

2023 public sector organization Climate Change Accountability Report

Fraser Health Authority



Aerial view of a rendering of the new Surrey hospital and BC Cancer Centre to be completed in 2027. Please note that the final design may differ from this rendering. (fraserhealth.ca)



Executive summary



Victoria Lee, President and Chief Executive Officer

I am proud to present Fraser Health's 2023 Climate Change Accountability Report.

This marks the 14th consecutive year we have achieved carbon neutrality as part of the Province of British Columbia's public sector commitment to net-zero greenhouse gas emissions. The health care system is a significant contributor to emissions and, as such, we must do everything we can to mitigate further climate change, adapt our systems and best prepare people for the changes that are underway.

Our commitment is enduring and also expanding. In 2023, we focused efforts across our region to position Fraser Health as a leader in social and environmental sustainability by including this in our [Organizational Objectives and Key Results](#) (OKRs). We developed Fraser Health's first [Planetary Health Strategy](#), which outlines four priority areas:

1. Reducing the impact of our services on the planet.
2. Creating a climate resilient health system.
3. Living our anchor mission by reinforcing the connection between planetary health and healthy communities.
4. Cultivating a culture and system of social and environmental sustainability.

While investment and progress is being made across all priorities mentioned above, the focus of this report is on BC government-proposed in-scope greenhouse gas emissions and their impact on climate change.

Fraser Health's total in-scope greenhouse gas emissions in 2023 were 40,452 tonnes of carbon dioxide equivalent, a six per cent decrease from 2022. Emissions per unit of floor area are 29 per cent less than the 2007 base year. In order to balance these emissions, we purchased carbon offsets from the Ministry of Environment and Climate Change Strategy at a total cost of \$1,021,850. In 2023, we successfully implemented several emission reduction projects with estimated savings of 4.2 gigawatt hours (GWh), reducing our carbon footprint by 697 tonnes of carbon dioxide equivalent (CO₂e) per year.

Under the leadership of the Energy and Environmental Sustainability and Planetary Health teams, our staff and medical staff will continue to focus on advancing sustainability practices within the health system. We are building on efforts and actively pursuing ways to reduce our waste, practice environmentally preferable purchasing and plan for climate resilience and adaptation.

I want to acknowledge Fraser Health staff, medical staff, volunteers and partners for the work they have done to help reduce Fraser Health's carbon footprint. By working together and identifying the actions we are able to control and change, we can transform our health system so it is not only resilient to current and future climate threats but also environmentally and socially sustainable. Our vision is a **Healthy planet, healthy people and healthy communities**.

Dr. Victoria Lee President and Chief Executive Officer

Our Emission Footprint

Summary of 2023 greenhouse gas emissions and offsets applied to become carbon neutral

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

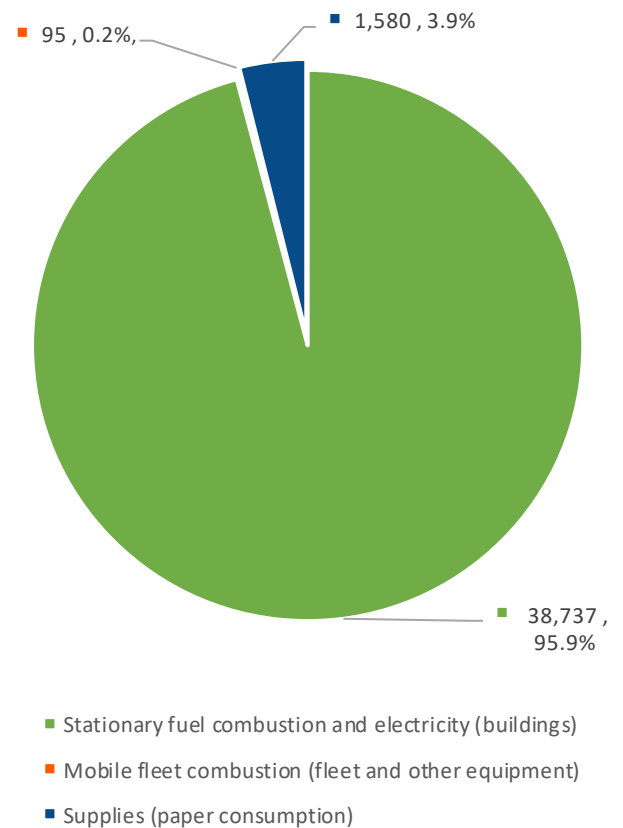
The CAS developed reporting guidance based on the Greenhouse Gas Protocol Corporate Standard. According to these guidelines, Fraser Health's carbon emissions are comprised of six different greenhouse gases, which are converted into a common metric of tonnes of carbon dioxide equivalent (tCO₂e). In-scope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

1. Stationary fuel combustion and electricity (buildings)
2. Mobile fleet combustion (fleet and other equipment)
3. Supplies (paper consumption)

The total carbon emissions (total emissions minus bio-emissions) offset for 2023 was 40,413 tCO₂e. As shown in the chart, almost 96 per cent of Fraser Health's in-scope emissions are attributed to the stationary fuel combustion and purchased energy (electricity) from Fraser Health owned and leased buildings.

To become carbon neutral in 2023, Fraser Health purchased carbon offsets from the Ministry of Environment and Climate Change Strategy. Fraser Health's 2023 total offsets were 40,874 tCO₂e, which includes 461 tCO₂e for 2022 data adjustment, resulting in a total cost of \$1,021,850 plus GST.

2023 Fraser Health greenhouse gas (in-scope) emission by source (tCO₂e, % total)



Changes to Fraser Health's Portfolio

Fraser Health's usable facility space has increased by 43 per cent since the 2007 base reporting year. This was largely due to several new facilities and expansions, such as Abbotsford Regional Hospital and Cancer Centre in 2009 and more recently, the Mental Health and Substance Use Wellness Centre at the Royal Columbian Hospital campus in 2020. Staff numbers have also significantly increased with 25,260 full-time equivalent (FTE) staff reported in 2023, a 74 per cent increase compared to the 2007. In alignment with the Carbon Neutral Government Regulation, carbon emissions are not normalized for annual weather fluctuations. The use of Heating Degree Days (HDD), as shown in the table below, is a metric designed to reflect the demand for energy required to heat a building. Ultimately HDD will have an impact on our reported emissions.

Fraser Health Portfolio							
BUILDINGS, FTE AND WEATHER	2007	2010	2019	2020	2021	2022	2023
Distinct Fraser Health Buildings:	n/a	132	163	172	174	178	187
% Owned:	n/a	82	82%	82%	83%	81%	77%
% Leased:	n/a	18	18%	18%	17%	19%	23%
Usable Square Meters ¹ :	539,521	595,071	690,353	725,217	735,603	760,343	773,537
Full-Time Employee Equivalents ² :	14,507	16,393	19,287	20,895	22,912	23,291	25,260
Weather (Heating Degree Days) ³ :	2,888	2,627	2,844	2,759	2,875	2,936	2,636

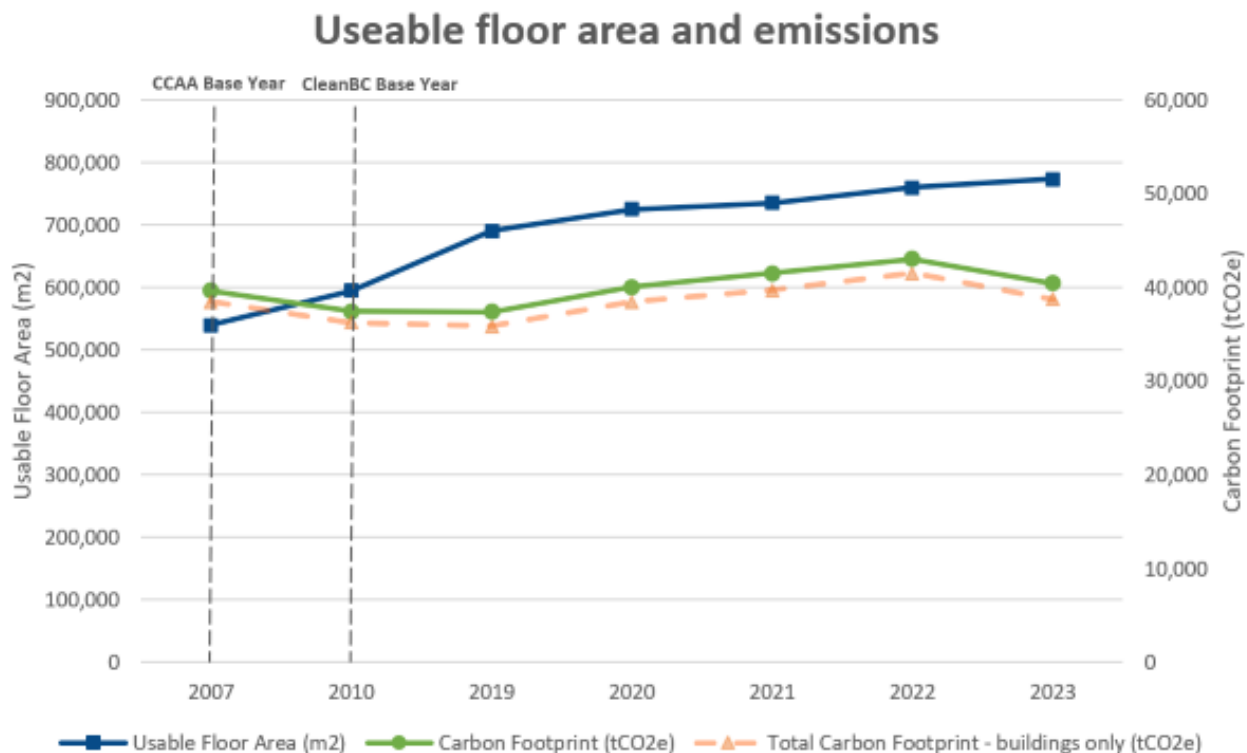
Notes for above table:

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

² Full-Time Employee data was provided by Health Employers Association of BC.

³ Heating Degree Days (HDDs) are based on YVR Airport data from Environment and Climate Change Canada using a base temperature of 18°C to reflect the demand for heating. (<https://vancouver.weatherstats.ca/charts/hdd-yearly.html>)

Since 2007, Fraser Health's overall carbon emissions have increased but at a much slower rate than the floor area and staff numbers. The graph below shows the carbon emissions footprint and floor area changes from 2007 (the base year for CCAA) and 2010 (the base year for CleanBC).



This report is prepared in response to Climate Change Accountability Act (CCA), and the 2007 base year has been used for our progress performance calculations in the table below. In 2023, the emissions per full-time employee equivalent (1,601 kgCO₂e/FTE) decreased by 41 per cent, and emissions per unit of floor area (52.30 kgCO₂e/m²) decreased by 29 per cent, as compared to 2007.

Fraser Health								
Our Carbon Footprint (in tCO ₂ e)		2007 ³	2010 ³	2019 ³	2020 ³	2021 ³	2022 ³	2023
tCO ₂ e	Mobile Fuel Combustion:	98.2	140	70	75	138	84	98
	Stationary Fuel Combustion and purchased Energy (electricity):	38,454	36,284	35,892	38,483	39,714	41,533	38,774
	Supplies (paper):	1,123	1,056	1,439	1,483	1,651	1,429	1,580
	Carbon Footprint¹:	39,675	37,480	37,401	40,041	41,503	43,046	40,452
	Emissions not requiring Offsets ² :	-22	-8	-39	-15	-25	-39	-39
	Carbon Offsets:	39,653	37,472	37,361	40,026	41,478	43,007	40,413
KPIs	Emissions per Full-Time Employee (kgCO ₂ e/FTE)	2,735	2,286	1,939	1,916	1,811	1,848	1,601
	Emissions per Facility Space (kgCO ₂ e/m ²)	73.54	62.98	54.18	55.21	56.42	56.61	52.30

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 is estimated that fugitive emissions from cooling equipment comprised less than 0.01% of Fraser Health's total emissions. 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 Historical Carbon Footprint and Carbon Offsets is updated based on emission factor updates detailed in the "2023 B.C. Best Practices Methodology for Quantifying Greenhouse Gas Emissions for Public Sector Organizations, Local Governments, Modern Treaty Nations, and Community Emissions"

https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2023_pso_methodology_for_quantifying_greenhouse_gas_emissions.pdf



PART 1: Legislative Reporting Requirements

Declaration statement

This Public Sector Organizations Climate Change Accountability Report for the period January 1, 2023, to December 31, 2023, summarizes our greenhouse gas (GHG) emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2023 to minimize our GHG emissions and our plans to continue reducing emissions in 2024 and beyond.

By June 30, 2024, Fraser Health's final 2023 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, 2024 to meet legislative requirements.

Emissions reduction: actions and plans

A. Stationary source (buildings)

Actions we delivered on in 2023:

In 2023, a five-year Planetary Health Strategy was developed and approved as an organizational priority. Four strategic priorities have been identified, including priority 1: to Reduce the impact of our services on the planet, which is comprised of three goals: (1) Assess and reduce our greenhouse gas emissions; (2) Reduce air pollution; and (3) Use resources efficiently and decrease health system waste. Activation of the strategy is underway across our health system and following actions contributed to our emission reductions in 2023:

- Reduced environmental impact by initiating mechanical and lighting retrofit projects at various sites with a total estimated energy savings of 4.2 GWh, resulting in greenhouse gas savings of 697 tCO₂e per year.
- Utilized the Carbon Neutral Capital Program (CNCP) to fund the energy / greenhouse gas emission reduction projects at Surrey Memorial Hospital, Eagle Ridge Hospital, Langley Memorial Hospital, Ridge Meadows Hospital, Peace Arch Hospital and Delta Hospital. Approximately \$3.3 million of CNCP funds, along with internal capital funds and utility partner incentives were invested in fiscal year 2023-2024.
- Piloted low carbon retrofit technology, such as Gas Absorption Heat Pump, Gas Engine Heat Pump, Solar Thermal system and Combined Heat Power system as innovative project solutions.
- Invested \$455,560 from the Green Revolving Fund for energy saving studies in various acute sites and lighting upgrade projects at The Residence in Mission, Eagle Ridge Manor, Heritage Village, Parkholm Place and Chilliwack Public Health buildings.
- Advanced the continuous building energy optimization refresh program at Peach Arch Hospital, Delta Hospital and Ridge Meadows Hospital to maximize the efficiency of the building's heating / cooling / ventilation control systems.
- Continued to roll out the engagement strategy with key partners including our Planetary Health and Facilities Management teams to focus on thermal comfort, indoor air quality, energy performance, emission reduction and optimizing existing heating and cooling equipment.

Plans moving forward:

- In collaboration with Facilities Management and Planetary Health leads, we plan to commission Low Carbon Roadmap Reports for Acute sites to identify short-term and long-term plans to achieve greenhouse gas emission reduction targets as per requirements in [CleanBC Roadmap to 2030](#)
- Continue engagement in new construction and major renovation projects to provide stewardship of the new Health Capital Policy Manual chapter (Low Carbon, Climate Resilient and Sustainable Health Facilities). This policy will be used to inform the business plans and designs for several new long-term care facilities, with the intent to ensure

that health care related buildings meet the highest standards for environmental and human health, performance efficiency and financial investment.

- Plan and implement greenhouse gas emissions and energy reduction projects in our existing buildings by using the Carbon Neutral Capital Program supplemented with internal capital funds, incentives from BC Hydro and FortisBC, and where applicable, federal program funding.
- In partnership with Facilities Management, continue the optimization of building controls in our existing buildings.
- Reinvest electricity savings to supplement the Green Revolving Fund to invest in electricity reduction projects.
- Undertake existing site energy studies with support from Facilities Management teams, and external consultants to identify greenhouse gas emission and energy reduction opportunities.
- Collaborate with other departments to identify greenhouse gas reduction opportunities and track building performance.
- Continue to embed sustainability in the organization's culture by supporting staff engagement initiatives such as the GreenCare network and Green+Leaders program. The Energy and Environmental Sustainability team continued to promote energy conservation, GHG emissions reduction and other aspects of environmental sustainability and climate adaptation and resilience through raising awareness, education and partnerships that led to behavior change and system change.

B. Mobile Sources (fleet and other vehicles)

Actions we delivered on in 2023:

- Fraser Health currently has 48 Level 2 electric vehicle charging stalls, an increase of eight compared to 2022. We learned, via the recent GreenCare survey, that 17 per cent of staff own an electric vehicle and 34 per cent plan to own an electric vehicle in the next 5 years.
- We continued the free shuttle transport service for family members, ambulatory patients and employees in Burnaby Hospital, Royal Columbian Hospital (two shuttles) and Surrey Memorial Hospital. A real-time GPS and notification shuttle tracker was deployed, enabling staff to see the location of the shuttle in real-time to better understand wait times. Ridership was recorded at 129,489 boardings in 2023, which is slightly lower than the 130,080 recorded in 2022.
- Fraser Health encourages active and clean modes of transportation and has secured bicycle storage along with showers at 11 sites.
- In 2023, Fraser Health hosted *Go By Bike Week* education stations at Abbotsford Hospital, Burnaby Hospital, Royal Columbian Hospital and Surrey Memorial Hospital. Staff have access to the online resources through the [GreenCare website](#).
- The Fraser Health [Transit incentive program \(TIP\)](#) increased to 50 per cent subsidy in April 2023, which provides employees with a monthly transit pass incentive to encourage the use of transit instead of single occupancy vehicles. In 2023, the average number of staff subscriptions was 1035, a 185 per cent increase compared to 363 in 2022.

Plans moving forward:

- Our staff, in partnership with colleagues in other lower mainland health organizations, have been actively engaged in a regional steering committee to develop an Electric Vehicle (EV) Framework. This framework will support a collaborative approach for implementation of charging stations and will be released in 2024.
- Planning is underway to install more EV charging station units throughout the Fraser Health sites, including 70 units as part of the Royal Columbian Hospital phase 2 redevelopment project.
- Advancing active transportation actions from the Clean Air Hospital Framework, in alignment with the Planetary Health Strategy goal 1.2: Reduce Air Pollution.

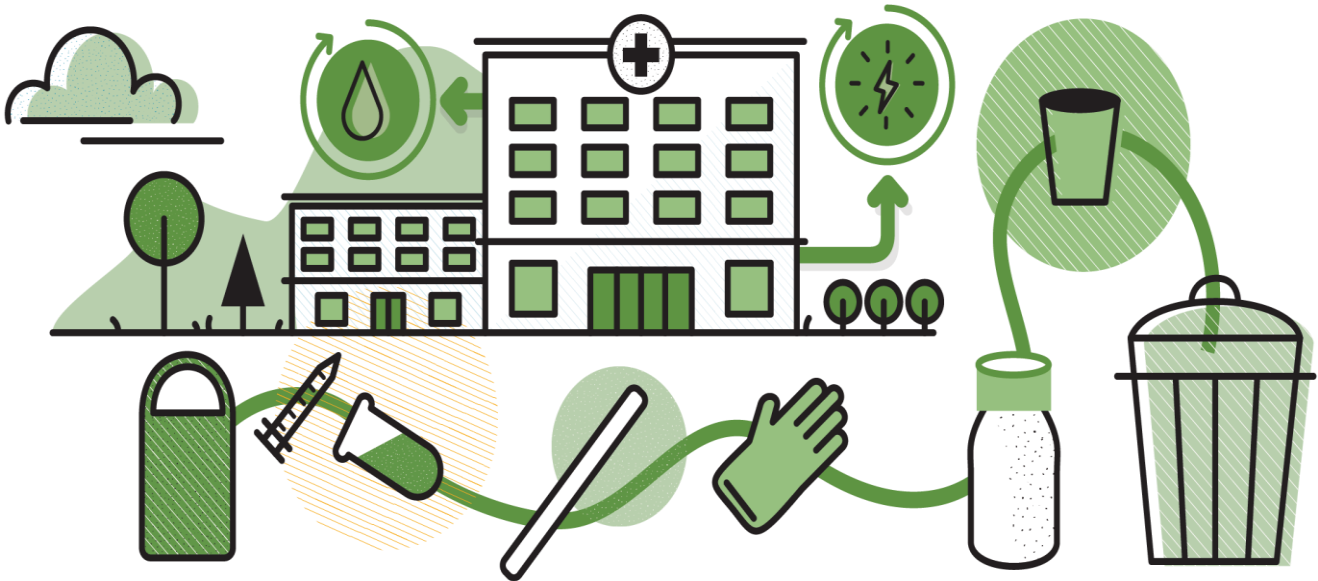
C. Paper Consumption

Actions we delivered on in 2023:

- Health organizations in B.C. are starting a provincial effort to switch from virgin copy paper to a more sustainable paper type called Sugar Sheet. Sugar Sheet paper is a certified carbon neutral paper made from agricultural waste. It is estimated that by switching paper purchases to Sugar Sheet, health organizations can reduce carbon emissions from paper by 80 per cent.

Plans moving forward:

- The [GreenCare website](#) continues to provide inspiration, tips and toolkits to reduce waste, including paper use.



2023 GHG Emissions and Offsets Summary table

Fraser Health 2023 GHG Emissions and Offsets Summary	
GHG emissions for the period January 1 - December 31, 2023	
Total BioCO ₂	39
Total Emissions (tCO ₂ e)	40,452
Total Offsets (tCO ₂ e)	40,413
Adjustments to Offset Required GHG Emissions Reported in Prior Years	
Total Offsets Adjustment (tCO ₂ e)	461
Grand Total Offsets for the 2023 Reporting Year	
Grand Total Offsets to be Retired for 2023 Reporting Year (tCO ₂ e)	40,874
Offset Investment (\$)	\$1,021,850

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

i. BioCO₂ is included in total emissions but not total offsets.

ii. Emissions and offset investment amounts will be validated by Climate Action Secretariat [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).

Retirement of offsets

In accordance with the requirements of the Climate Change Accountability Act and Carbon Neutral Government Regulation, Fraser Health is responsible for arranging for the retirement of the offsets obligation reported above for the 2023 calendar year, together with any adjustments reported for past calendar years (if applicable). Fraser Health hereby agrees that, in exchange for the Ministry of Environment and Climate Change Strategy 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.

PART 2: Public Sector Climate Leadership

Actions taken to enhance climate resilience and sustainability

A. Climate risk management

Climate risk and resilience actions taken by Fraser Health in 2023 include:

- The Planetary Health Strategy was launched, outlining four strategic priorities, including increasing climate resilience of the health system.
- Climate Resilience Guidelines were updated for BC Health Facility Planning & Design to Version 2.0, ensuring alignment with new provincial releases and incorporating valuable lessons learned.
- A portfolio-level climate hazard exposure assessment was conducted for 26 Fraser Health facilities across the Lower Mainland to identify areas of vulnerability and prioritize resilience efforts.
- A climate resilience perspective to facility master planning exercises was applied at four sites, with four more currently in progress.
- The mechanical cooling capacity at Langley Memorial Hospital Long-term Care site was enhanced, boosting Maple Pavilion by 75% and Cedar Pavilion by 100%.
- Through the Asset Risk & Quality: Technical Services (ARQTS), we supported the updates to the Fraser Health Technical Design Requirements (TDR) to include items related to climate resilience, such as future design temperatures and post-disaster requirements.
- Through ARQ:TS, established a pilot program for monitoring and addressing indoor air quality with focus on particulate matter including that from wildfires.
- Our Population and Public Health teams established heat-related illness tracking and initiated plans for a climate change and health data dashboard.
- Through partnership with clinical operations and facilities staff, public health teams, and Health Emergency Management BC (HEMBC), we coordinated seasonal readiness planning activities for communications and actions before, during, and after extreme weather events and collaborated with external partners to enhance understanding of roles and responsibilities, awareness of plans and effectiveness of response.
- Through HEMBC, developed the (Inter- and Intra-Health Authority Relocation (IIHAR) toolkit to enhance the resilience and responsiveness of health services in British Columbia during climate-related emergencies. This toolkit proved effective during the 2023 wildfire season by facilitating complex evacuations and ensuring continuity of care.
- Through collaboration with health agencies across the province, participated in the BC Health Effects of Anomalous Temperatures Coordinating Committee (BC HEAT Committee) to support planning and response efforts related to the public health impacts of significant heat events in British Columbia
- We collaborated with the Canadian Standards Association (CSA) to integrate climate risk considerations into the CSA Z8000 Canadian Healthcare Standard.



- Climate resilience principles were integrated into ongoing major capital projects, offering guidance and assistance to project teams and consultants, including those for the Burnaby Hospital Redevelopment, New Surrey Hospital & BC Cancer Centre, Royal Columbian Hospital - Phase 2, and numerous long-term care facilities.



B. Other environmental sustainability initiatives

Environmental sustainability actions taken by Fraser Health in 2023 included:



- Continued support of staff champions through the Green+Leaders program through training, resources and recognition. In 2023, 19 new staff registered for the program, bringing the total number of Green+Leaders at Fraser Health to 203 that have joined the program since 2009.
- Continued support of workplace leadership opportunities that motivate and empower staff to take action. In 2023, the Green+Leaders program facilitated five orientation sessions where 13 new Fraser Health Green+Leaders received education, resources and tools to take sustainable action. Three Green+Leaders newsletters and eight news bulletins were shared with staff.
- The Green+ Leaders Recognition Event brought together over 100 sustainability advocates from B.C. health authorities, featuring workshops on change management and the circular economy, along with networking opportunities and sharing success stories, leaving participants inspired to advance their journey towards sustainable health care.
- 148 Fraser Health staff are active members of the GreenCare network, receiving news, health organization updates, and participating in learning events.
- The Going Green at Work course on Learning Hub was refreshed, designed to empower health-care staff to embark on their sustainability journey.
- The GreenCare website provided staff with tools and resources to make environmental improvements at their worksite and contribute to health and wellness in several areas. The website averaged 1,525 users per month, with the *Our Resources* section being the most frequently visited. Success stories are also shared, as inspiration for staff. In 2023, 12 stories were shared about individual and team action for workplace sustainability, impactful projects and regional collaborations.
- Fraser Health facilities comply with a standardized recycling program^[1], 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. Acute care facilities have a target of reaching 40% waste diversion by 2030 and non-acute care facilities have a target of 60%



^[1] In 2022, recycling bins were returned to patient care areas post a pause during the pandemic. While recycling is back to full capacity in long term care sites in 2023, some acute care sites are still not back to pre-2020 service levels.

- With support from the Fraser Health communications and planetary health teams, GreenCare and Green+Leaders, resources and stories are shared via internal communication channels. These efforts continue to inspire sustainability practices and celebrate Fraser Health staff and medical staff successes.
- Wastewater Pollution Prevention Plan reports for nine Fraser Health sites were submitted as required by Metro Vancouver's Hospital Bylaw No. 319, highlighting actions underway to improve the quality of wastewater.
- The Circular Health Care Opportunities Guide was launched on the GreenCare website, a resource that outlines key interventions health authorities can take to reduce waste.
- In 2023, 1,617 Fraser Health staff took the Waste Management Basics Learning Module, an increase of 14 over 2022.

C. Success story

Brighter futures with renewable energy - Solar thermal projects at Fraser Health



Photo 1: Delta Hospital Solar Thermal Panels

Delta Hospital and the Weatherby and Al Hogg Pavilions at Peace Arch Hospital are now turning sunlight into sustainable care, preheating their hot water systems with direct solar energy through solar thermal panels. This upgrade is aimed at cutting gas emissions in domestic water heating by up to 20 per cent annually. In total, 54 solar thermal panels were installed across the three buildings.

The project team views these upgrades as part of their mission of care and Fraser Health's role in promoting both human and planetary health. "I believe solar is a move in the right direction where we can utilize it to help reduce carbon emissions and move towards more innovative systems" says Dave Simmons, Senior Project Manager, Infrastructure & Tech for Fraser Health.

Consultants from Building Energy Solutions crafted a system that leverages existing infrastructure efficiently. At both hospitals, the mechanical rooms are close to the buildings' large flat, unshaded roofs, making them ideal to capture the sun's power and transfer it to the domestic hot water system. A structural engineer worked alongside the mechanical engineers to ensure the roofing could support the new panels. This collaborative approach guaranteed the durability and integrity of the systems.

Following a feasibility study, the design, procurement, and installation at each hospital took four to six months in total. With systems operational at Delta Hospital since March 2024 and Peace Arch Hospital shortly thereafter, the early results look promising and should be performing better than expected.

Aside from being a passive system that requires minimal maintenance, the solar retrofit at Delta and Peace Arch Hospitals significantly boosts their energy efficiency and reduces greenhouse gas emissions, which is a win for the operation, community and the planet. By successfully integrating solar energy into the building operations, these retrofits could inspire more solar projects across the sector. Jeson Mak, Fraser Health Energy and Emissions Manager, emphasizes, "By harnessing the power of the sun, we're demonstrating that renewable energy has a vital place in health care settings."



Photo 2: Peace Arch Hospital Solar thermal panel in preparation