits including improvements to staff well-being.



- PHSA continues to support workplace leadership opportunities that support behaviour change and staff engagement through informative educational opportunities. In 2021, the Green+Leaders program created and facilitated six learning sessions, two training sessions for new staff, and 10 newsletters and bulletins were distributed to staff.
- The 2021 GreenCare Survey, which aims to gain knowledge on staff’ thoughts and opinions about sustainability, revealed that 88% of PHSA staff agree or strongly agree that healthcare organizations should demonstrate leadership when it comes to environmental health and wellness in the workplace and our communities. The same survey revealed that 94% of PHSA staff agree that Health-care organizations should work to support health public policies that support action on climate change and biodiversity loss.
- The 2021 GreenCare Survey results show that 13% of PHSA staff own electric vehicles (a 3% increase compared to 2020), commuting by electric vehicle has increased from 4% to 8% percent of commutes (compared to 2020), and that in total 45% of PHSA staff are planning to own an electric vehicle in the next five years; this is a 7% increase compared to 2020 survey results.

- PHSA staff reported increased use of sustainable modes of transportation in 2021 compared to last year. Commuting by internal combustion engines (gas/diesel) single occupancy vehicle decreased by 11% in 2021 (compared to 2020), and commuting by public transit increased by 6% in 2021 (compared to 2020)
- PHSA staff have access to Sustainable Transportation education and resources opportunities, through the Sustainable Transportation Series, and through transportation resources available on the GreenCare Website.
- PHSA facilities comply with a standardized recycling program¹⁰ which includes mixed containers, mixed paper, organic waste and batteries. Depending on collection logistics, some sites may also participate in recycling programs for expanded polystyrene, pallet wrap, printer cartridges, and mattresses, scrap metal, lighting and other materials. Each facility has a target of reaching 50 per cent waste diversion by 2030.
- From January 1, 2021 to December 31, 2021, a total of 714 PHSA staff completed the online Waste Management Basics Learning Module¹¹ available on the Learning Hub, an increase of 176 over 2020. This module familiarizes learners with the impacts of improper waste management and how to discard different types of waste appropriately.
- Weighted environmental sustainability questions were added to a Request for Proposal (RfP) for disposable gowns, drapes, and surgical packs. This provincial RFP would impact all healthcare sites that provide surgical services.
- In 2021, a draft Circular Health Care resource document was created, intended to provide tangible actions for PHSA to avoid and reduce waste
- The GreenCare¹² website underwent a full refresh and relaunched in October 2021. Since then, we have averaged 1,500 users a month and have observed increased engagement and actions taken by the users once on the site. Our Resources¹³ section of the website that presents a variety of reports, case studies and toolkits is the most visited section of the website. The GreenCare website also provides a hub for environmental sustainability-related resources and opportunities and is centered on engaging PHSA and other B.C. health care staff with environmental sustainability and resilience in the workplace.
- According to the GreenCare website analytics, since the relaunch in October 2021, the number of Green+Leaders¹⁴ monthly registrations have doubled.
- PHSA supports professional development through workshops and educational sessions sponsored by BC Hydro and Fortis BC.
- PHSA Supply Chain internal working group initiated to develop a Sustainable Procurement Policy (currently under development). PHSA Supply Chain provides all elements of supply chain management including contracting and materials management on behalf of all six B.C. health authorities. An initiative called Environmentally Preferable Purchasing has been in action since late 2019 within PHSA and in partnership with the other B.C. health authorities. The goal of this initiative is implementing formal processes in supply chain to weigh products and services against environmental criteria.



¹⁰ Recycling program was paused for the majority of 2021 due to the COVID-19 pandemic, but restarted again in November 2021.

¹¹ <https://learninghub.phsa.ca/Courses/9114/waste-management-basics-learning-module-online>

¹² <https://bcgreencare.ca/>

¹³ <https://bcgreencare.ca/resources/>

¹⁴ Green+Leaders are staff volunteers from the health authority who help create healthy workplaces and a healthy planet. Each year, they make a significant contribution to the improvement of the environmental performance.

- Environmental questions were added to Facilities Management pre-qualification of 19 consulting categories such as: Architectural Services, Professional Engineers, Functional Program, Clinical Health Services, and Asset Management Services.
- Sustainable procurement education for PHSA Supply Chain buyers was delivered including a news story and lunch and learn with 55 attendees.
- The Energy and Environmental Sustainability team engaged Health Authority furniture vendors in conversations about environmental sustainability of their products.
- In 2021, the Energy and Environmental Sustainability team completed a research project focused on identifying water saving opportunities at the healthcare facilities in the Lower Mainland. Acting on the recommendations of this study will be discussed in the coming year.
- In 2021, the Energy and Environmental Sustainability team completed the process of updating its Sustainability Strategic Framework. The updated framework reflects recent events in the context of B.C. and the health authority. These events include: Changes in legislation, increased public interest in environmental sustainability and climate change, health authority executive mandates relating to a low carbon economy/climate change, and staff interest/engagement with regards to environmental sustainability. The refreshed framework ensures relevance, alignment and accountability. Under the refreshed strategic framework, the Energy and Environmental Sustainability team continues to drive the push for environmentally sustainable and climate resilient healthcare through seven inter-related focus areas: climate change, energy and carbon, food, leadership and innovation, materials, transportation, and water.
- In 2021, the Energy and Environmental Sustainability team worked toward updating the design guidelines for health care new construction and major retrofits. The updated guidelines is called Low Carbon Resilience and Environmental Sustainability Guidelines for Health-care New Construction¹⁵ and aims to:
 - 1) Provide a set of recommendations to inform the detailed design phase of new and replacement construction for acute and long-term care facilities.
 - 2) Inform all members of a project team in the development of project components specific to the Statement of Requirements and the Low Carbon Resilience and Environmental Sustainability Scope of Work.
 - 3) Enable the highest standard of human and environmental health within health-care facilities.



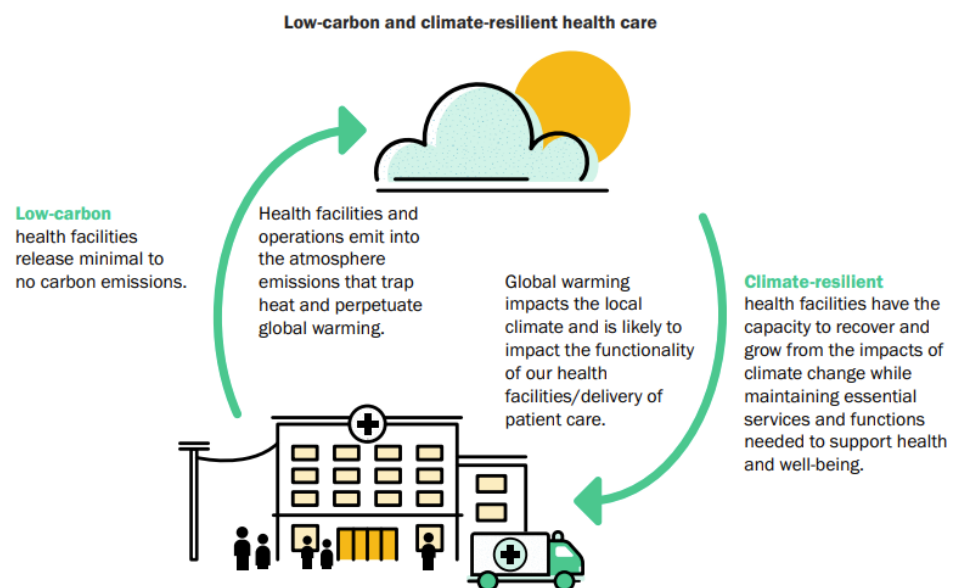
PHSA's Energy and Environmental Sustainability team focus areas

¹⁵ <https://bcgreencare.ca/resource/guidelines/>

FUTURE ACTIONS TO REDUCE CO₂ FOOTPRINT

PHSA plans to continue reducing GHG emissions and energy in the following ways:

- **Optimize our existing buildings:** Planning and implementing energy efficiency and carbon emissions reduction projects in our existing building portfolio by utilizing the Carbon Neutral Capital Program (CNCP) as our primary funding source.
- **Efficient new construction:** Implementing project-specific energy and carbon performance targets to ensure that our new buildings are as energy and carbon efficient as possible.
- **Managing climate risks:** In partnership with key stakeholders, conducting assessments and implement necessary measures to move toward a low carbon climate-resilient health system, manage climate risks to our facilities, and break the chain of cascading impacts on the services we provide in our healthcare facilities and our broader communities of care.
- **Systemic change:** Implementing standards, guidelines and processes to embed energy and carbon management principles further into standard operations.
- **Behavior change and staff engagement:** Engaging and educating our staff, via the existing Green+Leaders program, GreenCare Network and through collaboration with PHSA's Health Promotions Initiative team and Communications team as well as participation in the Energy Wise Network Program.
- **Innovation and demonstration:** Leveraging the innovative Green Revolving Fund approach that has been initiated for PHSA to support ongoing investment in energy conservation through utility cost avoidance achieved through conservation. In addition, learning about new technologies, introducing them to sites and staff, and pave the way for larger innovations when an appropriate opportunity arises.
- **Align with our core mandate:** Striving to advance health care practices that respect environment stewardship by working with the Energy and Environmental Sustainability team's refreshed Strategic Framework, noting that the environmental impact from health care facilities, operations and services influences the health of populations and patients we serve. PHSA will engage in a collaborative approach to create a sustainable and environmentally responsible health care system, which continues to advance health and wellness in its broadest sense.



Feature Projects

BC Cancer- Energy Efficiency and Carbon Emissions Reduction Projects

In 2021, a number of projects and initiatives were under way across BC Cancer to reduce energy use and greenhouse gas emissions from buildings and operations, support staff and physicians in greening our operations. The Energy and Environmental Sustainability team have been working closely with BC Cancer to reduce health care's environmental impact, and further improve the health of individuals and our communities.

The highlight of 2021 energy efficiency and carbon emissions reduction projects across BC Cancer include:

At **BC Cancer Research Institute** we completed a lighting retrofit project and progressed with a major heat recovery project. This is expected to result in significant carbon emissions reduction and energy savings once fully commissioned. One of the key goals has been to improve the indoor environmental quality in the building and enhance occupants' comfort and work.

BC Cancer centre in Surrey has also been going through a lighting retrofit and an energy and carbon reduction project in 2021. Further investigations are underway to identify additional measures for energy efficiency and carbon emissions reduction at this facility.

In 2021, another major heat recovery project started and worked towards completion at **BC Cancer centre in Victoria**. A Thermal Gradient Header technology is being brought to this site as part of the project to integrate waste heat sinks and sources allowing significant reduction of fuel use at the site.



Image on the left: BC Cancer Research Institute. L to R: Tom Stodola, BC Cancer manager, research building operations and special projects, Shubhkarm Sidhu, PHSA FMO manager, Ghazal Ebrahimi, PHSA energy and carbon emissions manager, Yadwinder Sidhu, PHSA FMO electrical lead.

Image in the middle: BC Cancer – Surrey. L to R: Ronaldo Mesa, Fraser Health FMO maintenance engineer, Cathy McDonald, Fraser Health energy coordinator, Cher Kinamore, director of operations, BC Cancer – Surrey, Adrian White, manager of clinical services, BC Cancer – Surrey

Image on the right: BC Cancer – Victoria. L to R: Nathan Ralph, FMO project coordinator, Island Health, Richard Barrette, RJH FMO manager, Island Health, Jordan Carrie, manager of BC Cancer - Victoria, Ryan Galloway, former PHSA thermal energy manager

The projects noted above are integral in reducing the total of energy consumption, cost and carbon emissions at PHSA.

As a result of the energy and carbon projects worked towards completion in 2021, per year there are more than \$360,000 energy and carbon offset costs avoided, natural gas savings of more than 25,000 GJ, more than 900,000 kWh electricity saved, and 1,300 tonne greenhouse gas emissions reduction estimated.

These projects are funded by Carbon Neutral Capital Program (CNCPP) and received significant capital incentives from BC Hydro and Fortis BC for implementation of the energy conservation measures. These energy and carbon reduction projects have been the result of a collaborative effort across BC Cancer with input from leadership, facilities maintenance and operations, project management office, energy and environmental sustainability team and many others.