

2022 Public Sector Organization Climate Change Accountability Report

Fraser Health



Declaration Statement

This PSO Climate Change Accountability Report for the period January 1, 2022 to December 31, 2022 summarizes our greenhouse gas (GHG) emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2022 to minimize our GHG emissions, and our plans to continue reducing emissions in 2023 and beyond.

By June 30, 2023 Fraser Health Authority's final 2022 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, 2023 to meet legislative requirements.

Retirement of Offsets Statement

In accordance with the requirements of the Climate Change Accountability Act and Carbon Neutral Government Regulation, Fraser Health (the Organization) is responsible for arranging for the retirement of the offsets obligation reported above for the 2022 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.

The cover photos is a concept rendering of the new Surrey hospital and BC Cancer Centre to be completed in 2027 (fraserhealth.ca)

Executive Summary



Dr. Victoria Lee, President and Chief Executive Officer

The Fraser Health 2022 Climate Change Accountability Report outlines the progress and strategies implemented in our pursuit of carbon neutrality.

We are proud to have achieved carbon neutrality for the 13th consecutive year in alignment with the Province of British Columbia's public sector commitment to net-zero greenhouse gas emissions.

In 2022, we successfully implemented several emission reduction projects, including 14 mechanical and two lighting retrofit projects. These are estimated to save 5.4 gigawatt hours (GWh) or 19,381 gigajoules (GJ) of energy, reducing our carbon footprint by 966 tonnes of CO₂ per year.

Fraser Health's total in-scope greenhouse gas emissions in 2022 were 42,259 tonnes of carbon dioxide equivalent (tCO₂e), which equates to a 2.6 per cent increase compared to 2021. In order to balance these emissions, we purchased carbon offsets from the Ministry of Environment and Climate Change Strategy at a total cost of \$1,056,479. The increase in emissions was primarily due to site expansion and services, as well as lower temperatures during the winter, which increased demands on our heating systems. Since 2007, Fraser Health's overall carbon footprint has increased, but at a much slower rate than floor area and staff increases. As of 2022, emissions per full-time employee equivalent have decreased by 29 per cent and emissions per unit of floor area have decreased by 18 per cent since 2007.

As part of our 2023/24 Fraser Health Together priorities, we are committed to establishing Fraser Health as a leader in social and environmental responsibility by embedding Equity, Diversity and Inclusion principals as well as planetary health throughout our operations. We have established a Planetary Health steering committee and we will monitor progress through our organizational performance review process, building upon existing environmental sustainability efforts, while ensuring that our diverse population has equitable access to an inclusive health care system.

I would like to thank all of our staff, medical staff, volunteers and partners for their invaluable contributions in reducing Fraser Health's emissions and environmental footprint. Your efforts have been instrumental in our sustainability journey. We remain committed to our collaborative efforts, aiming to identify areas of improvement and create strategies that foster sustainability, while effectively addressing emerging challenges and opportunities. By working together, we can ensure the long-term well-being of our health system, people and planet and create a healthier and more sustainable future.

A handwritten signature in black ink, appearing to read 'Victoria Lee', written in a cursive style.

Dr. Victoria Lee

President and Chief Executive Officer
Fraser Health

Our Emission Profile

Summary of 2022 greenhouse gas emissions and offsets applied to become carbon neutral

We report our carbon footprint based on guidelines provided by the Climate Change Accountability Act, Carbon Neutral Government Regulation and the Climate Action Secretariat in British Columbia.

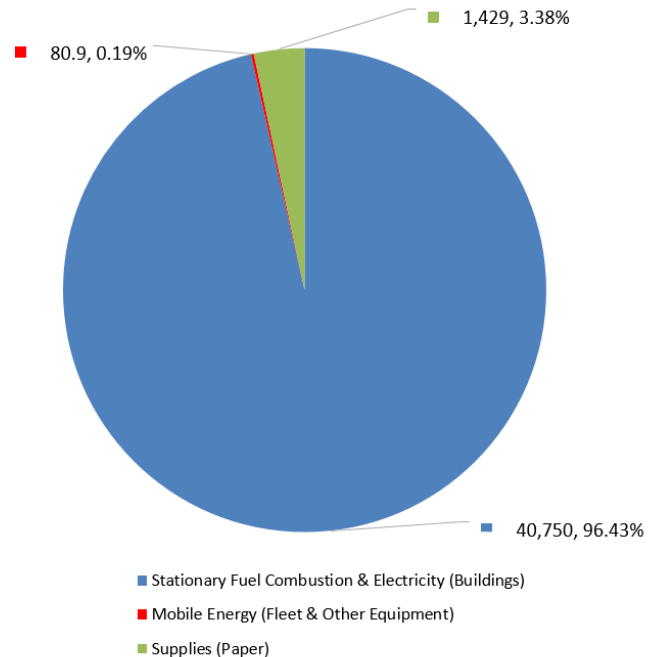
The Climate Action Secretariat uses various elements of reporting, based on the Greenhouse Gas Protocol Corporate Standard, which has classified carbon reporting into three scopes. Of these three scopes and various elements within each scope, the Climate Action Secretariat has determined Fraser Health's carbon footprint comprises of six different greenhouse gases that are converted to tonnes of carbon dioxide equivalent (tCO₂e). The main sources of emissions are categorized into three main groups:

- Stationary fuel combustion and electricity (buildings)
- Mobile fleet combustion (fleet and other equipment)
- Supplies (paper consumption)

The total emissions for 2022 was 42,260 tCO₂e. As shown in the chart, 97 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 2022, Fraser Health purchased carbon offsets from the Ministry of Environment and Climate Change Strategy. Fraser Health's 2022 total offsets were 42,259 tCO₂e, which includes a very minor adjustment for data corrections for 2021, at a total cost of \$1,056,475 plus GST.

2022 Fraser Health greenhouse gas (in-scope) emission by source
(tCO₂e, % total)



The table below shows the breakdown of emissions and offsets for 2022.

Fraser Health 2022 GHG Emissions and offsets summary	
GHG emissions for the period January 1 - December 31, 2022	
Total BioCO ₂	39
Total Emissions (tCO ₂ e)	42299
Total Offsets (tCO ₂ e)	42260
Adjustments to Offset Required GHG Emissions Reported in Prior Years	
Total offsets adjustment (tCO ₂ e)	-0.9
Grand total offsets for the 2022 reporting year	
Grand total offsets to be retired for 2022 reporting year (tCO ₂ e)	42,259
Offset investment (\$)	\$1,056,475

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).

The carbon emissions reported are not adjusted for changes in weather temperature or usable space. Stationary fuel (natural gas) emissions comprise the majority of the overall building emissions. This is due to the lower mainland having a climate that predominately requires heating to satisfy internal building temperatures. Although the priority climate mitigation actions are focused on natural gas combustion reductions, there are many drivers to continue reducing purchased energy and other emission sources.

Changes to Fraser Health’s portfolio

Fraser Health’s usable facility space has increased by 41 per cent since the 2007 base reporting year. This was largely due to the construction of Abbotsford Regional Hospital and Cancer Centre in 2009, Surrey’s Jim Pattison Outpatient Care and Surgery Centre in 2012, Surrey Memorial Hospital’s Critical Care Tower in 2014, the completed construction of the Mental Health and Substance Use Wellness Centre on the Royal Columbian Hospital campus in New Westminster in 2020 and the expansion of Peace Arch Hospital in 2022.

Fraser Health Portfolio							
BUILDINGS, FTE AND WEATHER	2007	2017	2018	2019	2020	2021	2022
Distinct Fraser Health Buildings:	n/a	147	162	163	172	174	178
% Owned:	n/a	83%	83%	82%	82%	83%	81%
% Leased:	n/a	17%	17%	18%	18%	17%	19%
Usable Square Meters ¹ :	538,274	676,239	669,951	694,631	726,495	736,881	761,621
Full-Time Employee Equivalents ² :	14,507	18,495	18,853	19,287	20,895	22,912	23,291
Weather (Heating Degree Days ³):	2,870	2,922	2,768	2,837	2,754	2,875	2,936

Notes for above table:

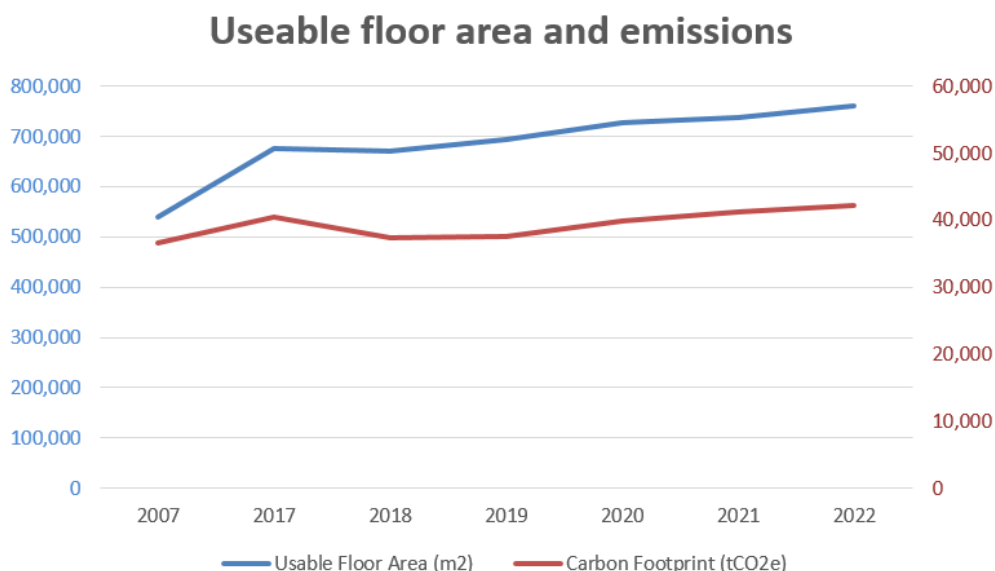
¹ Usable area excludes roof tops, interstitial spaces, and parking areas.

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 Canada and reflect the demand for heating.

Since 2007, Fraser Health’s overall carbon footprint has increased, but at a much slower rate than floor area and staff increases. As of 2022, emissions per full-time employee equivalent (1,814 kgCO₂e/FTE) have decreased by 29 per cent and emissions per unit of floor area (55.49 kgCO₂e/m²) have decreased by 18 per cent since 2007.

The carbon emissions reported are not adjusted for changes in weather. Heating Degree Days (HDDs) is a measure of the demand for energy required to heat a building. Emissions per HDD is a metric intended to summarize a building’s overall efficiency in delivering heating. Fraser Health’s 2022 emissions per HDD (14,393 kgCO₂e/HDD) are 13 per cent above the baseline year (2007).



Fraser Health

Our Carbon Footprint (in tCO ₂ e)		2007	2017	2018	2019	2020	2021	2022
tCO ₂ e	Mobile Fuel Combustion:	136	100	109	71	76	144	80.9
	Stationary Fuel Combustion and purchased Energy (electricity):	35,404	39,324	35,898	36,019	38,317	39,433	40,750
	Supplies (paper):	1,056	1,123	1,377	1,439	1,483	1,651	1,429
	Carbon Footprint¹:	36,596	40,547	37,384	37,529	39,876	41,228	42,260
	Emissions not requiring Offsets ² :	-8	-22	-36	-39	-15	-25	-0.9
	Carbon Offsets:	36,587	40,525	37,348	37,489	39,861	41,203	42,259
KPIs	Emissions per Full-Time Employee (kgCO ₂ e/FTE)	2,523	2,192	1,983	1,946	1,908	1,799	1,814
	Emissions per Facility Space (kgCO ₂ e/m ²)	67.99	59.96	55.80	54.03	54.89	55.95	55.49
	Emissions per Heating Degree Day (kgCO ₂ e/HDD)	12,748	13,869	13,493	13,217	14,472	14,331	14,393

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.

Legislative Reporting Requirements

Actions Taken to Minimize Emissions

Stationary Source (buildings)

- Reduced environmental impact by **initiating 14 retrofit measures** with a total estimated energy savings of 5.4 GWh (19,381 GJ), resulting in greenhouse gas savings of 966 tCO₂e per year.
- Used the **Carbon Neutral Capital Program** to fund the energy/greenhouse gas emission reduction projects at Eagle Ridge Hospital, Surrey Memorial Hospital, Ridge Meadows Hospital, Delta Hospital, Queen's Park Care Center and Czorny Alzheimer Center. Approximately \$3.5 million of Carbon Neutral Capital Program funds, along with internal capital funds and incentives, were invested in fiscal year 2022-2023.
- Continued with ongoing process to introduce low carbon heat pump applications such as energy recovery, low-temperature to high-temperature conversion, and various heating/cooling applications to projects at Eagle Ridge Hospital and Czorny Alzheimer Center
- Invested \$455,560 from the Green Revolving Fund for energy saving studies and lighting upgrade projects fiscal year 2022-2023.
- Completed lighting energy efficiency projects at Eagle Ridge Hospital parking lot and Fraser Canyon Hospital.
- Commenced 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 controls.
- Continued to roll out an engagement strategy with Facilities Maintenance and Operation teams. The strategy focuses on energy performance, emission reduction, identifying conservation opportunities and optimizing existing heating or cooling plants or equipment.
- Partnered with Asset Risk and Quality: Technical Services (ARQTS) team on the long-term care indoor air quality improvement projects and found opportunities in heat recovery and energy efficiency improvement.
- Continued to embed sustainability in the organization's culture by supporting staff engagement initiatives such as the GreenCare network¹ and Green+Leaders program². The Energy and Environmental Sustainability team continued to promote energy conservation, greenhouse gas emissions reduction and other aspects of environmental sustainability and climate adaptation and resilience through education and partnerships that lead to behavior change and system change. New in 2022, a Steering Committee formed with cross departmental participation with the purpose of developing a Planetary Health Strategy.

Mobile sources (fleet and other vehicles)

- Continued the free shuttle transport service for family members, ambulatory patients, and employees in Surrey Memorial Hospital, Royal Columbian Hospital (two shuttles) and Burnaby Hospital. Ridership was recorded at 130,080 trips, an increase of 29 per cent over 2021.
- Fraser Health currently has 72 electric vehicle charging stalls. From the GreenCare survey, 11 per cent of staff own an electric vehicle and 40 per cent plan to own an electric vehicle in the next 10 years.

¹ 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.

² Green+Leaders are health-care staff engaged in advancing sustainability practices within the health system.

- Fraser Health encourages active and clean modes of transportation and has secured bicycle storage along with showers at 11 sites as well as 508 bike parking stalls across 25 sites.
- In 2022, Fraser Health hosted *Go By Bike Week* education stations at Surrey Memorial Hospital, Royal Columbian Hospital, Eagle Ridge Hospital and Burnaby Hospital. Staff have access to the Sustainable Transportation Series and other online resources through the GreenCare website.
- The Fraser Health Transit Incentive Program continued to provide employees with a 15 per cent monthly transit pass incentive to encourage the use of transit instead of single occupancy vehicles. In 2022, the average number of staff subscriptions was 363. In 2023, the transit subsidy will increase to 50 per cent.

Paper consumption

- In partnership with other BC health authorities, Provincial Health Services Authority (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. 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 inventory.



Plans to Continue Reducing Emissions

In-scope emissions

The majority of Fraser Health’s carbon footprint is related to stationary fuel combustion from its owned and leased buildings. Natural gas is the predominant fossil fuel used for space heating, hot water and process loads in our stationary combustion plants. Although our priority actions focus on our natural gas combustion plant, we are also motivated to reduce purchased energy (electricity) and other in-scope emission sources.

Stationary source (buildings)

- Review greenhouse gas performance accountability options and target design standards such as Leadership in Energy and Environmental Design (LEED) with new construction and expansion project teams.

- Set up short-term and long-term plans to achieve new greenhouse gas emission reduction targets as per CleanBC, starting with a survey of all domestic hot water heating systems for possible fuel switching.
- Engage in new construction and major renovation projects to provide stewardship of the new Health Capital Policy Manual chapters (Carbon Neutral and Climate Resilient Health Care Facilities and Environmental Sustainability and LEED Gold Certification). These chapters were used for Burnaby Hospital redevelopment, Royal Columbian Hospital redevelopment, the new Surrey Hospital and for the business plans 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.
- Build partnerships with cities and municipalities to investigate district energy system opportunities that enable alternative energy solutions for existing buildings or new construction.
- Plan and implement greenhouse gas or energy reduction projects in our existing buildings portfolio by using the Carbon Neutral Capital Program, supplementing with internal capital funds and incentives from BC Hydro and FortisBC.
- Continue the optimization of mechanical plants, lighting and building controls in our existing building portfolio.
- Reinvest electricity savings from the previous fiscal year to supplement the Green Revolving Fund and invest in electricity reduction projects.
- Undertake existing site energy studies with support from Facilities Maintenance Operations teams and external consultants to identify greenhouse gas/energy reduction opportunities.
- Collaborate with other departments to identify greenhouse gas reduction opportunities and track building performance.

Mobile Sources (fleet and other vehicles)

- FH staff from Facilities Maintenance and Operations, Asset Risk & Quality: Technical Services, Energy and Environmental Sustainability, and Integrated Protection Services joined others in a regional steering committee for electric vehicle charging station implementation.
- Utilize and engage the resources from BC Hydro's electric fleet program.

Paper Consumption

- Continue to engage with BC Clinical and Support Services stakeholders and our paper suppliers to increase proportion of post-consumer recycling paper available for ordering.

Public sector climate leadership

Actions Taken to Enhance Climate Resilience and Sustainability

Climate risk management

Climate risk and resilience actions taken by Fraser Health in 2022 include:

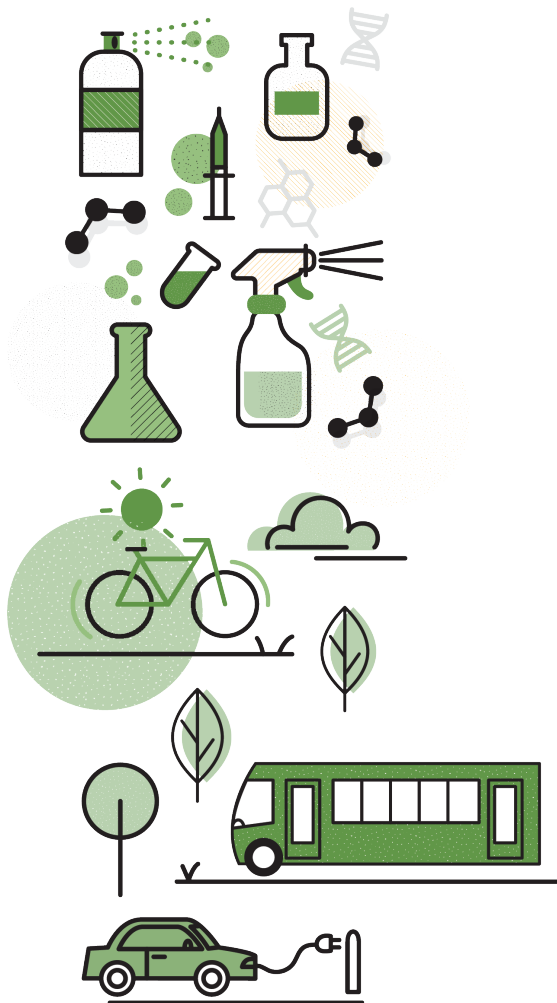
- Embedded climate resilience into major capital projects by providing guidance and support to project teams and consultants throughout the project phase delivery cycle. Examples include the Burnaby Hospital Redevelopment Project and the New Surrey Hospital and BC Cancer Centre.
- Initiated a portfolio-level climate hazard exposure screen for 28 Fraser Health facilities to identify areas of vulnerability and prioritize actions.
- Completed climate hazard exposure screens as part of master planning exercises at Abbotsford Regional Hospital & Cancer Centre, Chilliwack General Hospital, Peace Arch Hospital, and Ridge Meadows Hospital.
- Conducted local flood risk analysis accounting for climate change for Fraser Health facilities in five communities across the Lower Mainland.
- Collaborated with Facilities Management, public health teams, and Health Emergency Management BC to continue Seasonal Readiness planning activities, ensuring a coordinated approach to communications and actions before, during, and after extreme weather events.
- Participated in the Ministry of Health's From Risk to Resilience initiative, which included a focused examination of the extreme heat, wildfire, and flood events of 2021.
- Hosted a Green+Leaders lunch and learn to raise awareness of the potential impacts of climate change on the health of long-term care facility occupants.



Other Sustainability Initiatives

Environmental sustainability actions taken by Fraser Health in 2022 included:

- Established a Fraser Health Planetary Health steering committee to guide the development of an organization-wide climate change and environmental sustainability strategy using a planetary health lens.
- Submitted Wastewater Pollution Prevention Plan reports for nine Fraser Health sites, as required by Metro Vancouver's Hospital Bylaw No. 319, highlighting actions underway to improve the quality of wastewater.
- Welcomed 24 additional Fraser Health staff and medical staff into the Green+Leaders program for a total of 182 who have joined the program since 2009.
- Awarded three sustainability grants to Green+Leaders through Fraser Health's Innovation Grants program amounting to \$2,994.
- Facilitated eight orientation sessions, seven networking sessions and launched a GreenCare newsletter.
- Provided staff and medical staff with tools and resources to make environmental improvements via the GreenCare website which averaged 1,250 users per month.
- Published the Circular Health Care Opportunities Guide, which outlines key interventions health authorities can take to reduce waste, as well as 13 Fraser Health sustainability success stories on the GreenCare website.



- Leveraged internal Fraser Health communications channels, such as staff and medical staff newsletters, to further share GreenCare resources and stories and encourage individuals to sign up to be Green+Leaders.
- Continued to follow a standardized recycling program at all Fraser Health facilities, which includes mixed containers, mixed paper, organic waste and batteries. Some sites also participated in expanded recycling programs for items such as polystyrene, pallet wrap, printer cartridges, mattresses, scrap metal, lighting and other materials.
- Increased the number of Fraser Health staff and medical staff who completed the Waste Management Basics Learning Module to 1,603, an increase of 65 over 2021.

Success Story

Retrofit improves system efficiency, reduces emission footprint and save on energy costs

As the world continues to grapple with the challenges of climate change, it's more important than ever to find ways to reduce carbon emissions and increase efficiency in building operations while ensuring the comfort of those providing and receiving care in our facilities.

In 2021, Building Energy Solutions, a mechanical and electrical engineering consultancy, conducted an energy audit of the heating and cooling systems at The Residence in Mission (TRIM), a long term care facility which was built in 2014 behind Mission Memorial Hospital.

"TRIM's energy use for typical heating and cooling demands was consistently higher than comparable Fraser Health facilities," explains Jeson Mak, Energy Manager for Fraser Health. "We needed to get to the root of the problem to determine the best solution."

During the review several inefficiencies were uncovered, including piping installation problems that made it impossible for all the building's heat pumps to operate properly and caused the boilers to short cycle and operate inefficiently.



Photo 1: The Residence in Mission



Photo 2: Re-piping work of the heat pumps and boiler circuits before insulation was applied.

A proposal was put forward to re-pipe the heat pumps and boiler circuits in 2022 and the project commenced shortly after.

Costs from the retrofit are expected to be fully recovered through the utilities cost savings in about two-and-a-half years. The retrofitted system will also save time for the Facilities Maintenance and Operations team.

"2022 was the first year the Facilities team did not need to dump ice blocks into the cooling tower to try and increase cooling to the building," says Steve Arnold, project consultant, Building Energy Solutions.

This project highlights the importance of continuous building performance monitoring and proper HVAC system design and commissioning, as well as the potential for retrofitting to improve system efficiency, reduce emission footprint and save on energy costs.