

# Vancouver Coastal Health 2021 Climate Change Accountability Report



## Declaration Statement

This Climate Change Accountability Report for the period January 1, 2021 to December 31, 2021 summarizes our 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 Vancouver Coastal Health's final Climate Change Accountability Report will be posted on the BC Government Carbon Neutral Government website to meet legislative requirements and to the GreenCare Community website at [bcgreencare.ca](https://bcgreencare.ca)

## Retirement of Offsets

In accordance with the requirements of the Climate Change Accountability Act and Carbon Neutral Government Regulation, Vancouver Coastal Health (VCH) 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). VCH 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.

The cover an aerial photo of the Vancouver General Campus with artistic effect, Google Earth.

# Executive Summary

I am pleased to present the 12<sup>th</sup> annual Climate Change Accountability Report, which highlights Vancouver Coastal Health's (VCH) actions to reduce our carbon footprint and the health impacts linked to climate change.

Over the years, we have worked to raise environmental awareness with our staff, patients and the communities we serve. With planetary health as a VCH foundational pillar, we will continue to explore novel ways to reduce our environmental impacts across our clinical services and communities. These efforts have reduced VCH's operational impact on the natural environment while reducing operational costs.

In 2021, VCH's emissions footprint was 41,742 tCO<sub>2</sub>e (tonnes of carbon dioxide equivalents) which equates to a 17 per cent decrease since 2007. This decrease is significant since VCH has grown its useable facility area by 21 per cent in this same period.

In an effort to continually pursue an effective response to climate change, ten energy and emission reduction projects were initiated in 2021. These projects are projected to reduce our carbon emissions by more than 1500 tCO<sub>2</sub>e per year. Additionally, VCH began 29 energy studies and other initiatives in 2021, including cooling strategies and electrical capacity studies, to inform future projects and actions.

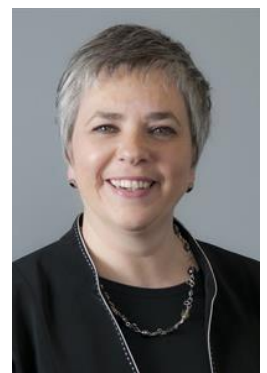
While reducing our overall emissions, VCH also purchased carbon offsets from the Ministry of Environment at a total cost of \$1,094,783 to maintain carbon neutral status to align with the Climate Change Accountability Act and Carbon Neutral Regulation.

I am proud to share that I am one of 364 Vancouver Coastal Health staff who have joined our GreenCare network in pursuit of reducing our operational energy and environmental impact. Reducing our impact will ultimately add to the health of our clients, facilities, staff and medical staff, and add to the wellbeing of the extended communities we serve.

As 2022 progresses, I will continue to support our innovative and collaborative approaches towards reducing VCH's environmental and carbon footprints, driving forward our commitment to build an integrated strategy and plan for planetary health.



Vivian Eliopoulos, President and Chief Executive Officer



# Our CO<sub>2</sub> Footprint

## 2021 GREENHOUSE GAS EMISSIONS BREAKDOWN

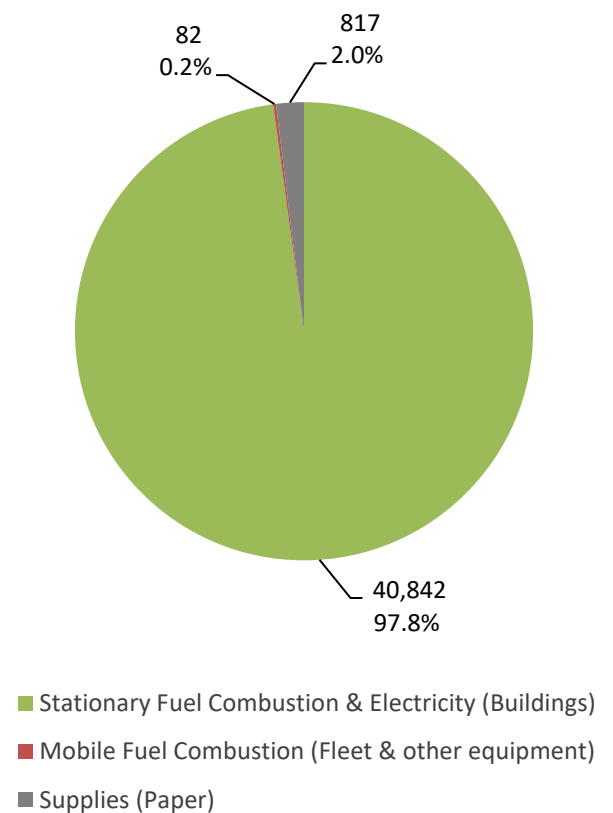
Vancouver Coastal Health reports its organizational carbon footprint based on guidelines provided by the Carbon Neutral Government Regulation and the Climate Action Secretariat (CAS). The CAS is the central government agency responsible for leading and coordinating research, analysis, development and implementation of programs, policies and legislation enabling mitigation of, and adaptation to, climate change. CAS works collaboratively across the provincial public sector, other orders of government, research institutions, non-governmental organizations, and professional and industry associations to achieve provincial climate change goals.

CAS uses various elements of reporting, based on the Methodology for Quantifying Greenhouse Gas Emissions<sup>1</sup>, which has classified carbon reporting into three main groupings: Stationary Fuel Combustion & Electricity (Buildings), Mobile Fuel Combustion (Fleet & other equipment), and Supplies (Paper). Vancouver Coastal Health's carbon footprint is comprised of six different greenhouse gases, which are converted into 41,742 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e).

As shown in the chart on the right, 98 per cent of Vancouver Coastal Health's in-scope emissions are attributed to Stationary Fuel Combustion & Electricity (Buildings) which at VCH can be attributed to VCH's owned and leased buildings and their use of electricity; this is where we focus our mitigation efforts.

Vancouver Coastal Health's 2021 carbon emissions were 41,742 tCO<sub>2</sub>e. To become carbon neutral in 2021, Vancouver Coastal Health purchased carbon offsets from the Ministry of Environment at a total cost \$1,094,783 including GST.

2021 VCH Emissions by Source (tCO<sub>2</sub>e)



**“Managing the risks resulting from a changing climate is essential to secure the longevity of asset investments, protect our health and well-being, and reduce costs associated with climate-related disasters.” - CleanBC Climate Strategy**

<sup>1</sup> <https://www2.gov.bc.ca/assets/gov/environment/climate-change/cng/methodology/2020-pso-methodology.pdf>

The table below represents the breakdown of emissions and offsets for the 2021 calendar year. BioCO2 is included in total emissions but not total offsets since international protocols require the separate reporting of biogenic emissions from combustion. The CO2 emissions from the biofuel component (Bio CO2) must be calculated and reported separately from those of the fossil fuel component.

<i>Vancouver Coastal Health 2021 GHG Emissions and Offsets</i>	
<b>GHG Emissions created in Calendar Year 2021</b>	
Total Emissions (tCO2e)	41,742
Total BioCO2	36
Total Offsets (tCO2e)	41,706
<b>Adjustments to Offset Required GHG Emissions Reported in Prior Years</b>	
Total Offsets Adjustment (tCO2e)	0
<b>Grand Total Offsets for the 2021 Reporting Year</b>	
Grand Total Offsets (tCO2e) to be Retired for 2021 Reporting Year	41,706
Offset Investment (\$25 per tCO2e)	\$1,042,650 (\$1,094,782.50 including GST)

## CHANGES TO VANCOUVER COASTAL HEALTH'S PORTFOLIO

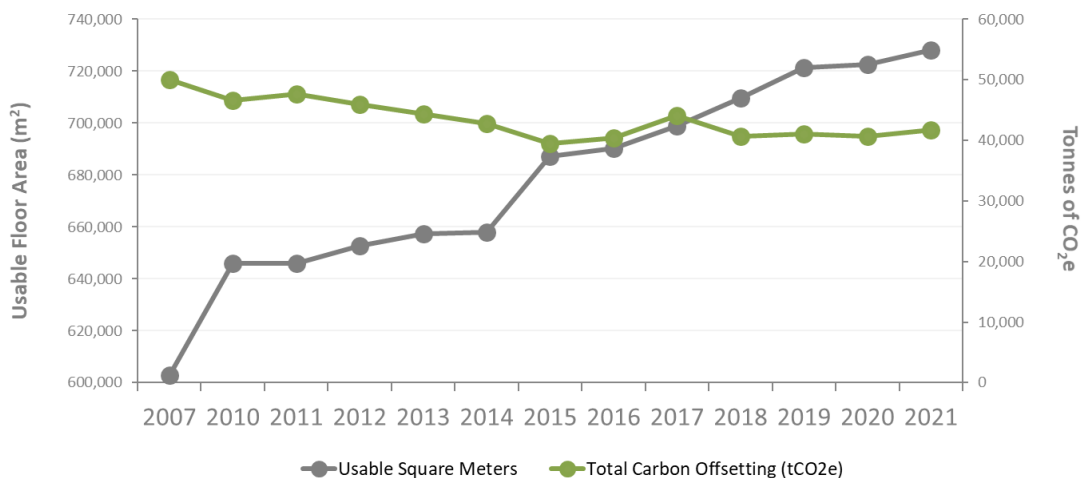
Vancouver Coastal Health has been able to maintain significant energy and GHG reductions while increasing our portfolio and expanding our services to serve our growing regional population. This success has largely been due to the energy retrofit and conservation programs in our existing buildings, and the integration of energy efficiency guidelines in new buildings.

In 2021, Vancouver Coastal Health had a staff population of 17,949 full-time equivalent (FTE) staff, a 7.4 per cent increase from the previous year as shown in the table below. The FTE count has been growing steadily over the last decade; compared to 2007 there has been an FTE increase of 40.9 per cent.

Vancouver Coastal Health Portfolio Overview					
BUILDINGS, FTE AND WEATHER	2007	2018	2019	2020	2021
Distinct VCH Health Buildings	n/a	184	174	176	184
% Owned	84%	88%	86%	86%	85%
% Leased	16%	12%	14%	14%	15%
Usable Square Meters <sup>2</sup>	602,766	709,753	721,440	722,622	728,050
Full-Time Employee Equivalents <sup>3</sup>	12738	15121	15481	16718	17949
Weather (Heating Degree Days) <sup>4</sup>	2870	2768	2837	2754	2875

Vancouver Coastal Health has increased its useable facility area by 20.8 per cent since 2007; with 12.7 per cent of that growth occurring since 2010. This trend, as shown in the graph below, demonstrates the challenge of reducing absolute emissions while the portfolio is growing to meet the regional health service needs.

### Useable Floor Area and Emissions (2007-2021)



<sup>2</sup> Usable area excludes rooftops, interstitial spaces, and parking areas.

<sup>3</sup> Full-Time Employee data was provided by the Ministry of Health and includes all designated groups reported in HSCIS (i.e., Physicians (doctors on staff), Executive/Excluded, Non-Union, and Bargaining Unit Employees (Community, Facilities, Health Science Professionals, Nurses, Residents)).

<sup>4</sup> Building energy consumption is influenced by climate conditions. Vancouver has a climate which predominantly requires heating to satisfy internal building temperatures. Heating Degree Days (HDDs) is a measurement designed to reflect the demand for energy needed to heat a building.

Natural gas is the predominant fossil fuel used for space heating, hot water and process loads. The carbon emissions associated with our natural gas use is approximately 92 per cent of total building emissions. Although our priority mitigation efforts are focused on natural gas combustion, there are many drivers in use to continue reducing the use of electricity/purchased energy.

We have achieved a 16.6 per cent decrease in the carbon footprint since 2007, as shown in the table below. It should be noted that with absolute emissions there is no consideration of weather impacts or other external drivers that affect emissions. Depending on these independent variables, the year-over-year change in emissions may not fully reflect the effects of our mitigation efforts, emission avoidance projects and initiatives across the portfolio.

Vancouver Coastal Health Portfolio Overview					
Our Carbon Footprint (in tCO <sub>2</sub> e)					
	2007	2018	2019	2020	2021
Mobile Fuel Combustion (Fleet)	104	85	82	83	82
Stationary Fuel Combustion & Electricity (Buildings)	48,536	39,974	40,255	39,867	40,842
Supplies (Paper)	1,402	716	741	724	817
Total Carbon Footprint (tCO <sub>2</sub> e)	<b>50,042</b>	<b>40,775</b>	<b>41,077</b>	<b>40,674</b>	<b>41,742</b>
Total BioCO <sub>2</sub> Emissions (No Offsets Required)	-19	-44	-61	-24	-36
<b>Total Carbon Offsetting (tCO<sub>2</sub>e)</b>	<b>50,023</b>	<b>40,731</b>	<b>41,016</b>	<b>40,649</b>	<b>41,706</b>
Purchased Carbon Offsets	\$ -	\$ 1,018,275	\$ 1,015,725	\$ 1,025,925	\$ 1,042,650
<b>Purchased Carbon Offsets + HST/GST</b>	\$ -	<b>\$ 1,069,189</b>	<b>\$ 1,066,511</b>	<b>\$ 1,077,221</b>	<b>\$ 1,094,783</b>
Emissions per Full-Time Employee	3.93	2.69	2.65	2.43	2.32
Emissions per Meter Square Facility Space	0.083	0.057	0.057	0.056	0.057

Carbon emissions reported in the table above are not normalized for annual weather fluctuations. The use of Heating Degree Days (HDD) is a metric designed to reflect the demand for energy required to heat a building. The HDDs for 2021 were 4.4 per cent higher than those recorded in 2020, therefore, natural gas and resultant emissions were influenced in part by HDD. Heating Degree Days are the number of degrees that a day's average temperature is below the baseline temperature.

For example, using 15°C as a baseline temperature. If one day's temperature were 12°C, this would equate to three heating degree days since it is 3°C below the baseline temperature. That number is then summed up in a period and for the CCAR, it looks at all of the HDDs from January 1, 2021 to December 31, 2021.

# Actions Taken To Reduce Our CO<sub>2</sub> Footprint

## 2021 ACTIONS TAKEN TO REDUCE CO<sub>2</sub> FOOTPRINT

### Stationary Fuel Combustion & Electricity (Buildings)

In 2021, Vancouver Coastal Health completed 10 projects estimated to reduce electricity consumption by 860,000 kilowatt hours, and natural gas by 30,000 gigajoules; resulting in a carbon footprint reduction of over 1500 tCO<sub>2</sub>e and significant cost savings. To support our long-term emissions reduction goals 17 energy studies, lighting audits, and site strategies were initiated in 2021.

In partnership with Energy and Environmental Sustainability, VCH Finance and the Facilities and Real-estate teams, the 2021 Carbon Neutral Capital Program funding enabled three emissions reduction projects. This set of projects represents the majority of the emissions reductions at VCH, reducing natural gas consumption by 19,500 gigajoules, which resulted in 975 tCO<sub>2</sub>e of emissions reduction.

Vancouver Coastal Health continues to embed sustainability across the organization by supporting staff engagement initiatives such as the [GreenCare Community website](#) and provides tips and toolkits on energy reduction and other environmental initiatives. The Green+Leaders (G+L) program continues to train Vancouver Coastal Health staff as sustainability champions. Other awareness initiatives, such as our Facilities Maintenance and Operations Engagement Strategy are in development. These initiatives are outlined in more detail later in this section.

### Mobile Fuel Combustion (Fleet)

In 2021, Vancouver Coastal Health's Active and Clean Transportation program lead, in coordination with the VCH Healthy Transportation team, has worked to improve, promote and establish alternative transportation opportunities for VCH staff. This includes improving cycling infrastructure, carpooling coordination and public transport options.

Active planning to build out a region electric vehicle infrastructure program has been initiated to enable future fleet conversion to low carbon electricity and to ensure our patients, staff and visitors have the opportunity use electric vehicles to travel to our facilities.

### Supplies (Paper)

In partnership with other B.C. health authorities, VCH 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. VCH 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, VCH provides Paperless Meeting Toolkits<sup>5</sup> to encourage and support eliminating the practice of printing documents to hand out at meetings.

<sup>5</sup>[https://greencareenv.wpengine.com/wp-content/uploads/2021/09/GLToolkit\\_PaperlessMeetings.pdf](https://greencareenv.wpengine.com/wp-content/uploads/2021/09/GLToolkit_PaperlessMeetings.pdf)



## ONGOING ACTIONS TO REDUCE CO2 FOOTPRINT

VCH will continue to be a leader in managing climate change in the following ways:

- Planning and implementing energy and emission reduction projects in our building portfolio in alignment with our capital investments.
- Utilizing the Carbon Neutral Capital Program funds, internal capital funds, and utility incentive programs to ensure an effective response to climate change is pursued every fiscal year.
- Implementation phase of BC Hydro's Continuous Optimization Program to minimize energy drift in our facilities.
- Engaging with design engineers to ensure our new buildings adopt low carbon and climate resilient design strategies.
- Exploring low-emission energy supply options, opportunities for demand reduction and leading technology applications.

## 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 & Design<sup>6</sup> (released December 2020).
- A climate hazard exposure screen and climate risk assessment were conducted for the two long-term care business plans.
- 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 facilities<sup>7</sup>. The other research project was focused on identifying climate change impacts on occupants on long-term care facilities<sup>8</sup>.
- 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).

### Other Sustainability Initiatives

#### Green Leaders

- The Green+Leaders is a network of health-care staff volunteers who are engaged in advancing sustainability practices at VCH. VCH continues to provide training, resources, toolkits and recognition to support the Green+Leaders program and various green teams within VCH. In 2021, 14 new Green+Leaders were added to the program (see [bcgreencare.ca](http://bcgreencare.ca) for more details).

<sup>6</sup> <https://bcgreencare.ca/resource/climate-resilience-guidelines-for-bc-health-facility-planning-design-2/>

<sup>7</sup> [ijerph-18-09811-v2 \(1\).pdf](https://www.ijerph.com/issue/view/IJERPH-18-09811-v2-(1).pdf)

<sup>8</sup> <https://www.sciencedirect.com/science/article/pii/S2590252021000222>

## GreenCare Website

- The GreenCare<sup>9</sup> website underwent a full refresh and relaunched in October 2021. Since then, we have averaged 1,300 users a month and have observed increased engagement and actions taken by the users once on the site, there are currently 364 VCH GreenCare network members.
- The Our Resources<sup>10</sup> section of the website presents a variety of reports, case studies and toolkits; it 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 VCH and other B.C. healthcare staff with environmental sustainability and resilience in the workplace.

## Transportation

- An Electric Vehicle Baseline and Feasibility Study was completed to inform a regional EV strategy, including VCH fleet electrification. The key recommendations resulting from this study will be actuated in 2022 and beyond.
- Recommendations for fleet vehicle EV charging, as well as emergency vehicle (including ambulance) charging has been included in the Low Carbon Resilience and Environmental Sustainability Guidelines for Health-care New Construction (Note: This was technically completed early 2022).
- The Electric Vehicle Baseline and Feasibility Study (mentioned above) included staff/public charging within the scope of its investigation.
- Free shuttle services are available for staff, students, and volunteers, between several acute care sites. In 2021, a total of 311,015 rides were taken on the five shuttles.
- In 2021, an average of 1152 VCH employees participated in/benefited from the Transit Incentive Program subsidy program, every month.
- VCH employees have access to infrastructure and educational resources to support active modes of transportation, such as cycling.
- VCH staff have access to Sustainable Transportation education and resources opportunities, through the Sustainable Transportation Series, and through transportation resources available on the GreenCare Website.
- Active and Clean Transportation Surveys were completed to inform future planning, several insights from the survey are noted below,
  - 11 per cent of staff own electric vehicles, an increase of three per cent from 2020
  - Eight per cent of staff commute by electric vehicle, an increase of three per cent from 2020
  - 43 per cent of VCH staff are planning to own an electric vehicle in the next five years
  - Commuting by internal combustion engine powered single occupancy vehicles decreased by six per cent since 2020
  - Commuting by public transit and carpooling each increased by three per cent from 2020 to 2021

## Materials

- From January 1, 2021 to December 31, 2021, a total of 1,268 VCH staff completed the online Waste Management Basics Learning Module available on the Learning Hub, an increase of 213 over 2020. This module familiarizes learners with the impacts of improper waste management and how to discard different types of waste appropriately.

<sup>9</sup><https://bcgreencare.ca/>

<sup>10</sup><https://bcgreencare.ca/resources/>

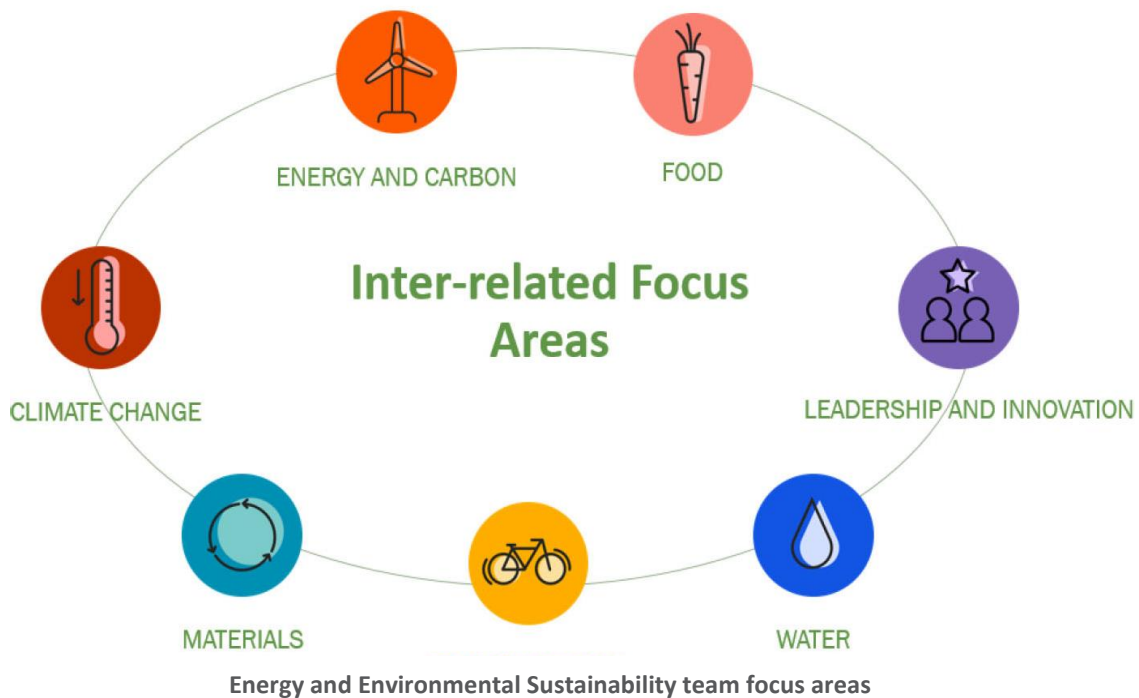
- In 2021, a draft Circular Health Care resource document was created, intended to provide tangible actions for VCH to avoid and reduce waste.

## Design Guidelines

- 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 are called Low Carbon Resilience and Environmental Sustainability Guidelines for Health-care New Construction<sup>11</sup> and aim 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.

## Strategic Framework

The Energy and Environmental Sustainability 2021 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 and climate change, and staff interest with regards to environmental sustainability. This 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.



<sup>11</sup> <https://bcgreencare.ca/resource/guidelines/>

# Feature Initiative

## Planning for Planetary Health

VCH initiates first-of-its-kind integrated strategy for planetary health

The healthcare system doesn't work in isolation. To address the industry's intersections with and impacts on environmental systems, VCH is the first health organization in B.C. to integrate planetary health as a strategic priority. The VCH Transformation Office team is spearheading the creation and execution of a robust roadmap to planetary health in partnership with the three key organizational pillars; Sustainable Clinical Services, Environmental Health Protection (Population Health), and Energy and Environmental Sustainability (Facilities and Real Estate).

But what does “planetary health” mean? The concept entered mainstream academic scholarship in 2015 with the Rockefeller Foundation-Lancet Commission on Planetary Health. There, planetary health is defined as “the achievement of the highest attainable standard of health, wellbeing, and equity worldwide through judicious attention to the human systems—political, economic, and social—that shape the future of humanity and the Earth's natural systems that define the safe environmental limits within which humanity can flourish. Put simply, planetary health is the health of human civilization and the state of the natural systems on which it depends.<sup>12</sup>”

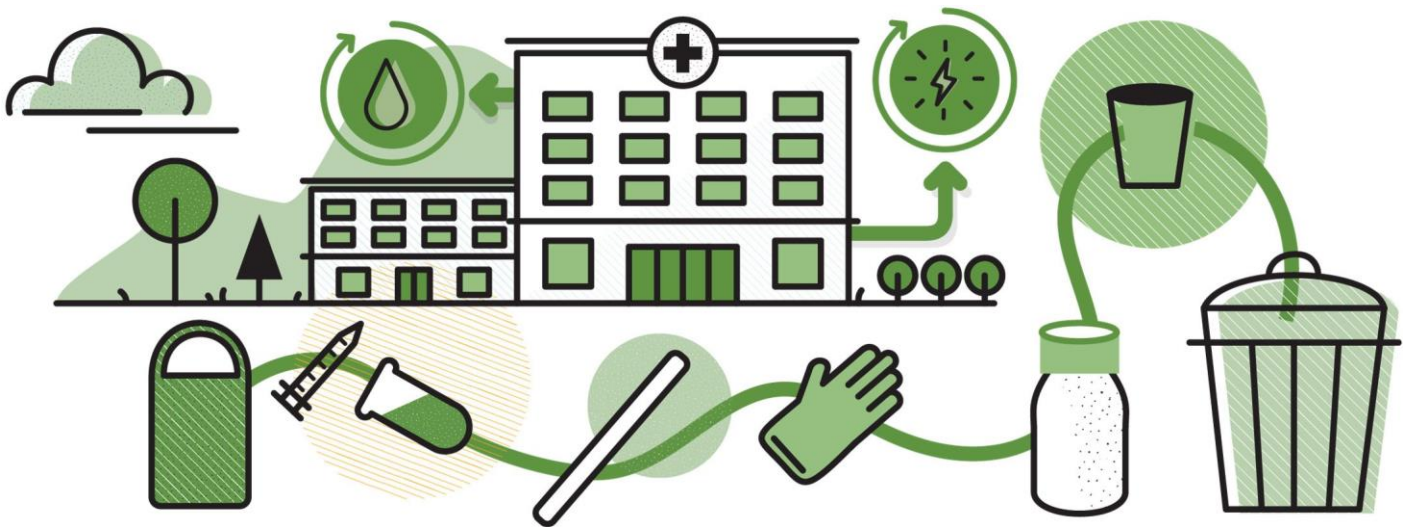
For VCH's Regional Medical Director of Planetary Health, Dr. Andrea MacNeill, transforming how the health care system interacts with human and natural systems is a necessary imperative. “If health care were a country, it would be the world's fifth highest emitter of greenhouse gasses,” says Dr. MacNeill. “It accounts for 4.6 per cent of all global emissions—the same as the aviation industry.”



Planetary Health Care: A framework for Sustainable Health Systems

<sup>12</sup> [www.thelancet.com/journals/lancet/article/PIIS0140-6736\(15\)61038-8/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)61038-8/fulltext)

The planetary health priority will drive an improved understanding of the connections between natural systems and health-care services, while this report is speaking specifically to emissions, the planetary health portfolio as a whole will take a more comprehensive look at the health authority's connections to the ecosystems that we're impacting. It will prioritize how VCH can conserve natural systems and mitigate damaging emissions. Planetary health in VCH will be grounded in three foundational principles: reducing demand for health services (e.g., prevent disease, promote health), matching the supply of health service to demand and optimizing the efficiency and environmental performance of health care delivery. This work is not only about climate change, but will also have broader impacts on environmental sustainability, including benefits relating to chemical pollution, freshwater resource use, biodiversity loss, ocean acidification and nitrogen and phosphorus pollution.



An ambitious and fundamentally collaborative initiative, Planetary Health in VCH will bring together multiple stakeholders and teams. The Energy and Environmental Sustainability team supports development of sustainable and resilient facilities. The Environmental Health Protection team works with community partners to minimize environmental impacts and support resilience in the wake of climate events. The Sustainable Clinical Services team ensures clinical decisions and processes limit their negative environmental impacts. The VCH Transformation Office provide support and manage this organization-wide transformation as a system level strategy.

As there is no precedent for this type of work in Canada, VCH is excited to build out a plan that breaks down silos between teams and innovates on how VCH supports environmental health alongside the health of the populations it serves. Strategies to address planetary health will be key in driving improved clinical decisions that have limited environmental impact, in reducing emissions and waste and in minimizing risks and vulnerability to climate events. It's an important first step into imagining, and enacting, future-forward health care services.

As the roadmap to planetary health at VCH evolves, we will be in a better position to embed climate actions, including facility emission reductions, across our clinical services and communities.