GreenCare™

Creating Opportunities for Health and Wellness

2015 Environmental Performance Accountability Report

fraserhealth

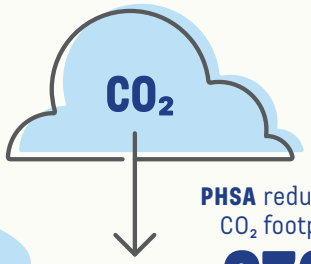
Providence HEALTH CARE
How you want to be treated.

Provincial Health Services Authority
Province-wide solutions. Better health.

Vancouver CoastalHealth
Promoting wellness. Ensuring care.

2015 Highlights

SMART ENERGY & WATER



PHSA reduced their CO_2 footprint by

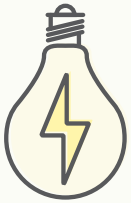
27%

from 2007 baseline

PHC reduced their water use per M² of facility space by

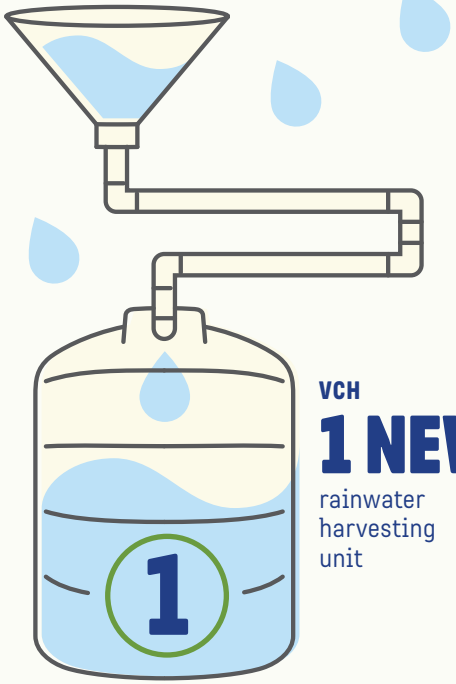
11%

from 2010 baseline



FH reduced their energy use per M² of facility space by

12.2%

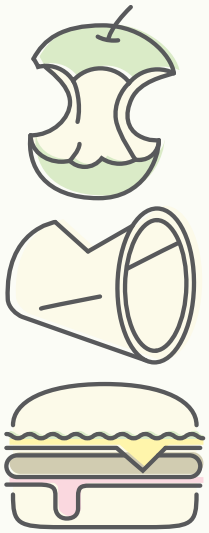


VCH

1 NEW

rainwater harvesting unit

ZERO WASTE & TOXICITY



PHC diverts

41%

of their material waste

FH

100%

of their sites have healthy eating guidelines

ACTIVE & CLEAN TRANSPORTATION

VCH

10.2%

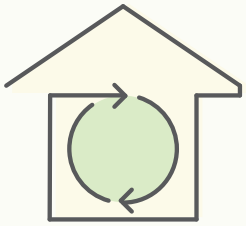
of their staff walk to work

PHC

16%

of their staff bicycle to work

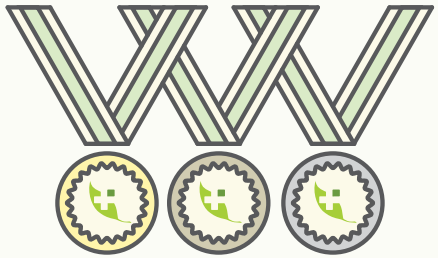
REGENERATIVE DESIGN



VCH

1 NEW

passive house designed facility



FH Has

7 LEED Gold
1 LEED Silver
4 LEED Certified

healthcare facilities in total

CULTURE CHANGE

PHSA has trained

165 staff

as Green+Leaders since 2009

PHSA has

1,044 staff

registered on the GreenCare Community website

Contents

Cover Photo:
Kate Luther, Mental Health Rehabilitation Worker, stands next to a newly implemented rainwater harvesting unit at Vancouver Coastal Health's Sumac Place, Adult Tertiary Mental Health Rehabilitation, Gibsons, B.C.

2015 GreenCare Dashboard

This GreenCare Dashboard provides a quick reference for understanding the goals, targets, status and performance in each area of the GreenCare Strategic Framework.

The reported environmental performance of the Lower Mainland Health Care Organizations (LMHOs) generally focuses on 2015 results, but may pertain to an accumulation of years. Where applicable, this has been indicated.

Each year, our Director of Energy & Environmental Sustainability assesses our performance against each target, and provides a "traffic light" to indicate the overall direction. To fully understand each target and its larger context, please see the individual chapters of this report.

LMHOs

FH	Fraser Health
PHC	Providence Health Care
PHSA	Provincial Health Services Authority
VCH	Vancouver Coastal Health

Smart Energy & Water

2015 GREENCARE DASHBOARD

- ▲ WORK ON TRACK, AHEAD OF SCHEDULE OR EXCEEDING
- ▬ WORK ON TRACK, BUT REQUIRES MONITORING
- ▼ WORK IN PROGRESS BUT FALLING BEHIND

GOAL: Achieve climate-neutral operations through energy conservation and efficiency, low carbon supply, and the purchase of carbon offsets.

TARGET	STATUS	2015 PERFORMANCE
Reduce Energy Use Intensity (EUI) of the core sites by 12-15% by 2020 (relative to a 2007 baseline).	▲	2007-15 change in EUI: **FH** -12.2% **PHC** -2.5% **PHSA** -3.4% **VCH** -12.5%
Reduce absolute carbon emissions by 33% by 2020 (relative to a 2007 baseline).	▬	2007-15 CO_2 change: **FH** -0.6% **PHC** -7.4% **PHSA** -27.1% **VCH** -21.3%
Design all new construction projects to achieve a specific EUI target.	▲	EUI targets are included in all new projects.

GOAL: Reduce water consumption through conservation and reuse measures, and contribute to restoring the natural water cycle.

TARGET	STATUS	2015 PERFORMANCE
By 2020, achieve a 20% reduction in water intensity (baseline 2010).	▬	2010-15 change in water intensity: **FH** -19.3% **PHC** -10.8% **PHSA** 3.4% **VCH** 3.0%
By 2020, implement five new rain-water harvesting projects (baseline 2010).	▬	Number of rainwater harvesting projects as of 2015: **FH** 1 **PHC** 0 **PHSA** 0 **VCH** 1
By 2020, implement one new grey water reuse project (baseline 2010).	▼	Investigated opportunities for a grey water reuse project.

2015 GREENCARE DASHBOARD

- ▲ WORK ON TRACK, AHEAD OF SCHEDULE OR EXCEEDING
- ▬ WORK ON TRACK, BUT REQUIRES MONITORING
- ▼ WORK IN PROGRESS BUT FALLING BEHIND

Zero Waste & Toxicity

GOAL: Minimize waste generated from the health care system and all its supporting systems and operations.

TARGET	STATUS	2015 PERFORMANCE
Achieve 70% waste diversion rate for acute and residential care sites in the Recycling Renewal Program (RRP) by 2017.	▬	2015 waste diversion rates: **FH** 38% **PHC** 41% **PHSA** 29% **VCH** 39%
Ensure 100% implementation of RRP at all acute and residential care sites by 2016.	▲	2015 implementation rate: **FH** 86% **PHC** 100% **PHSA** 100% **VCH** 100%
Launch a pilot program to review FMO construction waste recycling procedures, and gather metrics at 3 acute sites by 2016.	▬	Initiated planning for a pilot program at Vancouver General Hospital, Children's & Women's Health Centre of BC, and Ridge Meadows Hospital.
Eliminate 100% use of Styrofoam as service ware in patient and residential food services by 2015.	▲	2015 styrofoam elimination rate: **FH** 100% **PHC** 100% **PHSA** 100% **VCH** 100%

GOAL: Promote the connections between food systems, land use and prevention-based health care.

TARGET	STATUS	2015 PERFORMANCE
By 2015, implement the Health Care Guidelines in retail food services for Business Initiatives & Support Services (BISS) contracted sites.	▲	2015 implementation of the Healthy Eating Guidelines: **FH** 90% **PHSA** 100% **VCH/PHC** 100%
By 2015, implement diversion of organics (food scraps) in all patient and residential food service operations.	▲	2015 implementation of organics diversion: **FH** 100% **PHSA** 100% **VCH/PHC** 100%
By 2020, decrease food waste from meal trays in patient food services to 10% or less.	▲	2015 patient food waste: **FH** 18.1% **PHSA** 12.5% **VCH/PHC** 12.9%
By 2020, create 15 community and/or patient-run gardens on health care property (baseline 2010).	▬	One new garden was created in 2015.

GOAL: Reduce the use of toxic chemicals and known carcinogens within health care settings.

TARGET	STATUS	2015 PERFORMANCE
By 2018, ensure that 25% of the annual volume of free-standing furniture and medical furnishings, purchased based on cost, are free from the intentional use of halogenated flame retardants, formaldehyde, perfluorinated compounds and PVC (baseline 2014).	▼	Initial meetings have taken place to determine current procurement requirements and chemicals found in existing products. To date we have been unable to determine a % baseline.
Encourage use of integrated pest management on owned landscaping and associated green spaces.	▬	In 2015, a lack of resources put the measuring and monitoring of this strategy on hold.
By 2015, reduce the toxicity of laboratories by supporting the launch of a Green Labs Initiative.	▬	Completed implementation strategy and orientation for Green Labs Initiative. Due to organizational changes, this initiative was put on hold and has not yet been fully implemented.
By 2015, ensure zero use of mercury-based thermometers, thermostats and blood pressure measuring machines within health care facilities.	▬	No older mercury-based thermometers, thermostats or blood pressure measuring machines were found in health care facilities. We are optimistic that no legacy items of this nature exist.
By 2015, investigate the potential applications of using green cleaners.	▬	A new vendor was hired for Environmental Services (aka housekeeping). Initial discussions have shown an openness to shifting to evidence-based green cleaners.

GOAL: Leverage the purchasing power of the health care system to ensure the LMHOs become a Canadian leader in fostering healthy communities, workplaces and eco-systems.

TARGET	STATUS	2015 PERFORMANCE
In 2015, work with BC Clinical and Support Services Society (BCCSS) to better organize the LMHOs' sustainable supply chain strategy and deliverables.	▼	Initial meetings took place to catalogue sustainability efforts already underway.

2015 GREENCARE DASHBOARD

- ▲ WORK ON TRACK, AHEAD OF SCHEDULE OR EXCEEDING
- ▬ WORK ON TRACK, BUT REQUIRES MONITORING
- ▼ WORK IN PROGRESS BUT FALLING BEHIND

Active & Clean Transportation

GOAL: Make walking, cycling, carpooling and public transit the preferred transportation and commuting options for LMHO staff. Where applicable, make the shuttle service a preferred transportation between sites.

TARGET	STATUS	2015 PERFORMANCE
By 2020, ensure 15% of LMHO staff choose to WALK for their primary commute.	▲	Staff walking to work in 2015: **FH** no data **PHC** 11.9% **PHSA** 11.2% **VCH** 10.2%
By 2020, ensure 6% of LMHO staff choose to BICYCLE for their primary commute.	▲	Staff cycling to work in 2015: **FH** 2.3% **PHC** 16.0% **PHSA** 6.2% **VCH** 10.6%
By 2020, ensure 17% of LMHO staff choose PUBLIC TRANSIT for their primary commute.	▲	Staff taking public transit to work in 2015: **FH** no data **PHC** 35.1% **PHSA** 28.8% **VCH** 22.1%
By 2020, ensure 17% of LMHO staff choose to CARPOOL/RIDE-SHARE for their primary commute.	▬	Staff using ride-share to work in 2015: **FH** 3.0% **PHC** 7.6% **PHSA** 11.9% **VCH** 10.5%

Culture Change

GOAL: Create a culture of sustainability stewardship (environmental, social, economic) in the workplace, and promote active staff engagement.

TARGET	STATUS	2015 PERFORMANCE
Recruit, train and maintain a minimum of 150 Green+Leaders for each of the LMHOs by 2020.	▲	2015 Active Green+Leaders: **FH** 63 **PHC** 10 **PHSA** 71 **VCH** 51 **Other** 6
Increase the number of registered staff on the GreenCare Community website by 500 each year.	▲	New GreenCare Community members in 2015: **FH** 114 **PHC** 46 **PHSA** 114 **VCH** 147
Train and maintain 75 new Recycling Champions per year.	▲	Trained in 2015: **FH** 45 **PHC** 42 **PHSA** 1 **VCH** 5

Regenerative Design

GOAL: Employ Regenerative Design principles and processes to enhance the built environment and improve human and environmental health.

TARGET	STATUS	2015 PERFORMANCE
Foster adoption of regenerative design principles into the health care culture and vocabulary.	▲	Increased awareness and understanding of regenerative design principles by introducing this design theory to senior leadership.
By 2020, adopt the Passive House Standard as the default for all new non-acute facilities.	▬	Completed the VCH Bella Bella staff housing project to Passive House Standard (formal certification pending).
By 2020, achieve one Petal of the Living Building Challenge (LBC) standard for one new facility, and by 2030 achieve full LBC certification for one new facility.	▬	Due to the complexities of the LBC, work to achieve this target is still pending.
By 2020, assess all core sites for climate resiliency, and develop site-level action plans, with priority adaptation and mitigation options to improve overall physical and social resilience.	▲	Preliminary work began on this assessment in 2015.

Welcome

Welcome to the 2015 Environmental Performance Accountability Report for the health care organizations in the Lower Mainland of British Columbia (LMHOs).

Canadians and British Columbians hear about and interface with the condition of their environment and their regional health systems on a regular basis. To address people's needs and concerns, the LMHOs continue to work very hard to meet the challenge of providing the best level of care in the most efficient and effective manner. This isn't always easy: it can be challenging to navigate the complex, often-competing priorities, including those related to environmental stewardship.

In 2010, under the consolidated Lower Mainland Facilities Management Department representing the LMHOs, the Energy & Environmental Sustainability Team (EES Team) was created. The goals of the EES Team are to assist in reducing energy costs while helping the LMHOs understand and act upon sustainability and resiliency challenges, while pursuing holistic human and environmental wellness.

The EES Team has proactively set a clear vision with goals and measurable deliverables. I am proud of their many accomplishments and awards since 2010.

Please take a moment to join me in celebrating the progress the LMHOs have made in conservation, as well as human and environmental health. I hope you enjoy this year's report.

— **Dr. Paul Becker**
Interim Vice President,
Corporate Services & Facilities
and Chief Facilities Operating Officer
Lower Mainland Facilities Management

I am proud to present the fourth annual Environmental Performance Accountability Report (EPAR). Under the GreenCare umbrella, the EPAR summarizes the ongoing strategies of the EES Team, and resulting work in achieving health and wellness within the LMHOs.

I'm also pleased to announce that, in 2015, in partnership with Health Emergency Management BC, we launched a new work portfolio focused on addressing climate change resiliency across the LMHOs. This initiative will help transform health care facilities and operations by assessing capacity for their built environments and socio-ecological systems to respond to climate change and natural disaster stresses.

I am also proud to lead a team that consistently sets targets, thrives through challenges, and ensures internal and external key partnerships are in place to achieve the goals of Healthy Communities, Healthy Workplaces and a Healthy Environment.

This team has had a number of key accomplishments in 2015, including:

- FHA Above and Beyond Award for "Collaborative Partnerships"
- Six years of carbon neutrality
- Thirteen buildings with LEED Gold Certification
- Following a successful pilot at VCH, launch of an energy Green Revolving Fund at FHA and PHSA
- Implementation of Carbon Neutral Capital Program (CNCP) projects across the LMHOs, following the introduction of CNCP funding in health care in the fiscal year 2015

— **Mauricio Acosta**
Director,
Energy & Environmental Sustainability
Lower Mainland Facilities Management

About This Report

This Environmental Performance Accountability Report is voluntarily compiled by the Energy & Environmental Sustainability Team within the consolidated Facilities Department, representing Fraser Health, Providence Health Care, Provincial Health Services Authority and Vancouver Coastal Health.

This report is intended to provide a transparent reporting of the environmental footprint of health care organizations in the Lower Mainland of British Columbia. It includes work being conducted to reduce the environmental impact of operations, and to improve related patient care aspects across all core health care sites. Core sites refer to facilities that are either owned by one of the Health Authorities, or operated by Lower Mainland Facilities Management in conjunction with Public-Private Partnerships (P3).[1]

1 P3 refers to public infrastructure where the private sector assumes a major share of the risk in terms of financing and construction.

OUR AUDIENCE

This report is for both the internal executive leadership, and staff in general, to fully understand health care's operational impact. It's also for the general public, to increase awareness of the work that health care organizations are doing to improve health care by reducing its environmental impact.

KEY REPORTING CRITERIA

This report includes the following strategic reporting criteria:

- Materiality
- Stakeholder Inclusion
- Strategic Framework
- Organizational Context
- Identified Governance
- Goals, Targets and Performance
- Assurance

INTERNAL MATERIALITY PROCESS

With the assistance of Senior Executive Leaders and the Environmental Sustainability Advisory Committee, five topic areas have been identified as key strategic areas of environmental stewardship:

- Smart Energy and Water
- Zero Waste and Toxicity
- Active and Clean Transportation
- Regenerative Design
- Culture Change

These objectives were determined through the following engagement processes:

- Surveys
- One-on-one meetings
- Group discussions
- Final approval from the Environmental Sustainability Advisory Committee

"A healthy environment underpins a healthy population."

— **Dr. Margaret Chan,**
WHO Director-General

Who We Are

The Lower Mainland Health Care Organizations (LMHOs) strive to achieve wellness through a healthy environment, healthy communities and healthy workplaces.

EMBEDDING ENVIRONMENTAL HEALTH & WELLNESS

The Energy and Environmental Sustainability Team (EES Team) was created in 2010 to lead all energy and environmental sustainability work for Vancouver Coastal Health, Providence Health Care, Provincial Health Services Authority and Fraser Health. The EES Team is housed within Lower Mainland Facilities Management, a consolidated department within the LMHOs.

GreenCare, created by the EES Team, coordinates environmental conservation projects while simultaneously growing a recognizable brand awareness that inspires infrastructure upgrades, staff engagement and culture change. GreenCare's ultimate goal is to transform health care for a thriving environment.

GREENCARE'S CORE PURPOSE

To embed sustainability systematically across the LMHOs at all levels, and have a positive impact on environmental, as well as population, health and wellness.

GREENCARE'S VISION

Transforming Health Care for a Thriving Environment of Health and Wellness

THE GREENCARE MISSION

Seeing the Earth as one system, we respectfully recognize that the health of individuals and the environments they inhabit are inseparable; thus GreenCare's mission is an extension of health care goals. GreenCare engages internal and external partners in the health care community through collaboration, innovation and transparency to create sustainable and environmentally responsible health care practices and systems.

ADVISORY COMMITTEES

Environmental Sustainability Advisory Committee (ESAC)—Executive Committee

The Executive Committee consists of executives from across the LMHOs, who provide advocacy, advice and resources to help promote the GreenCare message. These executives represent key stakeholder areas such as Human Resources, Finance, IT and Clinical. In addition, this group of environmental sustainability champions provides key leadership and direction to ensure GreenCare's work is balanced, successful and integrated with the LMHOs' core objectives.

Environmental Sustainability Advisory Committee (ESAC)—Working Group

In 2015, discussions began on the formation of a GreenCare Working Group. Made up of managers, coordinators and other staff, the GreenCare Working Group makes key changes on the ground level of health care. These individuals will be tasked with developing an ongoing strategy and tactics to ensure the LMHOs are staying on track with the Executive Committee's GreenCare goals.

External Collaboration: Health Care Without Harm

In 2015, the LMHOs joined the Health Care Without Harm 2020 Health Care Climate Challenge, whose goal is to mobilize health care institutions to protect public health care from climate change.

The 2020 Challenge is based on three pillars:

1. **MITIGATION** Reducing health care's own carbon footprint
2. **RESILIENCE** Preparing for the impacts of extreme weather and the shifting burden of disease
3. **LEADERSHIP** Educating staff and the public while promoting policies to protect public health from climate change

The 2020 Challenge promotes ten goals :

- **LEADERSHIP** Prioritize environmental health as a strategic imperative
- **CHEMICALS** Substitute harmful chemicals with safer alternatives
- **WASTE** Reduce, treat and safely dispose of health care waste
- **ENERGY** Implement energy efficiency and clean, renewable energy generation
- **WATER** Reduce hospital water consumption and supply potable water
- **TRANSPORTATION** Improve transportation strategies for patients and staff
- **FOOD** Purchase and serve sustainably grown, healthy food
- **PHARMACEUTICALS** Prescribe appropriately, safely manage and properly dispose of pharmaceuticals
- **BUILDINGS** Support green and healthy hospital design and construction
- **PURCHASING** Buy safer and more sustainable products and materials

Over 9,000 hospitals and health centres from around the world have signed up for the 2020 Challenge.

FRASER HEALTH

fraserhealth

Fraser Health provides a wide range of integrated health care services to more than 1.6 million people living in communities from Burnaby to White Rock to Hope.

Our staff provide the following:

- Primary health care
- Community home care
- Residential care
- Hospital and surgical services
- Mental health and Substance Use services

TWELVE HOSPITALS, INCLUDING B.C.'S OLDEST

Among our twelve hospital sites is Royal Columbian Hospital, the oldest in B.C., which celebrated its 150th anniversary in 2012. Located in New Westminster, it's also one of Fraser Health's busiest. Royal Columbian Hospital is a major tertiary care facility known for trauma care, neurosurgery and open-heart surgery. It has the only cardiac program in B.C. capable of performing surgery on expectant women.

In the spring of 2015, the Minister of Health announced business plan approval for phase one of the redevelopment of the hospital's campus of care. This phase will see the expansion of mental health and Substance Use care, and will prepare the campus for phase two and three development.

OUR COMMUNITIES

Abbotsford, Agassiz, Anmore, Belcarra, Burnaby, Chilliwack, Coquitlam, Delta, Harrison, Hope, Kent, City of Langley, Township of Langley, Maple Ridge, Mission, New Westminster, Pitt Meadows, Port Coquitlam, Port Moody, Surrey, White Rock

Find out more about Fraser Health's commitment to Energy and Environmental Sustainability.

767,060 m²	OF FACILITY SPACE
151	DISTINCT BUILDINGS
15,044	FULL-TIME STAFF

PROVIDENCE HEALTH CARE

Providence HEALTH CARE
How you want to be treated.

Providence Health Care is one of the largest faith-based (Catholic) health care organizations in Canada.

Providence operates one of two adult academic health science centres in the province, performs cutting-edge research in more than 30 clinical specialties, and focuses its services on six "populations of emphasis": cardiopulmonary risks and illnesses, HIV/AIDS, mental health, renal risks and illness, specialized needs in aging and urban health.

Providence Health Care is a party to the Master Agreement between the Denominational Health Care Facilities Association and the Province. This agreement provides Providence Health Care with the right to own, manage, operate and conduct the affairs of its health facilities, and to plan and deliver health-related services in collaboration with other health bodies.

Our facilities include:

- St. Paul's Hospital
- Mount Saint Joseph Hospital
- Holy Family Hospital
- St. Vincent's: Langara
- St. Vincent's: Brock Fahrni
- St. Vincent's: Honoria Conway-Heather
- Youville Residence
- St. John Hospice, which is owned by the Sovereign Order of St. John Jerusalem and operated by Providence Health Care

Find out more about Providence Health Care's commitment to Energy and Environmental Sustainability.

177,216 m² OF FACILITY SPACE

36 DISTINCT BUILDINGS

4,987 FULL-TIME STAFF

PROVINCIAL HEALTH SERVICES AUTHORITY

Provincial Health Services Authority
Province-wide solutions. Better health.

Provincial Health Services Authority has a unique role in B.C.'s health authority system: to ensure that B.C. residents have access to a coordinated provincial network of high-quality specialized health care services.

RESPONSIVE, SUSTAINABLE, SPECIALIZED CARE

Provincial Health Services Authority works in collaboration with the Province's regional health authorities and health care professionals to improve access to evidence-informed practice closer to where people live, and to effectively promote health, manage chronic conditions and reduce the burden of illness.

From groundbreaking research to training professionals of tomorrow to province-wide standards to top-notch, compassionate patient care, our leaders, health professionals and staff consistently seek system-wide improvements with an emphasis on prevention, health promotion and protection.

AGENCIES, SERVICES AND PROGRAMS

Provincial Health Services Authority operates nine provincial agencies that provide care and services through specialized hospitals and centres, such as BC Children's Hospital and the BC Cancer Agency.

We are also responsible for specialized provincial health services, which are delivered across the province in collaboration with regional health authorities, such as cardiac, trauma, perinatal and stroke services.

Through BC Emergency Health Services, Provincial Health Services Authority oversees the BC Ambulance Service and Patient Transfer Network.

STRIVING FOR EFFICIENCY

Health Shared Services BC, working with Provincial Health Services Authority and regional health authorities, seeks to reduce the cost of corporate services and gain efficiencies through consolidation, streamlining and implementation of alternative models such as sharing services with other health authorities.

Find out more about Provincial Health Services Authority's commitment to energy and environmental sustainability.

352,229 m²	OF FACILITY SPACE
73	DISTINCT BUILDINGS
10,854	FULL-TIME STAFF

VANCOUVER COASTAL HEALTH

Vancouver CoastalHealth
Promoting wellness. Ensuring care.

Vancouver Coastal Health serves over one million people in B.C.: 25% of the province's population.

Vancouver Coastal Health provides direct and contracted health services including:

- Primary health care
- Secondary, tertiary and quaternary care
- Home and community health care
- Mental health and substance use services
- Population and preventive health services

HOSPITALS AND HEALTH CENTRES

Vancouver Coastal Health operates in part of Greater Vancouver and in the Central and Sunshine Coast area. This includes nine hospitals, three diagnostic and treatment centres, and 15 community health centres. Vancouver Coastal Health also contracts services to third parties, primarily long-term care facilities.

VCH, in partnership with the British Columbia Ministry of Health, sets organization-wide goals and strategic objectives intended to advance health and wellness. Over the past year, particular focus has been placed on providing more patient-centred and community-based care for vulnerable populations such as frail seniors, the chronically ill, and those living with mental health and substance use challenges.

WHO WE SERVE

We serve 25% of B.C.'s population—that is, over one million people—including the residents of Vancouver, Richmond, the North Shore, Sea-to-Sky, Central and Sunshine Coast, Powell River, Bella Bella and Bella Coola.

Every year we:

- Provide 2.8 million+ patient days of care
- See 356,000+ people in our emergency departments (that's one person every two minutes)
- See 845,000+ visits to our clinics
- Provide 89,000+ same-day surgical visits
- Conduct 82,000+ inpatient discharges
- Provide 2.3 million+ residential care days
- Provide 1.9 million+ home support hours

Find out more about Vancouver Coastal Health's commitment to energy and environmental sustainability.

675,746 m²	OF FACILITY SPACE
232	DISTINCT BUILDINGS
13,179	FULL-TIME STAFF

GREENCARE MILESTONES & AWARDS

The GreenCare Team has achieved significant success, as highlighted through these key milestones and awards since 2007.

2007

- **Energy Commitment Letter adopted**
  Providence Health Care, Vancouver Coastal Health
- **GreenCare created**
  Vancouver Coastal Health
- **Go Green campaign created**
  Providence Health Care

2008

- **BC Hydro Power Smart Workplace Conservation Award**
  Vancouver Coastal Health
- **BC Hydro Power Smart Energy Manager of the Year Award**
  Provincial Health Services Authority

2009

- **Green+Leaders created**
  Provincial Health Services Authority
- **BC Hydro Power Smart Leader Award**
  Vancouver Coastal Health
- **BC Hydro Power Smart Workplace Conservation Award**
  Vancouver Coastal Health
- **BC Hydro Power Smart Executive Leader Award**
  Provincial Health Services Authority

2010

- **BC Hydro Power Smart Energy Manager of the Year Award**
  Fraser Health
- **BC Hydro Power Smart Leader Award**
  Vancouver Coastal Health
- **Recycling Renewal Program launched**
  Fraser Health, Providence Health Care, Vancouver Coastal Health

2011

- **GreenTech Award**
  Vancouver Coastal Health
- **Sustainability Policy adopted**
  Fraser Health, Providence Health Care, Provincial Health Services Authority, Vancouver Coastal Health
- **Recycling Renewal Program launched**
  Provincial Health Services Authority

2012

- **Canada's Top 100 Employers: Greenest Employer Award**
  Provincial Health Services Authority
- **BC Hydro Power Smart Leadership Excellence Award**
  Fraser Health, Vancouver Coastal Health
- **Urban Agriculture (community garden) Program created**
  Vancouver Coastal Health

2013

- **BC Hydro Outstanding Service Award, "Green+Leaders"**
  Fraser Health, Provincial Health Services Authority, Providence Health Care, Vancouver Coastal Health
- **Canada's Top 100 Employers: Greenest Employer Award**
  Provincial Health Services Authority
- **GreenCare Community website launched**
  Fraser Health, Providence Health Care, Provincial Health Services Authority, Vancouver Coastal Health

2014

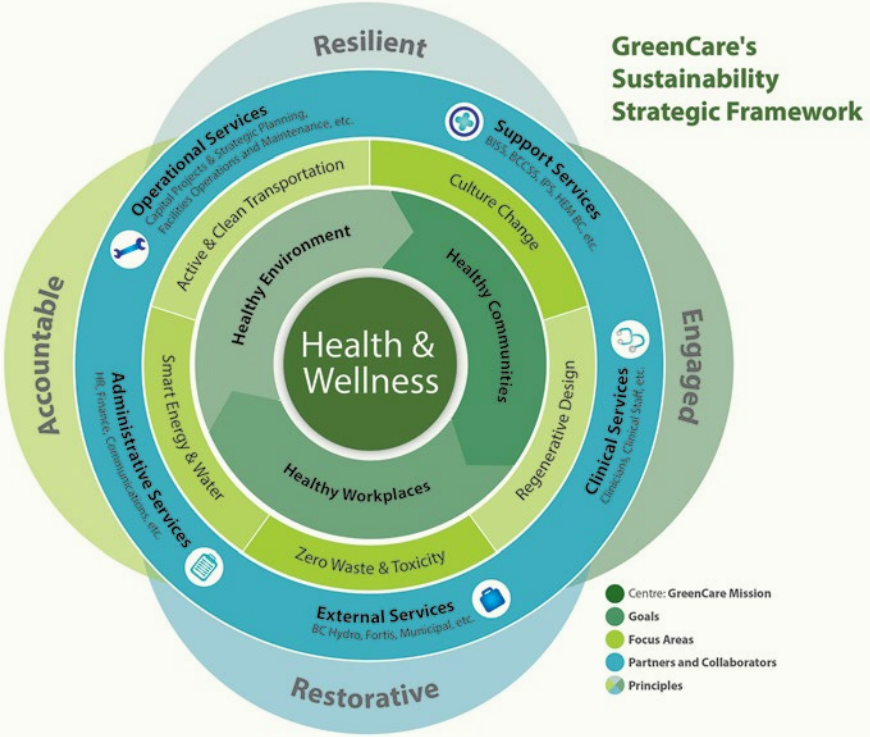
- **HUB Cycling Coalition Award: Best in Health category**
  Provincial Health Services Authority
- **HUB Cycling Coalition Award: three Bike Friendly Business Awards**
  Vancouver Coastal Health
- **Launch of the Green (HR) Fund**
  Provincial Health Services Authority
- **Launch of the Green Revolving (Facilities) Fund:**
  Vancouver Coastal Health
- **BC Hydro Power Smart Leadership Excellence Award**
  Fraser Health, Vancouver Coastal Health

2015

- **Canada's Top 100 Employers: Greenest Employer Award**
  Provincial Health Services Authority
- **Above and Beyond "Collaborative Partnerships" Award**
  Fraser Health—Energy & Environmental Sustainability Team
- **Launch of the Green Revolving (Facilities) Fund**
  Fraser Health, Provincial Health Services Authority

GreenCare Strategy

In 2015, the EES Team re-evaluated the GreenCare Sustainability Strategic Framework, focusing on aligning the GreenCare work with human and environmental health and wellness.



The new goals for the EES Team and GreenCare are:

- Healthy Communities
- Healthy Workplaces
- Healthy Environment

GreenCare now contains five focus areas that reflect the environmental sustainability topics and strategies that are most pressing for human health.

- **Smart Energy & Water:** Conservation, renewables and innovation with health care utilities.
- **Zero Waste & Toxicity:** Material and food waste reduction through conservation, smarter procurement, and increased diversion towards recycling/composting. This topic also focuses on identifying and reducing chemicals of concern in facility infrastructure and medical product/machinery composition.
- **Regenerative Design:** Creating buildings, systems and infrastructure that restore, renew or revitalize is essential to realizing and achieving sustainable and resilient workplaces that have a net positive impact on society and nature.
- **Culture Change:** Building health care staff capacity and leadership to integrate sustainability values into all decision-making and actions across the health care sector.
- **Active & Clean Transportation:** Reducing operational or staff commute-related air pollution and physical inactivity, both major contributors to a degradation of environmental and human health.

The EES Team, through GreenCare, has established seven key programs:

- Energy & Water Management
- Commuter Services
- Recycling Renewal
- Environmentally Preferable Purchasing
- Healthy Land & Food
- GreenCare Community
- Green+Leaders

An eighth program, Climate Resilience & Adaptation, was developed in 2015 and will be implemented in 2016. The new program will assess current and projected climate risks as a basis for action plans to better ensure health care service delivery.

Our success in these programs will be largely influenced by our key stakeholders:

- Support Services (e.g., BISS, BCCSS, IPS)
- Clinical Services (e.g., clinicians, clinical staff)
- External Services (e.g., BC Hydro, FortisBC, municipalities)
- Administrative Services (e.g., Human Resources, Finance, Communications)
- Operational Services (e.g., Capital Projects and Strategic Planning, Operations and Maintenance)

All of this work will rest on four key principles:

- Resilient
- Engaged
- Restorative
- Accountable

Smart Energy & Water

The Lower Mainland Health Care Organizations (LMHOs) believe that energy and water stewardship is of paramount human and environmental importance.

In 2015, they collectively consumed over 843 equivalent gigawatt hours (eGWh) in energy. This resulted in a $35 million cost, and a significant drain on health care funding.

With energy representing 97% of its carbon footprint (as measured by the BC provincial government), the LMHOs' collective carbon footprint in 2015 was over 104,000 tonnes of carbon dioxide equivalent (tCO_2e), and energy consumed by our buildings accounts for over 97% of this footprint.

In the same year, they consumed 3.2 million cubic meters of water (enough to fill 1,286 Olympic-sized swimming pools), resulting in a total cost of over $5.5 million.

OUR GOALS

- *Achieve climate-neutral operations through energy conservation and efficiency, low carbon supply, and the purchase of carbon offsets.*
- *Reduce water consumption through conservation and reuse measures, and contribute to restoring the natural water cycle.*

SMART ENERGY & WATER: THE HEALTH & WELLNESS OUTCOMES

Energy conservation can positively influence health by reducing local and regional air pollution, which are known to cause an increased disease burden in the general public. In addition, energy conservation can reduce greenhouse gas emissions and the associated environmental and human health impacts of climate change.[1]

By improving water conservation measures, we improve the quality of health by mitigating the potential disruptions of water supplies through drought or climate change (and associated air pollution and GHG emissions) caused by the processing and distribution of water.

1 http://bmjopen.bmj.com/content/5/4/e007298.full

TARGET #1

By 2020, reduce Energy Use Intensity (EUI) of the core sites by 12-15% (relative to a 2007 baseline).

The LMHOs' EUI metric is the total energy consumed per total square meter of facility space per year. It is calculated by dividing the weather-adjusted annual energy consumption by the internal gross floor area of core health care facilities.

2015 PERFORMANCE

The EES Team continued another strong year of energy conservation, and all four LMHOs reduced their EUI. (Note: All figures below are relative to the 2007 baseline.)

Fraser Health implemented 19 energy conservation retrofit projects, which is forecasted to achieve:

- Energy savings of 4.4 eGWh
- GHG reductions of 645 tCO_2e
- 12.2% reduction in EUI, when combined with other energy conservation projects since 2007
- Cost avoidance of ~$181,000

Providence Health Care implemented two energy conservation projects, which is forecasted to achieve:

- Energy savings of 0.357 eGWh
- GHG reductions of 38.3 tCO_2e
- 2.5% reduction in EUI
- Cost avoidance of ~$15,700

Provincial Health Services Authority completed four energy conservation projects, which is forecasted to achieve:

- Energy savings of 0.642 eGWh
- GHG reductions of 17.4 tCO_2e
- 3.4% reduction in EUI
- Cost avoidance of ~$50,900

Vancouver Coastal Health achieved the highest level of EUI reductions. They completed 19 energy conservation projects, which is forecasted to achieve:

- Energy savings of 7.9 eGWh
- GHG reductions of 992 tCO_2e
- 12.5% reduction in EUI
- Cost avoidance of ~$374,000

PLANS FOR 2016

With a strong Energy & Environmental Sustainability Team, and commitment from senior leadership, the LMHOs aim to continue reducing their EUI to achieve the 2020 target.

They will continue to use a variety of energy conservation strategies, including staff engagement and facility optimization. They will also continue to access funding through the Carbon Neutral Capital Program (provincial funding) and the Green Revolving Fund (an internal fund supporting energy conservation projects).

BC Hydro and FortisBC continue to be key partners in efforts to reduce energy consumption.

Robert Bradley

ENERGY MANAGER,
GREENCARE TEAM MEMBER

"Our health care facilities are large consumers of energy. With energy representing 97% of our measured carbon footprint, we have an obligation to continue to reduce our energy use. The Energy & Environmental Sustainability Team cannot achieve this in isolation. Collaboration from our key internal and external stakeholders is essential to continue the momentum to achieve our target goals."

Kori Jones

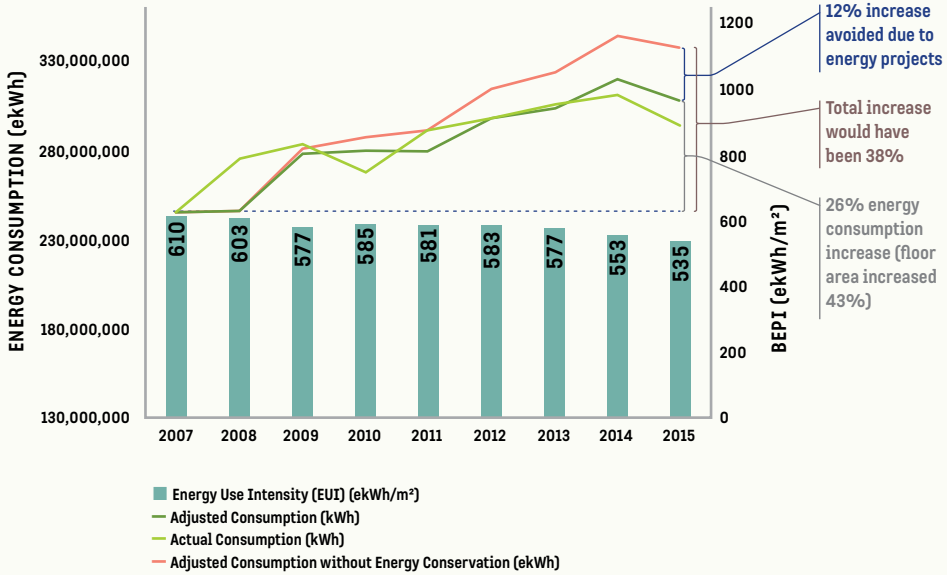
ENERGY MANAGER,
GREENCARE TEAM MEMBER

"Through health care focused energy management, we know that, yes, there are operational and environmental benefits to reducing energy and water consumption. But health and wellness outcomes are also key drivers for this work."

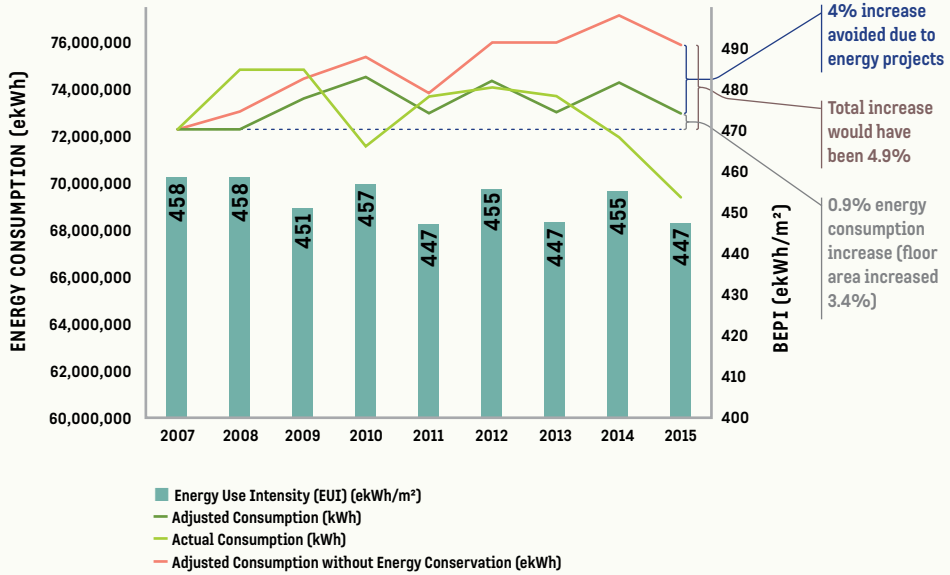
ENERGY USE INTENSITY (EUI) CHANGE	
	2007-15
FH	-12.2%
PHC	-2.4%
PHSA	-3.4%
VCH	-12.5%

ENERGY USE ABSOLUTE CHANGE	
	2007-15
FH	+26.0%
PHC	+0.9%
PHSA	+7.1%
VCH	+1.0%

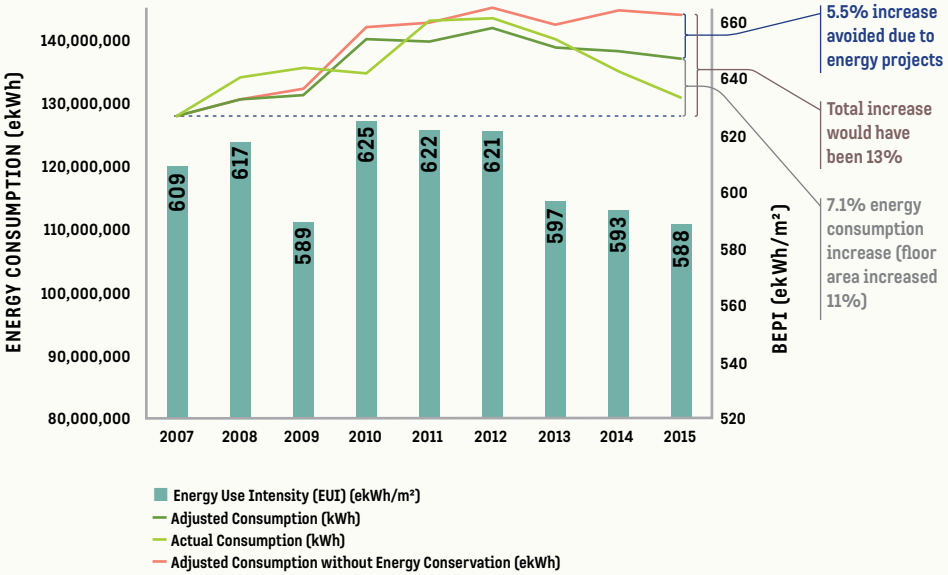
FH 2015 ENERGY PERFORMANCE



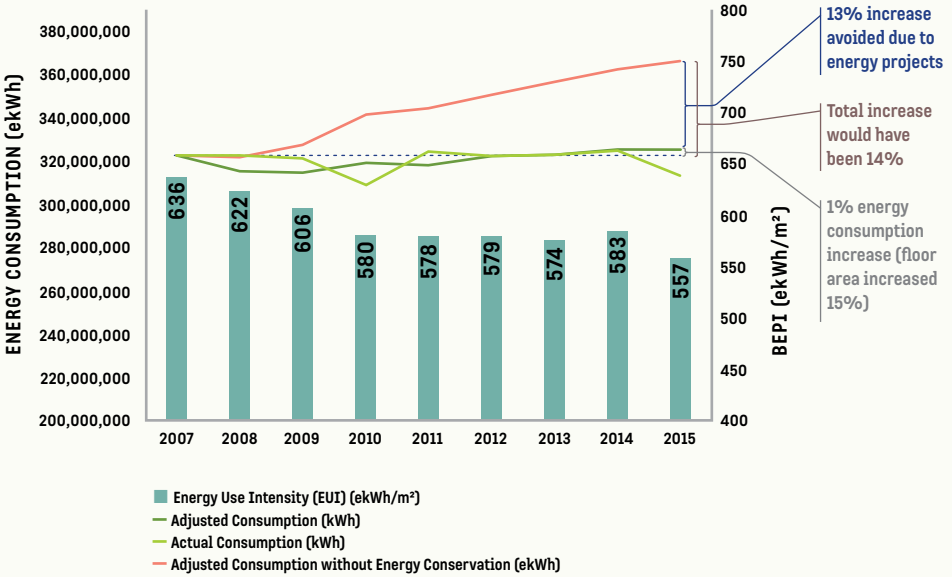
PHC 2015 ENERGY PERFORMANCE



PHSA 2015 ENERGY PERFORMANCE



VCH 2015 ENERGY PERFORMANCE



TARGET #2

By 2020, reduce absolute carbon emissions by 33% (relative to a 2007 baseline).

This is a provincially mandated target of all public sector organizations. (Note: All figures below are relative to a 2007 baseline.)

2015 PERFORMANCE

In 2015, the LMHOs achieved two milestones. First, they produced their sixth annual Carbon Neutral Action Report, which detailed their carbon emissions and actions taken to reduce those footprints. In addition, they became carbon neutral for the sixth consecutive year, and continued to reduce their carbon emissions.

Since 2007, Fraser Health has achieved a 0.6% reduction in their absolute carbon footprint. They increased their usable facility space by 40% since 2007, so measuring performance strictly on absolute terms can be misleading. Despite their growth, Fraser Health has decreased their carbon footprint by 21%.

Providence Health Care achieved a 7.4% reduction in their absolute carbon footprint. The reduction is even greater when looking at their carbon intensity of -9.1%.

Provincial Health Services Authority achieved the highest level reduction (27.1%) in their absolute carbon footprint. (Note: they have reduced their usable facility space by 10% since 2007.)

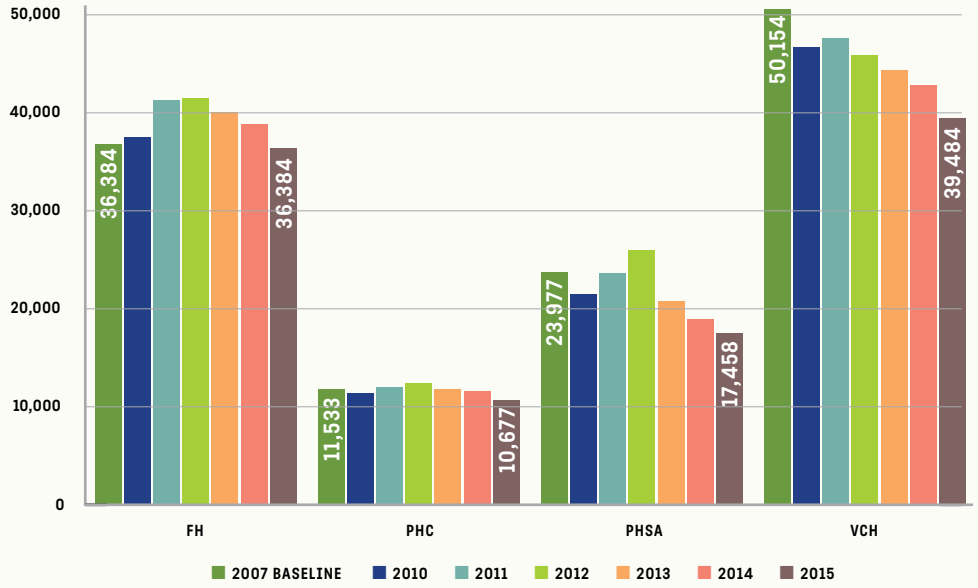
With the construction of new facilities at BC Children's Hospital, their usable facility space will increase in the coming years. Their carbon footprint reduction is still significant: their carbon intensity was -19.4%.

Vancouver Coastal Health achieved a 21.1% reduction in their absolute carbon footprint. Their carbon intensity has reduced a leading 29.8%. This is of special note as their overall usable facility space actually grew by 14% since 2007.

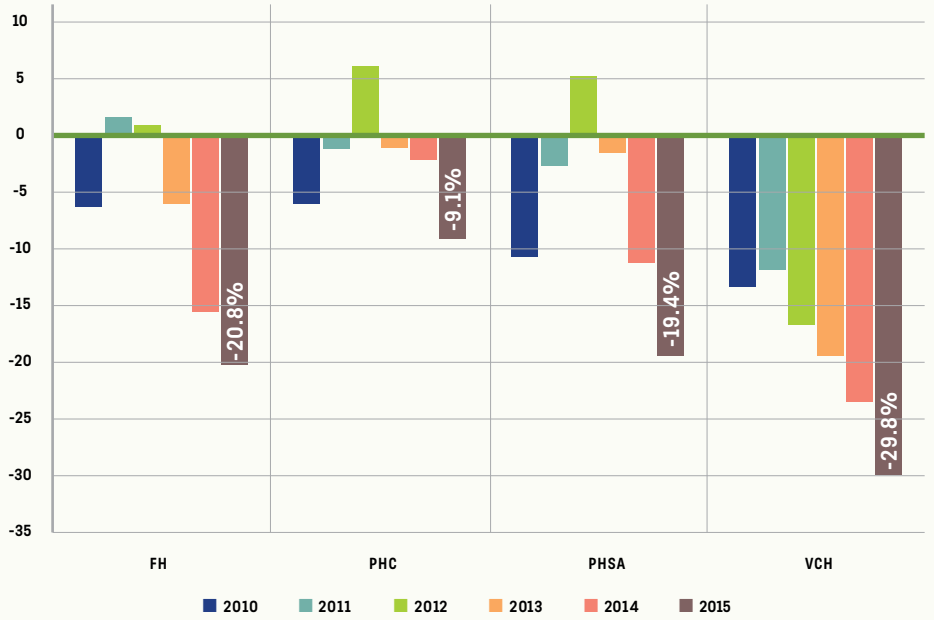
PLANS FOR 2016

This target will not change as it is aligned with the provincial mandate of reducing the public sector's carbon footprint 33% by 2020. As intensity metrics are seen as a more accurate way of fully understanding performance, the LMHOs will be including this target in 2016.

CARBON FOOTPRINT (NEEDING OFFSETTING) IN tCO_2e



CARBON INTENSITY (tCO_2e/USABLE SQ M OF FACILITY SPACE) (% change from 2007 baseline)



TARGET #3

Design all new construction projects to achieve a specific Energy Use Intensity (EUI) target.

2015 PERFORMANCE

In 2015, GreenCare's EES Team launched official Energy Design Guidelines for new construction and major renovation projects. These guidelines include energy conservation targets for all new projects.

The targets for new health care facilities have been set as follows:

Support Facility	150 kWh/m²/yr
Inpatient Facility	250 kWh/m²/yr
Acute Care and Research Facility	375 kWh/m²/yr

Several projects are being being designed to achieve specific EUI targets. Once these projects are up and running for a year, we will be able to determine whether they have achieved the targets.

PLANS FOR 2016

We will continue to evolve this target process as this will be a key component to the EES Design Guidelines in 2016.

TARGET #4

By 2020, achieve a 20% reduction in water intensity (baseline 2010).

This target includes a Building Water Performance Index (BWPI) (m³/yr/m²) of water use efficiency and performance. A BWPI is determined by multiplying the average daily consumption (cubic meters per day) by 365, then dividing that by the internal gross floor area of our core facilities. This results in an "intensity" indicator for usage per square metre of facility space per year.

2015 PERFORMANCE

The primary challenge with managing water and gaining greater water efficiencies relates to a lack of metering to adequately address potential real-time problems. As well, despite cost increases, the overall cost of water still remains relatively low compared to national standards. This results in long paybacks and correspondingly low approvals of new water conservation projects.

Note: The figures below pertain to the 2010 baseline.

Fraser Health's water consumption was up slightly (2.9%). This can largely be attributed to the growth in usable facility space (14.9%). Overall, their water intensity is down an impressive 19.3%, due to greater efficiencies in mechanical upgrades.

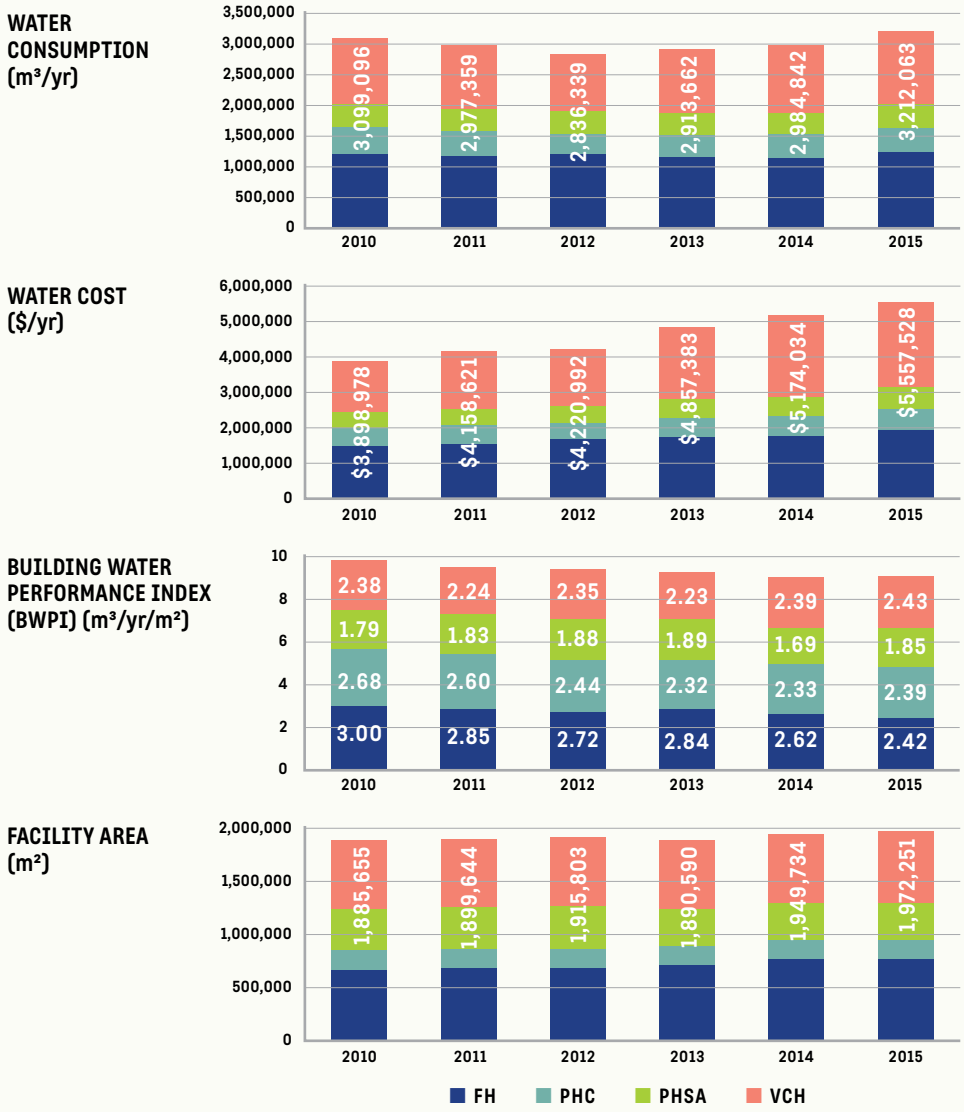
Providence Health Care has seen a 10% reduction in absolute water consumption and a corresponding 10.8% reduction in water intensity. They continued to prioritize water conservation by conducting a water audit at one of their larger sites, St. Vincent's: Langara.

Largely unchanged since 2010, Provincial Health Services Authority had a 1.8% increase in water consumption and a 3.4% increase in water intensity. (They are beginning a series of new construction projects, and expect to reduce their water intensity through more efficient mechanical upgrades.)

Vancouver Coastal Health increased their water consumption by 10.5% and their water intensity by 3%.

PLANS FOR 2016

Three of the four organizations will continue to do significant work to reach the 2020 target. Fraser Health is on the verge of achieving the target, and expects to meet it in 2016.



TARGET #5

Implement five new rainwater harvesting projects by 2020 (baseline 2010).

Rainwater is a resource that is often lost through roof and sidewalk/parking drainage. To help reduce water consumption, the LMHOs have been implementing rainwater harvesting whenever it is logistically and financially feasible.

2015 PERFORMANCE

In 2015, one rainwater harvesting project was implemented. Vancouver Coastal Health supported the implementation of water harvesting at their Sumac Place health care facility in Gibson. The project was completed in early 2016 and included 6,057 litres of water storage.

PLANS FOR 2016

This target will be kept. The LMHOs have now implemented two rainwater harvesting projects since 2010, and expect to implement more projects as best practices and opportunities are identified.

TARGET #6

Implement one new grey water reuse project by 2020 (baseline 2010).

In compliance with local by-laws and regulations, grey water (gently used water from sinks, showers, tubs and washing machines) can be used for landscaping irrigation, toilets and laundry. Since laundry can represent nearly half of all water usage at some health care sites, grey water can be a significant way to reduce water consumption and cost from municipalities.

2015 PERFORMANCE

In 2015, no new grey water reuse projects were implemented. The LMHOs investigated opportunities across various health care sites, but significant questions remain pertaining to infection control and infrastructure. The low cost of water across the Lower Mainland contributes to the lack of interest in grey water reuse.

PLANS FOR 2016

Grey water reuse/recycling is seen by the EES Team as a key long-term strategy for the reduction of water demand across the LMHOs. However, due to the challenge of finding appropriate opportunities, a grey water reuse project is not a reasonable target at this time. In 2016, this target will be eliminated. However, we hope that in coming years, we will be able to reincorporate this target within health care.

GOOD NEWS STORY

Energy-Efficient Building in Bella Bella

The new Vancouver Coastal Health staff housing in Bella Bella opened in fall 2015, and made headlines for its innovative, cost-effective approach to building.

In 2014, a fire destroyed staff housing at the R.W. Large Memorial Hospital. Replacing the structure was no easy task. The new modular six-unit complex had to be manufactured in Agassiz and shipped by barge to the remote coastal community.

To reduce its energy use, the complex was constructed to the highly energy-efficient Passive House building standard, the first of its kind in Canada. By using 75% less energy, and 80% fewer GHG emissions, the design delivers considerable savings to Vancouver Coastal Health. It was also constructed for substantially less money that it would have cost to complete it on site.

The new complex serves as an excellent example of what can be achieved in remote locations, particularly First Nations communities, where substandard housing and energy costs are major concerns.

Not only that, modular Passive House construction has the potential of becoming a major high-value, made-in-B.C. export.

Zero Waste & Toxicity

The LMHOs recognize the importance of reducing material and food waste, which is typically sent to landfills or incinerators. Achieving Zero Waste is about reducing both the input of initial consumption through better procurement practices, and the output of waste by recycling, repurposing, reprocessing or reusing.

Waste generated by LMHO facilities can be divided into three general categories:

BIOMEDICAL WASTE

Refers to any health care related waste that is generated during the diagnosis or treatment of human beings or in related research activities or in the production/ testing of biologicals.

GARBAGE

Refers to solid waste that is not hazardous, recyclable or compostable, and is not banned from landfill/incineration. It encompasses both empty medical items (e.g., gloves, empty IV bags) and non-medical items (e.g., coffee cups, paper towels).

RECYCLING

Refers to a select amount of waste that can be sent to vendors for recycling, including mixed paper, mixed containers, cardboard, confidential paper, organics, electronic waste, scrap metal, wood and batteries. Recycling companies do not currently accept some medical items that are made from recyclable materials, even if clean and unused, if they are perceived to be a risk for unsafe handling.

OUR GOALS

- ***Minimize waste generated from the health care system and all its supporting systems and operations.***
- ***Promote the connections between food systems, land use and prevention-based health care.***
- ***Reduce the use of toxic chemicals and known carcinogens within health care settings.***
- ***Leverage the purchasing power of the health care system to ensure the LMHOs become a Canadian leader in fostering healthy communities, workplaces and eco-systems.***

ZERO WASTE & TOXICITY:
THE HEALTH & WELLNESS OUTCOMES

Waste disposal in landfills and incinerators has serious environmental and health impacts related to soil, air and water contamination; emission of greenhouse gases; and spread of infectious and respiratory diseases.

The chemical make-up of products used in construction or everyday operations can pose a health risk if not understood and mitigated.

TARGET #1

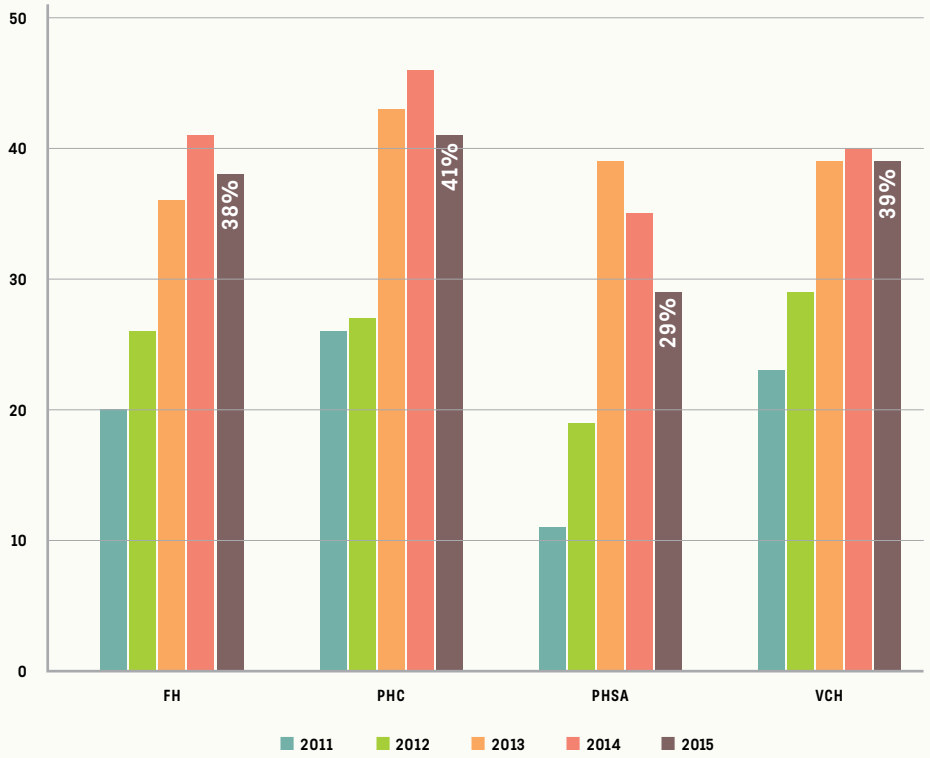
By 2017, achieve a 70% waste diversion rate for acute and residential care sites in the Recycling Renewal Program (RRP).

(Note: this does not include bio-medical waste.)

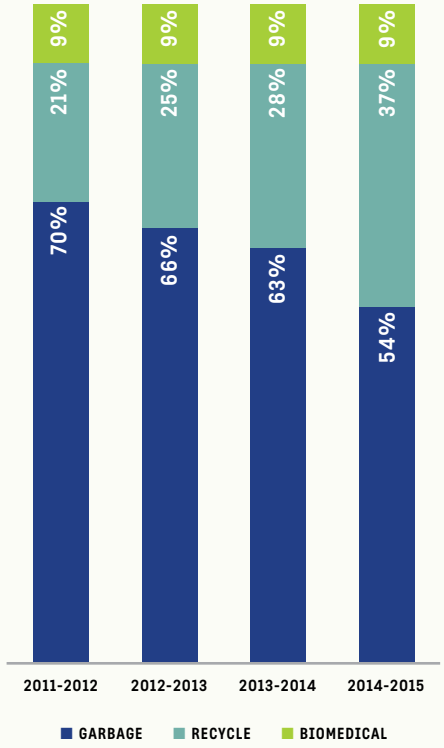
The reported waste diversion rate is the percentage of waste diverted from landfill/incineration by recycling or organics diversion/composting. All containers aren't weighed, so it's a combination of actual and averaged weights. This created some variability in diversion rates. Lastly, each year the recycling data is only for LMHO-owned sites, also known as core sites.

Organics recycling is only measured in kitchens that are managed by Business Initiatives & Support Services (BISS). Health Authorities do conduct office organic diversion audits, but these are typically only conducted at leased sites, which are considered "non-owned" waste.

AVERAGE ANNUAL WASTE DIVERSION RATES (Recyclables & Organics)
Target: 70%



WASTE STREAMS (ALL LMHOS)



2015 PERFORMANCE

In 2015, the LMHOs collectively produced 22,194 tonnes of material waste. Fraser Health continued to have the largest overall operations and total disposed-of waste (recycle, garbage, biomedical), at 10,208 tonnes. Vancouver Coastal Health also had a significant footprint, at 7,494 tonnes. Providence Health Care (2,827) and Provincial Health Services (1,665) had waste footprints they continue to work on reducing.

In fiscal 2014-15, a new vendor was hired for the collection of LMHO waste streams. In this transition, a new process for measuring waste weights was implemented. Due to these changes, we will use the fiscal 2015-16 data as a new baseline for evaluating work in subsequent years.

In 2015, none of the LMHOs improved their waste diversion rate. Vancouver Coastal Health saw the smallest change, dropping to 39% (from 40% in 2014). (However, they have increased their diversion rates over the years; it was 23% in 2011.)

Fraser Health saw a similar dip from 2014 to 2015 (41% to 38%) but has still seen an 18% increase from 2011 data. Both Providence Health Care (-5%) and Provincial Health Services Authority (-6%) saw dips from 2014 data. However, both maintain improvements from 2011 (+15% and +18% respectively).

The dip in the performance data may be explained by a change in vendors, and the process for weighing waste.

With a strong push from the Recycling Coordinators and Waste Management Team, the amount of waste that is recycled is now up to 37%, a 9% improvement from 2014 and 16% improvement from 2011.

PLANS FOR 2016

This target will be kept as it is seen as an aspirational goal for the Recycling Coordinators and Waste Management Team.

Potential contamination of the recycling streams continues to be a challenge. Since 2012, the LMHOs have had several incidents of contamination, involving the disposal of inappropriate materials into recycling bins (including bio hazardous sharps waste and/or bloody material). As a result, the LMHOs will continue to implement various strategies to mitigate this risk.

GOOD NEWS STORY

Diverting Waste by Reusing Single Use Devices

One of the LMHOs' goals is to reduce material waste sent to the landfill. In 2015, we entered into an agreement with Stryker Sustainability Solutions to collect and reprocess single use devices (SUDs) such as compression sleeves, pulse oximeters and blood pressure cuffs.

Stryker set up collection bins in operating rooms and medical device reprocessing departments at Vancouver Coastal Health and Providence Health Care acute care facilities. Once collected, the devices are sterilized according to FDA regulations, and given a second life in other health care organizations.

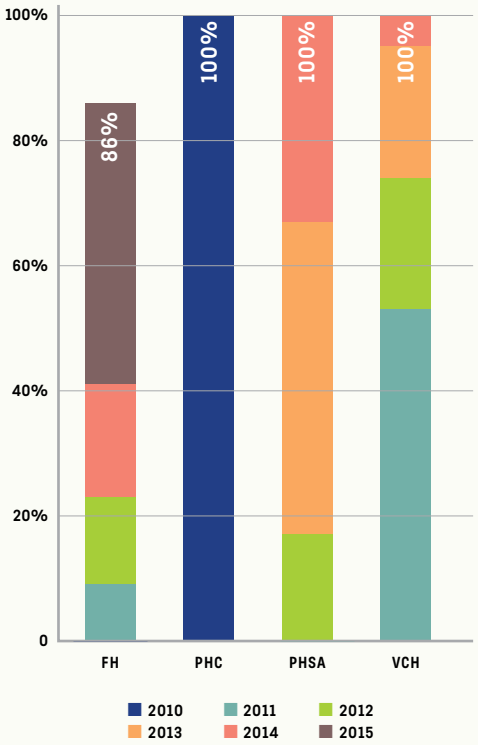
The result? Less waste and greater cost savings. In the last half of 2015 alone, 7,250kg in SUDs were picked up by Stryker for the purpose of reprocessing, which resulted in a savings of approximately $650,000 for Vancouver Coastal Health and Providence Health Care.

In 2016, we expect to see the waste diversion and savings continue to grow. We will be adding more Stryker collection bins to Lower Mainland acute care sites, and educating more health care staff about the program. It's just one way we're reducing waste, and lessening our impact on the environment.

RECYCLING RENEWAL PROGRAM IMPLEMENTATION (# OF SITES)

	FH	PHC	PHSA	VCH	Total
2010	0	6	0	0	6
2011	2	0	0	10	12
2012	3	0	1	4	8
2013	0	0	3	4	7
2014	4	0	2	5	11
2015	10	0	0	0	10
Total	19	6	6	23	54

RECYCLING RENEWAL PROGRAM IMPLEMENTATION (%) Target: 100%



TARGET #2

By 2016, ensure 100% implementation of the Recycling Renewal Program (RRP) at all acute and residential care sites (57 sites).

The Recycling Renewal Program will be rolled out to all core health care sites (57) across the LMHOs by the end of 2016.

2015 PERFORMANCE

In 2015, the RRP rolled out to ten more core sites, at Fraser Health. There are now a total of 54 sites with RRPs. 100% of core sites at Provincial Health Services Authority, Vancouver Coastal Health and Providence Health Care have RRPs.

PLANS FOR 2016

This goal will be kept, as Fraser Health plans to finalize the roll-out of the RRP at their remaining core sites.

TARGET #3

By 2016, launch a pilot program to review Facilities Maintenance and Operations construction waste recycling procedures, and gather metrics at three acute sites.

Construction waste is seen as an unmeasured area of material waste. A target and strategy have been put into place to analyze the issue and identify future mitigation strategies.

2015 PERFORMANCE

In 2015, we intended to launch pilot programs at Vancouver General Hospital, Children's & Women's Health Centre of BC and Ridge Meadows Hospital. However, these were put on hold until the EES Team can better understand the scope of the issue and realistic targets for diversion of materials.

PLANS FOR 2016

This target will be kept, as we plan to revive the pilot program in 2016.

TARGET #4

By 2015, eliminate 100% use of Styrofoam as service ware in patient and residential food services.

2015 PERFORMANCE

In 2015, food service providers officially eliminated Styrofoam from 100% of patient and residential food services across the LMHOs.

PLANS FOR 2016

Though Styrofoam was eliminated from patient and residential food services, it remains in circulation through various other channels. In 2016, an evaluation will be made to determine how to best continue to reduce the environmental impact of service ware across the LMHOs. A new target will be set to continue a commitment to reduce the material waste and environmental impact of this area.

TARGET #5

In 2015, work with BC Clinical and Support Services Society (BCCSS) to better organize the LMHOs' sustainable supply chain strategy and deliverables.

BCCSS is a not-for-profit society created by the BC Ministry of Health to promote health in British Columbia through the coordination, management and supply of medical machinery and materials. They are the primary stakeholder in provincial health care procurement, and a key partner in reducing material waste and improving environmental conservation in the supply chain.

2015 PERFORMANCE

In 2015, initial meetings took place to catalogue sustainability efforts already underway.

PLANS FOR 2016

This target will be refined to continue to provide achievable targets in creating a sustainable supply chain for health care.

TARGET #6

By 2018, ensure that 25% of the annual volume of free-standing furniture and medical furnishings, purchased based on cost, are free from the intentional use of halogenated flame retardants, formaldehyde, perfluorinated compounds and PVC (baseline 2014).

2015 PERFORMANCE

In 2015, research was conducted to identify key stakeholders and sources of information on the chemical composition of specific products.

PLANS FOR 2016

To date, the EES Team has not been able to establish a baseline of use for these chemicals in health care. Issues related to these chemicals of concern are very complex, and identifying the various stakeholders and chemical disclosure lists for products has been problematic.

Though the LMHOs are committed to reducing the unnecessary use of chemicals of concern in health care settings, this target will be rewritten in 2016 to more accurately address the complexity and corresponding challenges in this area.

TARGET #7

Encourage use of integrated pest management on owned landscaping and associated green spaces.

The LMHOs follow and support national medical standards and recommendations concerning pesticide use. Where possible, pesticide use is often replaced with integrated pest management practices.

2015 PERFORMANCE

In 2015, a lack of resources put the measuring and monitoring of this strategy on hold.

PLANS FOR 2016

It is hoped this work will be renewed in 2016 to better assess current practices across the LMHOs.

Ivan Cheung

SUSTAINABILITY INTERN, GREENCARE TEAM MEMBER

"It makes sense to aim for Zero Toxicity in health care. By determining the materials likely to contain toxic chemicals in health care settings, we have the information needed to motivate manufacturers and suppliers to find safer alternatives. Having less toxic substances means that people who interact with the health care system will stay healthy, and the waste will be less harmful to the environment."

TARGET #8

By 2015, reduce the toxicity of laboratories by supporting the launch of a Green Labs Initiative.

2015 PERFORMANCE

In 2015, the Green Labs online training module, which includes a chemical waste reduction section, was updated. Also, a Fraser Health lab staff member was designated to support the operationalization of Green Labs initiatives. However, further advancements were placed on hold due to changes to the regional lab organizational structure.

PLANS FOR 2016

Because this initiative was put on hold, this target will be updated in 2016 to reflect a new target date for full implementation.

TARGET #9

By 2015, ensure zero use of mercury-based thermometers, thermostats and blood pressure measuring machines within health care facilities.

2015 PERFORMANCE

In 2015, for a second straight year, no mercury-based thermometers, thermostats or blood pressure measuring machines were found in health care facilities. We are optimistic that legacy items of this nature have been successfully removed from operations and storage.

PLANS FOR 2016

For 2016 and beyond, this target will be reviewed, and an aspirational target will be created to continue to reduce any unnecessary risk of exposure to mercury in medical products.

TARGET #10

By 2015, investigate the potential applications of using green cleaners.

2015 PERFORMANCE

In 2015, this target was put on hold as a new environmental services (housekeeping) vendor was put in place at Providence Health Care and Vancouver Coastal Health.

PLANS FOR 2016

With the implementation of a new vendor, this target will be re-evaluated and restated in 2016 to ensure it provides an aspirational goal in reducing unnecessary chemicals of concern exposure through cleaning/housekeeping.

Sonja Janousek

SUSTAINABILITY CONSULTANT, GREENCARE TEAM MEMBER

"In my three years as Recycling Coordinator, I've noticed how much health care staff care about recycling in their facilities. They are thirsty for information and want to understand the nuances of recycling. And they're willing to go the extra mile to engage and educate their fellow staff about how to recycle correctly. They continually inspire me to work towards health and wellness in the workplace, our community and the environment."

Shirin Karoubi

SUSTAINABILITY INTERN, GREENCARE TEAM MEMBER

"Redefining 'waste' as 'resources' is the first step towards a circular economy. Changing what we consider waste, along with supportive infrastructure and leadership, helps develop sustainability within our health care system."

TARGET #11

By 2015, implement the Healthy Eating in Health Care Guidelines in retail food services for Business Initiatives & Support Services (BISS) contracted sites.

This target is intended to improve the health of clients while reducing organic waste from health care sites.

2015 PERFORMANCE

In 2015, the Healthy Eating in Health Care Guidelines were fully implemented at Providence Health Care, Provincial Health Services Authority and Vancouver Coastal Health. Work to implement these guidelines at Fraser Health continued throughout 2015 and is expected to be finalized in 2016.

PLANS FOR 2016

This target will be kept for one more year as Fraser Health is expected to finalize complete implementation throughout their core sites.

TARGET #12

By 2015, implement diversion of organics (food scraps) in all patient and residential food service operations.

Food (organic) waste from patient and residential food service operations is seen as a significant contributor to the general waste streams of health care. The LMHOs have put a special emphasis on implementing diversion of organic waste so it goes to onsite or offsite composting, instead of landfills.

2015 PERFORMANCE

This target was met in 2015 as 100% implementation of diversion programs at the core sites of the LMHOs was completed.

PLANS FOR 2016

Going into 2016, the work on diverting organic waste will continue. An aspirational target, to measure and support efficient organics diversion, will be determined for 2016 and beyond.

TARGET #13

By 2020, decrease food waste from meal trays in patient food services to 10% or less.

The amount of food that is not eaten (and thus considered waste) has been a continued challenge for the LMHOs. With rates exceeding 20%, the LMHOs are committed to achieving a +10% reduction in patient food waste. Various strategies have been implemented to achieve this.

2015 PERFORMANCE

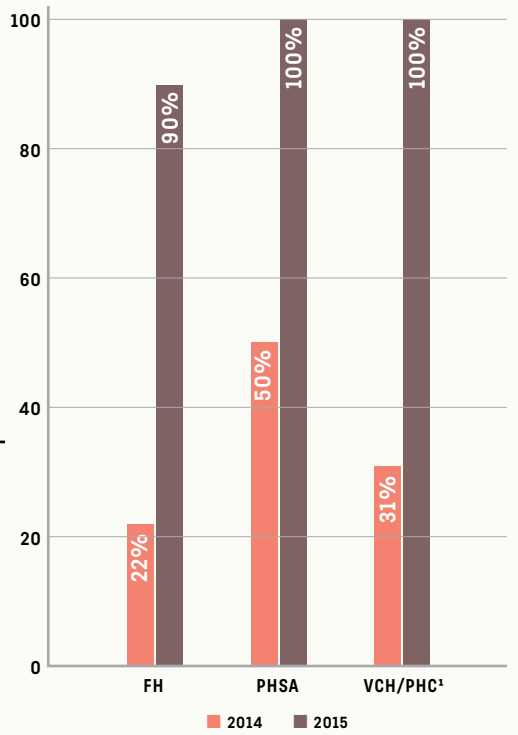
In 2015, Fraser Health (18.1%) and Vancouver Coastal Health/Providence Health Care (12.9%) continued to modestly reduce the amount of waste from patient trays. (Due to contractual obligations in reporting, Vancouver Coastal Health and Providence Health Care are reported as one data point.)

Provincial Health Services, though unchanged from 2014, is also near the target goal as they reported a 12.5% rate of food waste from patient trays.

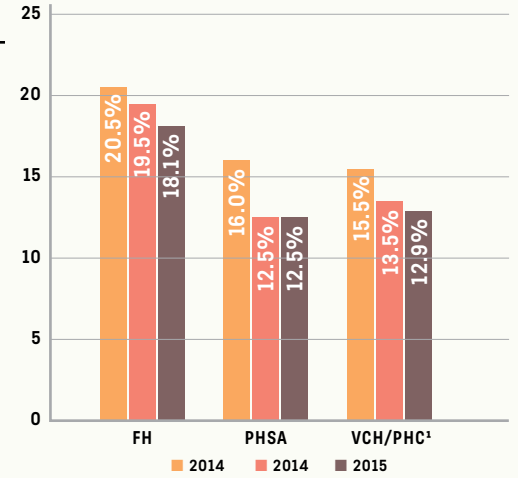
PLANS FOR 2016

This target will continue until all four LMHOs have reached the target.

IMPLEMENTATION OF THE HEALTHY EATING GUIDELINES



FOOD WASTE FROM MEAL TRAYS (% food being discarded) Target: 10%



1 BISS alignment requires VCH and PHC to be reported collectively.

TARGET #14

By 2020, create 15 community and/or patient-run gardens on health care property (baseline 2010).

The LMHOs own a significant amount of land across the Lower Mainland. Most of this land encircles various health care facilities. The LMHOs recognize this open green space could be used more sustainably (potentially in a therapeutic way), and are committed to supporting community and therapeutic gardens as they are realized.

2015 PERFORMANCE

In 2015, one new garden was created at Provincial Health Services Authority. Vancouver Coastal Health continued to investigate therapeutic opportunities at Vancouver General Hospital.

PLANS FOR 2016

Despite the slow growth and implementation of gardens across the LMHOs, this target will be kept for 2016.

Image (left to right): **Sonja Janousek** (Recycling Renewal Coordinator), **Sophie Chan** (Manager of Support Service at Richmond Hospital), **Sadia Naseem** (Volunteer, Organics Recycling Ambassadors).

GOOD NEWS STORY

Composting Program Launches at Richmond Hospital

Sophie Chan, Manager of Support Service at Richmond Hospital, is active in promoting recycling and waste reduction on site. She works closely with Sonja Janousek, Recycling Renewal Coordinator, to reduce health care waste and improve human and environmental health in the region.

In the summer of 2015, she took her efforts to the next level by working with Business Initiatives Support Services to roll out a pilot project focusing on composting in Richmond Hospital's cafeteria, in support of Metro Vancouver Food Scraps Recycling Program.

PARTNERSHIPS FOR SUCCESS

Sophie launched the Retail Organics Recycling Program at Richmond Hospital in August 2015. A month later, she collaborated with others to roll out the program at 12 other sites across Vancouver Coastal Health, Providence Health Care, Provincial Health Services Authority and Fraser Health sites before the end of 2015.

LOGISTICS

Education and engagement are a large part of making the program a success. The week before the launch, Sophie and her team shared information about the program with the staff at Richmond Hospital by sending out memos and setting up posters around the hospital, advertising the new program in the cafeteria. During launch week, volunteers were available during peak meal times to act as 'Organics Recycling Ambassadors' to help educate and direct people to the recycling station in the cafeteria.

Active & Clean Transportation

OUR GOAL

Make walking, cycling, carpooling and public transit the preferred transportation and commuting options for LMHO staff. Where applicable, make the shuttle service a preferred transportation between sites.

According to our internal 2014 You and the Environment Survey, 43% of staff across the LMHOs commute to work via single occupancy vehicles. In other words, 19,000 staff and vehicles travel to and from health care sites each day.[1]

The LMHOs are working to reduce the number of staff in single occupancy vehicles. This will not only reduce the environmental impact, but it will also improve overall health of the staff and communities.

The EES Team works closely with the internal Integrated Protection Services department to improve transit options. This includes the use of electric vehicle charging stations, ways to promote carpooling, and analyzing of staff commuting patterns to better understand behaviours/barriers and opportunities to improve services.

OUR PARTNERS IN TRANSIT

We engage in various external strategic partnerships, which are instrumental in promoting active and clean transportation. These partners include:

TransLink — Compass and TravelSmart programs

Cambie Corridor Consortium

Transportation Alternatives in Surrey City Centre Working Group

City governments of Vancouver, Surrey, North Vancouver and New Westminster

Better Environmentally Sound Transportation (BEST)

HUB Cycling

Trans Canada Carpool.ca

Car share organizations (i.e., MODO, ZipCar, Car2Go, EVO)

ACTIVE & CLEAN TRANSPORTATION: THE HEALTH & WELLNESS OUTCOMES

Vehicles cause air pollution through CO_2 and dust emissions. This has been linked to negative health effects, including asthma, lung cancer, reduced lung function and heart disease.

1 This year's data is based on information provided in the Carbon Neutral Action Report.

TARGET #1

By 2020, ensure 15% of LMHO staff choose to WALK for their primary commute.

2015 PERFORMANCE

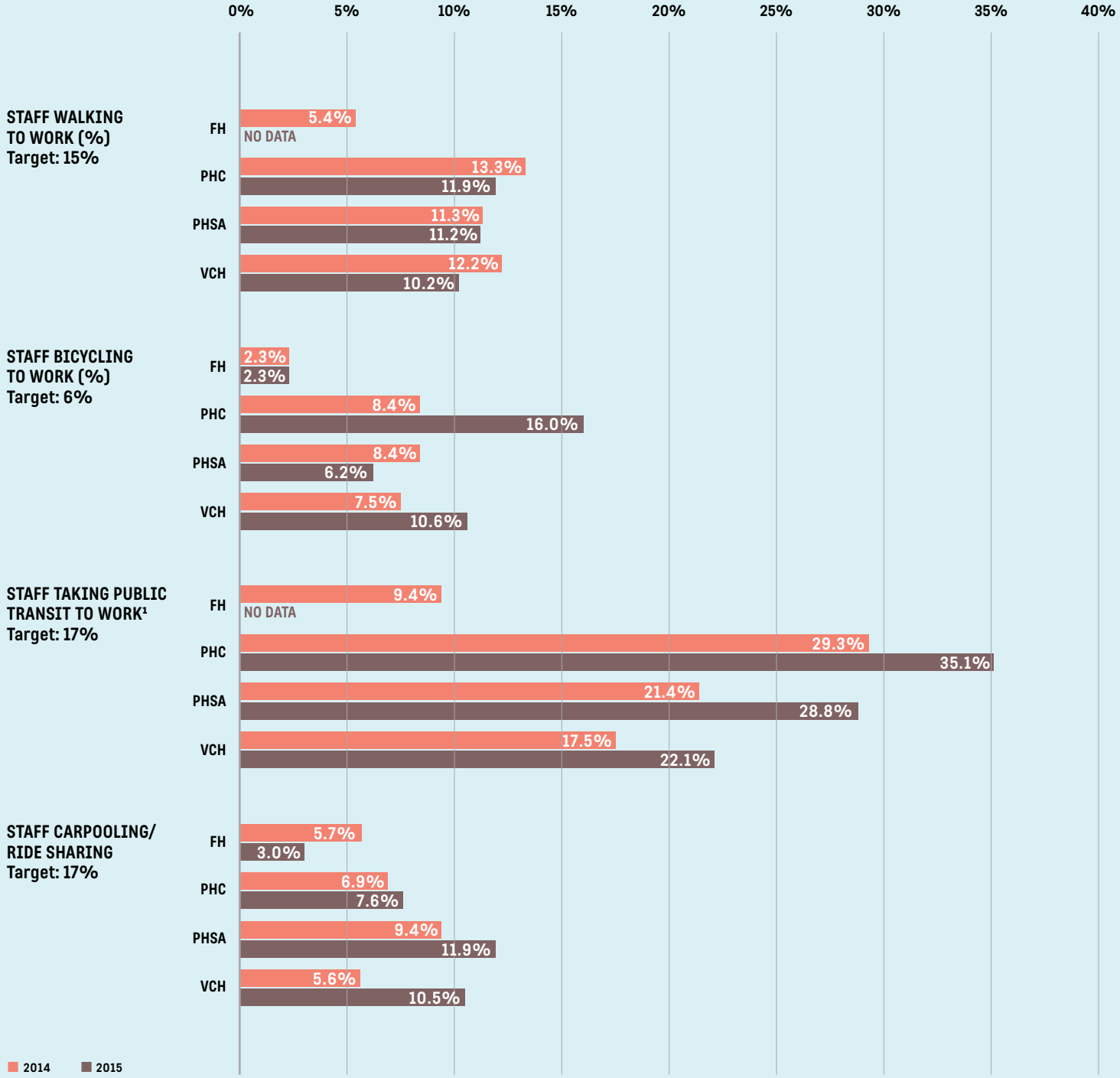
The LMHOs sponsored numerous programs to encourage staff to walk more often to work, including WALKtober, Walking Wednesday, Be Seen in Dark Coats, and the Clean Commuter and Wellness Campaign.

Fraser Health, which has the greatest number of remote sites, is estimated to have the lowest number of staff who choose to walk to work. (In 2014, 5.4% of Fraser Health staff walked to work.) Unfortunately, data was not collected in 2015.

Compared to 2014, Providence Health Care, Provincial Health Services Authority and Vancouver Coastal Health experienced slight declines in the number of staff who walked to work. There were more programs and campaigns in 2015, so it's not entirely clear why the organizations would experience this slight decline. We hope to reverse this trend in the coming years.

PLANS FOR 2016

The LMHOs will continue to host programs and campaigns to encourage staff to walk more. In addition, more surveys will be conducted to get a clearer picture on the barriers to walking to work.



TARGET #2

By 2020, ensure that 6% of LMHO staff choose to BICYCLE for their primary commute.

2015 PERFORMANCE

In 2014, this target was achieved by all LMHOs except Fraser Health. The target was kept to provide another year to ensure consistency in the data.

In 2015, we engaged in numerous initiatives to promote cycling, including the Clean Commute and Wellness Campaign, cycling skills workshops, and HUB. In addition, various Bike Tune Up sessions were held for the staff in the spring.

For the second year in a row, all LMHOs, except Fraser Health, achieved the 2020 target. At Fraser Health, 2.3% of staff bicycled to work. Vancouver Coastal Health increased to 10.6% and Providence Health Care doubled their number to a leading 16%.

Provincial Health Services Authority experienced a slight drop in their number, falling from 8.4% to 6.2%. It is theorized that the large rebuilding project at BC Children's and Women's Hospital caused a change in commute behaviour at the site.

Both Provincial Health Services Authority and Vancouver Coastal Health won HUB Cycling 2015 Bike Friendly Business in Health Category awards.

PLANS FOR 2016

The Clean Commute and Wellness Campaign, BC Bike to Work Week, and Vancouver's HUB Bike to Work Week, will once again be used to encourage staff to bicycle to work. In addition, we will conduct research to determine campaigns that can be run outside of these two spring-time events.

To assess unmet needs or to respond to requests, the LMHOs will also identify areas for new bike cages, with the hope that security enhanced bike parking will encourage commuting.

TARGET #3

By 2020, ensure that 17% of LMHO staff choose PUBLIC TRANSIT for their primary commute.

2015 PERFORMANCE

In 2015, TransLink transitioned to the Compass Card Pass, which covered all Metro Vancouver area transit options.

Though TransLink discontinued their support of the Employer Pass Program in 2014, Vancouver Coastal Health continued to offer staff financial support for the use of transit. As a result, they experienced a healthy improvement in transit use, to 22.1%. (This is considered a success as the elimination of the Employer Pass Program at Vancouver Coastal Health was seen as a risk or possible de-motivator for staff.)

Unfortunately, in 2015, it was not possible to accurately assess public transit data for Fraser Health. It is unknown if their staff transit use rate of 9.4% in 2014 changed in any way. We hope to have this corrected for 2016 reporting.

Provincial Health Services Authority saw the largest increase, up to 28.8%. It is speculated that the large redevelopment at BC Children's and Women's Hospital caused a number of typical bicyclists to move to transit use.

Providence Health Care never offered the Employer Pass Program to their staff, so did not run the same risk of de-motivation when the program ended. Their public transit jumped from 29.3% in 2014 to 35.1% in 2015. Their health care sites are centrally located in the Lower Mainland, so it may be easier to encourage staff to use public transit.

PLANS FOR 2016

Outside of Fraser Health, the three other LMHOs have clearly achieved this target well before 2020. In 2016, this target will be reassessed by the internal Transportation Demand Management team.

Eiselle A. Omampo

SUSTAINABILITY CONSULTANT, GREENCARE TEAM MEMBER

"Our transportation choices affect both present and future generations. Active and clean transportation modes, coupled with healthy built environments, produce better connected communities, a healthier population, a better habitat for animals, improved air quality and a greener environment. We have the ability to help reduce vehicular emissions by choosing healthier transportation modes. Every one of us has the power to change the future."

TARGET #4

By 2020, ensure that 17% of LMHO staff choose to CARPOOL or RIDE-SHARE for their primary commute.

2015 PERFORMANCE

In 2014, the survey data indicated this is an area of needed growth. Fraser Health and Vancouver Coastal Health had only 5.7% and 5.6% staff sharing their commute, respectively.

In 2015, the LMHOs discontinued the use of a website program meant to connect staff for carpooling/rideshare. This website had been in use since 2010, but was determined to be an ineffective tool.

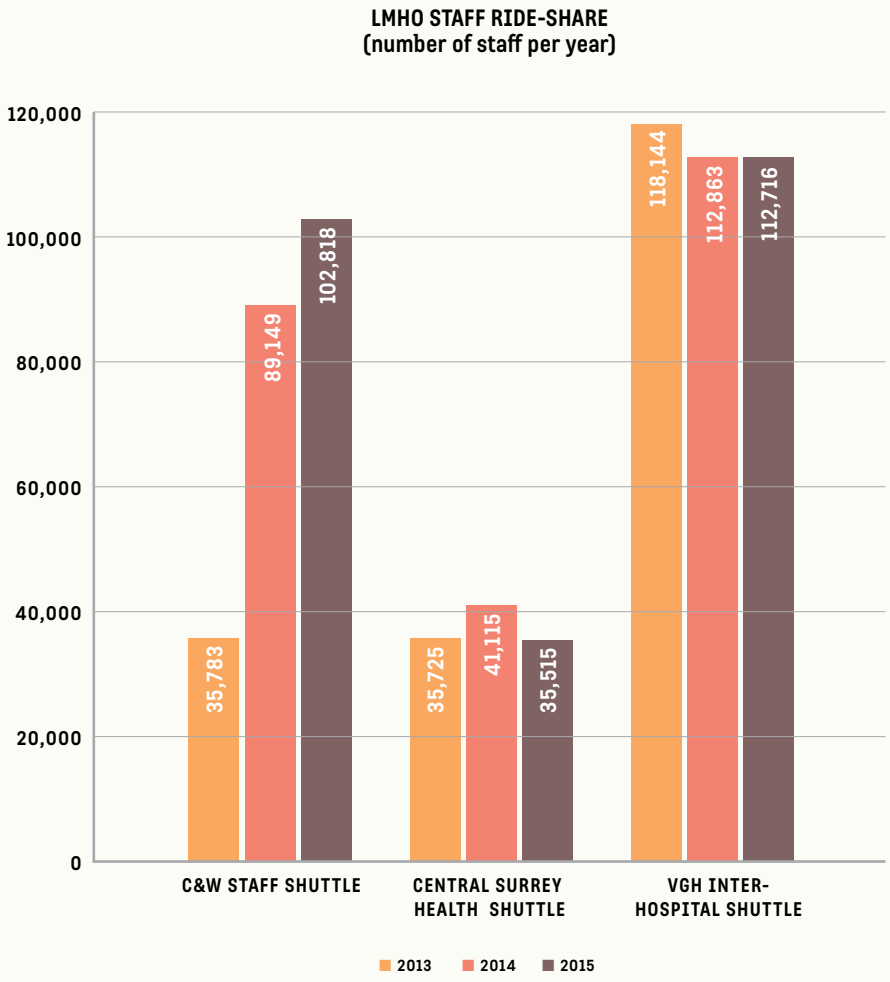
Fraser Health experienced a drop in the number of staff carpooling to work in 2015. At only 3%, this is an area that needs significant support.

Both Providence Health Care (7.6%) and Provincial Health Services Authority (11.9%) saw gains in carpooling/ ridesharing by their staff.

Vancouver Coastal Health saw the biggest jump, from 5.6% in 2014 to 10.5% in 2015. This is largely seen as a result of the continued efforts of the Vancouver General Hospital Commuter Centre.

PLANS FOR 2016

This target will be kept for the foreseeable future; it's a good stretch target for all four LMHOs. A new carpool.ca tool will be rolled out in 2016 to further assist staff who want to carpool to work. The internal Transportation Demand Management team will continue to re-evaluate targets and performance, and adjust accordingly.



2015 COMMUTER OF THE YEAR

(Image: left to right) Wendy Strugnell (VP of Human Resources, Fraser Health) presents the Commuter of the Year Award to Sharon Petty.

Sharon Petty

FACILITIES MANAGEMENT

"I love riding my bike," says Sharon. "I love the sense of freedom you just don't get in a car (and I never have to worry about parking). I enjoy my ride to and from work — the beautiful ride in, the social and friendly aspects, and being present and aware of my surroundings. It's also good for my workday. In the morning it clears away the cobwebs so I can start my day fresh and at the end of the day it clears my head of all the workday mind chatter."

"Last year I started commuting by bike with the Clean Commuter Challenge," adds Sharon. "I bought a new bike which I named The White Flash (it's not the same without a name!) and just started riding every day. My one-year anniversary of riding was in May. My bicycle commuting has prompted others to admit to me that they 'should get back on their bikes.' And on the worst weather days people still seem surprised to see me showing up in bike gear. They'll ask, 'Did you really bike today?'"

2015 COMMUTER OF THE YEAR

(Image: left to right) Mary Procter (Vice-president, Finance & Planning, Providence Health Care) presents the Commuter of the Year Award to Melodie Yong.

Melodie Yong

CHANGE & COMMUNICATIONS LEAD, TRANSCRIPTION SERVICES PROJECT, LOWER MAINLAND HEALTH INFORMATION MANAGEMENT

"I love so many things about cycling to work," explains Melodie. "I can't stand to waste money, and cycling is the lowest cost option which has even helped my family save money over the years. As a busy mom, I like the multi-tasking of getting my exercise while commuting. It is more time-efficient than taking the bus and I've even biked quicker from St. Paul's to the Cancer Agency than my car-driving colleagues. (Also, I like that I don't need to charge my employer for mileage or parking.) And, I like how it makes me feel: I get to plan my own time, I can go when I want to go, and I always arrive refreshed! The culture around my colleagues is very supportive of cycling — from showing up to a meeting in bike clothes, to the showers, secure bike parking at my site and the expanded bike cage at St. Paul's."

2015 COMMUTER OF THE YEAR

(Image: left to right) Lara T. Barley (Chief Human Resources Officer, Provincial Health Services Authority) presents the Commuter of the Year Award to Kim Steger.

Kim Steger

PROJECT COORDINATOR, ACCREDITATION & PATIENT EXPERIENCE

"I started cycling to work 12 years ago," says Kim. "I was inspired by seeing other commuters and thought, 'Why not me?' I love the fitness, getting outside and saving money. I mostly like the ability to go where I want to go, when I want to go, and be in control of my schedule. If I didn't bike, I'd be on transit and dealing with waiting, transfers and frequent stops."

2015 COMMUTER OF THE YEAR

(Image: left to right) Matt Fieldwalker is presented with the Commuter of the Year Award by Anne Harvey (Vice-president of Employee Engagement, Vancouver Coastal Health).

Matt Fieldwalker

CARDIOVASCULAR PERFUSIONIST, VGH

"I find the idea of car commuting dreadful so it's really an easy choice to bike!" says Matt. "I hate traffic, I hate looking for and paying for parking and I hate air pollution. Biking seems so much more simplified. Costwise it's also a drop in the bucket. That said, I am lucky to have a beautiful commute and sometimes when time permits I take a more scenic route home to enjoy the day. Lastly, riding a bike is fun!"

Note:

The 2014 report inadvertently communicated the winners for 2015. Thus they are duplicated in this year's report.

The original 2014 winners were:

Fraser Health:
Frances Friesen, a Mental Health Therapist at the Maple Ridge Mental Health Centre

Providence Health Care:
Jane McCall, a Nurse Educator with the HIV Program at St. Paul's Hospital

Provincial Health Services Authority:
No award was made in 2014

Vancouver Coastal Health:
Dr. Marilyn Chotem, a Registered Psychologist with VCH

Regenerative Design

Regenerative Design expresses the LMHOs' commitment to enhance the health and wellness of patients and staff through design-focused renewal, revitalization, restoration and resiliency of the built environment.

Unlike the other GreenCare topic areas (which are more quantitative), Regenerative Design is holistic, aspirational, emergent and largely qualitative in nature.

Up until 2015, LMHO work on Regenerative Design focused on overall design standards, certification and strategies to integrate relevant design principles into "business as usual" work processes.

In 2015, a new and significant area of work was added to this topic area. As global and regional effects of climate change on health care service delivery become more frequent and disruptive, climate resilience and adaptation has become a key strategy and focus area for many organizations.

LMHOs take climate resilience and adaptation seriously. They are taking a holistic approach to health care and looking at the potential vulnerabilities and risks to their health care facilities and processes as a result of current and projected environmental changes. This planning work began in 2015, and will continue into 216 with the completion of a Resilience roadmap.

OUR GOAL

Employ Regenerative Design principles and processes to enhance the built environment and improve human and environmental health.

REGENERATIVE DESIGN: THE HEALTH & WELLNESS OUTCOMES

Regenerative Design influences air quality, thermal comfort and acoustic properties, which can have a significant positive impact on the comfort and well-being of occupants. It goes even further: climate resilience and adaptation positively influence the health of facility occupants by ensuring services and environments are not disrupted or negatively impacted through climate-related events.

Mahsa Akbarnejad

SUSTAINABILITY INTERN, GREENCARE TEAM MEMBER

"An effective green building certification program, such as the Leadership in Energy and Environmental Design (LEED), is a fundamental strategy to immediately impact short and long term human and environmental health through design."

"Tackling climate change could be the greatest global health opportunity of this century. Many mitigation and adaptation responses to climate change could lead to direct reductions in the burden of ill health, enhance community resilience, alleviate poverty, and address global inequity. (Watts et al. 2015)"[1]

1 http://ehp.niehs.nih.gov/ehp555/

GOOD NEWS STORY

Building Resiliency Through Integration and Collaboration

The LMHOs are proactively addressing climate change challenges—including extreme weather events such as floods, heat waves and windstorms—by viewing and building on our sustainability work through a resilience and adaptation lens.

In 2015, the foundation was set for a new Climate Resiliency & Adaptation Program to begin tackling the issue of building physical and social resilience. We began by assessing five acute care facilities in the Lower Mainland.

GreenCare identified collaboration with Health Emergency Management BC (HEMBC) as a critical step for bringing key health care stakeholders together. With HEM BC, we are identifying climate risks and developing a process to empower our health care organizations, staff and patients to "share responsibility to keep hazards from becoming disasters" (Public Safety Canada).

As the emerging program grows over the coming years, close collaboration with municipalities will be critical in developing our collective ability to withstand and recover quickly from disruptions to health care service delivery in a highly dynamic future.

LEED CERTIFIED FACILITIES

CERTIFICATION DATE	NO.	HEALTH AUTHORITY	HEALTH CARE FACILITY	CERTIFICATION LEVEL
2007-Sept	1	FH	Cottonwood Lodge - Residential Mental Health	Gold
2008-Dec	2	FH	CareLife Residential Care Maple Ridge	Silver
2009-Sept	3	FH	Abbotsford Regional Hospital and Cancer Centre	Gold
2010-Mar	5	FH	Czorny Alzheimer Centre (Phase 1)	Certified
2010-Jun	4	FH	Victoria Heights Assisted Living	Certified
2011-Mar	6	FH	Chilliwack General Hospital	Certified
2012-Sept	9	FH	Jim Pattison Outpatient Care & Surgery Centre	Gold
2012-Oct	7	FH	Creekside Withdrawal Management Centre	Certified
2012-Oct	8	FH	Maxxine Wright Community Health Centre	Gold
2013-Apr	10	FH	Czorny Alzheimer Centre (Phase 2)	Gold
2014-Nov	11	FH	Critical Care Tower, Surrey Memorial Hospital	Gold
2015-Jul	12	FH	Mission Complex Residential Care Facility	Gold
TBD	13	FH	Quibble Creek Health & Phoenix Transition Housing Centre	TBD
TBD	14	FH	Cypress Lodge Psychiatric Hospital	TBD
TBD	15	FH	Langley Memorial Cottage	TBD
2006-Nov	1	PHC	Mental Health Unit 9A, St. Paul's Hospital	Certified
TBD	2	PHC	BC Centre for Excellence, West Wing Renovation, St. Paul's Hospital	TBD
2005-July	1	PHSA	BC Cancer Research Centre	Gold
2011-Nov	2	PHSA	Mental Health, BC Children's Hospital & BC Women's Health Centre	Silver
2013-Jun	3	PHSA	Clinical Support Building, BC Children's Hospital & BC Women's Health Centre	Gold
2014-Jun	4	PHSA	BC Cancer Agency Centre for the North	Gold
2015-Mar	5	PHSA	Child Care Center, BC Children's Hospital & BC Women's Health Centre	Gold
TBD	6	PHSA	Centre for Translational Research	TBD
TBD	7	PHSA	Teck Acute Care Centre, BC Children's Hospital & BC Women's Health Centre	TBD
2015-Jan	1	VCH	Sechelt Hospital	Gold
TBD	2	VCH	HOpe Centre, Lions Gate Hospital	TBD
TBD	3	VCH	Joseph & Rosalie Segal Family Health Centre, Vancouver General Hospital	TBD

FH: Fraser Health **PHC:** Providence Health Care **PHSA:** Provincial Health Services Authority **VCH:** Vancouver Coastal Health

TARGET #1

Foster adoption of Regenerative Design principles into the health care culture and vocabulary.

2015 PERFORMANCE

In 2015, work on this target included:

- Completed several Regenerative Design lunch-and-learn presentations to the Lower Mainland Facilities Management Department
- Revised the Energy & Environmental Sustainability (EES) Framework to more holistically and comprehensively incorporate the principles and intent of Regenerative Design

We also worked to increase awareness and understanding of Regenerative Design principles via tangible indicators, including:

- Facilities planning and EES collaboration on projects and initiatives
- Successful adoption of Passive House principles (see description in Target #2) in the Vancouver Coastal Health project at Bella Bella (this successful project has led to similar discussions at three other projects across the Lower Mainland)
- Foster adoption of Regenerative Design principles into the health care culture and vocabulary.

PLANS FOR 2016

In 2016, we will continue maximizing opportunities to communicate, educate and celebrate successes related to the formal certification of the Bella Bella Staff Housing, anticipated to be completed in 2016. This will include the sharing of lessons learned from the post-occupancy evaluation.

We will also continue to advocate for projects seeking LEED certification, and linking this to patient/staff health. This will include encouraging new construction projects to seek certification for LEED for Health Care, instead of LEED for New Construction.

TARGET #2

By 2020, adopt the Passive House Standard as the default for all new non-acute facilities.

The Passive House Standard is a performance-based design standard with specific requirements that represent a balance of cost effectiveness and energy conservation. This type of design requires projects to achieve a standard of less than 15 kWh/m².[1]

Achieving this low-energy consumption entails a variety of strategies that focus on passive solar design, superinsulation, advanced window technology, airtightness, ventilation, space heating, and lighting and electrical appliances.

2015 PERFORMANCE

In 2015, the LMHOs achieved the following:

- Completed the Vancouver Coastal Health Bella Bella staff housing project. The formal certification is pending review of a full year of utility data.
- Through data analysis, determined the Passive House Standard is not likely to be appropriate for acute care facilities/hospitals. Instead, residential care facilities will be a key target for this Standard.

PLANS FOR 2016

Going forward into 2016, the following work is planned:

- Ensure formal certification of the Bella Bella Staff Housing project is achieved and celebrated.
- Complete post-occupancy evaluation of the Bella Bella Staff Housing project to better quantify and document successes, and incorporate any lessons learned into future projects.
- Explore the implementation of the Passive House Standard at the Fraser Health Mental Health Assisted Living facility in Surrey, B.C.
- Complete a feasibility assessment study to achieve the Passive House Standard for Vancouver Coastal Health's Richmond Lions Manor Replacement project.

Angie Woo

SUSTAINABILITY CONSULTANT, GREENCARE TEAM MEMBER

"Resilience is an umbrella concept for people, systems and structures to 'bounce forward' from both acute shocks (including seismic events) and chronic stressors (such as rising temperatures). Strengthening resilience—whether that's for a single hospital or an entire health care system—necessitates breaking down silos and collaborating in innovative ways. Our energy and sustainability successes are critical launchpads and levers for creating options to improve our physical and social resilience, and to ultimately optimize the health and wellness of all British Columbians."

1 https://en.wikipedia.org/wiki/Passive_house

TARGET #3

By 2020, achieve one Petal of the Living Building Challenge (LBC) standard for one new facility, and by 2030 achieve full LBC certification for one new facility.

The Living Building Challenge[1] is a rigorous and visionary design standard and certification program for facilities. Strongly performance-based, this standard is intended to encourage diverse solutions appropriate for the specific building types and bioregions.

The standard is based on twenty imperatives within a framework of seven performance areas (or "petals") as seen below:

1. **Place:** Restoring A Healthy Interrelationship With Nature
2. **Water:** Creating Developments That Operate Within The Water Balance Of A Given Place And Climate
3. **Energy:** Relying Only On Current Solar Income
4. **Health & Happiness:** Creating Environments That Optimize Physical And Psychological Health And Well-Being
5. **Materials:** Endorsing Products That Are Safe For All Species Through Time
6. **Equity:** Supporting A Just, Equitable World
7. **Beauty:** Celebrating Design That Uplifts The Human Spirit

2015 PERFORMANCE

In 2015, the LMHOs examined various new construction projects in relation to the seven LBC performance areas. Although elements have been implemented, the full criteria of one petal (performance area) has yet to be accomplished.

PLANS FOR 2016

Although this will be a major challenge for any health care facility, achieving LBC certification has been set as an aspirational goal. Portions (petals) of the overall standard can be achieved individually, so the achievement of one petal may be a better interim target for 2016 and the future.

In 2016, the LMHOs will:

- Identify which petal would be most valuable and applicable to specific health care projects
- Identify a project that is in the business case phase and could be a good candidate for achieving a single petal

TARGET #4

By 2020, assess all core sites for climate resiliency, and develop site-level action plans, with priority adaption and mitigation options to improve overall physical and social resilience.

2015 PERFORMANCE

This is a new target for 2015.

In 2015, the LMHOs investigated a desired scope and outcomes of this work. They also received approval to hire new staff to begin this work.

PLANS FOR 2016

In 2016, the LMHOs plan to:

- Develop a roadmap to strengthen climate resiliency and adaptation in health care
- Assess five acute care facilities for climate resiliency, and integrate adaptation actions into risk and emergency management processes
- Consult key health care stakeholders on recommended actions and implementation processes
- Collaborate with Health Emergency Management BC (HEMBC) and municipalities to develop and implement site adaptation plans

Alex Hutton

ENERGY MANAGER, GREENCARE TEAM MEMBER

"A key success under the umbrella of 'Regenerative Design' has been completion of the first Passive House project for BC health care, and the ripple effects it has had in transforming the local industry. These successes are evidence of the transformational change that can happen when we balance our work on individual topic areas with efforts toward a holistic and integrated approach."

1 https://living-future.org/sites/default/files/reports/FINAL%20LBC%203_0_WebOptimized_low.pdf

Culture Change

Culture change refers to a GreenCare commitment of building internal capacity and leadership to integrate sustainability values into organizational decision-making, and resulting actions.

Direct staff engagement — including education, training and the provision of resources — is crucial to the success of the LMHOs' sustainability commitments.

The GreenCare Team's strategy for achieving culture change includes direct staff training (Green+Leaders and Recycling Champions) and the use of social media (including the GreenCare Community website, the primary communication channel and resource hub for all GreenCare activities).

OUR GOAL

Create a culture of sustainability stewardship (environmental, social, economic) in the workplace, and promote active staff engagement.

Olive Dempsey

SUSTAINABILITY CONSULTANT, GREENCARE TEAM MEMBER

"What I see in the Green+Leaders program is that more and more people are looking to integrate their values around environmental health and wellness into the work they do every day. They want to be part of a team with clear direction from leadership that says we are taking our environmental footprint seriously and aligning our work for healthy populations with the requirements for a healthy planet."

CULTURE CHANGE: THE HEALTH & WELLNESS OUTCOMES

The GreenCare Team believes that enabling employees to act on their values improves morale, engagement, recruitment and retention. This, in turn, improves the quality of care provided to patients and clients. In addition, behavioural changes in staff have the potential to influence other areas of their working lives, which can positively influence their health and wellness objectives.

TARGET # 1

Recruit, train and maintain a minimum of 150 Green+ Leaders for each of the LMHOs by 2020.

Green+Leaders (G+L) are staff volunteers who help create healthy workplaces by improving environmental conservation and performance of health care operations. By acting as sustainability role models, they help improve processes, encourage behaviour change among their work colleagues, and create a culture of sustainability throughout the organization.

Green+Leaders focus their activities on zero waste, energy conservation, active and clean transportation, and social sustainability in the workplace. For more information on Green+Leaders see the following link: https://bcgreencare.ca/program/greenleaders.

2015 PERFORMANCE

In 2015, 45 new Green+Leaders joined the program, bringing the total number of Green+Leaders (who have been trained since 2009) to 399. The number of active volunteers in the program reflects natural rates of attrition due primarily to changes in roles and responsibilities or departures from the organization. The total number of active Green+Leaders in 2015 was 201.

Provincial Health Services Authority continued to have the largest representation of active Green+Leaders, with 71 current members.

Both Fraser Health (at 63 members) and Vancouver Coastal Health (51) were not far behind, and maintain a consistent base of Green+Leaders.

ACTIVE GREEN+LEADERS
TARGET: 150 active Green+Leaders/organization/year

	2015
FH	63
PHC	10
PHSA	71
VCH	51
Other[1]	6
TOTAL	201

Providence Health Care currently has 10 Green+Leaders. This is largely because, to date, recruitment resources for Green+Leaders have been focused on the other larger organizations.

PLANS FOR 2016

The target of 150 Green+Leaders per LMHO is seen as an aspirational goal. In 2016, the Green+Leaders Program will be reassessed based on lessons learned over the past seven years. The program's core elements—recognition, community building and networking, ongoing support and tools, and thorough recruitment processes—will continue to be integrated, though the overall target may shift.

In 2016, new toolkits, including a Workplace Evaluation and Measurement Tool, will be rolled out to help Green+Leaders more collaboratively and strategically effect change among their co-workers. There will also be a closer alignment with Recycling Champions.

1 Includes contracted staff from Sodexo, Brookefield/Johnson Controls and BCCSS

TARGET #2

Increase the number of registered staff on the GreenCare Community website by 500 per year.

2015 PERFORMANCE

The LMHOs have taken steps to ensure the GreenCare Community website is as relevant and beneficial as possible. The site, specifically created for LMHO staff, was originally designed to be a social media tool to engage health care professionals across the Lower Mainland. It was also intended to serve as an engagement platform to foster active collaboration with key external partners.

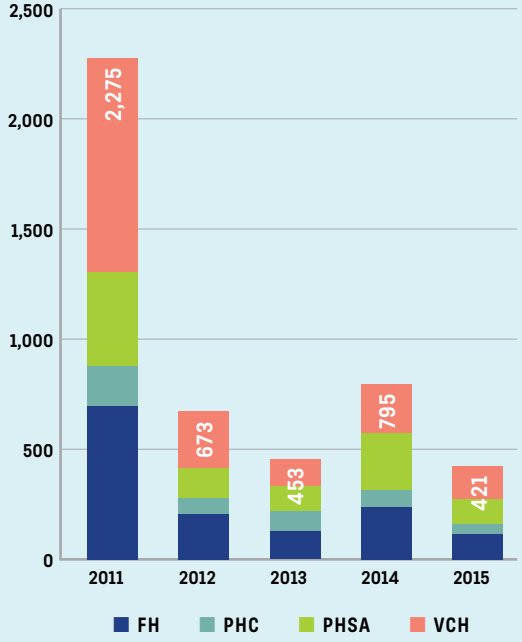
As the website has evolved, it has become evident that staff require a better tool for GreenCare resources. In 2015, we shifted the GreenCare Community website to decrease the emphasis on social media, and increase the amount of GreenCare resources.

In 2015, the resources and documents downloaded most often were various reports and Green+Leaders toolkits. The most successful campaign hosted through the site was the Clean Commuter and Wellness campaign.

In 2015, 421 staff registered on the GreenCare Community website. This was the smallest increase since the website began in 2011, but it continued a trend of small annual increases.

Currently the GreenCare Community has 4,617 health care staff registered on the website. Vancouver Coastal Health leads the way with 1,725 staff. Fraser Health (1,382) and Provincial Health Services Authority (1,044) also have a significant presence. At 466, Providence Health Care is also well represented; the website gains, on average, between 50 and 100 new Providence Health Care staff registrations per year.

REGISTERED LMHO STAFF ON GREENCARE COMMUNITY WEBSITE
Target: 500/year



GOALS FOR 2016

The target of 500 new LMHO staff registering on the site per year is seen as a realistic goal and will be kept for 2016. We will aim to ensure employees are actively engaged and empowered to act on values of environmental health and wellness in all aspects of their work.

To help attract more staff to the site and provide a more engaging experience, the GreenCare Community website will go through a redesign in 2016.

TARGET #3

Train and maintain 75 new Recycling Champions per year.

In 2010, the LMHOs initiated the Recycling Renewal Program to create a united effort to reduce health care waste, and improve human and environmental health in the region.

A key component of the Recycling Renewal Program success is support from Recycling Champions. These volunteers take ownership of their department's recycling programs by actively recycling, and encouraging others to do the same. Recycling Champions also monitor recycling bins for proper separation of recyclables and non-recyclables.

2015 PERFORMANCE

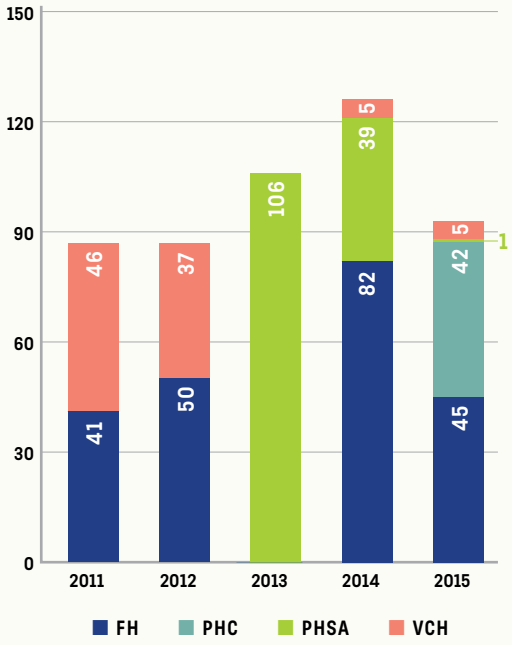
In 2015, 93 new Recycling Champions were trained at Sechelt Hospital, Queen's Park Care Centre, Jim Pattison Outpatient Care and Surgery Centre, Peace Arch Hospital, Langley Memorial Hospital, BC Cancer Agency, and the BC Cancer Research Centre. This brings the total number of Recycling Champions across the LMHOs to 499.

Fraser Health had the greatest number of Recycling Champions trained in 2015 (45) and the highest total to date (218) of all the LMHOs.

At 46, Provincial Health Services Authority also had a significant number of Recycling Champions (but only 1 new Champion in 2015). Not far behind them was Vancouver Coastal Health, with a total of 93 Recycling Champions (and 5 new Champions in 2015).

In 2015, Providence Health Care became a focus of recruitment and training for Recycling Champions. The GreenCare Team was very excited to see 42 Providence Health Care staff volunteer to be Recycling Champions.

TRAINED RECYCLING CHAMPIONS
Target: 75/year



PLANS FOR 2016

In 2016, the target will be re-evaluated and possibly replaced with a stretch or organizational-specific goal.

We will also identify Recycling Champions' needs for supporting waste diversion initiatives in the workplace, and more closely align these Champions with the Green+Leaders program.

GOOD NEWS STORY

Meet Gayle Paquette: Recycling Champion at the BC Cancer Research Centre

What do you enjoy the most about being a recycling champion?

The satisfaction of knowing where the waste goes. Knowing that it is being dealt with instead of going to a landfill.

What has been your biggest challenge yet?

There are a lot of users and staff with frequent rotation. Trying to get the message of recycling across all users and staff, as well as training everyone, took a very long time.

What are you future goals as a recycling champion?

Currently we are doing well, so the goal is to maintain our current momentum and do well in the next audit. We also want to ensure that the training and education does not decline and that everyone remembers to recycle.

What do you consider successful?

Efficiency within our recycling. That no recycling bin or individual effort is wasted because of contamination. Recycling becomes second nature and people do not have to think about it anymore.

Thank you to all of our Lower Mainland Recycling Champions!

Assurances & Resources

INTERNAL ASSURANCES

Lower Mainland Facilities Management (LMFM) has built in a level of internal controls and monitoring systems as part of their verified assurances for the Environmental Performance Accountability Report (EPAR).

The GreenCare Team uses a database, run by eFactor, to capture and analyze all utility data. Zero Waste data is kept by Business Initiatives & Support Services and the GreenCare Recycling Coordinator.

Data associated with sustainable supply chain is owned and maintained by Health Shared Services BC.

EXTERNAL ASSURANCES

The Carbon Neutral Action Reports (CNAR) are verified through an internal and external assurance process. This assurance is subject to external audits by an independent third party. Deloitte conducted external audits on Vancouver Coastal Health in 2012 and Fraser Health in 2013. Deloitte reviewed and verified the internal assurances process as being transparent and accurate.

STRATEGIC PARTNERS

BC Hydro

FortisBC

Healthier Hospitals Initiative

LOWER MAINLAND HEALTH CARE ORGANIZATIONS

Fraser Health

Providence Health Care

Provincial Health Services Authority

Vancouver Coastal Health

GreenCare Community

EXTERNAL RESOURCES

www2.gov.bc.ca/gov/content/environment/climate-change/reports-data/carbon-neutral-action-reports

Bill 44-2007; Greenhouse Gas Reduction Targets Act

Canadian Coalition for Green Health Care

ASHRAE 189.1 Standard for New Buildings and Renovations

Practice GreenHealth

Health Care Without Harm

Canadian Association of Physicians for the Environment (CAPE)

Canadian Green Building Council (CaGBC)

International Living Future Council

We Welcome Your Feedback

Our thanks go out to all the people at our health care facilities who have been inspiring leaders in our GreenCare community. If you have any comments or questions, please contact us at greencare@fraserhealth.ca or greencare@vch.ca.

Energy & Environmental Sustainability Team

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Vancouver, British Columbia V5Z 4H5
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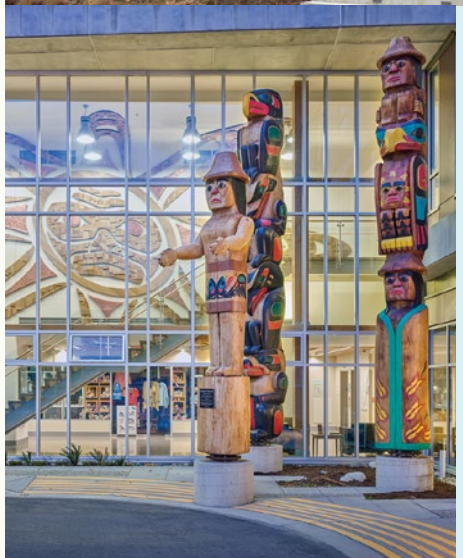


PHOTOS

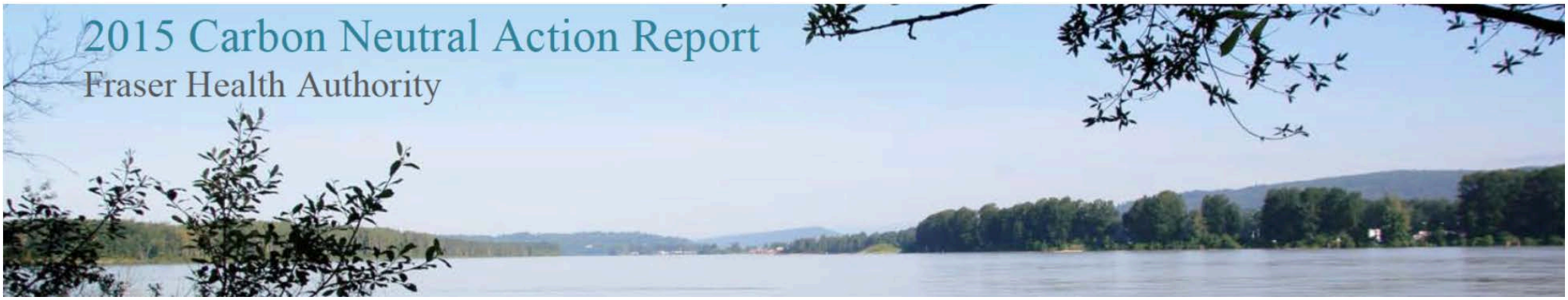
TOP LEED Gold Facility:
Djavad Mowafaghian Child Care Centre,
Provincial Health Services Authority

ABOVE LEFT LEED Gold Facility:
Greta & Robert H.N. Ho Centre for
Psychiatry and Education (HOpe Centre)
at Lions Gate Hospital,
Vancouver Coastal Health

ABOVE RIGHT LEED Gold Facility: Inner courtyard at Mission Complex Residential Care Facility, Fraser Health

LEFT LEED Gold Facility: Totem Poles outside of Sechelt Hospital, Vancouver Coastal Health

Appendices



Executive Summary: Fraser Health, CNAR 2015

Michael Marchbank, President and Chief Executive Officer

It is my pleasure to present Fraser Health's 2015 Carbon Neutral Action Report. This marks the sixth consecutive year we have achieved carbon neutrality, as part of the provincial public sector commitment to achieve net-zero emissions.

Fraser Health's 2015 carbon footprint represented 36,384 tonnes of carbon dioxide equivalent (tCO2e) – a 6.4 per cent decrease from 2014 and a 0.6 per cent decrease since 2007. Health care is an energy-intensive industry and one that continues to grow, with populations expanding and aging. In addition, our facilities and staffing portfolios have expanded significantly since 2007l – by 26 per cent and 23 per cent – respectively. Despite these pressures, Fraser Health's tCO2e per square meter of facility space has decreased by 21 per cent, a notable achievement.

In 2015, retrofits to 19 of our facilities were completed, which will result in significant energy savings of 4.4 eGWh (15,663 GJ) and GHG savings of 645 tCO2e. Several energy and greenhouse gas emission reduction projects were funded by the Carbon Neutral Capital Program (CNCP) including those at Chilliwack General, Delta, Eagle Ridge and Peace Arch Hospitals. Over $1 million was used from this fund to enable the majority of the emission savings stated above.

A $250,000 Green Revolving Fund was established this year, using internal and seed funding from BC Hydro to enable a revolving funding mechanism for future electricity reduction projects; and we continued to expand our engagement strategy with the Green+Leader Program, encouraging everyone to realize their role in supporting environmental stewardship.

To counteract emissions we were unable to reduce, we purchased carbon offsets from the Ministry of Environment at a total cost of $955,001.

In the year ahead, innovation and commitment will help us move our refreshed GreenCare environmental sustainability strategic framework forward, allowing us to better align energy management with population health and wellness. As well, we will continue implementing greenhouse gas emission and energy reduction projects and ensuring new buildings adopt energy efficient design principles.

Thank you to everyone who worked hard to reduce Fraser Health's carbon and environmental footprint. We know every individual can make a difference and by working together we are able to provide both quality care and a better health care environment for our patients and our communities.

fraserhealth Better health. Best in health care.

GreenCare™

Our CO_2 Footprint

2015 GREENHOUSE GAS EMISSIONS BREAKDOWN AND OFFSETS APPLIED TO BECOME CARBON NEUTRAL

Fraser Health reports its organizational carbon footprint based on guidelines provided by the Carbon Neutral Government Regulation (CNGR) and the B.C. Climate Action Secretariat (CAS).

CAS uses various elements of reporting, based on the GHG Protocol Corporate Standard, which has classified carbon reporting into three areas. Of these areas, CAS has determined that the scope of Fraser Health's assessed carbon footprint will comprise six different greenhouse gases, which are measured as tonnes of carbon dioxide equivalent (tCO_2e). These are organized in three main categories:

1. Stationary Fuel Combustion
2. Mobile Fleet Combustion
3. Supplies (paper)

FRASER HEALTH

Fraser Health's 2015 carbon emissions footprint was 36,381 tonnes of carbon dioxide equivalent (tCO_2e). This represents a 6.4 per cent decrease from 2014 and a decrease of 0.6 per cent in the carbon footprint since 2007. This is a great achievement since the Fraser Health facility and staffing portfolios have grown significantly during the same time period. Taking this into consideration the tCO2e / square meter of facility space has actually decreased by 21 per cent.

To become carbon neutral in 2015, Fraser Health purchased carbon offsets from the Ministry of Environment at a total cost of $955,001.

GreenCare™

CHANGES TO FRASER HEALTH'S PORTFOLIO AND WEATHER INFLUENCE

Fraser Health continues to grow and expand services to an increasing regional population. Since 2007, Fraser Health's useable facility space has increased by 26 per cent and full time equivalent (FTE) positions have increased by 23 per cent.

FRASER HEALTH

BUILDINGS, FTE AND WEATHER		2007	2010	2011	2012	2013	2014	2015
Distinct FHA Buildings		n/a	132	143	149	150	153	151
	% Owned	n/a	82%	82%	82%	82%	84%	84%
	% Leased	n/a	18%	18%	18%	18%	16%	16%
Usable Square Meters		611,075	667,654	677,965	686,512	711,701	768,716	767,060
Full-Time Employee Equivalents		12,260	13,682	14,788	14,158	14,359	14,772	15,044
Weather (summarized in Heating Degree Days)[1]		2,870	2,603	2,952	2,874	2,831	2,600	2,519

[1] Building energy consumption is influenced by climate conditions. Vancouver has a climate which predominately requires heating to satisfy internal building temperatures. Heating Degree Days (HDD's) is a to reflect the demand for energy needed to heat a building. Measurement designed. The HDHDs are taken from Abbotsford Airport.

Over 95 per cent of Fraser Health's carbon footprint is related to the energy consumption of 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. Carbon emissions associated with our use of natural gas make up 96 per cent of building emissions.

The carbon emissions reported are not adjusted for changes in weather and temperature. Vancouver and the Fraser Valley has a climate which predominately requires heating to satisfy internal building temperatures. The use of Heating Degree Days (HDD's) is a metric designed to reflect the demand for energy required to heat a building. The HDD's for 2015 were 3.6per cent below 2007 levels, which is reflected in a decreased demand for space heating, and natural gas use in 2015.

FRASER HEALTH

	Our Carbon Footprint (in tCO2e)	2007	2010	2011	2012	2013	2014	2015
CO_2	Mobile Fuel Combustion (Fleet & other mobile equipme	136	140	138	96	126	124	106
	Stationary Fuel Combustion & Electricity (Buildings)	35,404	36,270	40,036	40,306	38,622	37,739	34,863
	Supplies (Paper)	1,056	1,056	1,081	1,065	1,320	1,010	1434
	Total Carbon Footprint (tCO2e)	**36,596**	**37,466**	**41,255**	**41,467**	**40,067**	**38,873**	**36,403**
	Emissions Which Do Not Require Offsets [1]	-8	-8	-11	-11	-17	-12	-19
	Total Carbon Footprint (tCO2e)	36,587	37,458	41,244	41,455	40,050	38,862	36,384
	Adjustments / Corrections	0	0	0	0	0	-3	0
	Total Carbon Footprint - for offsetting (tCO2e)	**36,587**	**37,458**	**41,244**	**41,455**	**40,050**	**38,859**	**36,384**
$	Purchased Carbon Offsets	$ -	$ 936,459	$1,031,106	$1,036,384	$1,001,261	$ 971,550	$ 909,525
	Purchased Carbon Offsets +HST / GST	**$ -**	**$ 983,282**	**$1,082,661**	**$1,088,203**	**$1,051,324**	**$1,020,128**	**$ 955,001**
KPI	Emissions per Full-Time Employee	2.98	2.74	2.79	2.93	2.79	2.63	2.42
	Emissions per Meter Square Facility Space	0.060	0.056	0.061	0.060	0.056	0.051	0.047

[1] As outlined in the Carbon Neutral Government Regulation of the Greenhouse Gas Reductions Target Act, some emissions do not require offsets. calendar year noting that these amounts may include

GreenCare™

Actions Taken To Reduce Our CO_2 Footprint

2015 LIST OF ACTIONS TAKEN TO REDUCE CO_2 FOOTPRINT

Stationary Fuel Combustion, Electricity (Buildings)

- 19 energy retrofits were carried out in 2015. These will result in energy savings of 4.4 eGWh (15,663 GJ) and GHG savings of 645 tCO_2e.
- Fraser Health fully utilized the Carbon Neutral Capital Program (CNCP) to fund several energy / GHG emission reduction projects at Chilliwack General, Delta, Eagle Ridge and Peace Arch Hospitals. Over $1 million of CNCP funds, combined with internal capital funds and incentives, were invested and the majority of the above emissions savings are a result of this program.
- A $250,000 Green Revolving Fund (GRF) was set up for electricity conservation projects, using a combination of internal and BC Hydro seed funds.
- Over 20 optimization energy conservation measures were implemented at Ridge Meadows Hospital and Cottage and Worthington Pavilions, as part of the BC Hydro Continuous Optimization Program.
- The Fraser Health energy management team continued to roll out an engagement strategy with Facilities Maintenance and Operations (FMO) departments, adding Queens Park Care Centre to Peace Arch, Delta and Langley Memorial Hospitals. The outreach focused on energy use in buildings, identification of reduction opportunities, and optimization of existing equipment/plants.
- GreenCare's Energy and Environmental Sustainability Design Guidelines for new construction and major renovation projects were updated, with the intent to ensure new construction and major renovation projects in health care are built to the highest standard of human / environmental health, performance efficiency, and financial investment.
- The Energy and Environmental Sustainability Team continued to promote energy conservation and GHG emissions reduction through awareness and behaviour change programs, such as the Green+Leaders program, the GreenCare Community website, and the BC Hydro Workplace Conservation Awareness program.

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Mobile Fleet Combustion (fleet and other vehicles)

- Fleet vehicles have decreased from 45 to 43.
- 42 (36-120v; 6-240v) electric vehicle charging stations have been installed and activated at six core Fraser Health sites.
- A shuttle transports Fraser Health staff, ambulatory patients, family members and courier packages between three Fraser Health facilities and the SkyTrain station at Surrey City Centre. In 2015, the shuttle facilitated the transfers of 35,515 passengers and 34 packages.
- Fraser Health has 509 bike parking stalls.
- In 2015, Fraser Health launched a new carpool / ride-match program; Carpool.ca connects health care staff to carpool matches who work at the same Fraser Health site.

Supplies (paper)

- The Green+Leaders (G+L) program trains employees to help improve the environmental sustainability of health care operations across the Lower Mainland. In 2015, 13 volunteers joined the program, making a total of 76 active G+Ls in Fraser Health. As part of the waste reduction campaign, they were supplied with toolkits to reduce paper use through double-sided printing, paperless meetings and more.
- The online GreenCare Community (GCC) provides inspiration, tips and toolkits to reduce waste, including paper use. Fraser Health currently has 1,306 staff registered on the GCC.
- Fraser Health encouraged teleconferencing by installing web-conferencing hardware and software at various sites.


GREEN+LEADERS GreenCare™

Paperless Meetings Toolkit

Objective

A paperless meeting is characterized by the absence of paper copies of the agenda, minutes, presentations or other documents. The goal is to decrease paper use by eliminating the practice of printing documents to hand out at meetings.

Why paperless meetings

A paperless meeting eliminates paper and its related expenses. Required documents are distributed digitally ahead of time so people can review them or project them onto a screen. When a paper version is required, stop and think about how many copies you actually need: can people share or can they read on a laptop or from a projector? Paperless meetings can also assist your department in eliminating the risk associated with printing confidential information. If you can use virtual meetings, this further reduces expenses related to travel and employee impacts.

Above and Beyond Carbon Neutral Regulations

- 102 Fraser Health staff participated in the 2015 Clean Commuter & Wellness Challenge, a campaign to encourage staff to choose healthier transportation, such as walking, biking, carpooling or taking transit.
- Education and awareness communications via the GreenCare Community site, as well as stories published on Fraser Health's internal communication channels, continued to promote behaviour change and celebrate environmental sustainability success.
- Training, resources, toolkits, and recognition support staff champions through the Green+Leaders program.
- Professional development for Facilities Maintenance and Operations staff is provided through workshops and educational sessions sponsored by BC Hydro and Fortis BC.

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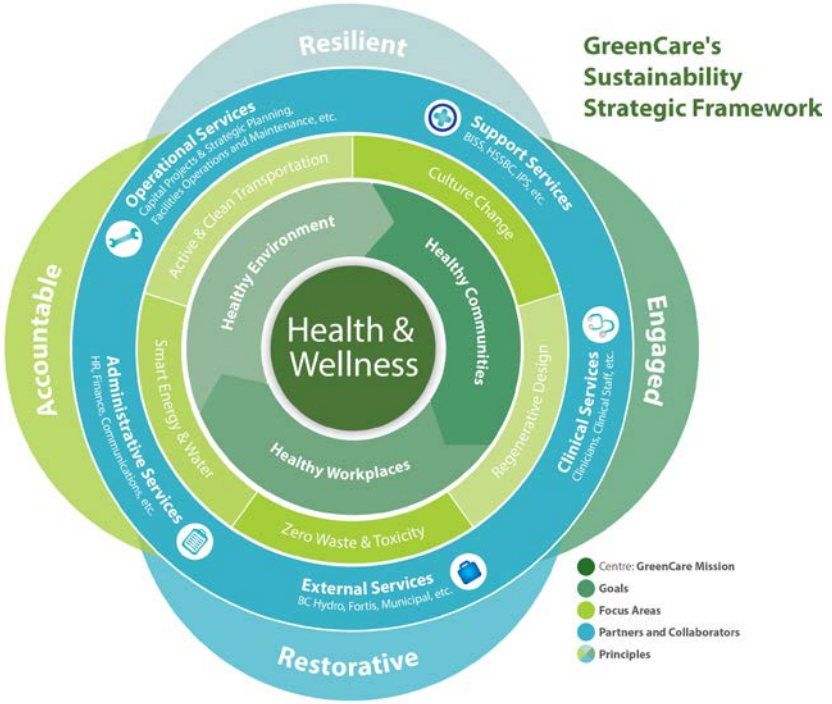
2016 WORK TO REDUCE FRASER Health's CO_2 FOOTPRINT

Fraser Health plans to continue reducing GHG emissions and Energy use by:

- Planning and implementing GHG / energy reduction projects in our existing building portfolio by utilizing the Carbon Neutral Capital Program (CNCP), and supplementing with internal capital funds and incentives from BC Hydro and Fortis BC.
- Continuing the optimization of mechanical plants and controls in our existing building portfolio.
- Reinvesting 90 per cent of electricity savings from F16 fiscal year – as part of the Green Revolving Fund – into electricity reduction projects.
- Engaging with design engineers to ensure our new buildings adopt energy efficient design principles.
- Continuing to engage with site operations employees and external consultants to identify GHG / energy reduction opportunities.
- Engaging and educating Fraser Health employees, through the Green+Leaders program, GreenCare Community and the BC Hydro Workplace Conservation Agreement.



- Building partnerships with cities and municipalities to investigate district energy systems opportunities with alternative energy solutions.
- Working with GreenCare's refreshed strategic framework, to advance health care practices that respect environmental stewardship, in recognition that the environmental impact from healthcare facilities, operations, and services influence the health of the populations and patients we serve. Fraser Health 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
- Developing a roadmap for climate adaption, including resiliency assessments for two Fraser Health sites.

GreenCare™

Success Story: A Coordinated Approach

In 2015, success for Fraser Health's Energy Management (EM) team was linked to increased collaboration and a coordinated approach.

"Over the years, we have made an effort to build relationships with Facilities Maintenance & Operations (FMO) teams across Fraser Health. Where we have established strong relationships and good communication, we have been rewarded with a better understanding of facility needs, and greater opportunity to identify and implement projects that enhance operations and improve health care facilities," says Robert Bradley, Energy Manager for Fraser Health.

Most recently, Fraser Health celebrated the success of these coordinated efforts at Delta Hospital (DEH) and Mission Memorial Hospital (MMH). In both cases, FMO teams worked closely with the Energy Management (EM) team, as well as external partners, to replace obsolete heating and domestic hot water systems with a new and more energy efficient boiler plant, as well as plumbing infrastructure. These projects have improved occupant comfort and supported patient care, while reducing energy and emissions.

The FMO and EM teams, with guidance from an engineering consultant, worked closely to determine viable and reliable energy saving solutions. Funding from the Carbon Neutral Capital Program (CNCP), internal capital, as well as financial incentives from both Fortis BC and BC Hydro were instrumental in completing these projects on budget and on time.

The project at DEH was completed in March 2015 and collaboration between EM and FMO continued throughout the year. Monitoring and continuous commissioning has resulted in increased savings beyond the original estimates. The overall natural gas and electricity savings are approximately 1,900 GJ, resulting in emission savings of over 80 tCO_2e. The MMH project was completed in March 2016 and the EM team will be applying the successful approach from DEH to maximize energy and emissions savings.

Energy Management and Facilities Management and Operations teams at Mission Memorial Hospital.

In BC, health authorities and affiliates are the province's second largest consumers of energy. This is due to the 24-hour operations of health care facilities, the use of specialized equipment, and the nature of services that health care provides.

By replacing, upgrading, and continuously commissioning equipment, we are reducing our annual energy costs and our carbon dioxide emissions. These savings have a positive impact, decreasing carbon pollution, improving air quality, increasing efficiencies, and ultimately ensuring that hospital infrastructure has a longer life with reduced cost in the long-term. All of this is made possible by the coordinated efforts of the FMO and EM team.

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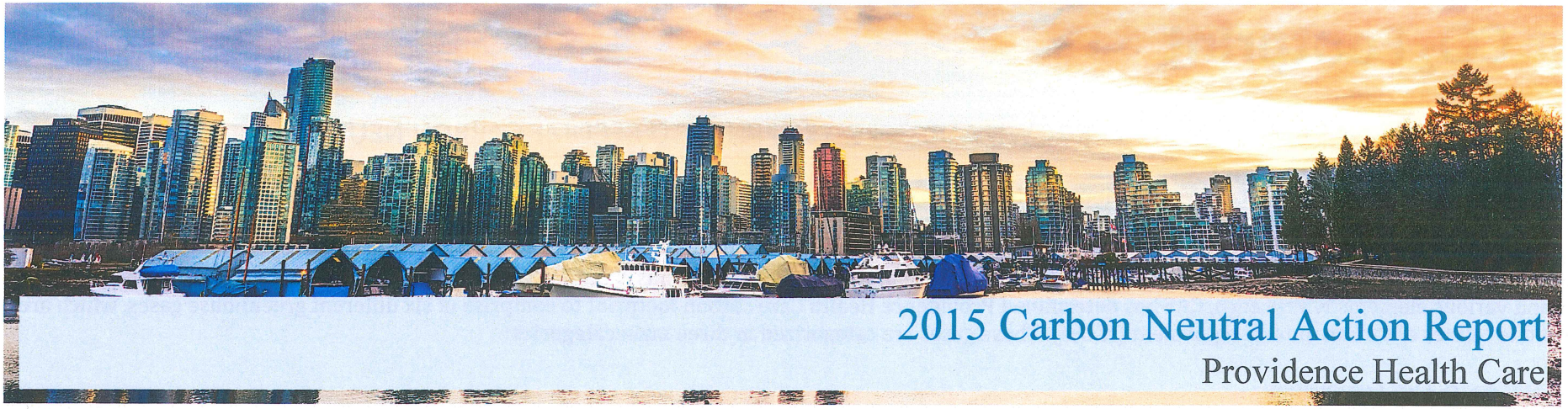

2015 Carbon Neutral Action Report

Providence Health Care

Executive Summary: Providence Health Care, CNAR 2015

Dianna Doyle, President & Chief Executive Officer

It gives me great pleasure to present Providence Health Care's (PHC) sixth annual Carbon Neutral Action Report (CNAR) for 2015.

For six consecutive years, PHC has been proud to be carbon neutral. 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.

With over one hundred years of service to the local community, we consider our role as stewards to be one of our most deeply held responsibilities. For us, that includes taking personal responsibility for the carbon footprint produced by our operations and facilities.

In 2015, PHC had a carbon footprint of 10,677 tonnes of carbon dioxide equivalent (tCO2e), which was offset at a cost at a total cost of $280,271. This represents a 7.4 percent decrease from the 2007 PHC carbon footprint. Compared to 2010, PHC's carbon offset cost has reduced by $47,973.

In 2016, 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.

Dianne Doyle

GreenCare™

Our CO_2 Footprint

2015 GREENHOUSE GAS EMISSIONS BREAKDOWN AND OFFSETS APPLIED TO BECOME CARBON NEUTRAL

Providence Health Care (PHC) reports its organizational carbon footprint based on guidelines provided by the Carbon Neutral Government Regulation (CNGR) and B.C. Climate Action Secretariat (CAS).

CAS uses various elements of reporting, based on the GHG Protocol Corporate Standard, which has classified carbon reporting into three scopes. Of these three scopes and various elements within each, CAS has determined Providence Health Care carbon footprint to comprise of six different greenhouse gases, which are converted to tonnes of carbon dioxide equivalent (tCO_2e). These gases are categorized in three main categories:

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

Providence Health Care

PHC's 2015 Carbon footprint offset was 10,677 tonnes of carbon dioxide equivalent (tCO2e). That represents a 7.4% decrease in PHC's carbon footprint since 2007.

Over 95% of Providence Health Care's in-scope emissions are attributed to the building portfolio.

To become carbon neutral in 2015, Providence Health Care purchased carbon offsets at a total cost of $280,271.

GreenCare™

CHANGES TO PROVIDENCE HEALTH CARE'S PORTFOLIO AND WEATHER INFLUENCE

PHC's useable facility space (measured in usable square meters) has increased by almost 2 percent since 2007. During the same time, the number of staff (measured in full time equivalents) has increased by 20%.

PHC's 2015 emissions per full-time employee (2.14 tCO_2e/FTE) have decreased by 22.8% since 2007. PHC's 2015 emissions per unit of floor area (0.06 tCO_2e/m^2) have decreased 9.1% since 2007.

PHC

BUILDINGS, FTE AND WEATHER		2007	2010	2011	2012	2013	2014	2015
Distinct PHC Buildings		n/a	35	39	37	40	40	36
	% Owned	n/a	94%	93%	93%	91%	92%	92%
	% Leased	n/a	6%	7%	7%	9%	8%	8%
Usable Square Meters		174,002	182,161	182,994	176,186	179,222	178,157	177,216
Full-Time Employee Equivalents *		4,160	4,311	4,627	5,026	4,882	4,898	4,987
Weather (summarized in Heating Degree Days) [1]		2,870	2,621	2,963	2,859	2,820	2,627	2,489

[1] Building energy consumption is influenced by climate conditions. Vancouver has a climate which predomintaly requires heating to satisfy internal building temperatures. Heating Degree Days (HDD's) is a measurement designed to reflect the demand for energy needed to heat a building.

The carbon emissions reported are not adjusted for changes in climate temperatures. The use of Heating Degree Days (HDD's) is a metric designed to reflect the demand for energy required to heat a building. The HDD's for 2015 were 13% below those recorded in 2007, thus the demand for space heating, and hence natural gas use would have been lower compared to the demand in 2007.

PHC

	Our Carbon Footprint (in tCO2e)	2007	2010	2011	2012	2013	2014	2015
CO_2	Mobile Fuel Combustion (Fleet & other mobile equipme	15	15	21	47	47	43	45
	Stationary Fuel Combustion & Electricity (Buildings)	11,448	11,265	11,892	12,081	11,440	11,145	10,267
	Supplies (Paper)	70	70	72	271	260	358	371
	Total Carbon Footprint (tCO2e)	**11,533**	**11,351**	**11,985**	**12,400**	**11,747**	**11,546**	**10,682**
	Emissions Which Do Not Require Offsets [1, 2]	-1	-1	-4	-7	-5	-5	-5
	Total Carbon Footprint (tCO2e)	11,532	11,350	11,981	12,393	11,742	11,542	10,677
	Adjustments / Corrections	0	0	0	0	0	0	0
	Total Carbon Footprint - for offsetting (tCO2e)	**11,532**	**11,350**	**11,981**	**12,393**	**11,742**	**11,542**	**10,677**
$	Purchased Carbon Offsets	$ -	$ 293,075	$ 289,550	$ 309,575	$ 294,525	$ 288,550	$ 266,925
	Purchased Carbon Offsets +HST / GST	**$ -**	**$ 328,244**	**$ 324,296**	**$ 325,054**	**$ 309,251**	**$ 302,978**	**$ 280,271**
KPI	Emissions per Full-Time Employee	2.77	2.63	2.59	2.47	2.41	2.36	2.14
	Emissions per Meter Square Facility Space	0.066	0.062	0.065	0.070	0.066	0.064	0.060

[1] It was estimated that Fugitive Emissions from cooling equipment comprise less then 0.01% of Providence Health's total emissions and an ongoing effort to collect or estimate emissions from this source would be disproportionately onerous. 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.

[2] As outlined in the Carbon Neutral Government Regulation of the Greenhouse Gas Reductions Target Act, some emissions do not require offsets.

GreenCare™

Actions Taken To Reduce Our CO_2 Footprint

2015 LIST OF ACTIONS TAKEN TO REDUCE CO_2 FOOTPRINT

Stationary Fuel Combustion, Electricity (Buildings)

- PHC completed the investigation phase of two energy savings projects in 2015; at St. Vincent's Hospital: Langara, and Holy Family Hospital, as part of BC Hydro's Continuous Optimization Program.

- PHC's Energy Management team were involved in updating GreenCare's Energy and Environmental Sustainability Design Guidelines for New Construction and Major Renovation projects with the intent of ensuring health care related new construction and major renovation projects are built to the highest standard of human / environmental health, performing efficiency, and financial investment.

- Initiated the development of an engagement and integration strategy with Facilities Strategic Planning and Capital Project teams to embed energy conservation principles in their process and projects.

- PHC's energy team continue to promote energy conservation and GHG emissions reduction through awareness and behaviour change programs, such as Green+Leaders, GreenCare Community website and the BC Hydro Workplace Conservation Agreement program

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Mobile Fleet Combustion (Fleet and other vehicles)

In 2015, PHC's Transportation Demand Management Coordinator worked to improve, promote and establish alternative transportation

- PHC installed one 120v electric vehicle charging station at St. Paul's Hospital, which is located downtown Vancouver in the West End (51 regular plug-ins are also available throughout the parkade).
- PHC partners with Provincial Health Services Authority and Vancouver Coastal Health to provide a shuttle service between sites. In 2014, PHC had 23,980 (112, 716 overall total for 2015) health care staff used the shuttle from various Vancouver sites.
- 67 PHC staff participated in the 2015 Clean Commuter & Wellness Challenge (CCWC); a campaign to motivate PHC staff to leave their car at home and commute in an active and clean way.
- PHC has 226 bike parking stalls.

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.
- PHC encouraged teleconferencing for meetings by installing web-conferencing hardware / software at various sites.

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

- The **Green+Leaders** (G+L) behaviour change program at PHC now has a total of nine active staff volunteers who help improve the environmental sustainability of PHC operations.
- PHC continues to support the **GreenCare Community** (GCC) site, which provides tips and toolkits on using less paper, as well as other environmental sustainability initiatives linked to health and wellness. In 2015, PHC had 461 staff registered on the site.
- Education and awareness communication via the **GreenCare Community**, as well as stories published in PHC news and other communication channels various internal communication channels, continue to champion behaviour change and celebrate environmental sustainability success.
- Provided training, resources, toolkits and recognition to support the **Green+Leader program** and various green teams in PHC.
- Support professional development through workshops and educational sessions sponsored by **BC Hydro** and **Fortis BC**.

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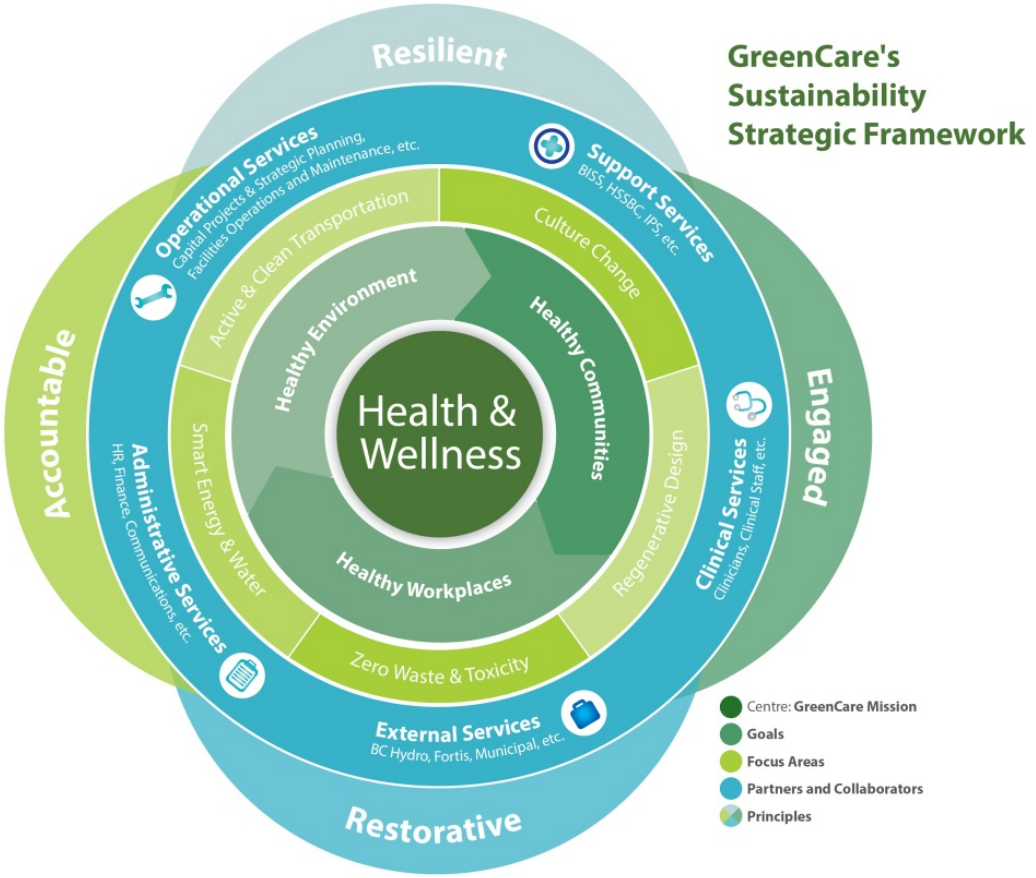
2016 WORK TO REDUCE THE ORGANIZATION'S CO_2 FOOTPRINT

Providence Health Care's plans to continue reducing GHG emissions and Energy use in the following ways:

- **Optimizing our Existing Buildings:** Planning and implementing GHG / Energy reduction projects in our existing building portfolio by utilizing the Carbon Neutral Capital Program (CNCP) as our primary funding source.
- **Influencing New Construction:** Implementing aggressive project-specific energy performance targets to ensure that our new buildings are as energy efficient as possible.
- **Systemic Change:** Implementing standards, guidelines, and processes to embed energy management principles further into standard operations.
- **Behaviour Change:** Engaging and educating our staff, via the existing Green + Leaders program, GreenCare Community and the BC Hydro Workplace Conservation Agreement.
- **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.
- **Align with our Core Mandate:** Working with GreenCare's refreshed Strategic Framework; Providence Health Care 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. Providence Health Care 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.



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SUCCESS STORY PROFILE:

Surjit Heer, Mechanical Engineer at Holy Family Hospital, PHC.

The Facilities Maintenance and Operations (FMO) staff at Providence Health Care are pivotal in their role of supporting energy efficiency projects and upgrades that contribute to healthier facilities, stronger communities and a healthier environment.

Read our profile of Surjit Heer, as we learn how his can-do, solution-focused attitude saves money for PHC, ensures patient comfort, and simultaneously seeks energy saving opportunities.

Q. Tell us about yourself and describe your role within health care.

I work in PHC's Holy Family Hospital as a Maintenance Engineer. I started working at this facility about two years ago. Before this, I worked at Mount St. Joseph's Hospital for about one and half years and before that at St. Vincent's Hospital, Langara for about four and half years.

Before joining PHC I worked at Telus World of Science for 19 years as an operating engineer. The experience I got from that work has been invaluable in my work with PHC.

Q. As a Maintenance Engineer with PHC, what do you do?

I do everything in relation to running the heating, ventilating, and air conditioning (HVAC) system, which means ensuring that the temperature of the hospital is comfortable for patients and staff, while also considering energy savings, and costs.

I make sure that I set all the heating and cooling systems to a comfortable level and make sure that I check with staff and residence living in this facility. By optimizing the controls and scheduling, I am able to set fans so that they run when the area is occupied and turn off when the area is empty. As a result of controlling the HVAC systems, I am able to save electricity and gas, which ultimately saves money on operational costs.

Sometimes this job involves a lot of running around, as I am the go-to guy in terms of fixing and keeping systems and equipment working. Luckily, I am part of the Vancouver soccer league, which means that I keep fit for the demands of this job!

Q. What support do you receive for energy management at PHC?

One thing I have learnt in this role is how to fix all sorts of equipment. I have acquired new skills that I am able to apply this to my work, which in the end saves us from having to hire external contractors.

I really appreciate working with the FMO team at St. Paul's, and I have received support to expand my skill set and been encouraged in the work that I do. It is also positive to work with the Energy Management team at PHC. It is good to be in contact with them so that we can help each other to identify energy saving projects.

Q. What are you proud of in your work?

The thing I am proud of in my work is that I am able to save a lot of gas, heat, emissions and pollutions. We are saving money, and we are also reducing pollution, which is good for the organization and really good for the whole world, and the environment.

As well, I feel really happy to respond to people. I do really want to make sure people are comfortable. When someone tells me that it's too hot, or too cold, I want to fix it. If you have a problem let me know, I can find a solution.

A happy guy makes a healthy guy. And there is a way to have a healthy building that is positive for residents and is energy efficient.

Surjit Heer, Maintenance Engineer, Holy Family Hospital, PHC.

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2015 Carbon Neutral Action Report
Provincial Health Services Authority

Executive Summary: Provincial Health Services Authority

Carl Roy, President & Chief Executive Officer

Over the years, Provincial Health Services Authority (PHSA) has dedicated more time and resources to raising environmental awareness amongst our staff, our patients and the communities we serve.

I am pleased to present the sixth annual Carbon Neutral Action Report (CNAR), which highlights PHSA's leadership in reducing our carbon footprint and linking health and wellness to environmental sustainability and accountability. At a time when many of us feel a growing concern for our planet's health, the changes we continue to make in our workplace have earned PHSA the designation of one of Canada's Greenest Employers, for the sixth year in a row!

In 2015, PHSA had a carbon footprint of 17,468 tonnes of carbon dioxide equivalent (tCO2e), which was offset at a total cost of $ 458,535.00. This represents a 27 percent decrease from the 2007 PHSA carbon footprint. Compared to 2010, PHSA's carbon offset cost has reduced by $244,825. As well, PHSA completed several projects in 2015, with a total estimated savings of 166,206 kWh of electricity and 4 tCO_2e. PHSA partially completed five other energy savings projects in 2015, with estimated savings once complete of 1.3 GWh of electricity, 17,796 GJ of gas, and 922 tCO_2e.

Many of the energy projects that we list in this report would not have been possible without the coordinated efforts of PHSA staff working together, and in collaboration with external stakeholders. PHSA's Energy Management team worked closely with Facilities Maintenance and Operations (FMO) teams on projects that reduce emissions in PHSA buildings. These projects have positive impacts; saving energy, decreasing air pollution, and ultimately adding to the health and wellness of facilities, workplaces and the communities we serve.

Provincial Health Services Authority
Province-wide solutions. Better health.

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Our CO_2 Footprint

2015 GREENHOUSE GAS EMISSIONS BREAKDOWN AND OFFSETS APPLIED TO BECOME CARBON NEUTRAL

Provincial Health Services Authority (PHSA) reports its organizational carbon footprint based on guidelines provided by the Carbon Neutral Government Regulation (CNGR) and the Climate Action Secretariat (CAS).

The CAS uses various elements of reporting, based on the GHG Protocol Corporate Standard, which has classified carbon reporting into three scopes. Of these three scopes and various elements within each, CAS has determined Provincial Health Services Authority's carbon footprint to comprise of six different greenhouse gases, which are converted to tonnes of carbon dioxide equivalent (tCO_2e). These gases are categorized in three main categories:

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

Provincial Health Services Authority

PHSA's 2015 Carbon footprint offset was 17,468 tonnes of carbon dioxide equivalent (tCO_2e). That represents a 27% decrease in PHSA's carbon footprint since 2007.

Over 98% of Provincial Health Services Authorities in-scope emissions are attributed to the building portfolio.

To become carbon neutral in 2015, Provincial Health Services Authority purchased carbon offsets at a total cost of $ 458,535.

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CHANGES TO PHSA PORTFOLIO AND WEATHER INFLUENCE

PHSA's useable facility space has decreased 9.5% since 2007, which is largely due to the decommissioning of the Riverview property. During the same time, the number of staff (measured in full time equivalents) has increased by 45.3%. During this time, PHSA has controlled increases in facility space by seeking opportunities to optimize existing space use while maintaining safety and efficiency.

In 2015, emissions per full-time employee at PHSA (1.61 tCO_2e/FTE) have decreased by 49.9% since 2007. And emissions per unit of floor area (0.05 tCO_2e/m^2) have decreased 19.7% since 2007.

The carbon emissions reported are not adjusted for changes in climate temperatures. The use of Heating Degree Days (HDD's) is a metric designed to reflect the demand for energy required to heat a building. The HDD's for 2015 were 13% below those recorded in 2007, thus the demand for space heating, and hence natural gas use would have been lower compared to the demand in 2007.

PHSA

	Our Carbon Footprint (in tCO2e)	2007	2010	2011	2012	2013 [2]	2014	2015
CO_2	Mobile Fuel Combustion (Fleet & other mobile equipment	189	195	180	203	153	159	159
	Stationary Fuel Combustion & Electricity (Buildings)	22,930	20,413	22,497	24,950	19,890	17,923	16,426
	Supplies (Paper)	891	891	912	839	771	828	882
	Total Carbon Footprint (tCO2e)	**24,010**	**21,499**	**23,590**	**25,992**	**20,815**	**18,911**	**17,467**
	Emissions Which Do Not Require Offsets [1]	-9	-9	-9	-10	-10	-9	-10
	Total Carbon Footprint (tCO2e)	24,002	21,490	23,581	25,981	20,805	18,902	17,458
	Adjustments / Corrections	0	0	0	0	0	0	10
	Total Carbon Footprint - for offsetting (tCO2e)	**24,002**	**21,490**	**23,581**	**25,981**	**20,805**	**18,902**	**17,468**
$	Purchased Carbon Offsets	$ -	$ 628,000	$ 485,700	$ 644,750	$ 538,025	$ 472,625	$ 436,700
	Purchased Carbon Offsets +HST / GST	**$ -**	**$ 703,360**	**$ 543,984**	**$ 676,988**	**$ 564,926**	**$ 496,256**	**$ 458,535**
KPI	Emissions per Full-Time Employee	3.21	2.26	2.61	2.44	2.05	1.86	1.61
	Emissions per Meter Square Facility Space	0.062	0.055	0.060	0.065	0.061	0.055	0.050

[1] As outlined in the Carbon Neutral Government Regulation of the Greenhouse Gas Reductions Target Act, some emissions do not require offsets.

[2] Carbon Footprint adjusted for 2013 due to building data corrections from the Climate Action Secretariat.

GreenCare™

Actions Taken To Reduce Our CO_2 Footprint

2015 LIST OF ACTIONS TAKEN TO REDUCE CO_2 FOOTPRINT

Stationary Fuel Combustion, Electricity (Buildings)

PHSA completed several projects in 2015, with a total estimated savings of 166,206 kWh of electricity and 4 Tonnes CO_2e.

- **BCCN Parkade Lighting Upgrade**: A lighting upgrade project was completed at the BC Cancer Agency's Centre for the North (BCCN), which involved converting parkade lighting to LED technology, adding scheduling and occupancy controls to the indoor parkade lighting, and daylight controls to the outdoor parkade lighting. Estimated annual savings are approximately 111,000 KWh of electricity.

- **Coil Cleaning:** Coil cleaning was completed at two sites (Sunny Hill Health Centre and BC Cancer Agency's Vancouver Centre) to reduce fan energy by removing dirt from heating and cooling coils. This initiative has the added benefit of improving indoor air quality. Estimated annual savings are approximately 55,000 kWh of electricity.

PHSA partially completed five other energy savings projects in 2015, with estimated savings once complete of 1.3 GWh of electricity, 17,796 GJ of gas, and 922 Tonnes CO_2e.

- **TRB Optimization:** An optimization project at the Translational Research Building (TRB) on the BC Children's and Women's campus (commonly referred to as C&W campus).

- **MHB Optimization**: An optimization project at the Mental Health Building (MHB) on the C&W campus consisting mainly of hydronic adjustments.

- **CFRI N&S Cooling Towers**: Two cooling towers were replaced that serve the Child and Family Research Institute (CFRI) North and South wings on the C&W campus. The new cooling towers are "induced draft" towers that consume one eighth as much energy, while delivering the same capacity.

- **CFRI N&S Retro-Commissioning**: Phase 2 of a retro-commissioning project at CFRI N&S was largely completed, consisting primarily of ventilation adjustments.

- **BCCRC Heat Recovery Chiller**: A major heat recovery chiller project spanning two fiscal years was partially completed in 2015 at the BC Cancer Research Centre (BCCRC) with significant projected energy savings through an innovative mechanical design. This project is funded through the Carbon Neutral Capital Program (CNCP).

Stationary Fuel Combustion, Electricity (Buildings) Continued.

PHSA's Energy Management team were involved in updating GreenCare's Energy and Environmental Sustainability Design Guidelines for New Construction and Major Renovation projects with the intent of ensuring health care related new construction and major renovation projects are built to the highest standard of human / environmental health, performing efficiency, and financial investment.

PHSA's energy team continue to promote energy conservation and GHG emissions reduction through awareness and behaviour change programs, such as Green+Leaders, GreenCare Community website and the BC Hydro Workplace Conservation Agreement program.

GreenCare™

Mobile Fleet Combustion (Fleet and other vehicles)

In 2015, PHSA's Transportation Demand Management Coordinator worked to improve, promote and establish alternative transportation opportunities for PHSA staff.

- PHSA installed six (5-120v; 1-240v) electric vehicle-charging stations across two core sites.
- PHSA partnered with Vancouver Coastal Health and Providence Health Care to provide a shuttle service between sites. In 2015, the shuttle provided transportation for 89,149 staff to and from PHSA facilities, and possibly removed the same number of single occupancy vehicle trips from the road.
- PHSA introduced a staff shuttle between C&W campus, staff off-site parking lot and King Edward Station that transported 102,818 passengers in 2015.
- PHSA has 739 bike parking stalls.

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.
- PHSA encouraged teleconferencing for meetings by installing web-conferencing hardware and software at various sites.

PHSA

BUILDINGS, FTE AND WEATHER	2007	2010	2011	2012	2013	2014	2015
Distinct PHSA Buildings	n/a	78	80	84	83	84	73
% Owned	n/a	57%	57%	57%	68%	67%	68%
% Leased	n/a	43%	43%	43%	32%	33%	32%
Usable Square Meters	388,990	389,883	392,728	400,444	342,311	344,956	352,229
Full-Time Employee Equivalents	7,471	9,492	9,022	10,646	10,158	10,535	10,854
Weather (summarized in Heating Degree Days) [1]	2,870	2,621	2,963	2,859	2,820	2,627	2,489

[1] Building energy consumption is influenced by climate conditions. Vancouver has a climate which predomintaly requires heating to satisfy internal building temperatures. Heating Degree Days (HDD's) is a measurement designed to reflect the demand for energy needed to heat a building.

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

- The **Green+Leaders** behaviour change program recruited 10 new volunteers from PHSA in 2015, making a total of 76 active staff volunteers across PHSA.
- PHSA 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. In 2015, PHSA had 970 staff registered on the site.
- Education and awareness communication via the **GreenCare Community**, as well as stories published in PHSA news and other communication channels various internal communication channels, continue to champion behaviour change and celebrate environmental sustainability success.
- Provided training, resources, toolkits and recognition to support the **Green+Leader program** and various green teams in PHSA.
- Support professional development through workshops and educational sessions sponsored by **BC Hydro** and **Fortis BC**.

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2016 WORK TO REDUCE THE ORGANIZATION'S CO_2 FOOTPRINT

Provincial Health Services Authority plans to continue reducing GHG emissions and energy use by:

- **Optimizing our Existing Buildings:** Planning and implementing GHG / energy reduction projects in our existing building portfolio by utilizing the Carbon Neutral Capital Program (CNCP) as our primary funding source.

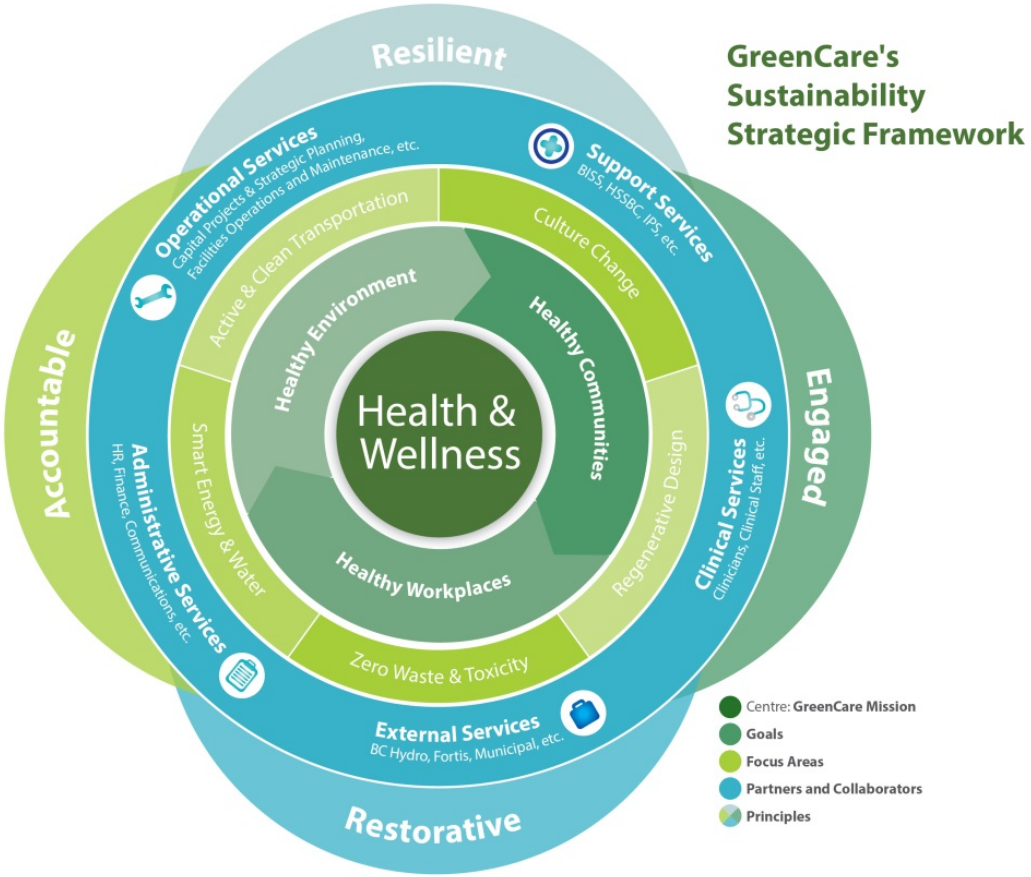
- **Influence New Construction:** Implement aggressive project-specific energy performance targets to ensure that our new buildings are as energy efficient as possible.

- **Systemic Change:** Implementing standards, guidelines, and processes to embed energy management principles further into standard operations.

- **Behaviour Change:** Engaging and educating our staff, via the existing Green+Leaders program, GreenCare Community and the BC Hydro Workplace Conservation Agreement.

- **Innovation and Demonstration**: Leverage the innovative Green Revolving Fund approach that has been initiated for PHSA to support ongoing investment in energy conservation through utility cost avoidance achieved through conservation.

- **Align with our Core Mandate:** Working with GreenCare's refreshed Strategic Framework; Provincial Health Services Authority 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. Provincial Health Services Authority 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.



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SUCCESS STORY

Since energy used in buildings represents over 90% of PHSA's carbon footprint, it is a key focus of the organization's drive for carbon neutrality. For that reason, PHSA's Energy Management team looks to optimize existing buildings, upgrading infrastructure and equipment to advance energy efficiency and healthy workplaces.

In 2015, PHSA's Energy Management team worked in collaboration with Todd Jacques, Director of Facilities at the Child and Family Research Institute (CFRI) to implement several energy savings projects and enhance PHSA's facilities.

The CFRI is the largest research institute of its kind in Western Canada in terms of people, productivity, funding and size. It is comprised of more than 264,000 square feet spanning five buildings with various research centers, including the Centre for Molecular Medicine and Therapeutics (CMMT), as well as research groups focused on reproduction and pregnancy, nutrition, immunity, disease and genetics. The building that houses the CMMT is one of the five CFRI buildings located in the northwest corner of BC Children's and Women's (C&W) campus and home to laboratories and clinic research areas where scientists and researchers work to solve genetic questions surrounding human illness and well-being.

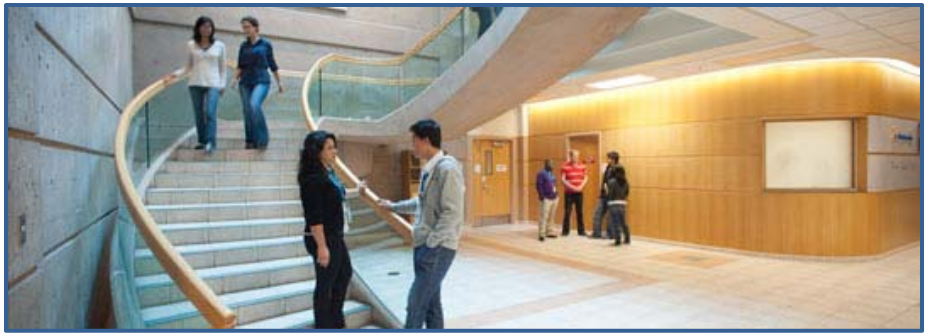
An urgent need was identified to replace the cooling towers for the building to reliably maintain appropriate thermal conditions for the building, particularly important for research laboratories and clinic research areas.

PHSA's Energy Management team saw an opportunity to support this initiative due to the significant energy savings potential. The project was implemented to replace the old cooling towers with two new towers, which are eight times more energy efficient, achieving estimated savings of 117,000 electrical kWh each year. These particular cooling towers were chosen because they are "induced draft" technology and will further improve energy efficiency, reduce energy costs, and help cut PHSA's carbon footprint.

"It was important for CFRI to reduce our energy output for a variety of reasons: environmentally, to reduce our impacts at the C&W site, and for the expected financial benefits that result from energy savings. All the [energy conservation] projects ran smoothly and I look forward to seeing the results," says Jacques.

PHSA's Energy Management team noted that the project ran smoothly, in large part, as a result of Jacques' willingness to try new energy saving technologies and the efforts that his Facilities Maintenance and Operations team to support and achieve project completion. Jacques coordinated various contractors, worked in collaboration with multiple stakeholders to ensure the project was completed on time, and provided funding for the energy controls portion.

This project is PHSA's CNAR success story, as the energy savings were made possible due to a high level of cooperation, coordination and engagement from Todd Jacques and his team. This aligns with GreenCare's vision that a collaborative approach is needed to create a sustainable and environmentally responsible health care system, which continues to advance health and wellness in its broadest sense.



Centre for Molecular Medicine & Therapeutics

GreenCare™

2015 Carbon Neutral Action Report

Vancouver Coastal Health Authority

Executive Summary: Vancouver Coastal Health, CNAR 2015

Mary Ackenhusen, President and Chief Executive Officer

I am pleased to present Vancouver Coastal Health's 2015 Carbon Neutral Action Report. For the sixth consecutive year, Vancouver Coastal Health has achieved carbon neutrality, as part of the provincial public sector commitment to achieve net-zero emissions.

In 2015, Vancouver Coastal Health's carbon emissions footprint was 39,484 tonnes of carbon dioxide equivalent (tCO2e) – a 7.7% decrease from 2014 and a 21% decrease in the carbon footprint since 2007. To counteract emissions we were unable to reduce otherwise, we purchased carbon offsets from the Ministry of Environment at a total cost of $986,239.

In 2015, Vancouver Coastal Health continued its effort to further reduce our environmental impact by completing 18 energy savings projects for a total estimated savings of 2.63 GWh of electricity and 19,096 GJ of natural gas a reduction of 992 tCO2e of GHG. As well, VCH fully utilized the Carbon Neutral Capital Program (CNCP), to fund several energy / GHG emission reduction projects at Powell River Hospital. CNCP funds, combined with incentive funding were invested into an energy efficiency upgrade project, which resulted in 79 tC02e emission savings.

High levels of staff engagement and coordinated efforts make Vancouver Coastal Health's energy reduction projects possible. The success story in this report highlights the value of a team orientated approach, celebrating the collaboration between VCH's Energy Management team, Powell River's Facilities Maintenance and Operations team, and external stakeholders. The results? A successful project with estimated annual savings of 16,106 kWh's of electricity; 1,518 GJ's of natural gas; $20,202 in avoided energy and maintenance costs; and 79 tCO_2e of greenhouse gas emissions. These reduced emissions and financial savings, ultimately add to the health of our buildings, benefit the wellbeing of the communities we serve, and would not have been possible without collaboration and engaged staff.

As 2015 progresses, I will continue to support the innovative and collaborative approach, which drives VCH's commitment to create sustainable health care.

Our CO_2 Footprint

2015 GREENHOUSE GAS EMISSIONS BREAKDOWN AND OFFSETS APPLIED TO BECOME CARBON NEUTRAL

Vancouver Coastal Health (VCH) reports its organizational carbon footprint based on guidelines provided by the Carbon Neutral Government Regulation (CNGR) and B.C. Climate Action Secretariat (CAS).

CAS uses various elements of reporting, based on the GHG Protocol Corporate Standard, which has classified carbon reporting into three scopes. Of these three scopes and various elements within each, CAS has determined Vancouver Coastal Health's carbon footprint to comprise of six different greenhouse gases, which are converted to tonnes of carbon dioxide equivalent (tCO_2e). These gases are categorized in three main categories:

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

Vancouver Coastal Health

VCH's 2015 Carbon footprint offset was 39,484 tonnes of carbon dioxide equivalent (tCO2e). That represents a 21.2% decrease in VCH's carbon footprint since 2007.

Over 98% of Vancouver Coastal Health's in-scope emissions are attributed to the building; owned and leased sites.

To become carbon neutral in 2015, Vancouver Coastal Health purchased carbon offsets at a total cost of $986,239.

GreenCare™

CHANGES TO VANCOUVER COASTAL HEALTH'S PORTFOLIO AND WEATHER INFLUENCE

VCH has increased its useable facility area growth since 2007 by 12%. VCH has a staff population of 13,179 full-time equivalent staff.

The vast majority of Vancouver Coastal Health's carbon footprint is related to the energy consumption from its owned and leased buildings. 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 93.5% of the total building emissions.

The carbon emissions reported are not adjusted for changes in climate temperatures. The use of Heating Degree Days (HDD's) is a metric designed to reflect the demand for energy required to heat a building. The HDD's for 2015 were 13% below those recorded in 2007, thus the demand for space heating, and hence natural gas use would have been lower compared to the demand in 2007.

VCH (includes Bella Coola and RW Large)

	Our Carbon Footprint (in tCO2e)	2007	2010 [3]	2011 [3]	2012	2013 [3]	2014	2015
CO_2	Mobile Fuel Combustion (Fleet & other mobile equipment	104	107	49	89	59	57	61
	Stationary Fuel Combustion & Electricity (Buildings)	48,536	45,357	46,420	45,447	43,873	42,768	38,682
	Supplies (Paper)	1,402	1,402	1,435	636	871	797	824
	Total Carbon Footprint (tCO2e)	**50,042**	**46,866**	**47,904**	**46,172**	**44,804**	**43,623**	**39,567**
	Emissions Which Do Not Require Offsets [1, 2]	-19	-20	-22	-25	-25	-23	-19
	Total Carbon Footprint (tCO2e)	50,023	46,846	47,882	46,147	44,779	43,600	39,484
	Adjustments / Corrections	0	-203	-241	-256	-399	-815	0
	Total Carbon Footprint - for offsetting (tCO2e)	**50,023**	**46,643**	**47,641**	**45,891**	**44,380**	**42,785**	**39,484**
$	Purchased Carbon Offsets[4]	$ -	$ 1,147,124	$ 1,188,675	$ 1,142,350	$ 1,128,875	$ 1,089,325	$ 939,275
	Purchased Carbon Offsets + HST/GST [5]	$ -	**$ 1,284,779**	**$ 1,331,316**	**$ 1,199,468**	**$ 1,185,319**	**$ 1,143,791**	**$ 986,239**
KPI	Emissions per Full-Time Employee	4.26	3.43	3.68	3.45	3.26	3.15	3.00
	Emissions per Meter Square Facility Space	0.083	0.072	0.074	0.070	0.068	0.065	0.058

[1] It was estimated that Fugitive Emissions from cooling equipment do not comprise more then 0.01% of VCH's total emissions and an ongoing effort to collect or estimate emissions from this source would be disproportionately onerous. 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.

[2] As outlined in the Carbon Neutral Government Regulation of the Greenhouse Gas Reductions Target Act, some emissions do not require offsets.

[3] Carbon Footprint adjusted for 2010, 2011 and 2013 due to building data corrections from the Climate Action Secretariat.

[4] Purchased Carbon Offsets represent the actual invoice amount to purchase offsets in the specific calendar year.

[5] The tax included in the Purchased Carbon Offsets in 2010-2011 included 12% HST, from 2012 onwards only 5% GST is included.

GreenCare™

Actions Taken To Reduce Our CO_2 Footprint

2015 LIST OF ACTIONS TAKEN TO REDUCE CO_2 FOOTPRINT

Stationary Fuel Combustion, Electricity (Buildings)

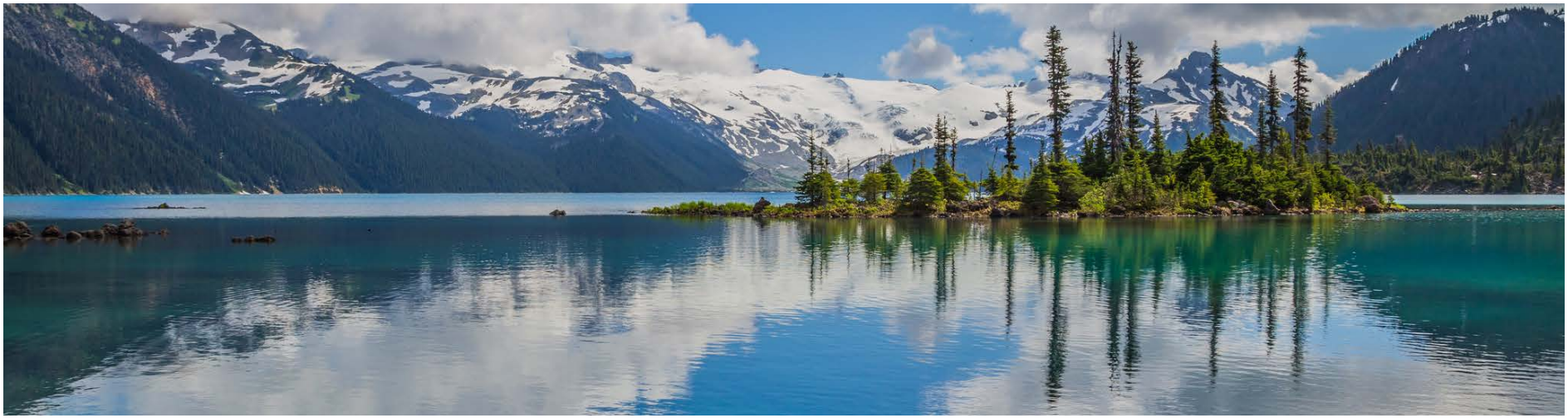
- In 2015, Vancouver Coastal Health completed 18 energy savings projects for a total estimated saving of 2.63 GWh of electricity and 19,096 GJ of natural gas a reduction of 992 tCO2e of GHG.

- Vancouver Coastal Health fully utilized the Carbon Neutral Capital Program (CNCP), to fund several energy / GHG emission reduction projects. Over $1.1m of CNCP funds, combined with incentive funding was invested into a boiler upgrade project, which resulted in 79 tC02e emission savings.

- VCH is in the fifth year of the Green Revolving Fund (GRF), a successful project that re-invests funds created through energy savings.

- VCH continues to embed sustainability across the organization by supporting staff engagement initiatives such as the GreenCare Community site, which has 1,635 registered VCH staff and provides tips and toolkits on energy reduction and other environmental initiatives. As well, the Green+Leader program continues to train VCH staff as sustainability champions, along with the BC Hydro Workplace Conservation Agreement program.

- VCH updated our Energy and Environmental Sustainability Design Guidelines for New Construction and Major Renovation projects with the intent to ensure health care related new construction and major renovation projects are built to the highest standard of human / environmental health, performing efficiency, and financial investment.



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Mobile Fleet Combustion (Fleet and other vehicles)

In 2015, VCH's Transportation Demand Management Coordinator and Active Transportation Facilitator worked to improve, promote and establishe alternative transportation opportunities for VCH staff.

- The VGH Cycling Centre provided access to a state-of-the-art end-of-trip facility, with more than 170 indoor bicycle parking spots, including 12 electric bicycle spots, lockers, showers, towel service, a lounge and a bike repair room for maintenance and tune-ups. In 2015, VGH's Cycling Centre grew its user base and expanded its services to include more workshops and events.
- An active and clean commute is supported across VCH with 1,133 bike parking stalls.
- VCH now has four electric vehicle-charging stations across three core sites.
- 196 VCH staff participated in the 2015 Clean Commuter & Wellness Challenge, a campaign to encourage staff to try an active commute.
- A new carpool / ride-match program was launched in 2015: Carpool.ca connecting VCH health care staff to carpool matches.
- In 2015, 45,100 health care staff were shuttled between VCH sites, using the internally organized Jack Bell shuttle service.

VCH (includes Bella Coola and RW Large)

BUILDINGS, FTE AND WEATHER		2007	2010	2011	2012	2013	2014	2015
Distinct VCH Health Buildings		n/a	270	255	230	231	230	232
	% Owned	84%	85%	85%	85%	85%	85%	86%
	% Leased	16%	15%	15%	15%	15%	15%	14%
Usable Square Meters [1]		602,766	645,957	645,957	652,661	657,356	657,905	675,746
Full-Time Employee Equivalents		11,738	13,600	12,936	13,293	13,596	13,293	13,179
Weather (summarized in Heating Degree Days) [2]		2,870	2,621	2,963	2,859	2,820	2,627	2,490

[1] Usable area excludes roof tops, mechanical rooms, parkades, and parking lots.

[2] Building energy consumption is influenced by climate conditions. Vancouver has a climate which predominantly requires heating to satisfy internal building temperatures. Heating Degree Days (HDD's) is a measurement designed to reflect the demand for energy needed to heat a building.

Supplies (Paper)

- As part of the Green+Leader program, a paper/waste reduction campaign supported volunteers with Paperless Meeting Toolkits to encourage their colleagues to reduce paper use.
- In 2015, VCH encouraged teleconferencing for meetings by installing web-conferencing hardware and software at various sites.
- In collaboration with BCSS (HSSBC), VCH has started to investigate the procurement of wheat based paper supplies.

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

- The Green+Leaders (G+L) behaviour change program recruited 19 new volunteers from VCH in 2015, making a total of 69 active staff volunteers from across VCH.
- VCH continues to support the GreenCare Community (GCC) site, which now has 1,635 VCH staff registered and provides inspiring articles, toolkits and resources.
- Education and awareness communication via the GreenCare Community, as well as stories published on VCH News and other communication channels, continues to champion behaviour change and celebrate environmental sustainability success.
- Supported professional development for Facilities Management and Operations staff through workshops professional development through workshops and educational sessions sponsored by BC Hydro and Fortis BC.

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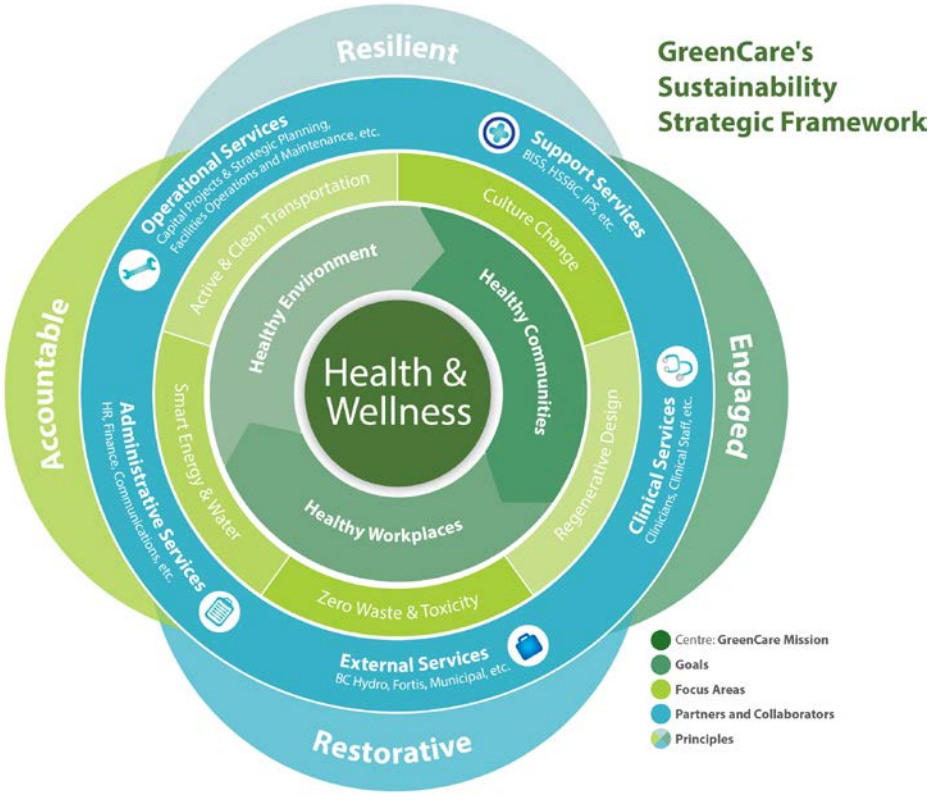
2016 WORK TO REDUCE THE ORGANIZATION'S CO_2 FOOTPRINT

Vancouver Coastal Health plans to continue reducing GHG emissions and Energy in the following ways:

- VCH's Energy Management team is planning the implementation of 20 energy projects in 2016 at a number of VCH facilities. When completed, these projects will result in a total estimated savings of 2.0 GWh of electricity, 68,835 GJ of natural gas and a reduction of 3,292 tCO2e of GHG. The GHG savings represent emissions reduction of 8.3% from the 2015 Carbon Offsets totals at VCH.
- Planning and implementing GHG / energy reduction projects in our existing building portfolio by utilizing the Carbon Neutral Capital Program (CNCP), and supplementing with internal capital funds and incentives from BC Hydro and Fortis BC.
- Engaging with design engineers to ensure our new builds adopt energy efficient design principles.
- Continuing to engage with site operations staff and external consultants to identify GHG / Energy opportunities.
- Engaging and educating our staff, via the existing Green + Leaders program, GreenCare Community and the BC Hydro Workplace Conservation Agreement.



- Developing a roadmap for climate adaptation, including resiliency assessment for several Vancouver Coastal Health site.
- Working with GreenCare's refreshed Strategic Framework, Vancouver Coastal Health 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 the populations and patients we serve. Vancouver Coastal Health 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.

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Project Success: A Team-Orientated Approach

In 2015, Vancouver Coastal Health celebrated the successful implementation of 18 energy saving projects that helped shrink VCH's carbon footprint and reduce operational costs. Each of these projects has to be thoroughly investigated to ensure they are viable and successful, while causing minimal disruption to our patients and front line health care staff. This is no small feat, and would not have been possible without the strong collaboration between Facility Maintenance and Operational (FMO) teams and the Vancouver Coastal Health Energy Management team.

One particularly successful energy reduction project was implemented at Powell River General Hospital, a 33-bed facility located in the northern region of the Sunshine Coast, which provides a range of acute and diagnostic services to the population of the Powell River Regional District.

After the results of a detailed site energy investigation were reviewed, it was clear there was an opportunity to optimize the sites heating system and provide an upgrade to some mechanical equipment that has been in place since the original construction. The site's energy center, which also provides heat to Willingdon Creek Village was replaced with a modern hybrid plant in addition to two other energy saving measures.

The FMO and Energy Management teams worked together to prepare a project plan that would minimize any service disruption, while staying on schedule. This included arranging several phased shutdowns and supplying a temporary back-up boiler to ensure sufficient heating capacity in the event of an emergency. Input from the FMO team during the initial investigation, implementation, and project handover resulted in a final project that aligned with the site's needs, and had a positive impact on site operations, patient comfort, and VCH's environmental footprint.

"Strong support from the FMO team, along with open communication throughout the project, was required for this complex retrofit to be successful. We depend on their site knowledge, and relationships with clinical departments, to successfully coordinate this type of project. Their involvement was essential," notes Alan Lin, Energy Specialist for Vancouver Coastal Health.

Energy Saving Measures

The three key energy saving measures are listed below:

- High Temperature Domestic Hot Water (DHW) Set Point Reduction: this included the installation of a DHW booster to ensure the required sanitation temperatures are supplied.
- High Efficiency Boiler Upgrade: this measure replaced the two large existing boilers and with three small high efficiency condensing units and two modern dual fuel units. This reliable system provides the control required to optimize the hot water supply in low and high demand cycles.
- Demand Control Ventilation: new variable speed drives were installed on both the supply and exhaust fans provided ventilation to the kitchen facilities to match ventilation to the demand.

The estimated annual savings from this project are 16,106 kWh's of electricity, 1,518 GJ's of natural gas, $20,202 in avoided energy and maintenance costs, and 79 tCO_2e of greenhouse gas emissions.

Powell River General Hospital: Energy efficiency upgrade.

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