

# 2020 Climate Change Accountability Report

## Providence Health Care



# Declaration Statement

This Climate Change Accountability Report for the period January 1, 2020 to December 31, 2020 summarizes our emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2020 to reduce our greenhouse gas emissions and our plans to continue reducing emissions in 2021 and beyond.

By June 30, 2021 Providence Health Care's final 2020 Climate Change Accountability Report will be posted to our website at [bcgreencare.ca](http://bcgreencare.ca). Final Climate Change Accountability Reports will be also posted on the BC Government CNG [website](#) by June 30, 2021 to meet legislative requirements.

## Retirement of Offsets

In accordance with the requirements of the Climate Change Accountability Act and Carbon Neutral Government Regulation, Providence Health Care (**the Organization**) is responsible for arranging for the retirement of the offsets obligation reported above for the 2020 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: St. Paul's Hospital Main Entrance

# Executive Summary



## Executive Summary: Providence Health Care, CCAR 2020

Fiona Dalton, President & Chief Executive Officer

It gives me great pleasure to present Providence Health Care's (PHC) eleventh annual Climate Change Accountability Report (CCAR) for 2020. For eleven consecutive years, Providence has been proud to be carbon neutral, through our purchasing of carbon offsets. As an organization driven by innovation and social justice, we believe that our role as health care providers goes beyond caring for individuals and to caring for the environment too.

Stewardship is one of our key organizational values and throughout our more than 125 years of providing compassionate and innovative care, teaching and research, we have been responsible and accountable stewards. For us, that includes taking personal responsibility for the carbon footprint produced by our operations and facilities.

In 2020, Providence had a carbon footprint of 10,564 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e), which was offset at a total cost of \$248,975. This represents a 7.2 per cent decrease in carbon emissions relative to the 2019 year. The amount of GHG emissions in 2020 was 3,177 tCO<sub>2</sub>e which is 92 tCO<sub>2</sub>e (3%) lower than the same timeframe in baseline year of 2007 (3,269 tCO<sub>2</sub>e).

In 2020, Providence initiated a new energy saving project for Mount Saint Joseph Hospital, for which we took advantage of a \$455,000 incentive from FortisBC, thus minimizing any investment required by Providence. It is worth highlighting the fact that Mount Saint Joseph will reduce 12,860 GJ per annum natural gas and 635 tCO<sub>2</sub> of emission. We also received a total incentive of \$739,724 from FortisBC in recognition of the significant carbon reduction achieved.

In 2021, we will continue to improve our environmental performance through improved energy efficiency, coordinated efforts, and education. These projects have a positive impact; saving energy, decreasing air pollution, and ultimately adding to the health and wellness of facilities, workplaces and the communities we serve.

Fiona Dalton, President & CEO, Providence Health Care  
Digitally signed by Fiona Dalton, President & CEO, Providence Health Care  
Date: 2021.05.31 11:40:19 -07'00'

Date: May 31<sup>st</sup>, 2021

Fiona Dalton  
President & Chief Executive Officer  
Providence Health Care



Healthy people  
Healthy planet

## OUR CO2 FOOTPRINT

### 2020 GREENHOUSE GAS EMISSIONS BREAKDOWN AND OFFSETS APPLIED TO BECOME CARBON NEUTRAL

Providence Health Care reports its organizational carbon footprint based on guidance provided by the BC'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, PHC's carbon footprint is comprised of six different greenhouse gases, which are converted into a common metric of tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e). In scope carbon emissions are grouped in three main categories:

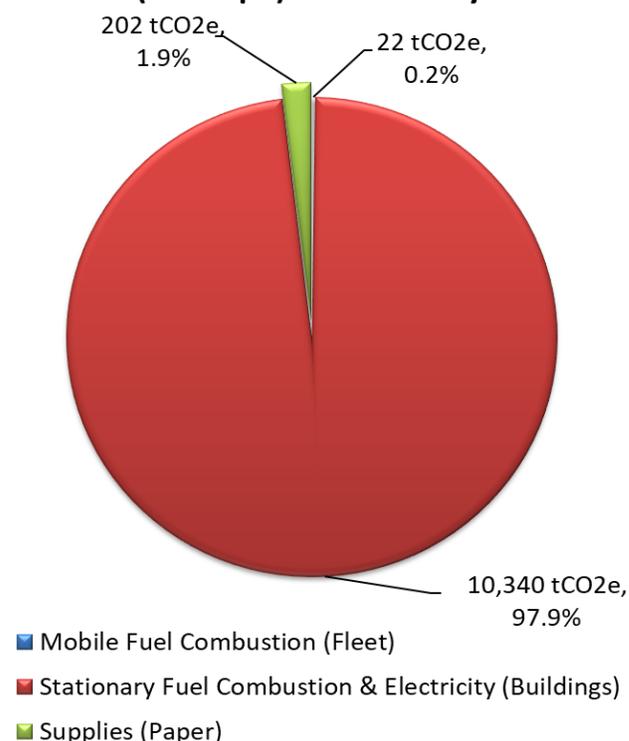
1. Stationary Fuel Combustion
2. Mobile Fuel Combustion
3. Supplies (Paper)

PHC's 2020 carbon footprint offset was 10,564 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e). That represents a 8.4 per cent decrease in PHC's carbon footprint since 2007.

Over 97 per cent of PHC's in-scope emissions are attributed to the building portfolio, and over 60 percent of those emissions are associated with steam consumption.

To become carbon neutral in 2020, PHC purchased carbon offsets at a total cost of \$248,975 from the Ministry of Environment. This amount is calculated based on PHC's 2020 carbon footprint offset of 10,564 tCO<sub>2</sub>e and -606 tCO<sub>2</sub>e adjustment from 2019, plus GST.

#### 2020 Providence Health Care's Greenhouse Gas (In-Scope) Emissions by Source



<b>Providence Health Care 2020 GHG Emissions and Offsets</b>	
<b>GHG Emissions created in Calendar Year 2020</b>	
Total Emissions (tCO <sub>2</sub> e)	10,571
Total BioCO <sub>2</sub>	6.07
Total Offsets (tCO <sub>2</sub> e)	10,565
<b>Adjustments to Offset Required GHG Emissions Reported in Prior Years</b>	
Total Offsets Adjustment (tCO <sub>2</sub> e)	-606
<b>Grand Total Offsets for the 2020 Reporting Year</b>	
Grand Total Offsets (tCO <sub>2</sub> e) to be Retired for 2020 Reporting Year	9,959
Offset Investment (\$25 per tCO <sub>2</sub> e)	\$ 248,975
Total Purchased Carbon Offset +GST	\$261,423.75

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

- i. [Note, BioCO<sub>2</sub> 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 BioCO<sub>2</sub> 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 PROVIDENCE HEALTH CARE PORTFOLIO

PHC's useable facility space has increased 5.1 percent since the 2007 base reporting year, which is largely due to the addition of Honoria Conway as one of the core sites in 2009. PHC has controlled increases in facility space to accommodate increased staff by seeking opportunities to optimize existing space use while maintaining safety and efficiency.

Providence Health Care		2007	2015	2016	2017	2018	2019	2020
<b>BUILDINGS, FTE AND WEATHER</b>								
<b>Distinct PHC Buildings</b>		n/a	36	36	39	39	45	44
	<b>% Owned</b>	n/a	92%	92%	91%	90%	89%	89%
	<b>% Leased</b>	n/a	8%	8%	9%	10%	11%	11%
<b>Usable Square Meters<sup>1</sup></b>		174,002	177,216	177,159	178,602	181,751	182,713	182,914
<b>Full-Time Employee Equivalents<sup>2</sup></b>		4,038	4,686	4,760	4,816	4,914	5,062	5,188
<b>Weather (summarized in Heating Degree Days)<sup>3</sup></b>		2,870	2,489	2,537	2,922	2,720	2,844	2,759

Notes for above table:

<sup>1</sup> Usable area excludes roof tops, interstitial spaces, and parking areas.

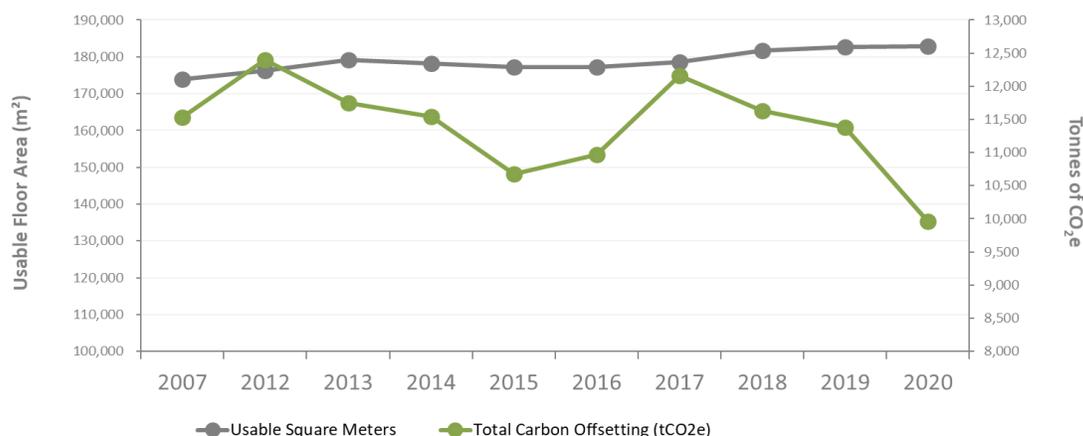
<sup>2</sup> Full-Time Employee data was provided by the Ministry of Health.

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

Overall since 2007, PHC's carbon footprint has decreased while usable floor area and staff have increased. As of 2020, emissions per full-time equivalent (1.92 tCO<sub>2</sub>e/FTE) have decreased by 32.86 percent since 2007, and emissions per unit of floor area (0.05 tCO<sub>2</sub>e/m<sup>2</sup>) have decreased 17.9 percent 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. PHC's 2020 emissions per HDD (3.6 tCO<sub>2</sub>e/HDD) are 10.2 percent lower than the baseline year.

### PHC Useable Floor Area and Emissions (2007-2020)



Providence Health Care								
Our Carbon Footprint (in tCO <sub>2</sub> e)		2007	2015	2016	2017	2018	2019	2020
CO <sub>2</sub>	Mobile Fuel Combustion (Fleet)	15	45	48	38	26	50	22
	Stationary Fuel Combustion & Electricity (Buildings)	11,448	10,267	10,569	10,679	11,540	11,007	10,340
	Supplies (Paper)	70	371	359	356	346	324	202
	Total Carbon Footprint (tCO <sub>2</sub> e)	<b>11,533</b>	<b>10,682</b>	<b>10,975</b>	<b>11,074</b>	<b>11,912</b>	<b>11,380</b>	<b>10,565</b>
	Emissions Which Do Not Require Offsets <sup>1,2</sup>	-1	-5	-4	-5	-4	0	0
	Total Carbon Footprint (tCO <sub>2</sub> e)	11,532	10,677	10,972	11,069	11,908	11,380	10,565
	Adjustments / Corrections	0	0	0	1,095	40	0	-606
Total Carbon Offsetting (tCO <sub>2</sub> e)		<b>11,532</b>	<b>10,677</b>	<b>10,972</b>	<b>12,164</b>	<b>11,948</b>	<b>11,380</b>	<b>9,959</b>
\$	Purchased Carbon Offsets	\$ -	\$ 266,925	\$ 274,300	\$ 304,100	\$ 298,700	\$ 298,700	\$ 248,975
	Purchased Carbon Offsets +HST / GST	<b>\$ 328,244</b>	<b>\$ 280,271</b>	<b>\$ 288,015</b>	<b>\$ 319,305</b>	<b>\$ 313,635</b>	<b>\$ 313,635</b>	<b>\$ 261,423.75</b>
KPI	Emissions per Full-Time Employee (tCO <sub>2</sub> e/FTE)	2.86	2.28	2.31	2.53	2.43	2.25	1.92
	Emissions per Facility Space (tCO <sub>2</sub> e/m <sup>2</sup> )	0.07	0.06	0.06	0.07	0.07	0.06	0.05
	Emissions per Heating Degree Day (tCO <sub>2</sub> e/HDD)	4.0	4.3	4.3	4.2	4.4	4.0	3.6

Notes for above table:

<sup>1</sup> As outlined in the Carbon Neutral Government Regulation of the Climate change Accountability Act, some emissions do not require offsets.

<sup>2</sup> It was estimated that Fugitive Emissions from cooling equipment comprise less than 0.01% of PHC'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.

<sup>3</sup> Due to the COVID-19 pandemic, on March 31, 2020 a directive was issued to all ministries and public sector organizations in BC to use their 2018 GHG emissions as a temporary estimate for their actual 2019 GHG emissions, for the purpose of the 2019 Carbon Neutral Action Reports and 2019 Carbon Neutral Government reporting required under the Climate Change Accountability Act. Therefore, the purchased carbon offsets in 2019 was equivalent to 2018. A total offsets adjustment of -606 tCO<sub>2</sub>e associated with the difference between the GHG emissions reported in 2019 and the actual 2019 GHG emissions is accounted for in 2020 Total Carbon Footprint for offsetting and 2020 purchased carbon offsets amount.

## ACTIONS TO REDUCE OUR CO2 FOOTPRINT

### 2020 LIST OF ACTIONS TAKEN TO REDUCE CO2 FOOTPRINT

#### Stationary Emissions (Buildings)

- Continuous Optimization:** Providence completed the post-project phase of BC Hydro's Continuous Optimization Program at St. Vincent's: Langara and Holy Family Hospital. The program is ongoing for St. Paul Hospital in 2020.
- Waste Heat Recovery:** Providence completed several energy studies for our core sites. Four major retrofit projects was in the process of completion: St. Vincent's: Brock Fahrni – Thermal Gradient Heat Recovery System, St. Vincent's: Langara – Cooling and Heating with Heat Recovery Retrofit, Mount Saint Joseph – Thermal Gradient heat Recovery and Holy Family Hospital – Domestic Hot Water System upgrade. All of these project are now completed and are going through the final commissioning stage. Also, these projects took advantage of \$998,474 of Carbon Neutral Capital Program (CNCP) fund as well as \$739,724 of incentive awarded by Fortis BC.
- FMO Staff Engagement:** The Providence energy management team has continued to build an engagement strategy with Facilities Maintenance and Operations (FMO) departments. This was focused initially at St. Paul's Hospital, and is now being extended to Holy Family Hospital and St. Vincent's: Langara Long Term Care. There are plans to expand to all major owned sites over time. The outreach focuses on reviewing energy use in buildings, identification of reduction opportunities, and optimization of existing equipment/plants. These plans will be supported by Energy Wise program introduced by Fortis BC and BC Hydro.
- Behavior Change:** PHC's energy team continues to promote energy conservation and GHG emissions reduction through awareness and behaviour change programs, such as Green+Leaders and the GreenCare Community website.



*Image Reference: Part of Heat Recovery system at Holy Family Hospital*



Image Reference: St. Vincent's Brock Fahrni Long Term Care home in Vancouver

## Mobile Fuel Combustion (Fleet and other vehicles)

- An electric vehicle baseline and feasibility study at PHC is planned for 2021, which will include fleet vehicles and ambulances. This study will lay the ground work for the development of a potential electric vehicle strategy, to increase and improve access to electric vehicle charging infrastructure and continue to decrease emissions from mobile sources.
- Providence continues to partner with Provincial Health Services Authority and Vancouver Coastal Health to provide a shuttle service between sites.
- Providence sites offer bike parking stalls to encourage and enable active transportation by bike.



## Supplies (Paper)

- As part of the Green+Leader program, a paper/waste reduction campaign supports volunteers with Paperless Meeting Toolkits to encourage their colleagues to reduce paper use.
- In partnership with other BC Health Authorities, PHSA Supply Chain 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 Supply Chain continues to work with suppliers and vendors to identify PCR paper options at reasonable prices and identifying ways to formally increase the volume of PCR paper in inventory.

## Actions That Fall Outside the Scope of the Carbon Neutral Government Regulations:

- PHC facilities comply with a standardized recycling program 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, mattresses, scrap metal, lighting, and others. Each facility has a target of reaching 50% waste diversion by 2030.
- From Jan 1, 2020 to Dec 31, 2020 a total of 653 PHC staff completed the online Waste Management Basics Learning Module available on the Learning Hub platform, up from 329 in 2019. This module familiarizes learners with the impacts of improper waste management and how to discard different types of waste appropriately.
- St. Vincent's: Langara undertook a waste composition audit, to better learn what is in the garbage waste stream in order to prioritize additional diversion and reduction opportunities.
- The Transfusion Medicine lab at St. Paul's Hospital piloted a latex and nitrile glove recycling project, demonstrating that used, clean gloves can be diverted away from landfill and into recycling.
- PHC provided training, resources, toolkits and recognition to support the Green+Leader program and various green teams in PHC.
- The Green+Leaders behaviour change program recruited seven new volunteers for PHC in 2020, making a total of 18 active staff volunteers across PHC, and a total of 34 PHC staff trained since the program began in 2007.
- PHC continues to support the GreenCare Community website, which provides tips and toolkits on using less paper, as well as other environmental sustainability initiatives linked to health and wellness. PHC had 515 staff registered on the site as of 2020.
- Education and awareness communication via the GreenCare Community is supplemented by stories published in various internal communication channels; these efforts continue to champion behaviour change and celebrate environmental sustainability successes.
- From the 2021 GreenCare Survey results, we found that 85.7% of PHC staff agree or strongly agree with the statement "Healthcare organizations should demonstrate leadership when it comes to environmental health and wellness in the workplace and our communities". Furthermore, our survey results showed that 68.5% of PHC staff agree or strongly agree with the statement "I take ownership of the environmental impact that I have in my workplace".
- PHC continues to organize public education and awareness initiatives that support behaviour change and staff engagement through informative educational opportunities. In 2020, the Green+Leader Program, led 2 Lunch and Learns, 2 Dialogue Webinars, 2 training and orientation sessions and 1 annual recognition event. Highlights include the new webinar series on Healthy and Green Buildings that support the understanding of green design, fostering opportunities for PHC staff to get involved in design and construction processes in health care.

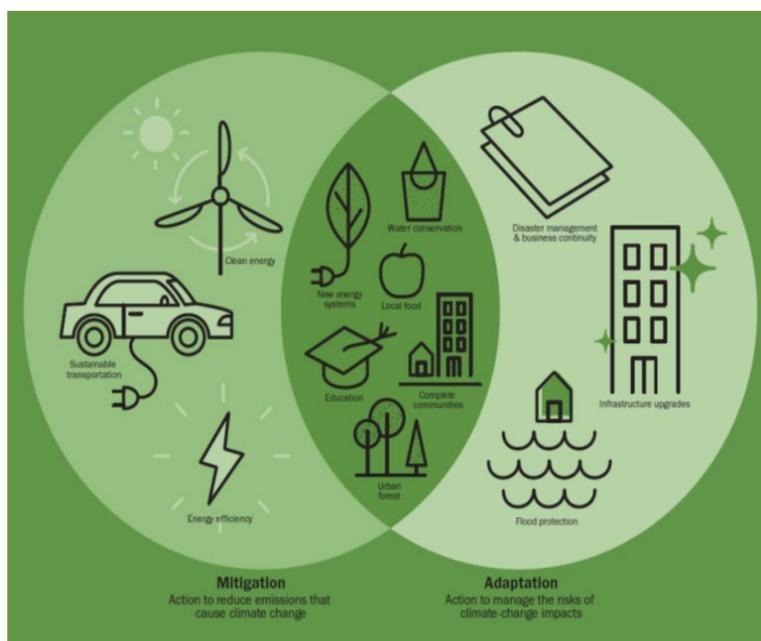
## FUTURE ACTIONS TO REDUCE CO<sub>2</sub> FOOTPRINT

### PHC's plans to continue reducing GHG emissions and energy in the following ways:

- **Optimize our existing buildings:** Planning and implementing GHG and energy reduction projects in our existing building portfolio by utilizing the Carbon Neutral Capital Program (CNCP) as our primary funding source. A special focus is now on electrification measures are aiming at Net Zero Carbon emission for PHC facilities.
- **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. It should be mentioned that the new St. Paul Hospital is underway of design stage based on the optimum carbon reduction and energy saving. This building has registered for LEED Gold certification.
- **Systemic change:** Implementing standards, guidelines, and processes to embed energy management principles further into standard operations.
- **Behaviour change & staff engagement:** Engaging and educating our staff, via the existing Green+Leaders program, GreenCare Community and through collaboration with the PHC's Health Promotions Team, as well as participation in Energy Wise Network Program. Mid 2021, the new BC GreenCare website<sup>8</sup> will be launched to provide a renewed hub for environmental sustainability related resources and opportunities. The new website is centered on engaging PHC and other BC healthcare staff with environmental sustainability and resilience in the workplace.

In addition, taking small steps now (such as learning about new technologies) to pave the way for larger innovations when an appropriate opportunity arises.

- **Align with our core mandate:** Working with GreenCare's refreshed Strategic Framework; PHC will strive to advance health care practices that respect environmental stewardship, noting that the environmental impact from health care facilities, operations and services influence the health of populations and patients we serve. PHC 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.
- **Innovation and demonstration:** Leveraging the innovative Green Revolving Fund approach that has been initiated for PHC to support ongoing investment in energy conservation through utility cost avoidance achieved through conservation.



## FEATURE PROJECT

### Carbon Reduction and Energy Saving Project at Mount Saint Joseph Hospital

In 2020, Providence initiated 15 projects in energy saving and GHG reduction. These projects included energy studies, implementations and verification for core sites of Providence Health Care. Total energy savings from all these projects was estimated about 35,000 GJ and the GHG reduction of about 1650 tCO<sub>2</sub>/Yr. Tony Munster, Executive Director Projects Planning and Facilities Management, gave approval to expand these studies to explore options to synergistically recover waste heat in order to reduce both operating costs and carbon emissions, in collaboration with the energy management team.

The expanded study scope was funded through the FortisBC Custom Energy Study program. In both cases a low exergy Thermal Gradient Header (TGH) design approach (similar to that employed at St. Paul's Hospital) was recommended as a means to increase climate resilience while also reducing carbon emissions.

These projects build upon the success of the St. Paul's Hospital Chiller 2 & Heat Recovery project, which was featured in the 2018 issue of this report. That was a major capital project that is now substantially complete and measurement and verification (M&V) tasks is underway. Early M&V results are in line with the anticipated utility savings. The eighty per cent pre-M&V incentive (\$428,546) from FortisBC was delivered in 2019, and the remaining incentive (\$137,425), the final twenty per cent post-M&V plus implementation bonus is now being processed for payment.



Image Reference: Mount Saint Joseph Hospital

#### MOUNT SAINT JOSEPH HOSPITAL – COOLING & DHW UPGRADE ENERGY STUDY

**Technology:** Thermal Gradient Header (TGH) holistic heat recovery strategy

**Predicted Energy Savings:** An estimated 12,860 GJ per annum natural gas and increase of 650,000 kWh/year of electricity to operate the new chiller.

**Predicted GHG Reductions:** 635 tCO<sub>2</sub>e/year anticipated GHG reduction.

**Incremental Project Cost:** \$700,000 (total project cost estimated at \$1.25M)

**Incentive Funding:** \$56,000 Study Incentive & \$455,000 Capital Incentive

**Operational Cost Savings:** \$130,000 (estimated utility cost savings relative to the baseline with reduced gas offsetting increased electricity)

**Business Case:** Simple payback of less than six (6) years taking incentives into account.

**Benefits/Co-Benefits:** New asset. Added cooling capacity. Improved climate resilience. Cost effective carbon reduction, good use of CNCP funding with comparable projects up to \$11,000/tCO<sub>2</sub>e capital cost of carbon reduction.

