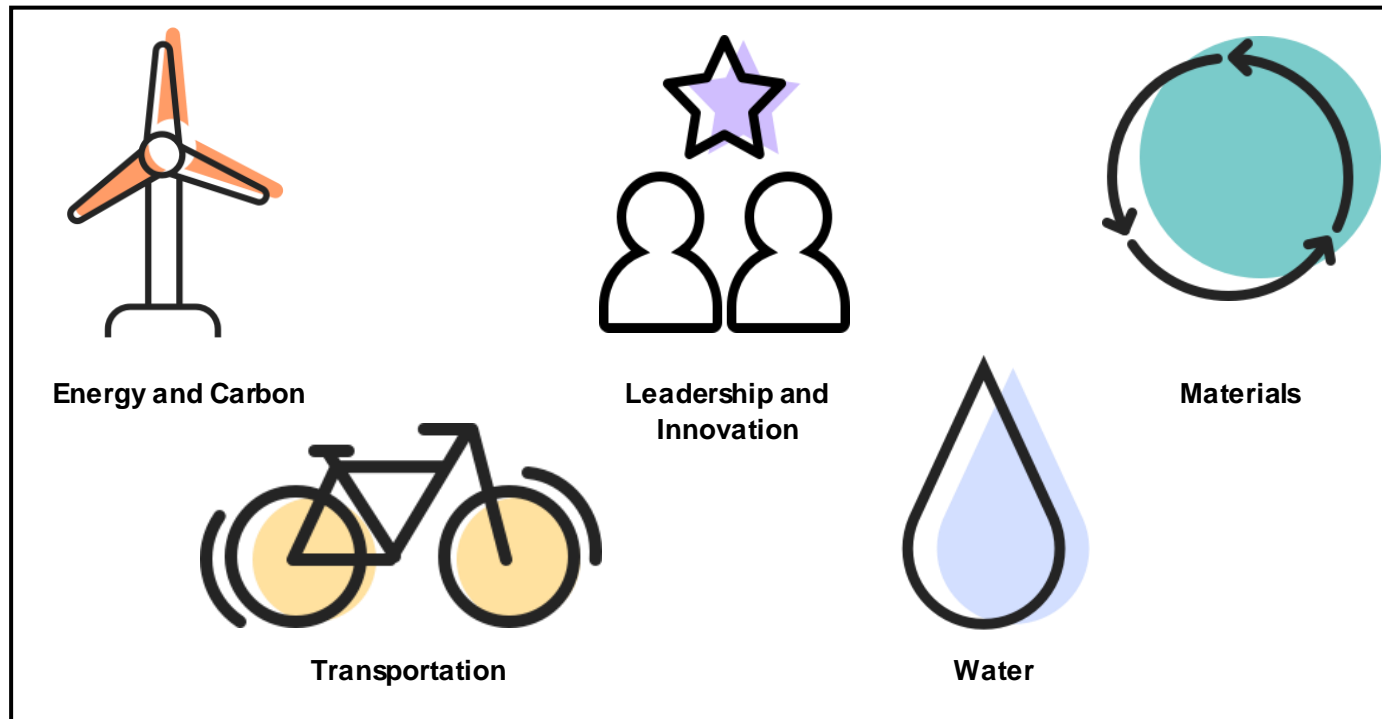# Energy and Environmental Sustainability (EES)
Methodology and Context for Calculating Key Performance Indicators
Fraser Health, Providence Health Care, PHSA, Vancouver Coastal Health

Energy and Carbon

Leadership and Innovation

Materials

Transportation

Water

This is a 'living' document and will be regularly updated. The most up-to-date version can be found at
www.bcgreencare.ca/resource/keyperformanceindicators
Document Updated: June 14, 2022

Introduction

This document seeks to define EES focus area targets; share the methodology used to calculate targets and key performance indicators (KPIs); and provide context for results. It is meant to be used in conjunction with graphs displayed on the GreenCare website and in progress reports.

For each focus area, you will find the following information:
- *Target(s)*
- *KPI(s)*
- *How metric is calculated and explanation of any terms*
- *Scope of metric*
- *Needed background information*
- *Explanation of any data anomalies*

In addition, a list of sites that are included in KPI calculations are included at the end.
If you have any questions about the information below, please contact: info@bcgreencare.ca
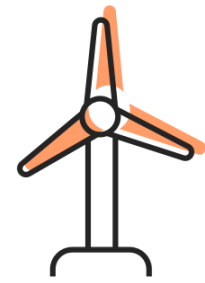
Energy Targets

Goal: Reduce our carbon footprint by increasing energy efficiency and reducing reliance on fossil fuels.

Target	Reduce energy-use intensity (EUI)
KPI	EUI is measured in equivalent kilowatt hours generated per square metre of facility space (ekWh/m²/yr).
Calculation	Energy use at core health-care sites is measured in equivalent gigawatt hours (eGWh) and captures the entire amount of energy used from all energy sources on an annual basis. This is then divided by total floor area minus underground parking.
Data source	Electricity, gas, steam and fuel oil invoices from BC Hydro, Fortis and vendors. Square footage comes from the ARCHIBUS, an internal health authority resource for space analytics.
Explanation of terms / Scope	Core sites are defined as primarily owned health-care facilities that can be actively monitored for energy, water and waste data. This includes electricity, natural gas and fuel oil, and energy purchased from district energy systems. Floor area doesn't include underground parking.
Background info	Changes to the facility area through new construction and demolitions directly impact these figures.
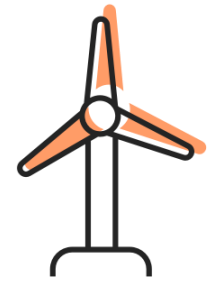
Carbon Targets

Goal: Reduce our carbon footprint by increasing energy efficiency and reducing reliance on fossil fuels.

| Target	Reduce absolute in-scope Greenhouse Gas (GHG) emissions.
KPI	GHG emissions is tCO$_2$e/year.
Calculation	Absolute emissions, measured in tonnes of CO$_2$e annually, represent the total reported, in-scope emissions regardless of change in facility space and weather variation.
Data source	PHSA Supply Chain: Paper, Fleet Electricity and gas invoices come from BC Hydro and Fortis. Steam and fuel oil invoices from a variety of vendors.
Explanation of terms / Scope	In-scope emissions are from owned and leased buildings, fleet use and paper use (as defined by the *Climate Change Accountability Act*).
Background info	none

Target	Reduce in-scope Greenhouse Gas (GHG) emissions intensity.
KPI	GHG-emissions intensity $tCO_2e/year/m^2$
Calculation	Intensity is measured in kilograms of carbon dioxide equivalent emitted per square metre of usable facility space per year ($kgCO_2e/m^2/yr$).
Data source	PHSA Supply Chain: Paper, Fleet Electricity and gas invoices come from BC Hydro and Fortis. Steam and fuel oil invoices from a variety of vendors. Leased site square footage comes from the Real Estate department. Core site square footage comes from Archibus.
Explanation of terms / Scope	This represents the emission intensity average across all owned and leased sites, fleet use and paper use (as defined by the *Climate Change Accountability Act*).
Background info	Changes to the facility area through new construction and demolitions directly impact these figures.

Leadership and Innovation Targets

Goal: Collaboratively foster a culture of transformative leadership and innovation for environmental sustainability in health care.

Target	Increase the total number of staff joining the Green+Leaders community
KPI	Total # of Green+Leader registrations since 2009 (2011 for Providence)
Calculation	The number of new Green+Leaders' that joined the program in the year 2019 was established as a baseline upon which to set future targets. This is due to 2019 being a year where programming for the community changed and we had high engagement numbers. In addition to those that joined the program between 2009 and 2021, an annual rate of 5% increase, aggregated year over year, provides the targets for 2025 and 2030.
Data source	Registration forms
Explanation of terms / Scope	N/A
Background info	Prior to 2021, this target was measured as a proportional increase in Green+Leaders. It was decided that using numbers will provide more accurate and meaningful information for monitoring. And that by setting a target for a total number of staff would help mitigate the effects of challenging years (i.e., pandemic years), by allowing unmet targets to roll over into the next year.
Data anomalies and trends	A review of the G+L database showed some have left their health authority. Unfortunately there's no system in place to actively monitor/keep track of this- review of bounce rate from newsletters, or e-mail bounce is the only indication. Thus, any that had expressed interest but had not registered by filling out the application form, and have since left their health authority are permanently deleted from the database, rather than being marked "inactive". This audit could change some numbers from previous years going forward. There may also be a drastic shift in the number of "inactive" members, as the database review also revealed e-mail and newsletter bounced from those that were active members or pending orientation.
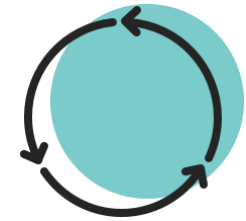
Materials Targets

Goal: Choose materials and products that contribute to human and environmental health, while avoiding waste and unnecessary chemicals.

Target	Increase waste-diversion rates at existing acute and long-term care sites.
KPI	% of waste diverted (annual average)
Calculation	The waste-diversion rate is calculated by dividing total estimated weights for paper, container and organics recycling by the total estimated weight of general garbage waste and recyclables
Data source	Business Initiatives Support Services - Waste hauling invoices
Explanation of terms / Scope	Waste-diversion data does not include segregated bio-medical waste or recycling streams for which data is inconsistently tracked or not tracked at all (e.g. lighting, batteries, scrap metal, wood, printer cartridges, and others). Waste-diversion rates are for all owned acute and long-term care facilities.
Background info	n/a
Data anomalies and trends	The decrease from 2014 to 2015 is attributed to the cancellation of the Soft Plastics Recycling program, and a change in waste vendors and the methodology used to track data. Waste-diversion rates show a slow increase over time; however, they seem to plateau at approximately 40%. In order to reach the 2030 target of 50% waste diversion, more aggressive action needs to be taken to reduce garbage waste and look for new streams of recycling.

Target	Decrease waste-intensity rates at existing acute and long-term care sites.
KPI	Waste intensity (kilograms/m²/year)
Calculation	The waste-intensity rate indicates whether or not we are reducing total waste generated, including general garbage, paper, mixed containers, and organics waste streams.
Data source	Business Initiatives Support Services - Waste hauling invoices ARCHIBUS - facility space in m2
Explanation of terms / Scope	Waste-intensity rates are for all owned acute and long-term care facilities.
Background info	We started to track waste-intensity rates in 2018, but calculated historical data back to 2014

Transportation Targets

Goal: Increase access to and use of transportation modes that reduce negative environmental impacts and benefit human health and wellness.

Target	Increase staff commuting by sustainable transportation modes.
KPI	Percentage of staff commutes made by sustainable modes
Calculation	Percentage is calculated for each transportation mode, which is the average of all self-reported commuting percentages across the health organization. The total percent of staff commutes by sustainable modes is the sum of each mode. Data has a confidence level of 95% with a 4% or 5% margin of error.
Data source	Annual GreenCare Survey
Explanation of terms / Scope	Mode share (percentage of commutes) is a way to understand how staff are moving to and from home and work, by showing the proportion of transportation by different options/modes. Sustainable includes: ● Zero-emissions vehicles (electric, plug-in hybrid, hydrogen) and carpooling ● Active transportation such as walking + rolling, cycling, running, or the use of fully or partially human-powered mobility aids, such as wheelchairs, e-scooters, and e-bikes. This data is self-reported by survey participants, and does not account for distance travelled
Background info	Prior to 2021 (collecting 2020 transportation data), this data was tracked biennely.

Water Targets

Goal: Minimize water consumption to reduce demand on natural resources and impact on our living environments.

Target	Reduce building water (use) performance intensity (BWPI) of core sites.
KPI	BWPI is m^3/m^2/year
Calculation	Water use at core sites is measured in cubic metres per year (m^3/year). Total water-use intensity at core sites is measured in cubic metres per square metre of facility space per year (m^3/m^2/yr).
Data source	Utility invoices
Explanation of terms / Scope	Core sites are defined as primarily owned health-care facilities that can be actively monitored for energy, water and waste data.
Background info	Although facility space is used as an intensity metric for water, it's important to note that total water consumption is influenced by facility staff count, operational needs, clinical processes, procedures and equipment.

Core Sites list

	Health Care Site Name	Type of Facility	Useable Facility Area (m2)[1]	Energy Core Sites	Waste Management Core Sites
FH	Abbotsford Regional Hospital and Cancer Centre	Acute	62,258	x	x
FH	Burnaby Hospital	Acute	48,089	x	x
FH	Chilliwack General Hospital	Acute	30,853	x	x
FH	Chilliwack Health Centre	Treatment centre	2,976	x	
FH	Creekside Withdrawal Management Centre	Long-term care	2,729	x	x
FH	Czorny Alzheimer Centre	Long-term care	6,393	x	x
FH	Delta Hospital	Acute	16,329	x	x
FH	Eagle Ridge Hospital	Acute	24,392	x	x
FH	Fellburn Care Centre	Long-term care	4,045	x	x

FH	Fraser Canyon Hospital	Acute	7,677	x	x
FH	Heritage Village	Long-term care	5,776	x	x
FH	Jim Pattison Outpatient Care	Acute	19,941	x	x
FH	Langley Memorial Hospital	Acute	42,944	x	x
FH	Maple Ridge Treatment Centre	Long-term care	2,323	x	
FH	Mission Memorial Hospital	Acute	22,064	x	x
FH	MSA Cottage & Worthington Pavilions	Long-term care	4,958	x	x
FH	Parkholm Place	Long-term care	3,582	x	x* *included in CGH data
FH	Peace Arch Hospital	Acute/ Long-term care	42,338	x	x
FH	PAH Foundation Lodge	Long-term care	9,613	x	x

FH	Queens Park Care Centre	Acute	16,074	x	x
FH	Ridge Meadows Hospital	Acute	23,238	x	x
FH	Royal Columbian Hospital	Acute	89,849	x	x
FH	Surrey Memorial Hospital	Acute	115,112	x	x
FH	Timber Creek	Acute	4,539	x	x
PHC	Holy Family Hospital	Long-term care	11,230	x	x
PHC	Mount Saint Joseph Hospital	Acute	21,245	x	x
PHC	St. Paul's Hospital	Acute	102,774	x	x
PHC	St. Vincent's Brock Fahrni	Long-term care	5,860	x	x
PHC	St. Vincent's Honoria Conway	Assisted Living	5,388	x	x
PHC	St. Vincent's Langara	Long-term care	9,465	x	x
PHC	Youville	Long-term care	7,190	x	x

PHSA	BC Cancer – Prince George	Treatment centre	4,645	x	
PHSA	BC Cancer - Surrey	Treatment centre	6,700		x
PHSA	BC Cancer - Victoria	Treatment centre	11,864	x	
PHSA	BC Cancer – Vancouver	Treatment centre	29,335	x	x
PHSA	BC Cancer Research Centre	Research	21,368	x	x
PHSA	BC Children's Hospital & BC Women's Hospital	Acute	209,796	x	x
PHSA	Forensic Psychiatric Hospital	Long-term care	19,300	x	
PHSA	Red Fish Healing Centre	Treatment centre	21,660	x	x
PHSA	Sunnyhill Health Care Centre	Long-term care	8,318	x	x
VCH	Bowling Green	Child Care	496		x
VCH	Cedarview Lodge	Long-term care	6,989	x	x
VCH	Dogwood Lodge	Long-term care	4,943		x

VCH	George Pearson Centre	Long-term care	17,655	x	x
VCH	GF Strong	Acute	19,159	x	x
VCH	Gordon and Leslie Diamond Centre	Acute	33,878	x	x* *included in VGH data
VCH	Kiwanis Care Centre	Long-term care	14,602	x	x
VCH	Lions Gate Hospital/ Evergreen / HOpe Centre	Acute/ Long-term care	68,223	x	x
VCH	Margaret Fulton	Long-term care	2,442		x
VCH	Minoru Residence	Long-term care	11,477	x	x
VCH	Powell River/Willingdon Creek Village	Acute/ Long-term care	21,484	x	x
VCH	Richmond Hospital	Acute	33,223	x	x
VCH	Richmond Lions Manor	Long-term care	4,604		x

VCH	Sechelt Hospital/Totem Lodge	Acute/ Long-term care	13,730	x	x
VCH	Shorncliffe Intermediate Care	Long-term care	3,062	x	
VCH	Squamish Hospital/Hilltop House	Acute/ Long-term care	11,449	x	x
VCH	UBC Djavad Mowafaghian Centre for Brain Health	Research/Outpatient	15,772	x	
VCH	UBC Hospital	Acute/ Long-term care	68,701	x	x
VCH	Vancouver General Hospital	Acute/ Long-term care	259,315	x	x
VCH	Whistler Health Care Centre	Acute	2,755	x	
Totals:	**60**	*sq meters*	**1,718,189**	**55**	**52**