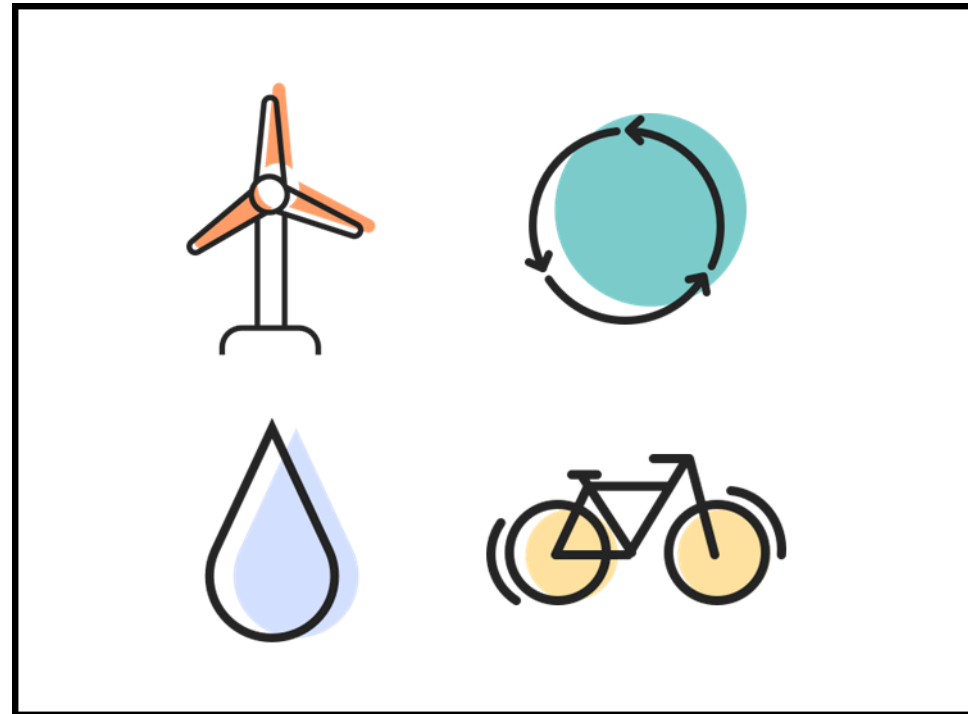

Energy and Environmental Sustainability (EES)

Methodology and Context for Calculating Key Performance Indicators
Fraser Health, Providence Health Care, PHSA, Vancouver Coastal Health



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

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Introduction

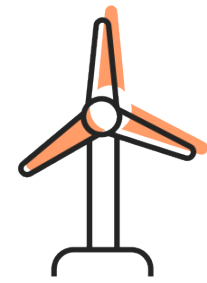
This document seeks to define EES focus area goals; share the methodology used to calculate key performance indicators (KPIs); and provide context for results. It is meant to be used in conjunction with graphs displayed on the GreenCare website and in performance reports.

For each focus area, you will find the following information:

- *KPI(s)*
- *Metric*
- *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

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

KPI	
Reduce owned and operated building energy-use intensity over 2007 baseline.	
Metric	Energy Use Intensity (EUI) is measured in equivalent kilowatt hours consumed per square metre of facility space per year (ekWh/m ² /year).
Calculation	Energy use at core health-care sites is measured in equivalent kilo-watt hours (ekWh) or giga-watt hours (eGWh) and captures the entire amount of energy used from all energy sources on an annual basis. This is then divided by total building floor area minus underground parking, interstitial space and mechanical penthouses.
Data source	Invoices from utility providers and vendors, which are loaded into a utility database management tool (Asset Planner). Square meters comes from 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. Utilities includes electricity, natural gas and fuel oil, and energy purchased from district energy systems. ekWh is a unit of energy consumption that is used to convert the volume of an energy source into equivalent energy units.
Background info	2007 baseline selected to align for Climate Change Accountability Act. Targets determined by identifying energy reduction opportunities and taking into account changes in building portfolio.
Data anomalies and trends	New utilities database management tool (Asset Planner) includes a different billing period resulting in minor discrepancies with data reported in previous years. Changes in energy use and intensity are affected by new construction activity and weather temperatures.

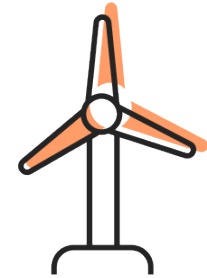


Carbon

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

KPI		Reduce in-scope ¹ GHG emissions over 2007 baseline.
Metric	Tonnes of Carbon Dioxide equivalent (tCO ₂ e) is a measure of the in-scope Greenhouse Gas (GHG) emissions across the entire portfolio, including lease facilities per year (tCO ₂ e/year).	
Calculation	Annual in-scope GHG emissions are calculated from the Clean Government Reporting Tool (CGRT) with emission factors taking from B.C. Best Practices Methodology for Quantifying Greenhouse Gas Emissions.	
Data source	The following data is entered into the CGRT: <ul style="list-style-type: none"> • Utility provider data • Paper Use (supplied from PHSA Supply Chain) • Fuel Oil use from fleet vehicles (supplied by PHSA Supply Chain) 	
Explanation of terms /Scope	tCO ₂ e is a standard unit for counting greenhouse gas (GHG) emissions. Current in-scope emissions (building energy, paper use and fleet vehicles) sources are determined by BC Government legislation.	
Background info	This target and baseline is mandated by the Climate Change Accountability Act. The Climate Change Accountability Act (CCAA) has set ambitious emissions reduction targets for public sector organizations: <ul style="list-style-type: none"> • 40% by 2030 • 60% by 2040 • 80% by 2050 	
Data anomalies and trends	Estimated calculations are used in the CGRT for facility space without utility metered data. Paper use is determined by paper purchased not necessarily used. Approximately 98% of the total in-scope GHG emissions come from building energy use. Portfolio growth has a significant impact on building GHG emissions.	

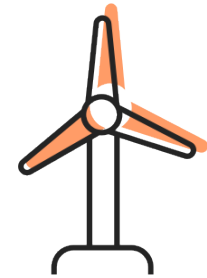
¹ Included in these targets are what the province considers “in scope” for public sector organizations: emissions from owned and leased buildings, and from the use of fleet vehicles and paper consumption. For reference, 98% of in-scope emissions come from buildings, while the rest come from fleet and paper.



Carbon

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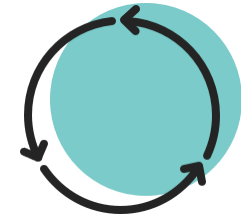
KPI Reduce owned and leased building GHG emissions over 2007 baseline.	
Metric	Tonnes of Carbon Dioxide equivalent (tCO ₂ e) is a measure of the Greenhouse Gas (GHG) emissions (buildings only) across the entire portfolio, including lease facilities per year (tCO ₂ e/year).
Calculation	Annual building GHG emissions are calculated from the Clean Government Reporting Tool (CGRT) with emission factors taken from B.C. Best Practices Methodology for Quantifying Greenhouse Gas Emissions.
Data source	Utility provider data entered into the CGRT.
Explanation of terms /Scope	tCO ₂ e is a standard unit for counting greenhouse gas (GHG) emissions. Building energy use is one of the current in-scope emissions sources and consists of scope 1 (direct i.e. natural gas use) and scope 2 (indirect i.e. electricity use) emissions.
Background info	Target determined by the CleanBC plan (part of the BC climate change legislation). CleanBC plan is the pathway to achieving a 50% reduction in emissions for public sector buildings by 2030.
Data anomalies and trends	Estimated calculations are used in the CGRT for facility space without utility metered data. Approximately 98% of the total in-scope GHG emissions come from building energy use. Portfolio growth has a significant impact on building GHG emissions.



Carbon

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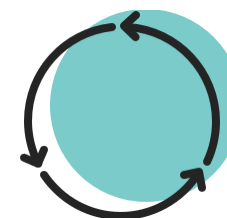
KPI Reduce owned and leased building GHG-emissions intensity over 2007 baseline.	
Metric	Kilograms of Carbon Dioxide equivalent (kgCO ₂ e) per square metre of facility space is a measure of the greenhouse gas (GHG) emissions intensity (buildings only) across the entire portfolio, including lease facilities per year (kgCO ₂ e/m ² /year).
Calculation	Annual building GHG emissions are calculated from the Clean Government Reporting Tool (CGRT) with emission factors taken from B.C. Best Practices Methodology for Quantifying Greenhouse Gas Emissions. For intensity the annual GHG emissions is divided by the square metre of usable facility space for all owned and leased buildings.
Data source	Utility provider data entered into the CGRT. Useable facility space (square meters) comes from the ARCHIBUS (an internal health authority resource for space analytics).
Explanation of terms /Scope	tCO ₂ e is a standard unit for counting greenhouse gas (GHG) emissions. Building energy use is one of the current in-scope emissions sources and consists of scope 1 (direct i.e. natural gas use) and scope 2 (indirect i.e. electricity use) emissions. 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	Target is aligned with the CleanBC plan (part of the BC climate change legislation). CleanBC plan is the pathway to achieving a 50% reduction in emissions for public sector buildings by 2030.
Data anomalies and trends	Estimated calculations are used in the CGRT for facility space without utility metered data. Approximately 98% of the total in-scope GHG emissions come from building energy use. Building new low carbon emission facilities will support the trend to meet GHG intensity target.



Materials

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

KPI		Increase waste-diversion rates at existing acute and non-acute care owned and operated sites.
Metric	Percent of waste diverted away from garbage into recycling or composting streams (annual average).	
Calculation	The waste-diversion rate is calculated by dividing total estimated weights for recycling (including paper, containers and organics) by the total estimated weight of all waste (including general garbage and recyclables).	
Data source	Waste hauling invoices	
Explanation of terms /Scope	<p>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).</p> <p>Waste-diversion rates are for all owned and operated facilities. Waste management at leased sites is under the purview of the property management company, and not the health organization.</p>	
Background info	Targets are created internally and are based on past trends and current resourcing.	
Data anomalies and trends	<p>Acute care waste-diversion rates show some variation over time, however the top performing sites plateau at approximately 40%. In order to reach the 2030 target of 40% waste diversion at all sites, more aggressive action needs to be taken to reduce garbage waste and look for new streams of recycling.</p> <p>Non-acute care waste-diversion rates dropped during the Covid-19 pandemic but has recovered well in 2022.</p> <p>Recycling in acute care clinical spaces was paused for periods of the Covid-19 pandemic, and has slowly been returning to clinical departments since 2021.</p>	



Materials

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

KPI		Decrease waste-intensity rates at acute and non-acute care owned and operated sites.
Metric	Waste intensity is total kilograms of waste generated per square metre of usable facility area (kilograms/m ² /year).	
Calculation	The waste-intensity rate is calculated by dividing total waste generated (including general garbage, paper, mixed containers, and organics waste streams) by the total usable floor area, excluding parkades.	
Data source	Waste hauling invoices ARCHIBUS - facility space in square metres	
Explanation of terms /Scope	Waste data does not include segregated bio-medical waste. Waste-intensity rates are for all owned and operated facilities. Waste management at leased sites is under the purview of the property management company, and not the health organization.	
Background info	This KPI indicates whether or not total waste generation is decreasing. Targets are created internally and are based on past trends and current resourcing. Waste-intensity rates were first created in 2018, but were calculated using historical data back to 2014.	



Transportation

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

KPI		Increase proportion of staff commuting by sustainable transportation modes.
Metric	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.	
Data source	Annual GreenCare Survey, self-reported annual average	
Explanation of terms /Scope	<p>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.</p> <p>Sustainable commuting includes:</p> <ul style="list-style-type: none"> • Clean transportation which refers to transportation with hybrid or electric vehicle single occupancy, public transit, carsharing, carpooling and hospital shuttles. • Active transportation which refers to transportation with bicycles (regular/nonelectric, pedal-assist/electric, bike share) and walking/ rolling (e.g. wheelchairs, seated electric scooters). <p>This data is self-reported by survey participants, and does not account for distance travelled.</p>	
Background info	<p>This is a health authority developed target that is based on past trends and current resourcing.</p> <p>Data is collected annually since 2020. Prior to 2020 transportation data was collected every 2 years.</p>	



Water

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

KPI Reduce building water (use) performance intensity of core sites.	
Metric	Water Use Intensity is measured in cubic water use per square metre of facility space per year (m ³ /m ² /year).
Calculation	Water use at core sites is measured in cubic metres from water meters (where applicable) at core sites per year divided by the total building floor area minus underground parking, interstitial space and mechanical penthouses.
Data source	Utility invoices from various cities and municipalities, which are loaded into a utility database management tool (Asset Planner). Square meters come from 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.
Background info	2010 baseline selected to align with commencement of recorded water meter data. This is a health authority developed target that is based on past trends, current resourcing and potential opportunities.
Data anomalies and trends	The new utilities database management tool (Asset Planner) includes a different billing period resulting in minor discrepancies with data reported in previous years. Changes in water use and intensity are affected by new construction activity and weather temperatures.

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	14,322	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	49,791	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	74,248	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	102,775	x	x
PHC	St. Vincent's: Brock Fahrni	Long-term care	5,860	x	x
PHC	St. Vincent's: Honoria Conway - Heather	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	20,752	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	33,851	x	x* *included in VGH data
VCH	Kiwanis Care Centre	Long-term care	11,717	x	x
VCH	Lions Gate Hospital / Evergreen / HOpe Centre	Acute/ Long-term care	64,540	x	x
VCH	Margaret Fulton	Long-term care	2,442		x
VCH	Minoru Residence	Long-term care	11,584	x	x
VCH	qathet General Hospital / Willingdon Creek Village	Acute/ Long-term care	21,417	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	13,779	x	x
VCH	Shorncliffe Intermediate Care	Long-term care	3,062	x	
VCH	Squamish Hospital / Hilltop House	Acute/ Long-term care	10,697	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	<i>sq meters</i>	1,718,189	55	52

