



Transforming Health Care for a Thriving Environment



2014 ENVIRONMENTAL ACCOUNTABILITY REPORT



Progress Highlights

1,587

At Vancouver Coastal Health, 1,587 staff registered on the GreenCare Community website



12.7%

Fraser Health reduced their water intensity (use per sq m) by 12.7% since 2010



46%

Providence Health Care had a waste diversion rate of 46%



80

Provincial Health Services Authority had 80 active Green+Leaders



173

Fraser Health had 173 Recycling Champions



23.5%

Vancouver Coastal Health reduced carbon intensity (per sq m) by 23.5% since 2007



21%

Provincial Health Services Authority reduced absolute carbon emissions by 21% since 2007



29%

29% of Providence Health Care staff used public transit to commute to work



8.4%

8.4% of Provincial Health Services Authority staff bicycled to work



100%

Providence Health Care eliminated 100% of Styrofoam from service ware



9.3%

Fraser Health reduced energy use intensity (per sq m) by 9.3% since 2007



100%

Vancouver Coastal Health implemented recycling at 100% of their acute and residential sites



2014 GreenCare Dashboard

The following Dashboard has been created to provide a quick reference for understanding the goals, targets, status and performance in each area of the GreenCare Strategic Framework.

While the performance generally focuses on 2014 results, it may pertain to an accumulation of years. Where applicable, this has been indicated.



The status is measured and provided by the Director of Energy and Environmental Sustainability. He has given each target a “traffic light” to indicate the overall direction and potential of reaching the target to date. In many cases, background information helps shape the status. To fully understand each target and background information, please see the individual chapters of this report.






STRATEGIC FRAMEWORK

-  Culture of Stewardship
-  Water Conservation and Restoration
-  Energy Conservation and Climate Neutral
-  Sustainable Supply Chain
-  Zero Waste
-  Zero Toxicity
-  Active Transportation
-  Healthy Land and Food
-  Regenerative Design
-  Transparent Reporting


ORGANIZATIONS

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

| TOPIC | GOAL | TARGETS | STATUS | 2014 PERFORMANCE |
|---|--|--|--------|--|
|  Culture of Stewardship | Create a culture of sustainability stewardship (economic, social, environmental) in the workplace and promote active staff engagement. | Recruit, train and maintain a minimum of 150 Green+Leaders for each of the LMHOs by 2020. | ▲ | Active Green+Leaders: FH 83 PHC 10 PHSA 80 VCH 47 OTHER 11 |
| | | Increase the number of registered staff in the GreenCare Community by 500 per year. | ▲ | Registration Increase: FH +239 PHC +76 PHSA +258 VCH +222 |
| | | Train and maintain 75 new Recycling Champions per year. | ▲ | Champion Increase: FH +82 PHC 0 PHSA +39 VCH +5 |
|  Energy Conservation and Climate Neutral | Achieve climate neutral operations through energy conservation and efficiency, low carbon supply, and the purchase of carbon offsets. | Reduce Energy Use Intensity (EUI) of the core sites by 12-15% by 2020 (relative to a 2007 baseline). | ▲ | FH -9.3% PHC -0.7% PHSA -2.5% VCH -10.2% |
| | | Reduce carbon emissions by 33% by 2020 (relative to a 2007 baseline). | ■ | FH 6.2% PHC 0.1% PHSA -21.2% VCH -13.7% |
| | | Design all new construction projects to achieve a specific EUI target. | ▲ | EUI targets are included in all new projects. |

| TOPIC | GOAL | TARGETS | STATUS | 2014 PERFORMANCE |
|--|--|---|--------|--|
|  Zero Waste | Make recycling easy and accessible in working towards a Zero Waste health care system. | Achieve 50% waste diversion rate for acute and residential care sites in the Recycling Renewal Program (RRP) by 2014, and a 70% diversion rate by 2015. | — | FH 41% PHC 46% PHSA 35% VCH 40% |
| | | Ensure 100% implementation of the RRP at all acute and residential care sites by 2016. | ▲ | FH 41% 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. | ▲ | Began pilot program at Vancouver General Hospital, Children's & Women's Health Centre of BC, and Ridge Meadows |
| | | Eliminate 100% use of Styrofoam as service ware in patient and residential food services by 2015. | ▲ | FH 45% PHC 100% PHSA 100% VCH 100% |
|  Active Transportation | Make walking, cycling, car pooling, and public transit the preferred transportation and commuting options for LMHO staff. Where applicable, make the shuttle service a preferred transportation between sites. | By 2020, ensure 15% of LMHO staff choose to WALK for their primary commute. | ▲ | FH 5.4% PHC 13.3% PHSA 11.3% VCH 12.2% |
| | | By 2020, ensure 6% of LMHO staff choose to CYCLE for their primary commute. | ▲ | FH 2.3% PHC 8.4% PHSA 8.4% VCH 7.5% |
| | | By 2020, ensure 17% of LMHO staff choose PUBLIC TRANSIT for their primary commute. | ▲ | FH 9.4% PHC 29.3% PHSA 21.4% VCH 17.5% |
| | | By 2020, ensure 17% of LMHO staff choose to RIDE-SHARE for their primary commute. | ▲ | FH 5.9% PHC 8.0% PHSA 10.2% VCH 6.2% |
|  Regenerative Design | Employ regenerative design principles and processes to enhance the built environment and improve human and environmental health. | By 2014, incorporate regenerative design principles into the health care culture and vocabulary. | — | Began work on a toolkit and website forum |
| | | By 2016, incorporate regenerative design principles into new construction and major renovation criteria. | — | Began work on a matrix to integrate regenerative design principles into new projects |
| | | By 2020, achieve the Living Building Standard and Passive House Standard for one new facility. | ▲ | Included Passive House Standard in RFP for Bella Bella staff housing |
|  Water Conservation and Restoration | Reduce water consumption through conservation and reuse measures, and contribute to restoring the natural water cycle. | By 2020, achieve a 20% reduction in water intensity, using the Building Water Performance Index (baseline 2010). | — | FH -12.7% PHC -13.3% PHSA -5.5% VCH 0.1% |
| | | By 2020, implement five new rainwater harvesting projects. | ▼ | FH 1 PHC 0 PHSA 0 VCH 0 |
| | | By 2020, implement one new grey water reuse project. | ▼ | Investigated opportunities for a grey water reuse project |
|  Sustainable Supply Chain | Leverage the purchasing power of the health care system to ensure the LMHOs become a Canadian leader in fostering healthy communities, workplaces and ecosystems. | In 2014 the GreenCare Team and Health Shared Services BC (HSSBC) will improve organizational efforts to achieve a sustainable supply chain. | — | Conducted numerous sustainable supply chain projects |



| TOPIC | GOAL | TARGETS | STATUS | 2014 PERFORMANCE |
|---|---|--|--------|--|
|  Zero Toxicity | Reduce the use of toxic chemicals, materials and known carcinogens within health care settings. | By 2018, ensure that 25% of the annual volume of free-standing furniture and medical furnishings, purchased based on cost, is free from the intentional use of halogenated flame retardants, formaldehyde, perfluorinated compounds and PVC (baseline 2014). | ▼ | Tracking chemicals in furniture has proven to be more challenging than anticipated |
| | | Encourage the use of integrated pest management in owned landscaping and associated green spaces. | — | Four sites are using integrated pest management |
| | | By 2015, reduce the toxicity of laboratories by supporting the launch of a Green Labs Initiative. | ▲ | Completed implementation strategy and orientation for a Green Labs Initiative |
| | | By 2015, ensure zero use of mercury-based thermometers, thermostats and blood pressure measuring machines within health care facilities. | — | Design and procurement practices have reduced mercury content |
| | | By 2014, investigate the potential applications of using green cleaners. | ▼ | Vendor change disrupted investigation of green cleaners |
|  Healthy Land and Food | Promote the connections between food systems, land use and prevention-based health care. | By 2015, implement the Healthy Eating in Healthcare Guidelines at BISS-contracted retail food services. | ▲ | Implementation Rate FH 22% PHC 31% PHSA 50% VCH 31% |
| | | Implement diversion of organics (food scraps) in patient, residential and retail food service operations by 2015. | ▲ | Implementation Rate FH 94% PHC 100% PHSA 100% VCH 100% |
| | | By 2020, decrease food waste from meal trays in patient food services to 10% or less. | ▲ | Food Waste Rate FH 19.5% PHC 13.5% PHSA 12.5% VCH 13.5% |
| | | By 2020, create 15 community and/or patient-run gardens on health care property (baseline is 2010). | — | Four new gardens created since 2010 |
|  Transparent Reporting | Provide results-oriented carbon, energy and sustainability reports, which are routine, transparent, engaging and open for dialogue. | Publish an annual Carbon Neutral Action Report. | ▲ | Completed |
| | | Publish an annual Environmental Accountability Report. | ▲ | Completed |
| | | Publish an annual Strategic Energy Management Plan. | ▲ | Completed |
| | | Publish an Energy Management Assessment. | ▲ | Completed |
| | | Prepare and present quarterly reports to BC Hydro. | ▲ | Completed |



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Cover Photo:
Co-Program Director Jennifer Rashleigh helps the George Pearson Centre residents enjoy the fruits of their gardening efforts at a weekly Garden Club program.

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Welcome



I am proud to welcome you to our 2014 Environmental Accountability Report, outlining the sustainability achievements of Fraser Health, Providence Health Care, Provincial Health Services Authority and Vancouver Coastal Health over the past year. In addition to providing a scorecard for a broad range of sustainability metrics, this year's report features our efforts to develop and maintain green buildings. We're especially pleased to have received LEED (Leadership in Energy & Environmental Design) Gold certification for the Surrey Memorial Critical Care Tower and the Sechelt Hospital buildings, demonstrating how our new buildings are minimizing the impact they have on the environment. Across the four organizations, we now have 18 LEED certified buildings, 11 of them at the Gold level, and 9 buildings pending completion/

certification. In addition, energy consumption at our facilities continues to decline, thanks in large part to the efforts of our energy management and maintenance & operations teams. As health care providers, we recognize our responsibility to minimize our environmental impact, and we hope this report provides a clear picture of the many ways we continue to advance this key priority.

Peter Goldthorpe,
VICE PRESIDENT,
CORPORATE SERVICES
& FACILITIES



On behalf of the GreenCare Team, which I have the privilege of leading, I'm proud to present the third annual Environmental Accountability Report for the four BC Lower Mainland Health Care Organizations we serve. As shown in our Dashboard, we continue to advance in our journey to achieve the targets in each of the key focus areas and priorities.

There are many accomplishments mentioned throughout this report, but I would like to highlight the increased collaboration and integration of the different business units within the Lower Mainland Facilities Management Department. This collaboration, along with that of other departments in the different health care organizations, is essential for our mission "to create a sustainable and environmentally responsible health care system."

I'm also pleased to announce that during 2015 we embarked on a review of the GreenCare strategic framework, aiming to better align the rationale and goals of the key focus areas with their impact on population health and wellness. The refreshed framework will be a central part of the 2015 Environmental Accountability Report, and should enable us to continue pursuing our vision of "Transforming Health Care for a Thriving Environment."

Mauricio Acosta,
DIRECTOR,
ENERGY &
ENVIRONMENTAL
SUSTAINABILITY

About This Report



This Environmental Accountability Report is a voluntary report compiled by the GreenCare Team within the Facilities Department, which is consolidated across 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, including work being conducted to reduce that impact and improve environmental and human health across all core sites. Core sites refer to facilities that are either owned by one of the Health Authorities, or operated by Lower Mainland Facilities Management (LMFM) 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.

HOW WE MEASURE UP

Throughout this report, we have provided call-out boxes (“How We Measure Up”) with baseline information from the Healthier Hospitals Initiative (HHI), as well as information on how our health care sites are performing in comparison.

HOW THEY PERFORM

According to the [HHI](#), 8% of hospitals across North America have defined measurable sustainability objectives.

HOW WE ARE DOING

Since 2010, the GreenCare Team has worked with evolving goals and defining measurable targets.



OUR AUDIENCE

This report is for both the internal executive leadership, to fully understand health care’s operational impact, and 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 areas:

- 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, 10 topic areas have been identified as key strategic areas of environmental stewardship:

- Culture of Stewardship
- Energy Conservation and Climate Neutral
- Zero Waste
- Active Transportation
- Regenerative Design
- Water Conservation and Restoration
- Sustainable Supply Chain
- Zero Toxicity
- Healthy Land and Food
- Transparent Reporting

These objectives were determined through the following engagement processes:

- Surveys
- One-on-one meetings
- Group discussions

HEALTHIER HOSPITALS INITIATIVE

The Lower Mainland Health Care Organizations joined the Healthier Hospitals Initiative (HHI) in 2013. The HHI includes six core [challenges](#) intended to help health care organizations around the world commit to sustainability goals and track their environmental performance:

- Smart Purchasing
- Engaged Leadership
- Healthier Food
- Less Waste
- Safer Chemicals
- Leaner Energy

In 2014, the HHI had 970 participating hospitals in their database, from which they created baselines of performance in each of the six core areas. These baselines provide best practices for measurable objectives in creating healthy and environmentally sound health care sites.

Who We Are

COMMITMENT TO SUSTAINABILITY

The LMHOs have adopted a common Sustainability Policy as a high-level statement of commitment.

[The full Sustainability Policy can be found here.](#)

“The Lower Mainland Health Care Organizations will act as leaders with respect to environmental stewardship while engaging the health care community in a collaborative approach towards sustainability.”

GREENCARE: A COLLABORATION OF HEALTH CARE ORGANIZATIONS

In 2010, the following four health care organizations began formally working together to manage and deliver administrative and clinical support services:

- Fraser Health
- Providence Health Care
- Provincial Health Services Authority
- Vancouver Coastal Health

This collaboration of Lower Mainland Health Care Organizations (referred to throughout this report as LMHOs) helped consolidate specific areas of operations across the four organizations for greater efficiency, so health care dollars can be more effectively focused on patient care.

One of the areas consolidated was Facilities Management, which is now referred to as Lower Mainland Facilities Management (LMFM). The new LMFM consolidation has a mandate that includes 27 acute care hospitals and 50 residential care facilities, which serve over 2.5 million British Columbians living in 37 municipalities and regional districts.

THE GREENCARE TEAM

In 2010, Energy Management Teams from across the LMHOs were consolidated to create the Energy and Environmental Sustainability (EES) team, now known as the GreenCare Team. The GreenCare Team leads all energy management work for the LMHOs, and collaborates with various internal departments to reduce the overall environmental impact of health care operations while improving health care delivery.

GreenCare promotes shared learnings and the efficient use of resources to improve human and environmental sustainability across hospitals and health care sites.

Internal key stakeholders within the GreenCare team include:

- Lower Mainland Facilities Management (EES, Planning, and Operations and Maintenance)
- Business Initiatives & Support Services
- Integrated Protection Services
- Health Shared Services British Columbia
- Human Resources
- Finance
- Communications
- Lower Mainland Pathology and Laboratory Medicine Department
- Housekeeping
- Pharmacy
- Infection Control
- Population Health
- Clinicians and clinical staff

As more health care departments and stakeholders promote GreenCare, they become key drivers in the greening of the LMHOs. It is the LMHOs' long-range goal that all medical professionals and staff feel a sense of environmental stewardship and consider themselves members of the GreenCare Team.

THE GREENCARE VISION

Transforming Health Care for a Thriving Environment

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.

HOW WE MEASURE UP

HOW THEY PERFORM

According to the Healthier Hospitals Initiative, 50% of hospitals across North America have created an environmental steering committee with routine meetings.

ADVISORY COMMITTEES

ENVIRONMENTAL SUSTAINABILITY ADVISORY COMMITTEE — EXECUTIVE COMMITTEE

The Executive Committee is made up of executives from across the LMHOs, who provide executive-level advocacy, advice and resources to help promote the GreenCare agenda. 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 — WORKING GROUP

The Working Group is made up of managers, coordinators and other staff, who work on making key changes on the ground level of health care. These individuals are tasked with developing the strategy and initiatives to ensure the LMHOs are staying on track with the Executive Committee's GreenCare goals.

HOW WE ARE DOING

As of 2010, our GreenCare team has been partially governed by an Environmental Sustainability Advisory Committee, which consists of senior executives from across the LMHOs.

GREENCARE TEAM MEMBER



Alexandra Turnbull

“In our recent survey, a staff member offered this feedback: ‘As health organizations, it shouldn’t even be a question of our practices being healthy. It should be leadership by example.’ I couldn’t agree more. Our goal to deliver world-class and innovative health care must inspire optimism, wellness and environmental sustainability.”

FRASER HEALTH

Fraser Health provides a wide range of integrated health care services to more than 1.6 million people living in communities stretching 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.](#)

768,716 m² OF FACILITY SPACE

157 DISTINCT BUILDINGS

16,747 FULL-TIME STAFF



PROVIDENCE HEALTH CARE

[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.](#)

178,157 m² OF FACILITY SPACE

40 DISTINCT BUILDINGS

4,898 FULL-TIME STAFF



How you want to be treated.

PROVINCIAL HEALTH SERVICES AUTHORITY

[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.](#)

344,956 m² OF FACILITY SPACE

84 DISTINCT BUILDINGS

10,841 FULL-TIME STAFF



VANCOUVER COASTAL HEALTH

[Vancouver Coastal Health](#) is a health care provider that serves over one million people in B.C. 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 Coast Garibaldi 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.

As a health authority in B.C., the Provincial Government, through the British Columbia Ministry of Health, sets province-wide goals, standards and performance agreements for health service delivery.

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 and Coast Garibaldi, Sea-to-Sky, Sunshine Coast, Powell River, Bella Bella and Bella Coola.



Every year we:

- Receive \$3.4 billion in funding
- 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
- Provide 199,000+ home nursing visits

706,126 m² OF FACILITY SPACE

230 DISTINCT BUILDINGS

11,816 FULL-TIME STAFF

[Find out more about Vancouver Coastal Health's commitment to energy and environmental sustainability.](#)

GREENCARE ENVIRONMENTAL
SUSTAINABILITY ADVISORY
COMMITTEE MEMBER



**Dr. Lisa
J. Jing Mu** MEDICAL HEALTH OFFICER,
FRASER HEALTH

“Human and planetary health are inextricably linked. Healthy ecosystems support healthy, vibrant communities of people. As such, the health care sector has a responsibility to address our own impacts upon ecosystem health. We need to look beyond reducing our impacts on ecosystems, and create collaborations and strategies that contribute positively to healthy communities of people, and healthy ecosystems.”

GREENCARE STRATEGY

SUSTAINABILITY THROUGH STEWARDSHIP

The LMHOs strive to achieve sustainability by addressing the value of environmental, economic and health/social sustainability.

Environmental Stewardship

We will care for and preserve our natural resources and ecosystems. We recognize the link between environmental and human health.

Economic Stewardship

We will carefully manage our funding and reduce costs wherever possible. We recognize the need to maximize funding to ensure patient care receives as many resources as possible.

Health & Social Stewardship

We will care for and promote better health and community. We recognize the need to create environments and communities of health resiliency.

GREENCARE STRATEGIC FRAMEWORK

In consultation with key stakeholders (executive leadership, external organizations and front-line staff), and in conjunction with an evaluation of best practices within the health care sector, the GreenCare Team has set a strategy to achieve greater environmental stewardship by focusing on 10 strategic areas. These [areas of focus](#) represent the most pressing and relevant sustainability topics for health care and impact all three pillars of stewardship.

10 STRATEGIC AREAS OF ENVIRONMENTAL STEWARDSHIP

- | | |
|---|---|
|  Culture of Stewardship |  Water Conservation and Restoration |
|  Energy Conservation and Climate Neutral |  Sustainable Supply Chain |
|  Zero Waste |  Zero Toxicity |
|  Active Transportation |  Healthy Land and Food |
|  Regenerative Design |  Transparent Reporting |



GREENCARE MILESTONES AND 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
- BC Hydro Power Smart Leadership
Excellence Award
Fraser Health
Vancouver Coastal Health



Culture of Stewardship

OUR GOAL

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

Culture of stewardship within the LMHOs refers to the use of capacity and leadership building to integrate sustainability values into all decision making and actions. This includes the development of improved systems and processes, as well as daily habits and choices. To achieve long-term success, the economic, social and environmental aspects of operations are linked, and must be considered in tandem.

Engagement of staff and leadership across organizations is critical to achieving this culture of stewardship. The GreenCare Team's primary strategy for doing this is through their Green+Leaders Program. Green+Leaders (G+L) are staff volunteers who help improve the environmental sustainability of health care operations across the Lower Mainland.

WHAT DO GREEN+LEADERS DO?

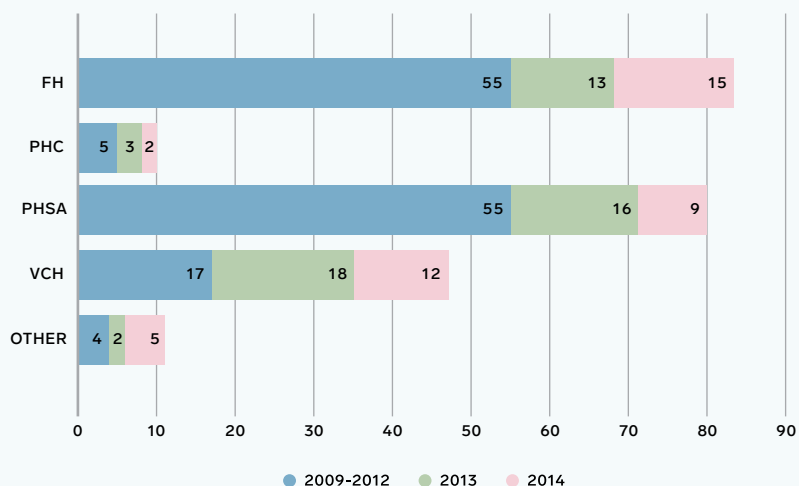
- Act as sustainability role models
- Encourage behaviour change among their colleagues
- Help improve processes and create a culture of sustainability throughout the organization

We anticipate that each Green+Leader will, at a minimum, influence 25 co-workers in their workplace. LMHOs have a staff population of approximately 65,000, so we estimate that if the target for the Green+Leaders is met, they would have the potential to engage or influence at least 15,000 others — or approximately 23% of the workforce — through their campaigns and initiatives. These activities focus on zero waste, energy conservation, active and clean transportation, and social sustainability in the workplace.

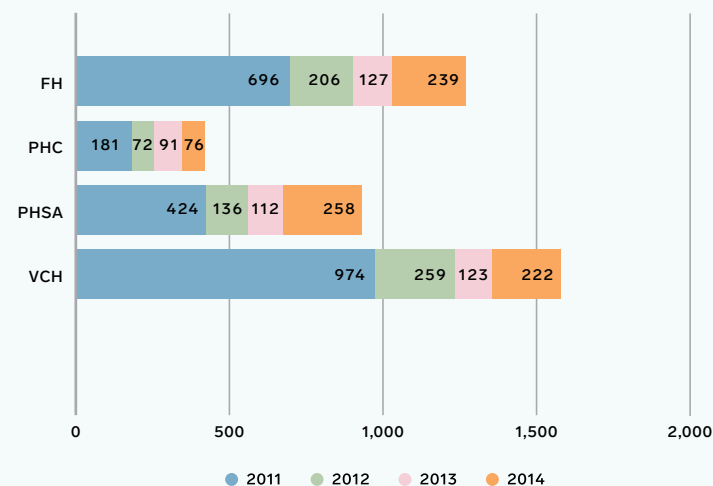
Green+Leaders carry out behaviour change activities in a broad range of workplaces, including acute care and residential facilities, laboratories and clinics, and administrative offices. Their activities are often open to their entire units, departments or floors. As a result, a wide array of staff are exposed to sustainability concepts, as well as opportunities to actively create a culture of stewardship. According to a staff survey conducted by GreenCare in December 2014, up to 65% of respondents would like to help foster environmental sustainability in their workplaces. Of these, over 60% work in an acute or clinical setting.

Moreover, the Green+Leaders Program includes frontline staff who have broad exposure to the public. As nurses and pharmacists are among the most trustworthy professions in Canada (Ipsos Reid), they have a unique opportunity to share their knowledge, experiences and encouragement with the general public.

ACTIVE GREEN+LEADERS



REGISTERED LMHO STAFF ON THE GREENCARE COMMUNITY WEBSITE



TARGET # 1

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

2014 PERFORMANCE

In 2014, the Green+Leaders Program expanded by 43 staff volunteers. This brings the total number of trained staff to 389 since 2009. As of 2014, despite attrition, staff rollover and other changes, the program has been able to maintain 231 staff volunteers, who are currently working to improve the environmental stewardship of their work areas.

PLANS FOR 2015

The Green+Leaders Program will maintain its goal of achieving 150 staff volunteers per LMHO, which we consider to be an optimal number for influencing behavioural and cultural change across organizations.

TARGET #2

Increase the number of registered staff on the GreenCare Community (GCC) by 500 per year.

The GCC is an online hub for health care staff to access and contribute content, tools, resources and discussions to enhance collaboration and support efforts to better understand and promote innovation, and create a higher level of environmental sustainability.

The GCC website has a public and private side. The public side communicates GreenCare Team goals and initiatives, including stories and resources, with the public and external stakeholders. The private side enables health care professionals across the Lower Mainland to connect online through community discussions, where they can collaborate on topic areas such as Energy Conservation, Recycling Champions and Green+Leaders.

The GCC has the potential to expand provincially: Northern Health Authority, Interior Health Authority and Vancouver Island Health Authority have all expressed interest in joining the community.

2014 PERFORMANCE

In 2014, we exceeded our target: 795 health care professionals registered on the GCC site, bringing the total number of registered users to 4,196. This is an 84% increase from 2011 and a 75% increase year over year from 2013.

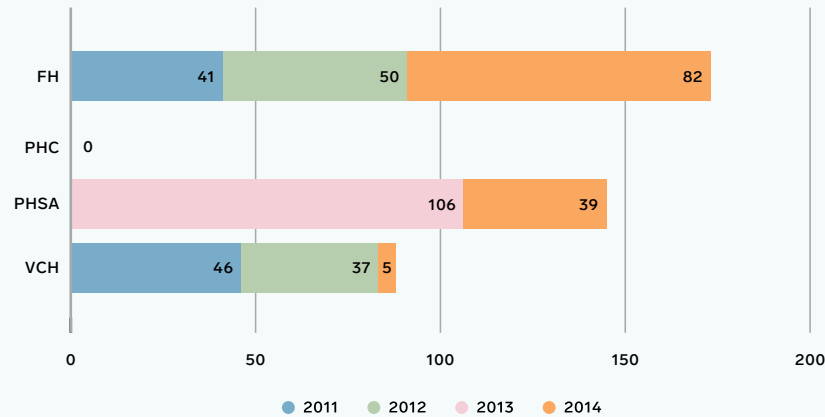
The Northern Health Authority informally joined the GCC in 2014. In 2015, they will address the logistics to enable their staff to join.

GOALS FOR 2015

We will continue our goal of increasing the number of registered staff by 500 per annum.

Our goal is to make better use of social media — a powerful and efficient tool — to further engage staff. However, it's difficult to measure the impact and success of social media tools. As the GCC continues to grow in registration counts, we will implement more detailed metrics for measuring success, such as click rates and time spent on the site.

NUMBER OF TRAINED RECYCLING CHAMPIONS



TARGET #3

Train and maintain 75 new Recycling Champions per year.

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

A key component of the RRP's success is support from Recycling Champions: volunteers who 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.

2014 PERFORMANCE

In 2014, 126 new Recycling Champions (nearly double our original target) 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 406.

PLANS FOR 2015

In 2015, we will maintain our target of adding 75 new Recycling Champions.

HOW WE MEASURE UP

HOW THEY PERFORM

According to the Healthier Hospitals Initiative, 32% of hospitals across North America are educating employees about sustainability, including new employees.

HOW WE ARE DOING

Since 2009, our GreenCare Team has been educating employees, including new staff, on how to be organizational stewards of environmental sustainability.

GREENCARE TEAM MEMBER



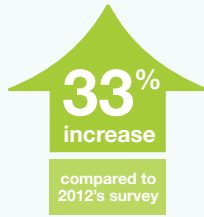
Jeson Mak

"Energy management can be about many different things but engagement of different different levels of staff in in the process will enrich a sustainable workplace conservation culture."

OUR ANNUAL GREENCARE SURVEY: THE FUTURE OF HEALTH CARE

As a part of our staff engagement work the GreenCare Team conducts staff surveys to assess their perceptions, values and direction concerning GreenCare's future work on environmental and human sustainability. Here are the results of our 2014 survey.

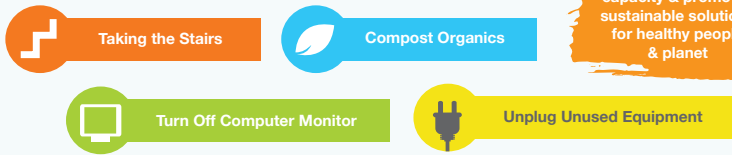
We heard from **5,937** health care staff that's 15% of all health care staff across FH, PHC, PHSA, and VCH



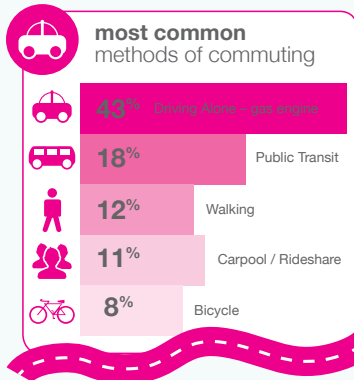
62% of the respondents work in an **Acute / Clinical Hospital** setting



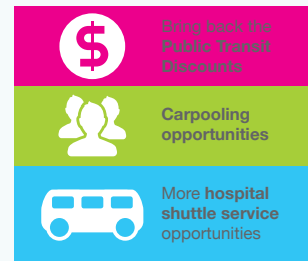
Staff Priorities Top 4 Routines / behaviours staff want to improve



GreenCare builds capacity & promotes sustainable solutions for healthy people & planet



Survey respondents most common requests for resources for transportation



70% of staff that would like to **foster sustainability at work**

83% of staff that are **concerned to highly concerned** about climate change

GreenCare Engagement

35% of health care staff have heard of the GreenCare program



staff want to help **make environmental sustainability a priority**



staff need help and investment in infrastructure / system change

you told us where to focus

Staff rated top priorities for the GreenCare



CREATIVITY IN RECYCLING

13,440

METERS OF EXAM TABLE PAPER
HAVE GONE INTO RECYCLING,
NOT THE LANDFILL.

GOOD NEWS STORY

Green+Leaders: Uncovering Possibilities

Our Green+Leaders (G+Ls) are highly attuned to the people and possibilities in their workplace.

In some cases, G+Ls adjust program tools to suit their audiences' interests and needs. In other cases, staff volunteers undertake special projects to address sustainability challenges particular to their workplaces.

Stella Cockett works in the pediatric cardiology clinic at the BC Children's & Women's Hospitals in Vancouver, and has been a G+L since 2012. In 2013, she implemented a project to recycle the paper from examining room tables. (As cardiology patient exams are typically "dry," infection control is of very limited concern.)

To make it easy to implement, Stella worked with her colleagues to set the paper to roll directly off the exam table and into a recycling container. Annually Stella has helped ensure that 13,440 meters of exam table paper have gone into recycling, not the landfill.





Energy Conservation and Climate Neutral

OUR GOAL

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

Energy conservation and climate neutral refers to the LMHOs' commitment to reduce energy consumption and the related climate impact.

Over 97% of our reported greenhouse gas (GHG) emissions come from health care buildings within the LMHOs, making health care one of the most energy intensive sectors. As a result, there is an intensified need to reduce energy consumption and the reliance on fossil fuels.

ENERGY USE INTENSITY (EUI) REDUCTION

2007-2014

| | |
|-------------|-------|
| FH | 9.3% |
| PHC | 0.7% |
| PHSA | 2.5% |
| VCH | 10.2% |

GREENCARE TEAM MEMBER



Rob Bradley

“Energy conservation can enhance human health by reducing GHG emissions, improving outdoor air quality and decreasing acid rain. Our facilities use a great deal of energy and we need to build on the great conservation efforts that have already been accomplished. Yes, we may be climate neutral, but this is achieved by purchasing offsets. Moving forward, we need to focus on displacing the use of conventional energy with clean renewable energy.”



TARGET #1

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

2014 PERFORMANCE

GreenCare's Energy Management Team continued another strong year of energy conservation. In 2014:

Fraser Health implemented 13 energy conservation retrofit projects in 2014, which achieved:

- Energy savings of 1.6 equivalent gigawatt hours (eGWh)
- GHG reductions of 209 tCO₂e
- Reduction in energy usage intensity (since 2007) of 9.3%
- Cost avoidance of \$71,000

Providence Health Care completed two energy conservation projects, which achieved:

- Energy savings of 0.178 eGWh
- GHG reductions of 32 tCO₂e
- Reduction in energy use intensity (since 2007) of 0.7%
- Cost avoidance of \$20,500

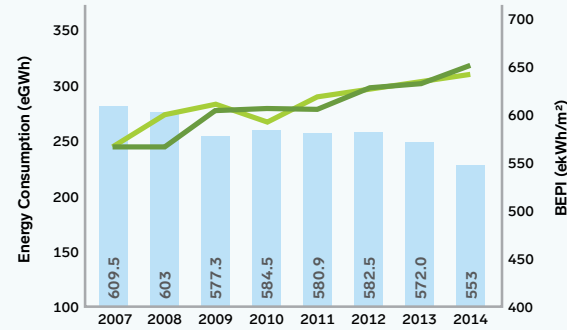
Provincial Health Services Authority completed two energy conservation projects, which achieved:

- Energy savings of 0.870 eGWh
- GHG reductions of 106 tCO₂e
- Reduction in energy use intensity (since 2007) of 2.5%
- Cost avoidance of \$42,390

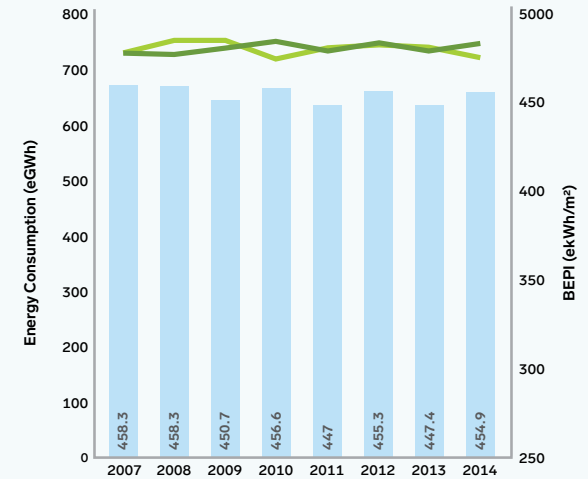
Vancouver Coastal Health completed 12 energy conservation projects, which achieved:

- Energy savings of 2.16 eGWh
- GHG reductions of 343 tCO₂e
- Reduction in energy use intensity (since 2007) of 10.2%
- Cost avoidance of \$162,000

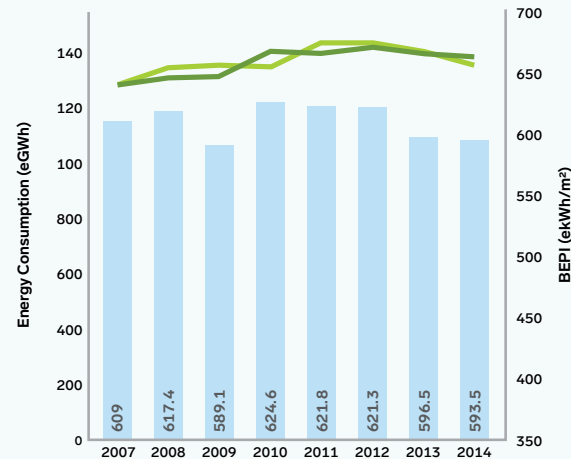
FRASER HEALTH
ENERGY CONSUMPTION & PERFORMANCE



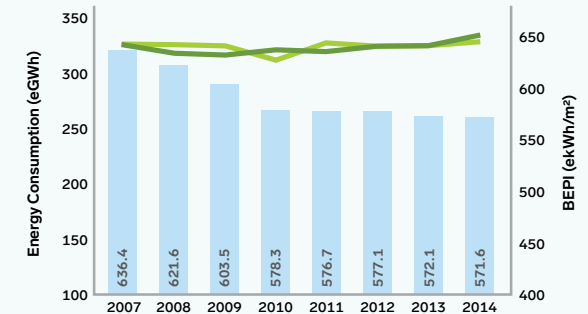
PROVIDENCE HEALTH CARE
ENERGY CONSUMPTION & PERFORMANCE



PROVINCIAL HEALTH SERVICES AUTHORITY
ENERGY CONSUMPTION & PERFORMANCE



VANCOUVER COASTAL HEALTH
ENERGY CONSUMPTION & PERFORMANCE



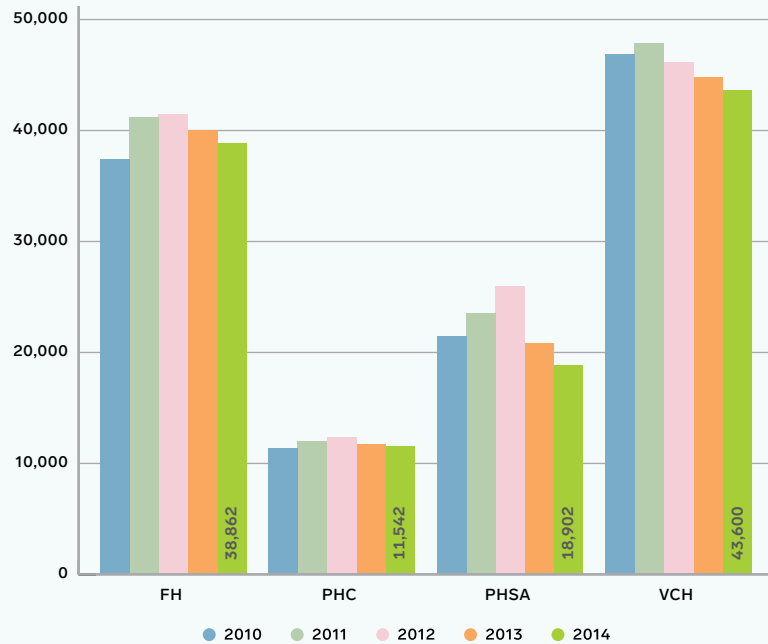
● BEPI (kWh/m²) ● Actual Consumption (GWh) ● Adjusted Consumption (GWh)

PLANS FOR 2015

With a strong Energy Management Team and commitment from senior leadership, the LMHOs aim to continue to achieve success in reducing their EUI.

The LMHOs will continue to implement energy conservation projects and initiatives in 2015, through the assistance of the Carbon Neutral Capital Program (Provincial funding for energy conservation projects) and the utilization of the Green Revolving Fund (an internal fund created to support environmental conservation projects), as well as various BC Hydro and FortisBC funding opportunities.

CARBON FOOTPRINT (NEEDING OFFSETTING) IN tCO₂e



CARBON INTENSITY
(tCO₂e/USABLE SQ M OF FACILITY SPACE)
(% change from 2007 baseline)



TARGET #2

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

2014 PERFORMANCE

In 2014, the LMHOs achieved two milestones. First, they produced their fifth annual Carbon Neutral Action Report (see Appendices), which detailed their carbon emissions and actions taken to reduce those footprints. In addition, all LMHOs became carbon neutral for the fifth year in a row, which entailed significant reductions and the purchase of carbon offsets.

In 2014, the LMHOs reduced their carbon emissions by the following (compared to 2013):

CHANGE IN CARBON FOOTPRINT SINCE THE 2007 BASELINE

| | |
|-------------|--------|
| FH | 6.2% |
| PHC | 0.1% |
| PHSA | -21.2% |
| VCH | -13.7% |

- Fraser Health is expanding in services and facility space, so their overall carbon footprint has gone up by 6.2% since 2007. However, taking into account the portfolio growth, Fraser Health’s intensity per square meter shows their CO₂ footprint has actually reduced by 15.6%.
- Providence Health Care’s overall carbon footprint and intensity remained largely unchanged from their baseline in 2007.

- Since 2007, Provincial Health Services Authority has reduced their carbon footprint by 21.2%. This was largely accomplished by reducing the amount of facility space they operate. When looking at the CO₂ intensity per square meter, Provincial Health Services Authority reduced their carbon footprint by 11.2%.
- Vancouver Coastal Health reduced their overall carbon footprint by 13.7% compared to the 2007 baseline. However, they reduced their intensity by 23.5%.

PLANS FOR 2015

Our target is aligned with the Provincial mandate of reducing the public sector’s carbon footprint 33% by 2020. However, this target does not take into account portfolio changes. Unless significant infrastructure changes are made to our existing boiler plant (i.e., switching to a low-carbon energy source), the target will be extremely challenging to meet. Therefore, this target will be reviewed in 2015.

HOW WE MEASURE UP

HOW THEY PERFORM

According to the Healthier Hospitals Initiative, hospitals have reduced their energy consumption by 4.7% since 2010.

HOW WE ARE DOING

Though overall energy consumption has gone up due to expansion of the health care organizations, energy use intensity (energy consumption per sq m) has been reduced by the following since 2010:

- 5.4% FRASER HEALTH
- 0.4% PROVIDENCE HEALTH CARE
- 5.0% PROVINCIAL HEALTH SERVICES AUTHORITY
- 1.2% VANCOUVER COASTAL HEALTH

TARGET #3

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

2014 PERFORMANCE

In 2014, we implemented new Energy Design Guidelines, which outline EUI targets for new construction projects. These intensity levels have been purposely set low to encourage the construction of the most energy efficient facilities possible.

EUI TARGETS FOR NEW HEALTH CARE FACILITIES

| | |
|---|----------------------------|
| Support Facility | 150 kWh/m ² /yr |
| Inpatient Facility | 250 kWh/m ² /yr |
| Acute Care and Research Facility | 375 kWh/m ² /yr |

Several new facilities were completed and occupied in 2014, including the 59,000 sq m Critical Care Tower at Surrey Memorial Hospital. As we do with all our core facilities, we will monitor the energy use of these new facilities, which are expected to be close to the targets in our Energy Design Guidelines.

In addition, we developed an Integration Matrix to give overall guidance to new facility and renovation design. Though the Matrix goes beyond energy use, it is key for getting internal buy-in and accountability.

PLANS FOR 2015

We plan to keep our EUI targets, as specified in the Energy Design Guidelines. In 2015, we will focus on fully engaging key internal LMHO and external consultant stakeholders. The Energy Design Guidelines and Integration Matrix will be included in LMHO Master Planning practices.



John Manougian

“Since 2007, the Energy Management Team has saved Vancouver Coastal Health \$10.3 million in cumulative energy costs and an avoidance of 33,770 tCO₂e of greenhouse gases. The more efficient we are with our energy usage, the more money for patient care and less impact on the environment.”



Alan Lin

“The amount of carbon dioxide going into the environment from burning fossil fuels such as fuel oil and natural gas are impacting human health and climate problems. I’m proud to work for a health care organization that is trying to address these problems by reducing and offsetting their carbon footprint.”



GREENHOUSE GAS SAVINGS

100

tCO₂e

IN YEARLY GHG

REDUCTIONS

GOOD NEWS STORY

Delta Hospital: Collaboration and Creativity

Delta Hospital was in serious need of a new hot water system. Their water heaters and tanks, which dated back to 1970, had already provided 40+ years of service, and were extremely inefficient by today's standards. However, due to limited resources, Delta's Facilities Maintenance Operations (FMO) team had trouble justifying the expense and payback of a new heating system.

That's when the GreenCare Energy Management Team came along. To help cover the costs for the new system, the GreenCare Team applied for a grant from the Carbon Neutral Capital Project (CNCP) – Provincial funding for capital investments that reduce energy costs and lower carbon emissions. They also collaborated with Delta's FMO to find additional opportunities to improve the efficiency of hot water storage and delivery, including:

- Consolidating the Acute and ECU hot water storage system
- Adding speed drives to improve hot water flow and delivery efficiency
- Expanding the building automation system to improve control and tracking

Along with upgrade funding from the CNCP, the two teams applied for incentives from the FortisBC Efficiency Boiler Program, as well as BC Hydro Power Smart incentives for pumps upgrades. The project installation began in November 2014, and was completed in March 2015.

The result? Along with a cost savings of \$19,000 per year, the project is also projected to save, on an annual basis, 1,339 GJ in natural gas and 60,000 kWh in electricity, with yearly GHG reductions of 100 tCO₂e.



Zero Waste

OUR GOAL

Make recycling easy and accessible in working towards a Zero Waste health care system.

The topic area of Zero Waste, within the LMHOs, refers to the effort to emulate nature, where waste and pollution essentially don't exist.

LMHO hospitals produced 13,000 tonnes of waste in 2013-14. 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.

Achieving Zero Waste is about reducing consumption, as well as designing products and industrial processes so that components can be dismantled, repaired, reused and recycled.

Waste generated in LMHO-owned facilities can be divided into three general categories:

- **Biomedical waste:** Must be segregated from all other wastes to comply with waste management regulations and to protect human health and safety.
- **Garbage:** Refers to solid waste that is not hazardous, recyclable, compostable or biomedical, 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 companies do not currently accept medical items made from recyclable materials, even if clean and unused, because the items are perceived to be unsafe to handle.
- **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 of paper and containers at LMHOs is encouraged through our Recycling Renewal Program (RRP). The RRP was set up to implement and standardize recycling across Lower Mainland acute and residential care sites, and to ensure regulatory compliance by diverting recyclable material away from landfill/incineration.

PROVIDING SUPPORT

Business Initiatives Support Services (BISS) contracts waste management services and provides operational support for service delivery to the various LMHO health care sites. As the primary driver, BISS has shown strong commitment and leadership in negotiating contracts with vendors, focusing on diverting waste from landfill and incineration.

The GreenCare Recycling Coordinator, within the GreenCare Team, plays a key support role to BISS by coordinating implementation of the Recycling Renewal Program and waste audits, and training health care staff. The Recycling Coordinator also works with Health Shared Services BC, Lower Mainland Facilities Management, and various housekeeping contractors across the region.

SITES WITH BATTERY RECYCLING

| | 2011 | 2012 | 2013 | 2014 |
|-------------|------|------|------|------|
| FH | 7 | 9 | 9 | 11 |
| PHC | 4 | 4 | 4 | 4 |
| PHSA | 2 | 3 | 3 | 6 |
| VCH | 8 | 11 | 18 | 18 |

BATTERIES RECYCLED (IN KG)

| | 2011 | 2012 | 2013 | 2014 |
|-------------|-------|-------|-------|-------|
| FH | 727 | 548 | 1,382 | 1,615 |
| PHC | 1,466 | 723 | 1,053 | 916 |
| PHSA | 56 | 71 | 190 | 546 |
| VCH | 2,849 | 2,773 | 3,032 | 3,784 |

TARGET #1

By 2014, achieve 50% waste diversion rate for acute and residential care sites in the RRP. (Note: this is in line with Metro Vancouver's waste diversion targets.)

2014 PERFORMANCE

In 2014, the LMHOs switched to a new recycling vendor. Due to this transition, to date, not all sites have adopted the new process of sending their mixed container and paper recycling to the new vendor. However, we are still measuring potential diversion rates as illustrated in the table to the right. Since 2011, the proportion of waste being recycled has increased by 7%.

Battery recycling is conducted separately from the RRP. Initiated in 2011, it is implemented on a site-by-site basis. Early implementation of this program

focused on Vancouver Coastal Health and Providence Health Care sites, while 2013 and 2014 implementation focused mainly on Fraser Health and Provincial Health Services sites. In 2014, the overall total number of sites with battery recycling increased to 39.

In 2014 Vancouver Coastal Health led the LMHOs with 3,784 kg of recycled batteries. Fraser Health had 1,615 kg while Providence Health Care and Provincial Health Services Authority had 916 kg and 546 kg respectively.

Note: Tables to the left include information from the 39 sites that work with Call2Recycle. Fraser Health has two sites that work with NuLife to recycle their batteries.

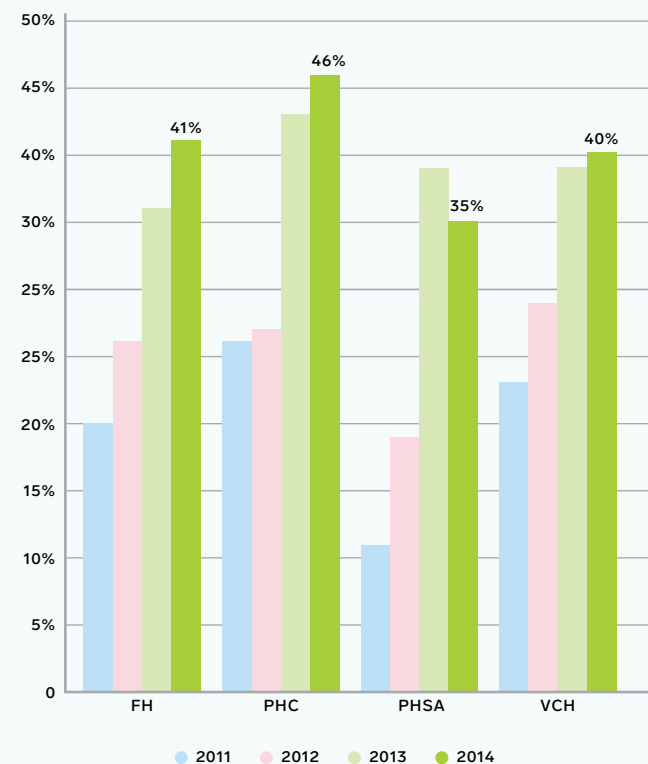
Potential contamination of the recycling stream remains a challenge. Since 2012, the LMHOs have had several incidents of contamination — involving the disposal of sharps waste and bloody material — going into the recycling stream. As a result, the LMHOs began a campaign of education and recruiting Recycling Champions to help encourage proper recycling and to police their sites.

In December 2014, the LMHOs began working with a new recycling reprocessor. As part of this, a joint committee — consisting of the new recycling vendor, the LMHOs' waste removal vendor, BISS and the GreenCare departments — developed a new protocol for responding to recycling contamination from our health care facilities. The protocol states that any site with three incidences of prohibited materials found in recycling during the calendar year will result in the specific ward's or site's recycling program being shut down for a year. This is to give the ward/site time to adjust to the protocol and prevent these incidents from reoccurring.

PLANS FOR 2015

This target will now be replaced with a target of a 70% waste diversion rate for acute and residential care sites by 2015.

WASTE DIVERSION RATES



The waste diversion rate 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. The recycling data is only for LMHO owned sites. It is a combination of actual and averaged weights as not all containers are weighed; some variability in diversion rates can be attributed to this. Not all recycle data is available for some Fraser Health sites. Organics recycling is only measured in kitchens that are managed by BISS. Health Authorities do conduct office organics diversion, though these are typically only conducted at leased sites with "non-owned" waste.

RECYCLING RENEWAL PROGRAM IMPLEMENTATION (# OF SITES)

| | 2010 | 2011 | 2012 | 2013 | 2014 | Total |
|--------------|------|------|------|------|------|-------|
| FH | 0 | 2 | 3 | 0 | 4 | 9 |
| PHC | 6 | 0 | 0 | 0 | 0 | 6 |
| PHSA | 0 | 0 | 1 | 3 | 2 | 6 |
| VCH | 0 | 10 | 4 | 4 | 1 | 19 |
| TOTAL | 6 | 12 | 8 | 7 | 7 | 40 |

TARGET #2

Ensure 100% implementation of the RRP at all acute and residential care sites by 2016.

2014 PERFORMANCE

In 2014, seven new sites rolled out an RRP, including:

- Fraser Health: Queens Park Care Centre, Jim Pattison Outpatient Care and Surgery Centre, Peace Arch Hospital, Langley Memorial Hospital
- Provincial Health Services Authority: BC Cancer Agency, BC Cancer Research Centre
- Vancouver Coastal Health: Cedarview Lodge

Overall, 68% of acute and residential care sites had been implemented with an RRP.

FH 41% PHC 100% PHSA 100% VCH 100%

PLANS FOR 2015

This target carries over until 2016. The LMHOs are on schedule to reach this target, with only 13 more sites to be implemented by 2016.

GREENCARE TEAM MEMBER



Sonja Janousek

“Connecting Zero Waste to health is easy. Both landfill and incineration have negative impacts on health when pollutants affect the soil, water and air. By combining quality health care with mindful purchasing and responsible waste management, we contribute to health and wellness for patients, staff and the community.”



HOW WE MEASURE UP

HOW THEY PERFORM

The Healthier Hospitals Initiative (HHI) has challenged hospitals to set a goal of a 15% recycling rate compared to total waste. The HHI also challenges hospitals to reduce biomedical waste streams to less than 10%.

TARGET #3

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

2014 PERFORMANCE

In 2014, the LMHOs selected the pilot sites of the Facilities Maintenance departments at Vancouver General Hospital, Children's & Women's Health Centre of British Columbia and Ridge Meadows.

Due to the complex nature of contracts and responsibilities at these sites, research was conducted to determine the various types of waste, and departments or contracted services dealing with relevant waste streams.

PLANS FOR 2015

This target carries over until 2016.

HOW WE ARE DOING

The LMHOs have consistently maintained biomedical waste at 9% of total waste disposed since 2012.

TARGET #4

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

2014 PERFORMANCE

Business Initiatives Support Services (BISS) continued to play a key role in transforming the LMHOs' food services, including the use of Styrofoam. At the end of 2014, Provincial Health Services Authority, Vancouver Coastal Health and Providence Health Care had eliminated 100% of Styrofoam use by food services in patient and residential areas. It is expected that Fraser Health will achieve 100% elimination of Styrofoam from service ware in 2015.

It should be noted that eliminating Styrofoam as service ware does not completely eliminate it from all health care use. Legacy amounts of Styrofoam products and packaging remain in the supply chain.

PLANS FOR 2015

This target carries over until 2016.

GREENCARE TEAM MEMBER



Ashley Edworthy

“Working towards Zero Waste is an important step on the road to ensuring that B.C.'s health care system is contributing to a healthy environment for present and future generations. It is exciting to see the progress we've made towards Zero Waste as we've nearly completed the implementation of the Recycling Renewal Program at all LMHO acute and residential care facilities.”



MOTIVATING STAFF TO SUCCEED

40+

OF MIRANDA'S CO-WORKERS
ARE INSPIRED BY HER
COMMITMENT

GOOD NEWS STORY

Recycling Champion with a Passion for Inspiring Others

When the outpatient psychiatry department at BC Mental Health and Substance Use Services (BC Children's Hospital) needed someone to take on the role of Recycling Champion, the choice was easy: Miranda Doherty, one of their Occupational Therapists.

Miranda was already a passionate recycling advocate, inspiring others by bringing cloth napkins (instead of paper) for her work lunches, composting paper towels, and limiting her purchase of products with excessive packaging.

As Recycling Champion, Miranda works to inspire and engage the 40+ staff in her department, sharing information through emails and signage, and by presenting information at their outpatient psychiatry meetings.

After noticing contaminant items in the recycling bins, she even instigated recycling quizzes, which included prizes. "A quiz with prizes felt like a good way to get people aware of recycling," Miranda explains. "So if the question was about disposing of paper napkins, the prize was a pair of cloth napkins. And if the question was about water bottles, the prize was a reusable water tumbler."

"Even more memorable was having a hands-on demonstration," adds Miranda. "At one of our staff meetings, I grabbed a recycling bin, put on gloves, and went through the bins in front of all the staff. It was a platform to open up questions about what to recycle. And having a hands-on activity really helped people remember to recycle – it was definitely a step in the right direction."



Active 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.

In 2014, the GreenCare Team conducted a survey to identify the modes, frequency and distance of LMHO staff commutes. The survey determined that staff commute to work daily in gas (non-hybrid) single occupancy vehicles as follows:

- Fraser Health: 74%
- Providence Health Care: 36%
- Provincial Health Services Authority: 44%
- Vancouver Coastal Health: 53%

As a result, it is estimated that over 24,000 full-time working health care professionals across the Lower Mainland drive to work every day in gas (non-hybrid) single occupancy vehicles. This emits a tremendous amount of CO₂ into the environment. The LMHOs feel a responsibility to reduce that environmental impact and improve the overall health of their staff by promoting active transportation.

PROVIDING SUPPORT

Integrated Protection Services is in charge of parking at the Lower Mainland health care facilities. As part of their services, a Transportation Demand Management & Commuter Choices Coordinator works to reduce the number of staff that commute via single occupancy vehicles, and provides opportunities — such as electric vehicle charging stations — to reduce the health care sector's environmental impact.

GREENCARE TEAM MEMBER



Eiselle Omampo

“Changing an organizational culture and getting staff to realize how easy and healthy it is to change their commute to work can be quite challenging. We are constantly looking at ways to promote and support healthier transportation modes. However, we’re seeing progress in the increasing number of staff commuting via foot, bike, transit, hospital shuttle, carpool, carshare and electric vehicles.”

TARGET #1

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

2014 PERFORMANCE

The 2014 survey provided a good understanding and refreshed baseline, per organization, for the number of staff walking to work. Health care sites that are located in high-density urban settings have the greatest number of staff who walk to work. With most of their sites located in densely populated corridors, Providence Health Care had the highest rate (13.3%) of staff walking to work in 2014. Fraser Health, with a majority of rurally located health care sites, had 5.4% of staff walking to work.

PLANS FOR 2015

Though they are getting close to achieving this goal, the target will be kept until all LMHOs have achieved the target as stated. The internal Transportation Demand Management Group will continuously re-evaluate targets and performance and adjust accordingly.

TARGET #2

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

2014 PERFORMANCE

The 2014 survey data determined that three LMHOs are now achieving this target. With a 2.3% cycle participation rate, Fraser Health remains challenged. Many of their health care sites are rural in nature, and staff generally travel greater distances to get to their work, making bike transport difficult.

PLANS FOR 2015

Retain the 6% target until Fraser Health has achieved the goal. The internal Transportation Demand Management Group will continuously re-evaluate targets and performance and adjust accordingly.

TARGET #3

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

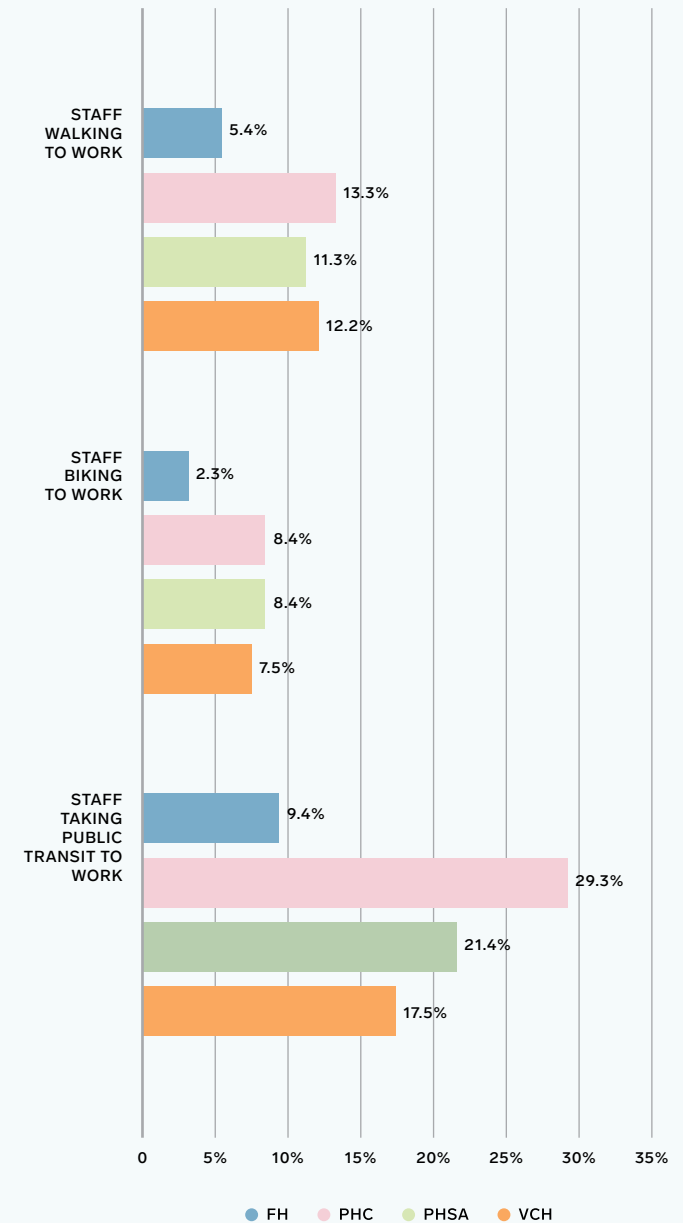
2014 PERFORMANCE

In 2014, TransLink, the primary transit provider in the Lower Mainland, discontinued their corporate discounted transit passes. Up to that point, Provincial Health Services Authority and Vancouver Coastal Health matched the TransLink corporate discount to, in effect, provide a maximum combined 25% discount. When TransLink discontinued the corporate discount, Provincial Health Services Authority also decided to discontinue their discount. However, Vancouver Coastal Health elected to continue with their portion of the discount. It is estimated that these changes dramatically reduced the number of staff taking transit.

Nevertheless, the 2014 results were still fairly exemplary. In 2014, Providence Health Care led the way, with 29.3% of their staff taking public transit to work. Not far behind, Provincial Health Services Authority had 21.4% and Vancouver Coastal Health had 17.5%. Fraser Health, which has a large number of remote sites and limited public transit options at many sites, only had 9.4% of their staff taking transit in 2014.

PLANS FOR 2015

Three LMHOs have already achieved this goal, but it will be kept until Fraser Health has come closer to achieving the target. The internal Transportation Demand Management Group will continuously re-evaluate targets and performance and adjust accordingly.



2014 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?’”

2014 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.”

2014 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.”

2014 COMMUTER OF THE YEAR



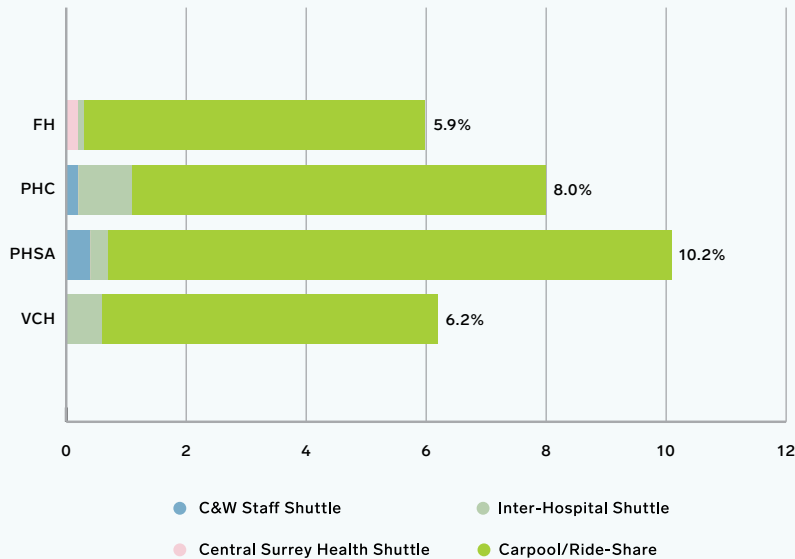
(Image: left to right) Matt Fieldwalker is presented with the Commuter of the Year Award by Anne Harvey (Vice-president of Employee Engagement, Vancouver Coastal Health).

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!”

STAFF TAKING RIDE-SHARE/SHUTTLE TO WORK



TARGET #4

By 2020, ensure that 17% of LMHO staff choose to ride-share for their primary commute.

2014 PERFORMANCE

In 2014, the survey data indicated this is an area of needed growth. Fraser Health and Vancouver Coastal Health had only 5.9% and 6.2%, respectively, of staff taking advantage of ride-share and carpool opportunities. (In 2010, a ride-share website was set up to link staff, with the aim of reducing the number of single occupancy vehicles. Unfortunately, staff participation on this ride-share website continues to be extremely low.)

PLANS FOR 2015

This target will be kept for the foreseeable future as it is seen as a good stretch target for all four LMHOs. The internal Transportation Demand Management Group will continuously re-evaluate targets and performance and adjust accordingly.

GREENCARE TEAM MEMBER



Ruth Abramson

“By making alternative transportation options like biking, walking, transit and carpooling more accessible, we promote better health and a cleaner environment.”

GREENCARE ENVIRONMENTAL SUSTAINABILITY ADVISORY COMMITTEE MEMBER



Mary Procter

VICE PRESIDENT FINANCE & PLANNING,
PROVIDENCE HEALTH CARE

“To be good stewards of our health care system, we need to be good stewards of our environment. Each one of us must take responsibility to reduce, reuse and recycle, and to use our resources responsibly.”





CYCLING CENTRE CONVERTED
FROM LAUNDRY BUILDING

182

BIKE RACKS

PLUS BIKE REPAIR TOOLS
AND SHOWERS!

GOOD NEWS STORY

VGH Opens State-of-the-art Cycling Centre

To encourage more people to adopt healthier forms of transportation, Vancouver Coastal Health has transformed a long-vacant laundry building at Vancouver General Hospital into a safe and secure Cycling Centre for hospital staff and volunteers.

The Cycling Centre can accommodate up to 182 bikes and provides access to men's and women's change rooms with showers, 105 storage lockers, and a bike repair area with air pumps, bike stands and tools. Newly designed 'auclair racks' were supplied by Urban Racks, which allow for a higher density of bikes to be parked side by side without tangling handlebars.

The facility is located on the 10th Avenue bike route in a recently renovated corner of the hospital's vacant laundry building, which already had washroom and shower facilities in place. Membership fees, based on how frequently individuals use the facility, cover all operating costs, making the Cycling Centre completely self-sustaining.

"We developed the Cycling Centre with the City of Vancouver's Transportation 2040 Plan in mind because we believe health and environmental sustainability are closely linked," says Anne Harvey, Vice-president of Employee Engagement at Vancouver Coastal Health. "As a health authority, it's important for us to support this relationship wherever we can since it has important benefits to population health."

"Studies show that people who cycle regularly are healthier, happier and more productive employees," says Health Minister Terry Lake. "End-of-trip facilities like the Cycling Centre are an important way of encouraging and supporting all staff — not just avid cyclists — to adopt a healthier and more active commute."



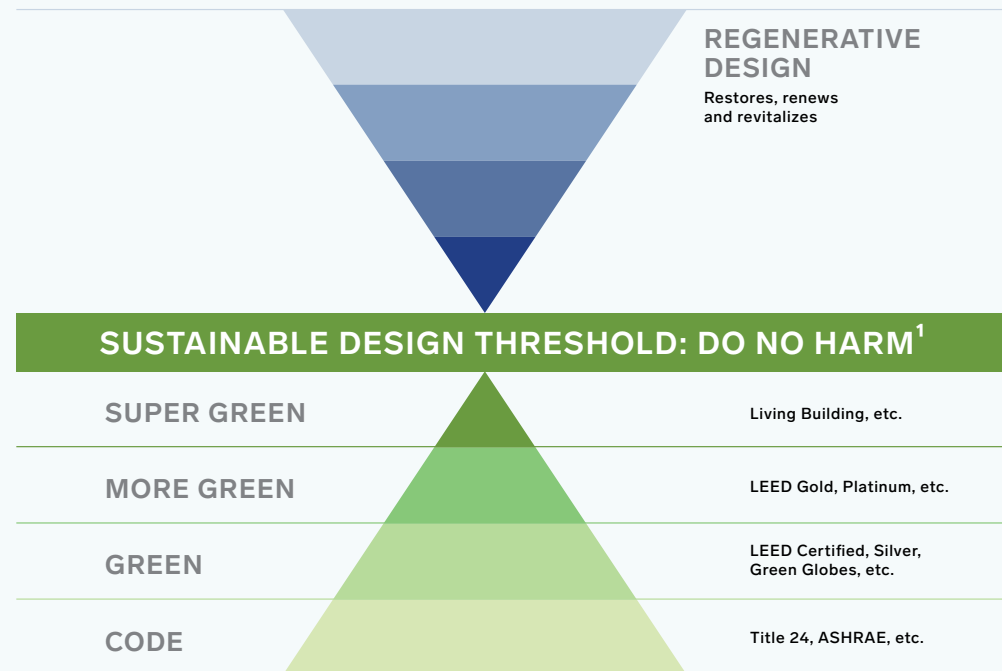
Regenerative Design

OUR GOAL

Employ regenerative design principles and processes to enhance the built environment and improve human and environmental health.

Regenerative design refers to the LMHOs' commitment to improve the health, happiness and productivity of patients and staff through higher standards for the built environment.

Specifically, it refers to the renewal, revitalization and restoration of the built environment (e.g., materials, energy, water). While the primary driver for sustainable development is to fulfill today's human needs without compromising tomorrow's needs, regenerative design is designed to redevelop built environments and systems to reflect and allow for the healthy co-functioning of humans and the environment with a net positive impact.



¹ [Living Buildings](#): The built environment's most rigorous performance standard and rating tool.
[Green Globes](#): Building design, management, rating and certification tool.
[Title 24](#): California Energy Commission Building Energy Efficiency Program.
[ASHRAE](#): Building code standards advancing human well-being through sustainable technology for the built environment.

TARGET #1

By 2014, incorporate regenerative design principles into the health care culture and vocabulary.

2014 PERFORMANCE

In 2014, work on this target included the support for a Healthy Built Environment toolkit, led by the Provincial Health Services Authority. In addition, our GreenCare Community website has a place for staff to connect on the concept of regenerative design.

PLANS FOR 2015

As this is an ongoing target, it will be re-evaluated to determine a more measurable target in 2015. Several suggested targets to replace this one include the integration of Healthy Built Environment (Provincial Health Service Authority's Population and Public Health Program), with principles from the Vancouver Coastal Health Pearson Dogwood Redevelopment project. As well, we plan to provide more timely regenerative design related material on the GreenCare Community website for sharing among the health care community.

TARGET #2

By 2016, incorporate regenerative design principles into new construction and major renovation criteria.

2014 PERFORMANCE

In 2014, the GreenCare Team created an Integration Matrix to integrate energy conservation and regenerative design principles within every new project. This document is still in rough draft form, but is expected to be finalized in 2015.

PLANS FOR 2015

We will re-evaluate our original target to determine if we can provide more specific deliverables for 2016 and beyond.

TARGET #3

By 2020, achieve the Living Building Challenge and Passive House Standard for one new facility.

The Living Building Challenge is an extremely rigorous design certification program for facilities, and defines advanced measures of sustainability in the built environment. Though it will be a major challenge for any health care facility to achieve the Living Building Challenge, it has been set as a goal to inspire design changes that bring them closer to achieving this standard.

The Passive House Standard is a facility design process that focuses on making structures the most energy efficient possible. However, many benefits of Passive House go beyond energy to influence air quality, thermal comfort, sound insulation and structural durability.

2014 PERFORMANCE

In 2014, after several years of analysis and advocacy, the Bella Bella Staff Housing replacement project became the first health care facility to issue a Request for Proposal that includes the Passive House Standard in the design.

PLANS FOR 2015

This target will be adjusted in 2015 as it is expected that the Bella Bella Staff Housing replacement project will become the first Passive House designed health care owned facility to be approved by an LMHO. Going forward, the GreenCare Team will continue to identify opportunities to implement the Passive House design within health care facilities.

GREENCARE TEAM MEMBER



Angie Woo

“From my perspective, regenerative describes net positive interactions between our communities, our shared ecosystems and our built structures, that result in 'doing more good' for all. This holistic, long-term view reflects the true nature of our interdependency, and allows our society to focus on creating health and well-being rather than just treating illnesses.”

GREEN HEALTH CARE FACILITIES

The Climate Action Secretariat has chosen the Green Building Council's Leadership in Energy and Environmental Design (LEED) as the primary standard for measuring all new public sector construction projects.

The LEED scorecard consists of eight categories, including Energy and Atmosphere, Water Efficiency, Materials and Resources, and others. Once a project is evaluated, it can be awarded one of the LEED certification levels (Certified, Silver, Gold and Platinum), depending on the score of the facility.

Since 2005, the GreenCare Team has helped facilitate 18 LEED projects across LMHOs. Another 10 projects are in various stages of design, construction and certification evaluation. In 2014, the Sechelt Hospital (formally St. Mary's Hospital) and Surrey Memorial Hospital Critical Care Tower were granted LEED Gold certification. Also in 2014, five LEED facilities were analyzed to better understand design and construction challenges as well as post occupancy performances.

Future projects seeking LEED Gold certification include the Lions Gate Hospital HOpe Centre (Vancouver Coastal Health), Children's and Women's Redevelopment Project (Provincial Health Services Authority), Mission Community Health Project (Fraser Health) and the recently announced relocation and development of the St. Paul's Hospital (Providence Health Care).

LMHO LEED CERTIFIED BUILDINGS

| Certification Date | HA | Project | Certification Level |
|--------------------|------|--|---------------------|
| Sep 2007 | FH | Cottonwood Lodge | Gold |
| Dec 2008 | FH | CareLife Residential Care Maple Ridge | Silver |
| Sep 2009 | FH | Abbotsford Regional Hospital and Cancer Centre | Gold |
| Mar 2010 | FH | Czorny Alzheimer Centre (Phase 1) | Certified |
| Jun 2010 | FH | Victoria Heights Assisted Living, New Westminister | Certified |
| Apr 2011 | FH | Chilliwack General Hospital | Certified |
| Sep 2012 | FH | Jim Pattison Outpatient Care & Surgery Centre | Gold |
| Oct 2012 | FH | Creekside Withdrawal Management Centre | Certified |
| Oct 2012 | FH | Maxxine Wright Community Health Centre | Gold |
| Apr 2013 | FH | Czorny Alzheimer Centre (Phase 2) | Gold |
| Nov 2014 | FH | Surrey Memorial Hospital Critical Care Tower | Gold |
| TBD | FH | Quibble Creek Health & Phoenix Transition Housing Centre | TBD |
| TBD | FH | Cypress Lodge Psychiatric Hospital | TBD |
| TBD | FH | Langley Memorial Cottage | TBD |
| TBD | FH | Mission Complex Residential Care Facility | TBD |
| Nov 2006 | PHC | Mental Health Unit 9A, St. Paul's Hospital | Certified |
| TBD | PHC | BC Centre for Excellence, St. Paul's Hospital, West Wing Renovation | TBD |
| Jul 2005 | PHSA | BC Cancer Research Centre | Gold |
| Nov 2011 | PHSA | Children's & Women's Hospital Mental Health | Silver |
| Jun 2013 | PHSA | BC Children's & BC Women's Redevelopment Project Clinical Support Building | Gold |
| Jun 2014 | PHSA | BC Cancer Agency Centre for the North | Gold |
| Mar 2015 | PHSA | Children's & Women's Health Centre of BC - Child Care Centre | Gold |
| TBD | PHSA | Centre for Translational and Applied Geonomics | TBD |
| TBD | PHSA | Children's & Women's Health Centre of BC Teck Acute Care Centre | TBD |
| Jan 2014 | VCH | Sechelt Hospital | Gold |
| TBD | VCH | HOpe Centre, Lions Gate Hospital | TBD |
| TBD | VCH | Joseph & Rosalie Segal Family Health Centre | TBD |

A LEED GOLD CERTIFIED BUILDING

21,450

KWH/YR OF

RENEWABLE ENERGY FROM
ROOFTOP PHOTOVOLTAIC SYSTEM

GREENCARE
TEAM MEMBER



Kaitlyn Pelletier

“Building to a Leadership in Energy and Environmental Design (LEED) certification level has a lot of merits for performance, health and a commitment by the organizations to demonstrate value. The GreenCare Team is not only committed to the rigors of this independent certification of their facilities but also to analyzing their successes and challenges to ensure lessons learned are applied to future projects.”

GOOD NEWS STORY

Sechelt Hospital: Dedicated to Sustainability and Community

Sechelt Hospital is unique among B.C. hospitals in many ways. All of its inpatient rooms are single-occupancy, a first for Vancouver Coastal Health and a proven way of minimizing the transmission of infections. It's also one of the few hospitals to have operable windows in all clinical and inpatient areas. Not only that, it's a LEED Gold building, with sustainability features embedded throughout the structure.

While prioritizing sustainability, central to the design approach was creating a space with a strong local context. The process included extensive consultations with Sechelt First Nation Elders, resulting in a design based on a traditional Native bent-box. A light-filled lobby creates a new public room for the community and includes a 70-foot-long mural created by local Native artists.

KEY SUSTAINABLE DESIGN FEATURES

- Passive design strategies, including the use of shading, operable windows and daylighting
- High-performance, double-envelope construction system for enhanced energy performance
- High-mass hydronic radiant floor slab for both heating and cooling
- Low-carbon geo-exchange system for heating and cooling
- Rooftop photovoltaic system that contributes 21,450 kWh/yr of renewable energy
- A green roof and native landscape
- Low-emitting materials
- Integration of art, natural light and fresh air to better support healing, well-being and community



Water Conservation and Restoration

OUR GOAL

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

Water conservation is becoming a higher priority within health care due to external cost pressures, which continue to increase. As well, a greater awareness of a reducing snow pack in the local mountains and an increasing responsibility of water stewardship is slowly reshaping organizational priorities.

Our primary challenge with managing water and gaining greater water efficiencies within LMHO health care facilities relates to a lack of metering, as well as the low cost of water, which causes long paybacks in any new water conservation project.

Though the overall cost of water in the Lower Mainland is still considered low compared to electrical and natural gas costs, the average cost of a cubic meter of water was \$1.70 in 2014, a 31% increase from 2010. In 2014, LMHOs paid a collective \$5.1 million in water costs, an increase of \$1.1 million since 2010. This trend is expected to continue and, with a local water stressed ecosystem, costs are likely to increase with demand.

For sites with no meters, municipalities conduct usage and cost estimates for billing. As of 2014, the following Vancouver Coastal Health sites either had no water meters or were in the early stages of installing them:

- Powell River General Hospital and Evergreen Extended Care Unit
- Sechelt Hospital
- Squamish General Hospital, Hilltop House
- Whistler Health Care Centre
- Kiwanis Care Centre-North Shore
- Olive Devaud Residence
- Shorncliffe Intermediate Care Facility

GREENCARE TEAM MEMBER



Kori Jones

“Water and water-derived energy resources are essential to maintaining the long term well-being of our populations in the Lower Mainland. We need to be mindful of the energy consumption — and the resultant emissions — associated with water processing and distribution. This water-energy connection needs to be considered in all of our projects, procedures and purchases.”

TARGET #1

By 2020, achieve a 20% reduction in water intensity (baseline 2010), using the Building Water Performance Index (BWPI).

The BWPI is our preferred measure 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 facility area. This results in an “intensity” indicator for usage per cubic metre of facility space.

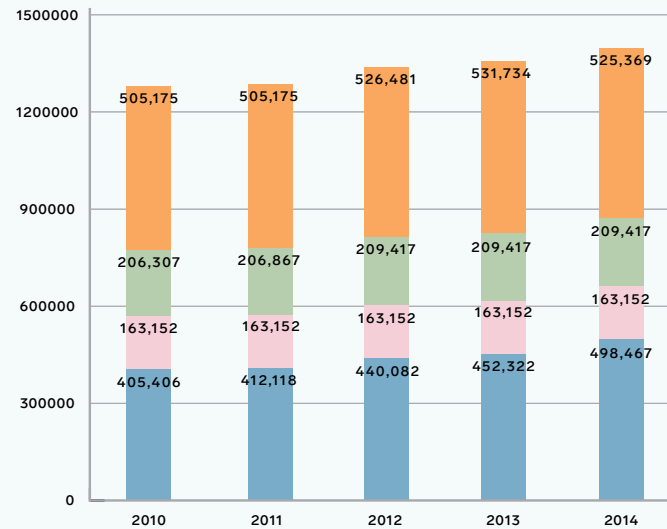
2014 PERFORMANCE

In 2014, three LMHOs decreased their overall BWPI from the 2010 baseline: Fraser Health (-12.7%), Providence Health Care (-13.1%) and Provincial Health Services Authority (-5.6%). At 0.4%, Vancouver Coastal Health remained nearly the same.

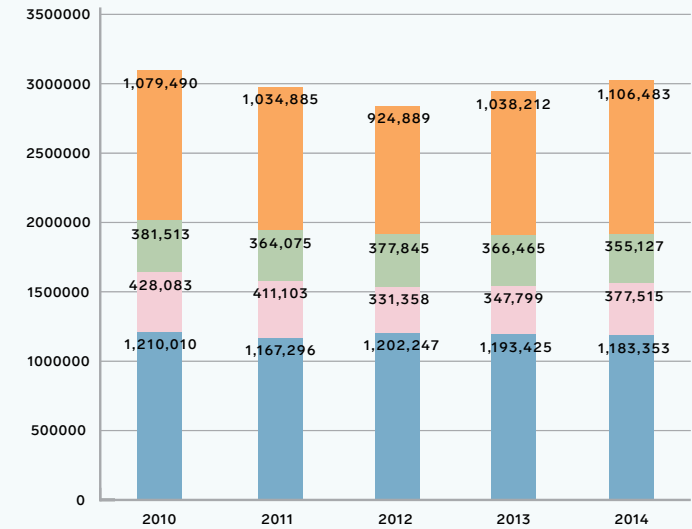
PLANS FOR 2015

The LMHOs are nearing the halfway point of this target, with three of them on track to achieving this goal. Although Vancouver Coastal Health is currently behind, we plan to make efficiency gains over the coming years that will bring them on par with the others. We will start by conducting water audits at the Vancouver Coastal Health sites of Lions Gate Hospital, Sechelt Hospital and Powell River General Hospital.

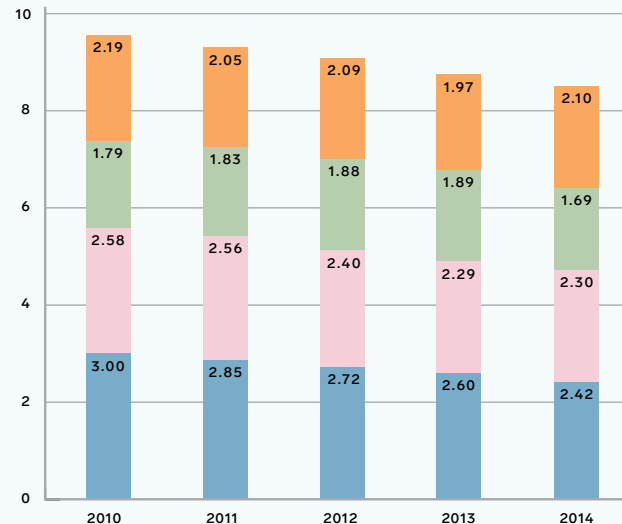
FACILITY AREA (m²)¹



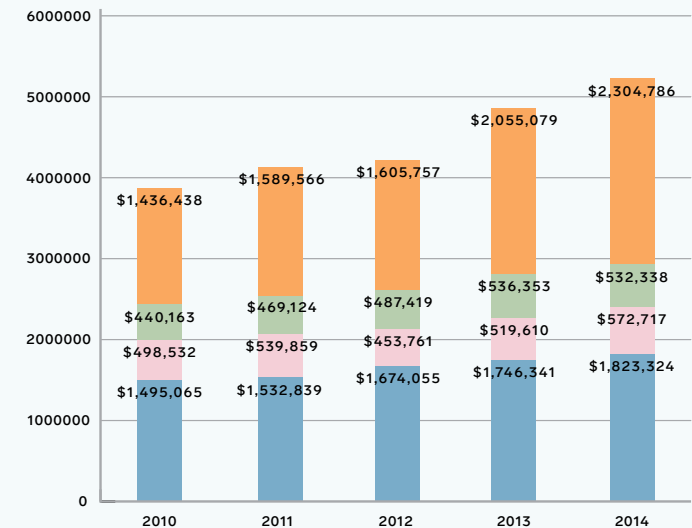
WATER CONSUMPTION (m³/yr)



BUILDING WATER PERFORMANCE INDEX (BWPI)
(m³/yr/m²)



WATER COST (\$/yr)



FH PHC PHSA VCH

TARGET #2

By 2020, implement five new rainwater harvesting projects across the LMHOs.

Rainwater can be harvested for landscape irrigation, and potentially for laundry washing. Benefits include a reduction in municipal water consumption, which reduces costs and our environmental impact. The concept of harvesting rainwater is still relatively new and untapped in the health care sector. However, the construction of new health care facilities across the Lower Mainland presents many opportunities to further explore rainwater harvesting.

2014 PERFORMANCE

In 2014, one rainwater harvesting project was implemented. The new Jim Pattison Outpatient Care and Surgery Centre (Fraser Health) has rainwater harvesting for irrigation purposes. This project, generally seen as a success, has been challenged due to an under-estimation of the volume levels and associated tank size.

PLANS FOR 2015

This target will be kept; we plan to implement another four rainwater harvest projects over the next five years.

LMHO WATER USAGE IN 2014

The LMHOs use several metrics to analyze water usage performance. Though straight consumption levels can be a useful measure, they are often negatively affected by the constant changing of facility space at LMHO health care sites. Therefore, the LMHOs rely on a more accurate metric of water intensity, the Building Water Performance Index (BWPI).

Fraser Health achieved a 5.3% reduction in water usage from 2010:

- They paid \$1.76 million for 1,145,717 m³ (cubic metres) of water, an 18% increase in costs from 2010.
- Since 2010, Queen's Park Care Centre (BWPI of 5.6) and the Felburn Care Centre (BWPI of 3.7) have been challenged with their water usage efficiency, while Royal Columbian Hospital (30% reduction since 2010) and Chilliwack General Hospital (31% reduction since 2010) have both shown strides in becoming more water use efficient. Additionally, the Jim Pattison Outpatient Care and Surgery Centre (BWPI of 1.1) and Mission Memorial Hospital (BWPI of 1.1) have led Fraser Health in water use efficiency.

Providence Health Care achieved an 11.8% reduction in water usage from 2010:

- They paid \$572,717 for 377,515 m³ of water, a 15% increase in costs from 2010.
- Since 2010, Youville Residence achieved a 31% decrease in water use while Honoria Conway increased their water consumption by 55%. The least efficient water-intensity sites were St. Vincent's: Langara (BWPI of 3.4), Holy Family Hospital (BWPI of 3.2), and Mount Saint Joseph Hospital (BWPI of 2.6). Brock Fahrni Pavilion showed the most efficiency with a BWPI of 1.6.

Provincial Health Service Authority achieved a 6.9% reduction in water usage from 2010:

- They paid \$532,338 for 355,127 m³ of water, a 21% increase in costs from 2010.
- Since 2010, the best performing site was the BC Cancer Agency, which reduced its water consumption by 30% and its water intensity by 32%. The VCC had a very low BWPI of 1.0.
- The vast majority of sites are showing above-average water efficiency.

Vancouver Coastal Health saw a small increase in water consumption from 2010 (+2.5%), which is mainly due to new construction projects at Lions Gate Hospital and VGH Robert Ho Research Centre:

- They paid \$2.3 million for 1.1 million m³ of water in 2014, a 57% increase in costs from 2010.
- George Pearson Centre (BWPI of 1.9), GF Strong Rehabilitation Centre (BWPI of 2.1) and UBC Hospital (BWPI of 2.1) have been water conservation leaders. Both Minoru Residence (BWPI of 4.3, with an 18% increase from 2013) and Cedarview Lodge (BWPI of 3.3, with an 8% increase from 2013) have been challenged in their water usage levels.

TARGET #3

By 2020, implement one new grey water reuse project.

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 represents nearly half of all water usage at health care sites, grey water is of great interest to us. In fact, grey water can be recycled to be used in any application that does not need potable (drinking) water.

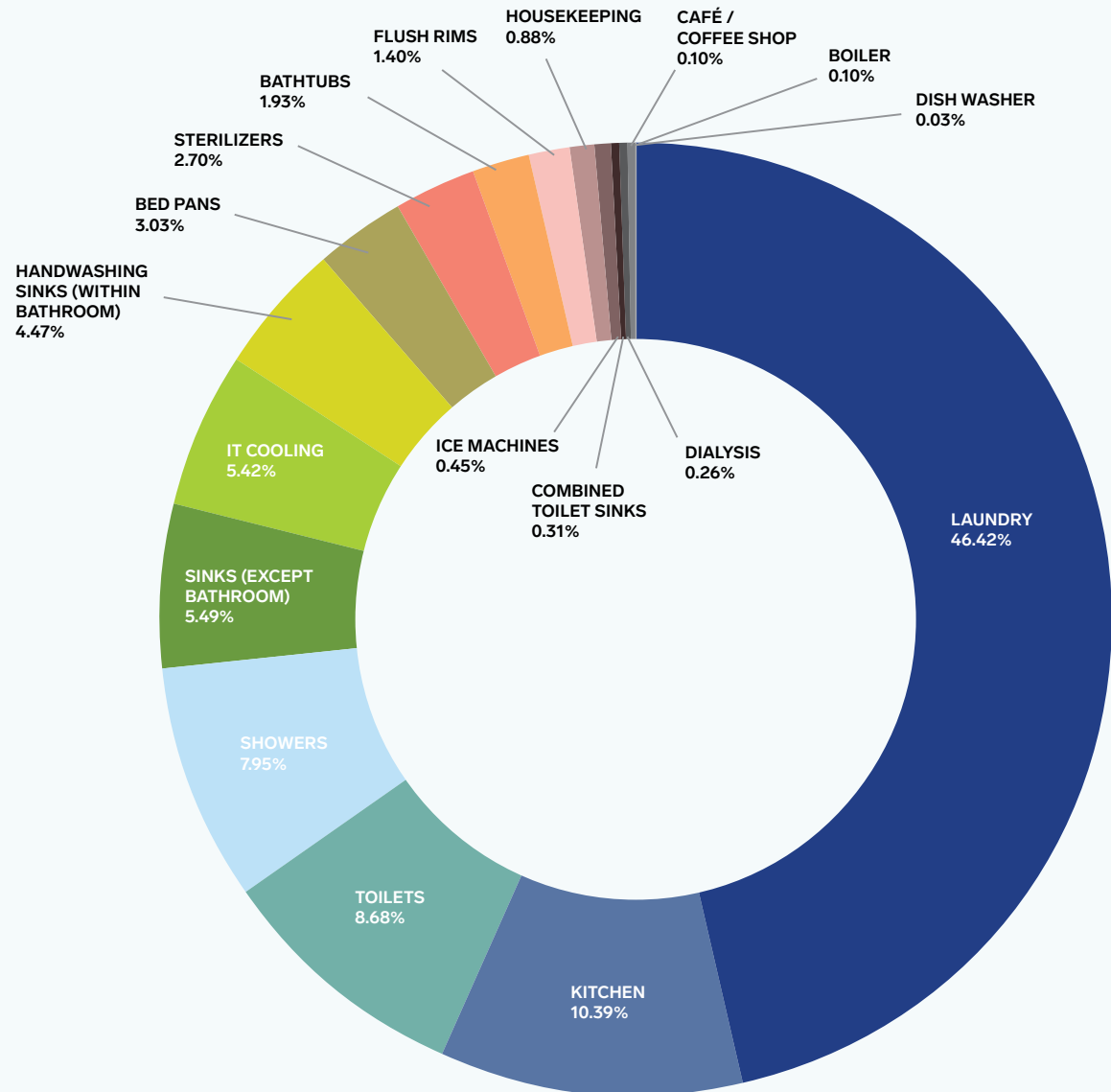
2014 PERFORMANCE

In 2014, no new grey water reuse projects were implemented. The LMHOs continued to investigate opportunities and conduct background research on the potential implementation of a grey water reuse project in conjunction with a health care facility.

PLANS FOR 2015

Grey water reuse/recycling is seen as a key long-term strategy for the reduction of water demand by LMHOs. Due to the challenge of finding the appropriate site and opportunity, a grey water reuse project may take several years to be achieved. By 2016, we hope to establish a strategic alliance with an external organization that has the expertise to support this project.

SEHELT HOSPITAL
2014 WATER CONSUMPTION





REDUCING ECOLOGICAL IMPACT

47%

LOWER ENERGY CONSUMPTION
THAN STANDARD DESIGN
PRACTICES

GOOD NEWS STORY

Committed to Energy and Water Efficiencies

Surrey Memorial Hospital's \$512 million redevelopment and expansion project includes the LEED Gold certified Critical Care Tower, an eight-storey structure that includes a new Emergency Department (the second largest in Canada), and one of only two Pediatric Emergency Departments in B.C.

With a commitment to maximizing energy and water efficiencies, the Critical Care Tower was built with a priority placed on indoor air quality, natural lighting and the use of wood and natural materials. Other sustainability features include a storm water management system, water-efficient landscaping and provisions for alternative transportation, including electric vehicle charging stations, bicycle storage and change rooms. In fact, the Tower has reduced energy consumption by 47% from standard design practices.

The result? The Critical Care Tower has reduced its ecological impact while providing a healthy and comfortable environment for patients, staff and visitors.



Sustainable Supply Chain

OUR GOAL

Leverage the purchasing power of the health care system to become a Canadian leader in fostering healthy communities, workplaces and ecosystems.

Within the LMHOs, a sustainable supply chain refers to focusing on the supply chain to increase operational efficiency, reduce the carbon footprint, reduce unnecessary chemicals in products, and reduce waste in supplies.

TARGET #1

In 2014, the GreenCare Team and Health Shared Services BC (HSSBC) will improve organizational efforts to achieve a sustainable supply chain.

2014 PERFORMANCE

In 2014, HSSBC conducted a number of sustainable supply chain projects:

- Conversions of direct-from-vendor orders to direct-from-warehouse orders, reducing emissions and hospital congestion (e.g., vendors, sales reps)
- Paperless record keeping in inventory control, decreasing the amount of paper waste
- A freight review/route consolidation project to reduce distance, as well as associated costs and emissions
- Transitioning from the primary use of wooden pallets to reusable plastic pallets, reducing the number of wooden pallets sent to the landfill

PLANS FOR 2015

In 2015, we will continue to evolve our work around a sustainable supply chain, including more detailed targets. HSSBC also plans to hire student interns to evaluate and provide recommendations on improving recycling efforts and reducing products that contain chemicals of concern (such as Di[2-ethylhexyl]phthalate [DEHP], a plastic-softening phthalate in medical products, which is banned in the EU and parts of the U.S., but still commonly used across Canada).

PROVIDING SUPPORT

Health Shared Services BC (HSSBC) is a key organization in helping LMHOs achieve a sustainable supply chain: they administer the vast majority of supplies to medical sites across the Lower Mainland. They work with health authorities across B.C. to achieve economies of scale and operational efficiency in delivering services such as supply chain management, technology services, and finance and employee services. To date, they have focused their sustainable supply chain work on reducing paper usage and improving operational efficiencies at their central distribution warehouse.

GREENCARE TEAM MEMBER



Sabah Ali

“Thinking outside the box is what we need to create a culture that realizes the significance of connecting sustainability to the health care system. Today we have the right elements to show society how much influence sustainability can have on the health and well-being of everyone.”



Zero Toxicity

OUR GOAL

Reduce the use of toxic chemicals, materials and known carcinogens within health care settings.

Zero toxicity in health care refers to the elimination of any unsafe, unnecessary chemicals in the health care system. Many chemicals are seen as beneficial to health, so the goal is not to completely eliminate chemicals. However, there are serious questions about the safety of many chemicals used; toxic chemicals can be linked to birth defects, cancer, asthma and other health problems.

A sampling of hazardous chemicals still used or found in hospitals today involve phthalates, perfluorinated compounds, Bisphenol A, mercury and triclosan.¹ These can be found in substances such as lighting, medical products, cleaning products and pesticides.

The LMHOs strive to provide the healthiest environments and products for optimal health and healing, and to decreasing toxic chemical exposure when safer alternatives are available. In addition, we are committed to increasing safety by improving the quality and consistency of information about chemical hazards.

ZERO TOXICITY: THE MAIN CHALLENGES

There is an overall lack of knowledge about the chemical content in common supplies. There is also a lack of common recognition and prioritization of the risks associated with these chemicals.

Most chemicals in the marketplace are examined for acute toxicity effects, not chronic effects. Manufacturers are often unwilling to publicize the chemical make-up of their products. This makes it difficult for us to obtain adequate knowledge.

With an unknown risk level, and the need for acute health care so high, medical health professionals find themselves making product and usage decisions that often conflict with their colleagues' views and practices.

Achieving complete agreement on the chemical risk level and strategic decisions going forward is often complicated and slow in nature. Though we have set targets (as outlined in this chapter), debate on the need for these targets still exists within the LMHOs.

PROVIDING SUPPORT

Business Initiatives Support Services (BISS) and Health Shared Services BC (HSSBC) are key support providers in helping us reduce unnecessary chemical usage in health care.

BISS works with vendors who supply cleaning products, to identify and track products that provide a clean and healthy health care system. They approve and promote any targets on the use of green cleaners.

HSSBC procures the vast majority of medical supplies across the LMHOs' health care sites. They approve and promote any targets that aim to identify and remove products with specific chemicals in their content.

TARGET #1

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

2014 PERFORMANCE

In 2014, the GreenCare Team worked with the Lower Mainland Facilities Management (LMFM) planning team and associated vendors to determine the percentage of free-standing furniture and medical furnishings that use halogenated flame retardants, formaldehyde, perfluorinated compounds and PVC. Unfortunately, the LMHOs do not track these chemicals in their procured standing furniture and medical furnishings, making tracking difficult. It also proved to be difficult to obtain information from vendors. However, some vendors have shown marketplace leadership in this area, so we are hopeful that products procured from them contain zero to limited amounts of these chemicals.

PLANS FOR 2015

This target will be kept to provide the LMHOs with strategic direction on reducing the chemical risks in procured furniture and furnishings. As they have a limited amount of resources, the GreenCare Team will seek to hire student interns to help with this work.

TARGET #2

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

The LMHOs are committed to creating the healthiest environments, including landscaping and related pest management. As an alternative to chemical use, integrated pest management has proven to be effective for pest management. Integrated pest management is the practice of using an ecosystem-based focus, which uses a long-term prevention strategy of techniques such as habitat manipulation, modification of gardening practices, biological control and use of resistant plant varieties.

2014 PERFORMANCE

As of 2014, four sites — Royal Columbian Hospital, UBC Hospital, Vancouver General Hospital and Sechelt Hospital — have all committed to the use of integrated pest management for landscaping around their sites.

UBC Hospital and Vancouver General Hospital use external services for their landscaping maintenance. These external services have all committed to using integrated pest management practices at those sites.

Royal Columbian Hospital and Sechelt Hospital maintain landscaping internally through the Facilities Department but also employ integrated pest management practices.

PLANS FOR 2015

The GreenCare Team plans to focus on Providence Health Care and Provincial Health Services Authority to confirm commitments to maintain landscaping through integrated pest management practices.

TARGET #3

By 2015, reduce the toxicity of laboratories by supporting the launch of a Green Labs Initiative (a focus on labs to reduce toxicity, energy consumption and water consumption).

2014 PERFORMANCE

In 2014, an implementation strategy and orientation were completed for a Green Labs Initiative.

PLANS FOR 2015

Currently the GreenCare Team is on track to support the roll-out of the Green Labs Initiative in 2015. This target will be kept for an additional year before being re-evaluated.

TARGET #4

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

2014 PERFORMANCE

Best practices in design and procurement have dramatically reduced the amount of mercury found in thermometers, thermostats and blood pressure measuring machines in LMHO health care facilities. In 2014, the GreenCare Team continued to advocate for the removal of any legacy products containing high amounts of mercury. Discussions also took place to partner with the Green+Leaders Program to use Green+Leaders to conduct workplace audits to determine whether any legacy products are still in the health care settings.

PLANS FOR 2015

This target will be kept until we have a stronger understanding of the amount of legacy products still in the health care settings. Though it is assumed the number is very low, we cannot be sure until an audit is conducted.

HOW WE MEASURE UP

HOW THEY PERFORM

According to the Healthier Hospitals Initiative, 161 hospitals spent 46% of their cleaning budget on EcoLogo or Green Seal certified cleaning agents.

HOW WE ARE DOING

The LMHOs have not initiated the use of any EcoLogo or Green Seal certified cleaning agents due to internal questions on effectiveness.



TARGET #5

By 2014, investigate the potential applications of using cleaning products that adhere to set environmental standards (i.e., Green Seal or EcoLogo certified cleaning products) in four categories: carpet, window, all purpose and bathroom.

2014 PERFORMANCE

In 2014, we made changes to one of our primary contracted vendors that provided cleaning services. While this disrupted the investigation and tracking of environmentally preferred cleaners within the health care sites, it also provided a fresh opportunity to engage a new vendor on this topic.

We also determined that the use of environmentally preferred cleaners in LMHO health care sites is still considered controversial as the reliability, effectiveness and costs still remain in question.

PLANS FOR 2015

The change in contracted housekeeping services presents an opportunity to re-evaluate the use of cleaning products, which adhere to a high environmental standard. In this opportunity, the GreenCare Team hopes to identify areas that can be improved, and to reach an agreement on changing a certain percentage of overall cleaners to products that meet high environmental standards.

GREENCARE TEAM MEMBER



Fredelina (Del) Paqueo

“The GreenCare Team is a good news story in health care. I’m proud to play a role in helping to transform our health care sites into greener (less wasteful, more efficient, healthier) places of care.”



Healthy Land and Food

OUR GOAL

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

Healthy land refers to using green space and gardens to improve the general health of patients, residents and staff.

Healthy food refers to the prioritization of healthy meals for patients, residents and staff. Healthy food also refers to the ecological cycle of food to waste to food. Though efforts are made to reduce the amount of food waste, any wasted food should be composted to return it back into the natural cycle.

PROVIDING SUPPORT

Business Initiatives Support Services (BISS) manages in-house and contracted food services across the LMHOs. BISS has shown strong commitment and leadership is setting goals with food service operators that focus on ensuring the healthiest and most sustainable food is served at health care sites across the Lower Mainland.

The GreenCare Team supports BISS in this work and offers whatever resources possible to promote this work.

GREENCARE TEAM MEMBER



Glen Garrick

“Our interaction with land and food has profound effects on our health and wellness. Green spaces and landscaping around hospitals and the food offered within can greatly influence the health of patients and staff. Health care systems that acknowledge and use their green spaces and food services as tools in health services are helping to complete an ecological circle of health and healing.”

TARGET #1

By 2015, implement the Healthy Eating in Healthcare Guidelines in BISS-contracted retail food services.

2014 PERFORMANCE

The Healthy Eating Guidelines were implemented in 2013, in keeping with government guidelines. The overarching principles entail making the healthy choice the easy choice, and restricting less healthy options.

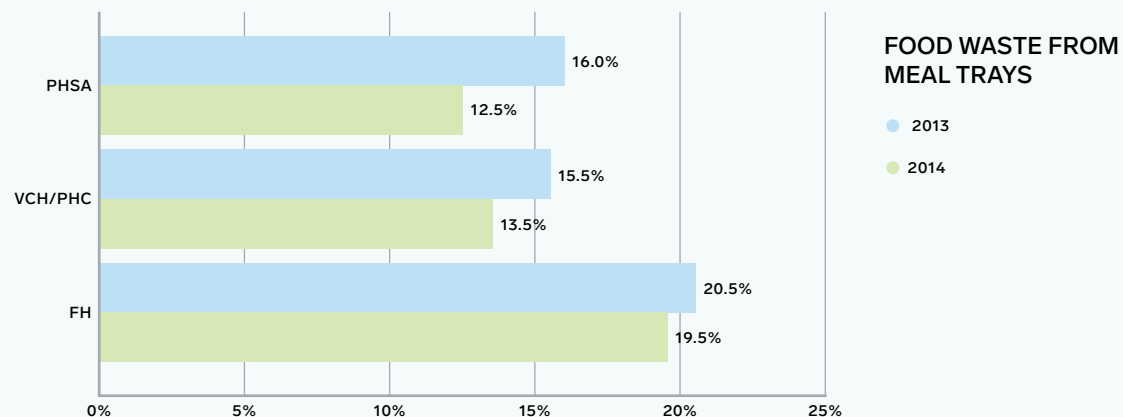
In 2014, Provincial Health Services Authority achieved a 50% implementation of the Healthy Eating Guidelines. The other LMHOs were able to achieve modest implementation rates in 2014.

PLANS FOR 2015

Implement diversion of organics (food scraps) in patient, residential and retail food service operations by 2015.

IMPLEMENTATION OF THE HEALTHY EATING GUIDELINES

| | 2014 |
|---------|------|
| FH | 22% |
| VCH/PHC | 31% |
| PHSA | 50% |



TARGET #2

By 2015, implement diversion of organics (food waste from patient trays, dining room service and food production) in all patient and residential food service operations.

2014 PERFORMANCE

BISS leaders and food service operators, along with Sodexo, Compass and Marquise, have worked to implement organics diversion in all BISS-contracted sites across the Lower Mainland. Food waste is collected in dish rooms, picked up by a third party and composted offsite.

This work started in 2012, and the target for patient food services was largely met in 2014. Vancouver Coastal Health, Providence Health Care and Provincial Health Services Authority had 100% implementation rates. Fraser Health had a 94% implementation rate, as the Fraser Canyon Hospital was unable to implement organics diversion due to the isolated nature of that site.

For residential food service operations, the target was 100% achieved across all four organizations in 2014.

PLANS FOR 2015

This target will be kept for one more year as a focus will be placed on the implementation of organic diversion in retail dining areas.

TARGET #3

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

2014 PERFORMANCE

Reducing the amount of food waste decreases the amount of organics needing to be disposed or composted off-site. By providing patients with preferred nutritious food, they are less likely to leave food on their trays.

Food waste audits are conducted two times per year in all BISS-operated and contracted food service operations across the Lower Mainland. Initiated in 2013, the percentage of food waste has been decreasing at each LMHO. In 2014, Provincial Health Services Authority led the way with only 12.5% food waste on patient trays.

PLANS FOR 2015

This target will continue until each LMHO is able to achieve 10% or less food waste per patient tray.

TARGET #4

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

2014 PERFORMANCE

Since 2010, a total of five gardens have been created at Provincial Health Services Authority (BC Children's Hospital), Providence Health Care (St. Paul's Hospital) and Vancouver Coastal Health (George Pearson Centre, Lions Gate Hospital, Three Bridges Community Health Centre). Unfortunately the Lions Gate Hospital garden was recently removed due to the building of the new HOpe Centre. It is hoped that it will be replaced in the near future.

In 2014, no new gardens (community or therapeutic) were created at any of the LMHOs. Several sites, most notably Vancouver General Hospital, were identified as having potential green space for converting to a garden space. This will be investigated in early 2015.

A key to achieving success in reaching this target will be educating site administrators on the potential health and community benefits of community or therapeutic gardens at their sites. In addition, we need to help mitigate any necessary funding challenges for the gardens. Obstacles include the availability of a reliable water source, a perception of an increased operational cost, and a perception of an increased rat population.

PLANS FOR 2015

This target will be kept, though we are uncertain about whether 10 new gardens can be achieved in the next six years. In 2015, this target will be more closely evaluated to determine if it's a practical or appropriate target for the LMHOs.



WHY IS HEALTHY LAND AND FOOD IMPORTANT IN HEALTH CARE?

Healthy land use, and food choices and disposal, are beneficial to health care in many ways:

- Our interaction with land and food has profound effects on our health and wellness. Green spaces and landscaping around hospitals, and the food offered within, can greatly influence the health of patients and staff. Health care systems that acknowledge and use their green spaces and food services as tools in health services are helping to complete an ecological circle of health and healing.
- Green spaces have a long-lasting positive impact on mental health and well-being. Studies have indicated that green spaces and gardens reduce stress and anxiety in patients, residents and staff.
- An increased preservation or creation of green space and gardens creates a cleaner environment, as the vegetation and plants help clean the air of carbon and other airborne pollutants.
- The way food is produced, processed, packaged and distributed also has a significant impact on human and environmental health. Taking steps to mitigate the negative aspects of processing food will increase the nutritional attributes and be more environmentally beneficial.
- Diabetes, cardiovascular disease and other ailments have been aggravated by the consumption of unhealthy food.
- Encouraging healthy food procurement, distribution, consumption and disposal can improve human and environmental health for patients, residents and staff.



WELLNESS AND GARDENING

100

YEARS OF HEALING
THROUGH AGRICULTURE

GOOD NEWS STORY

Therapeutic Garden for Patients with Mental Illness

The Forensic Psychiatric Hospital (FPH), located in Colony Farm Regional Park, Coquitlam, is an area rich in agricultural history. In fact, the facility has a long association with agriculture dating back over 100 years to a time when farming cattle and cultivating vegetables for the province were an integral part of daily life for people living with mental illness.

Those traditions continue today. In 2013-14, staff at the FPH decided to create a therapeutic gardening program for patients who enjoy being outside and working with plants. By the end of the summer, the small space was hosting five groups per week, and yielded enough produce to support all of the Occupational Therapy (OT) cooking programs.

Now in its second season, the OT kitchen garden is abundant with plants. Due to increasing demands for the program, staff at FPH decided to create other innovative ways to meaningfully engage patients. Steps were taken to increase participation on medium-security units, and patients have been provided with containers, soil and plants, so they can grow and maintain their own vegetables and flowers.

Due to its location, the venue was not accessible by maximum-security patients, so the FPH team expanded the program even further, into an unused airing court adjacent to the maximum secure building, which now contains a small greenhouse that patients can safely use.

Patients have been involved in even more than the planning, growing and maintenance of the program areas. They also built all the furniture and planters, including living wall planters, raised garden beds, wheelchair accessible planters, elevated planter boxes, tables and chairs.

With the expansion of the program, there has been an abundance of fresh produce, which is not only being used in OT cooking programs, but in salads served to staff and patients. Best of all, patients involved in the program have pride in what they produce, and the contribution they're making.



Transparent Reporting

The GreenCare Team makes transparent reporting a cornerstone of their work. High value is placed on clear, honest, relevant and reliable reporting on the environmental impact of LMHOs, and steps taken to reduce that impact.

TARGET #1

Publish an annual Carbon Neutral Action Report (CNAR) to provide an update, according to the Provincial mandate, on the LMHOs' carbon footprint, offsets and associated actions.

2014 PERFORMANCE

In 2014, the LMHOs each published their 5th Annual CNARs. These reports indicated the carbon footprint of each organization and steps taken to mitigate that footprint over the year. The LMHOs also reported on the amount of carbon offsets that were purchased to complete carbon neutrality.

PLANS FOR 2015

This target will be kept as long as the Climate Action Secretariat mandates the publication of CNARs. The LMHOs will conduct and present this report each spring. It is hoped that eventually the CNAR and Environmental Accountability Report (see Target #2) become one document.

OUR GOAL

Provide results-oriented carbon, energy and sustainability reports, which are routine, transparent, engaging and open for dialogue.

GREENCARE TEAM MEMBER



Richard Wellwood

“Transparent reporting is essential. You'd be hard pressed to convince me there's anything more important than honesty when it comes to collaboration.”

HOW WE MEASURE UP

HOW THEY PERFORM

According to the Healthier Hospitals Initiative, 32% of hospitals regularly report progress on sustainability initiatives to an internal leadership team.

HOW WE ARE DOING

The GreenCare Team has been reporting annually to the LMHO Senior Executive Teams since 2010.

GREENCARE ENVIRONMENTAL SUSTAINABILITY EXECUTIVE SUPPORTER



Mary Ackenhusen

MEDICAL PRESIDENT & CHIEF EXECUTIVE OFFICER,
VANCOUVER COASTAL HEALTH

“I love riding horses on the weekend. Several years ago our Clean Commuter Campaign inspired me to break out my 20-year-old ‘urban horse’ and start bicycling to work. I found biking to work to be great exercise and a perfect way to start and finish each day. I encourage all of us to look for ways to make our commutes healthier for ourselves and the environment.”

TARGET #2

Publish an annual Environmental Accountability Report (EAR), to provide progress on all focus areas of the GreenCare Team.

2014 PERFORMANCE

In 2014, the second annual EAR was published. This document was voluntarily created by the GreenCare Team to report on the progress and challenges towards achieving the GreenCare Strategic Framework targets for each LMHO.

The EAR also contains a scorecard, which provides a snapshot of the goals, targets and progress in each area.

PLANS FOR 2015

This target will be kept, as the EAR continues to be a priority. The EAR is considered a transparent way to communicate environmental conservation successes and challenges to the staff and general public.

TARGET #3

Publish an annual Strategic Energy Management Plan (SEMP), to encompass all elements of past, present and future energy conservation work as requested by the Power Smart Energy Manager Program sponsored by BC Hydro.

2014 PERFORMANCE

In 2014, the GreenCare Energy Management Team produced their 5th annual consolidated SEMP for the LMHOs.

PLANS FOR 2015

This target will be kept, as the SEMP is mandated by BC Hydro to be produced annually.

TARGET #4

Publish a bi-yearly Energy Management Assessment (EMA) to cover all energy management elements and serve as a gauge for past, current and future energy management performance.

2014 PERFORMANCE

The EMA was last conducted in 2014. The next evaluation and EMA report will be conducted in 2016.

PLANS FOR 2015

This target will be kept as it provides the Energy Management Team with a good overview and identification of potential energy management strategies.

TARGET #5

Prepare and present quarterly BC Hydro Energy Consumption and Conservation Reports to give BC Hydro oversight on past, current and future energy conservation projects and plans.

2014 PERFORMANCE

The GreenCare Energy Management Team continues to present reports to BC Hydro on a quarterly basis. These PowerPoint reports provide an overview of performance and projects concerning electrical energy management.

PLANS FOR 2015

This target will be kept as the Energy Management Team values and appreciates the insights and relationship with BC Hydro concerning energy conservation.

Assurances and 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 Accountability Report (EAR).

The GreenCare Team uses a database, run by eFactor, to capture and analyze all utility data. Zero Waste data is kept by BISS 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



Photo:
Provincial Health Services Authority,
BC Cancer Research Centre,
LEED Gold in 2005



Photo:
Fraser Health,
Cottonwood Lodge Care Centre,
LEED Gold in 2007

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 and Environmental Sustainability Team

500 – 520 West 6th Avenue
Vancouver, British Columbia V5Z 4H5
604.875.4466 ext. 0

Appendices

2014 Carbon Neutral Action Report

Fraser Health Authority



Executive Summary
Michael Marchbank
President and Chief Executive Officer

I am pleased to introduce our 2014 Carbon Neutral Action Report.

Fraser Health has achieved carbon neutrality for five straight years.

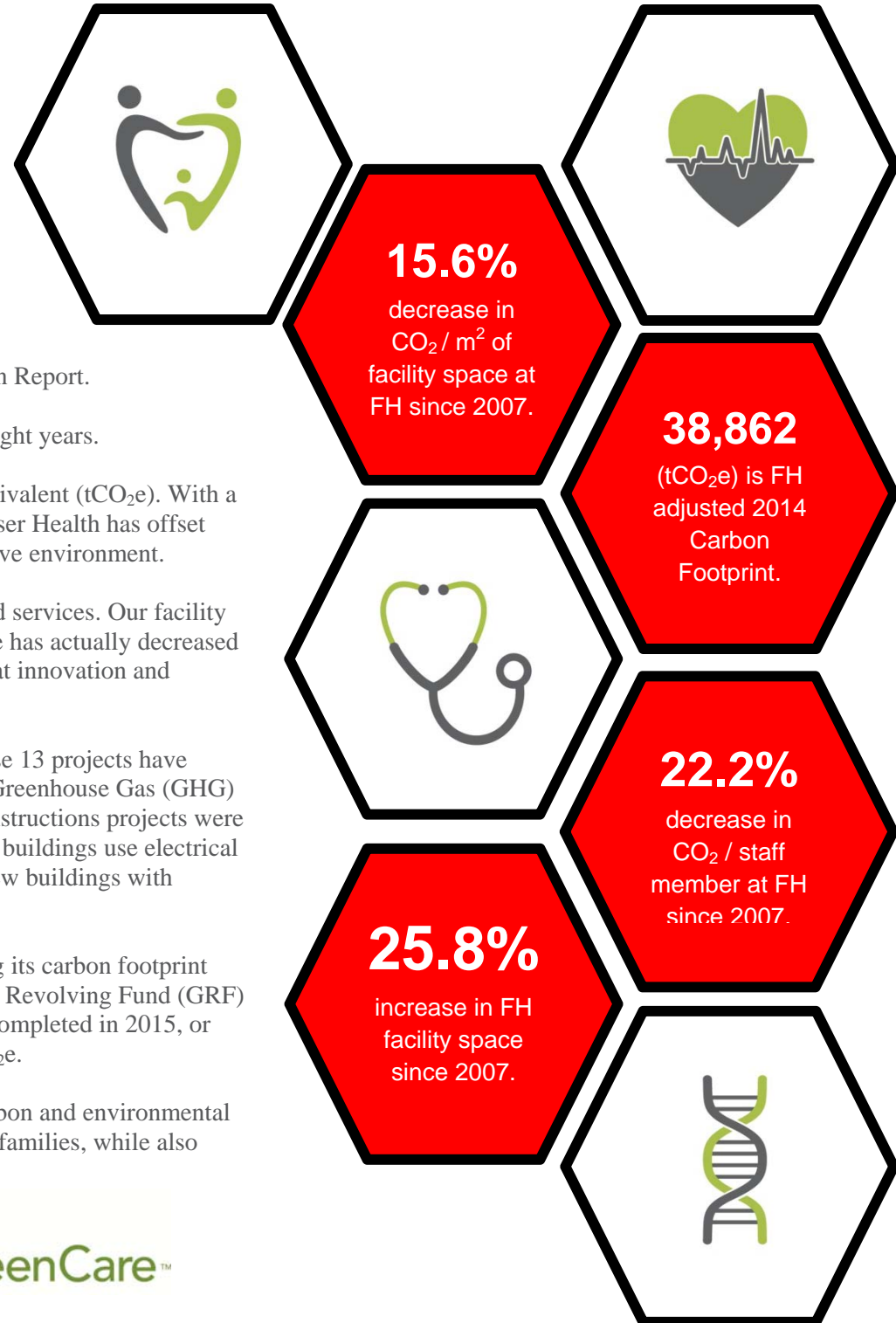
In 2014 Fraser Health's carbon footprint was 38,862 tonnes of carbon dioxide equivalent (tCO₂e). With a strong commitment towards reducing our environmental footprint since 2010, Fraser Health has offset 199,000 tonnes of carbon dioxide equivalent (tCO₂e) to the benefit of our collective environment.

As the Fraser Valley's population grows, so has Fraser Health and its facilities and services. Our facility space has grown by 25.8% since 2007, but the CO₂ / square meter of facility space has actually decreased by 15.6% and the CO₂ / full time staff member has decreased by 22.2%. Proof that innovation and conservation can go hand-in-hand.

In 2014, Fraser Health implemented 13 energy conservation retrofit projects. These 13 projects have potential energy savings of 1.6 equivalent gigawatt hours (eGWh), resulting in a Greenhouse Gas (GHG) reduction of 209 tCO₂e and a cost avoidance of \$71,000. In addition, two new constructions projects were completed at Surrey and Mission Memorial Hospitals. These two new low carbon buildings use electrical energy for space heating, resulting in a substantial GHG reduction compared to new buildings with conventional natural gas heating systems.

Looking towards 2015 and beyond, Fraser Health is committed to further reducing its carbon footprint with the introduction of the Carbon Neutral Capital Program (CNCP) and a Green Revolving Fund (GRF) initiative. Over 30 energy conservation retrofit projects have either already been completed in 2015, or are in a state of completion.. These will result in a further reduction of 1,730 tCO₂e.

I would like to thank everyone that has worked hard to reduce Fraser Health's carbon and environmental footprint. By working together, we are providing quality care for our patients and families, while also caring for our environment.



Our CO₂ Footprint

2014 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 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 Fraser Health's carbon footprint to comprise of six different greenhouse gases, which are converted to tonnes of carbon dioxide equivalent (tCO₂e). These gases are categorized in three main categories:

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

Fraser Health

Fraser Health's 2014 Carbon Emissions Footprint was 38,862 tonnes of carbon dioxide equivalent (tCO₂e). Although this represents a 6.2% increase in the Carbon Footprint offset since 2007, the FH facility and staffing portfolio have also grown significantly during the same time period. Taking this into consideration the CO₂ / square meter of facility space has actually **decreased by 15.6%**.

Over 97% of Fraser Health's in-scope emissions are attributed to our building portfolio (Stationary Fuel Combustion).

To become carbon neutral in 2014, Fraser Health purchased carbon offsets from the Ministry of Environment at a total cost of \$1,020,128.

The Climate Action Secretariat of British Columbia had determined which GHGs are in scope and which ones are out of scope.

| In Scope | Out of Scope |
|---|--|
| <ul style="list-style-type: none">• Six Green House Gases (GHG) are in scope for measuring and reporting:<ul style="list-style-type: none">• Carbon Dioxide - CO₂,• Methane - CH₄,• Nitrous Oxide - N₂O,• Sulphur Hexafluoride - SF₆,• Per fluorocarbons - PFCs,• Hydro fluorocarbons - HFCs | <ul style="list-style-type: none">• All other GHG gases are considered out of scope. |

CHANGES TO FH PORTFOLIO AND WEATHER INFLUENCE

Fraser Health continues to grow and offer more services to a growing lower mainland population. Fraser Health's "useable" facility space and FTEs have grown by 25.8% and 36.6% respectively since 2007.

The vast majority 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. The carbon emissions associated with our Natural Gas use is approximately 93% of the total building emissions.

The carbon emissions reported are not adjusted for changes in climate temperatures. Vancouver 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 2014 were 9% 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.



Actions Taken To Reduce Our CO₂ Footprint

2014 LIST OF ACTIONS TAKEN TO REDUCE CO₂ FOOTPRINT

Stationary Fuel Combustion, Electricity (Buildings)

- Various energy retrofits have been carried out in 2014. Resulting in energy savings of 1.6 eGWh (5,620 GJ) and GHG savings of 209 tCO₂e.
- Two new energy efficient low carbon buildings were completed and occupied in 2014. One at Surrey Memorial Hospital and the other at Mission Memorial Hospital. The predicted savings are 5.1 eGWh (18,874 GJ) compared to a standard baseline building. This will result in a GHG avoidance of 323 tCO₂e. More significantly, the space heating is achieved by heat recovery and air-to-water heat pumps with steam being used only for peak conditions. Thus, the high percentage use of electrical energy makes these low carbon energy buildings.
- Over 30 optimization energy conservation measures were implemented at Queens Park Care Centre, Heritage Village and

Fraser Canyon Hospital as part of the BC Hydro Continuous Optimization program.

- Rolled out an engagement strategy with Facilities Maintenance and Operations (FMO) staff at Peace Arch, Delta and Langley Memorial Hospitals; with a focus on energy building use, identifying reduction opportunities and optimization of existing equipment/plant.
- Completed and rolled out a Design Guideline for New Construction and Major Renovation projects to provide our Strategic Planning and Capital Project teams with direction for: Energy performance targets, Incentive application requirements, LEED requirements, Design Standards and Principles.
- Continued 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.

| FRASER HEALTH | | | | | | | |
|---|--|---------------|-------------------|---------------------|---------------------|---------------------|---------------------|
| Our Carbon Footprint (in tCO ₂ e) | | 2007 | 2010 | 2011 | 2012 | 2013 | 2014 |
| CO ₂ | Mobile Fuel Combustion (Fleet & other mobile equipme | 136 | 140 | 138 | 96 | 126 | 124 |
| | Stationary Fuel Combustion & Electricity (Buildings) | 35,404 | 36,270 | 40,036 | 40,306 | 38,622 | 37,739 |
| | Supplies (Paper) | 1,056 | 1,056 | 1,081 | 1,065 | 1,320 | 1,010 |
| | Total Carbon Footprint (tCO ₂ e) | 36,596 | 37,466 | 41,255 | 41,467 | 40,067 | 38,873 |
| | Emissions Which Do Not Require Offsets ¹ | -8 | -8 | -11 | -11 | -17 | -12 |
| | Total Carbon Footprint (tCO ₂ e) | 36,587 | 37,458 | 41,244 | 41,455 | 40,050 | 38,862 |
| Adjustments / Corrections | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total Carbon Footprint - for offsetting (tCO₂e) | | 36,587 | 37,458 | 41,244 | 41,455 | 40,050 | 38,862 |
| \$ | Purchased Carbon Offsets | \$ - | \$ 936,459 | \$ 1,031,106 | \$ 1,036,384 | \$ 1,001,261 | \$ 971,550 |
| | Purchased Carbon Offsets +HST / GST | \$ - | \$ 983,282 | \$ 1,082,661 | \$ 1,088,203 | \$ 1,051,324 | \$ 1,020,128 |
| KPI | Emissions per Full-Time Employee | 2.98 | 2.75 | 2.77 | 3.03 | 2.75 | 2.32 |
| | Emissions per Meter Square Facility Space | 0.060 | 0.056 | 0.061 | 0.060 | 0.056 | 0.051 |

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



Mobile Fleet Combustion (Fleet and other vehicles)

- Reduced the number of fleet vehicles from 49 to 45.
- 42 (36-120v; 6-240v) Electric Vehicle charging stations have been installed and are being utilized at 6 core Fraser Health sites.

Supplies (Paper)

- 47,000 less packages of paper were purchased in 2014 resulting in a reduction of 210 tCO₂e compared to 2013.
- The Green+Leaders (G+L) behaviour change program recruited 15 more volunteers in the fall of 2014 and now there are 70 volunteer Green+Leaders in total at Fraser Health. As part of the paper/waste reduction campaign these volunteers were supplied with Paperless Meeting Toolkits to encourage their colleagues to reduce paper use.
- Fraser Health and Health Shared Services BC began discussion on adopting a sustainable and lower emission wheat based paper product.
- The online GreenCare Community (GCC) site provides tips and toolkits on using less paper, such as promoting paperless meetings. Fraser Health currently has 1,200 staff registered on the GCC.

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

- A record 141 Fraser Health staff participated in the 2014 Clean Commuter Challenge, which is a campaign to encourage staff to choose alternative healthier modes of commuting. Examples of this include walking, biking, or taking transit.
- Virtual Meeting Technology has been implemented at various sites
- Installed web-conferencing software

| FRASER HEALTH | | | | | | |
|--|---------|---------|---------|---------|---------|---------|
| BUILDINGS, FTE AND WEATHER | 2007 | 2010 | 2011 | 2012 | 2013 | 2014 |
| Distinct FHA Buildings | n/a | 132 | 143 | 149 | 150 | 157 |
| % Owned | n/a | 82% | 82% | 82% | 82% | 84% |
| % Leased | n/a | 18% | 18% | 18% | 18% | 16% |
| Usable Square Meters | 611,075 | 667,654 | 677,965 | 686,512 | 711,701 | 768,716 |
| Full-Time Employee Equivalents | 12,260 | 13,626 | 14,900 | 13,660 | 14,539 | 16,747 |
| Weather (summarized in Heating Degree Days)¹ | 2,870 | 2,603 | 2,952 | 2,874 | 2,831 | 2,614 |

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 measurement designed to reflect the demand for energy needed to heat a building.

- Encouraged alternative travel to meetings
- Education and Awareness Communication / stories published in various internal communication channels / newsletters
- Supported green teams by implementing a Green+Leaders program to support individual staff members, who join the program, with resources and training.
- Provided resources and a dedicated staff to support the Green+Leaders program and various green teams
- Maintained a sustainability / green recognition program for the Green+Leaders
- Support green professional development through workshops and educational sessions sponsored by BC Hydro

2015 WORK TO REDUCE THE ORGANIZATION'S CO₂ FOOTPRINT

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

- Implementing GHG/Energy reduction retrofit projects in our existing building portfolio by utilizing the Carbon Neutral Program Funding (CNCP) and BC Hydro sponsored Green Revolving Funds (GRF)
- Continuing the optimization of mechanical plant and controls in our existing building portfolio.



- Continue engaging with site Operations staff and external Consultants to identify GHG/Energy opportunities.
- Engaging with Strategic Planners and Capital Project Managers to ensure that our Design Guideline for New Construction and Major Renovation projects is embedded in their process and projects scopes.
- Engaging and educating our staff via the existing Green + Leaders program, GreenCare Community and the BC Hydro Workplace Conservation Agreement.
- Building partnerships with our P3 partners to help them identify energy conservation opportunities.
- Building partnerships with Cities and Municipalities to investigate District Energy Systems opportunities with alternative energy solutions.
- Investigating renewable/clean cost effective energy solutions.

SUCCESS STORY

In 2014 the new Surrey Memorial Hospital Critical Care Tower (SMH-CCT) opened. To date it is the largest health care project in British Columbia to achieve LEED Gold.



Figure 1: Surrey Memorial Hospital Critical Care Tower

The expansion was driven by the increased Fraser Valley population. SMH-CCT added 151 acute care beds and a new emergency department with specialized mental health and pediatric areas. The design emphasized evidence-based and lean design principles to ensure the facility will support the highest levels of care.

The new eight storey Tower incorporated sustainable design features while establishing a healthy and comfortable space for patients, staff, and visitors. A commitment to maximizing energy efficiencies, SMH-CCT established a priority on indoor air quality and natural lighting, with state of the art mechanical and electrical plant and control systems.

According to the energy modelling carried out as part of a BC Hydro New Construction program, the Tower is predicted to save nearly 4 eGWh of energy and compared to a standard baseline building. The total consumption is estimated at 20 eGWh, and space heating is achieved by heat recovery and

air-to-water heat pumps with steam being used only for peak conditions. This results in a 73:23 ratio of electrical to natural gas energy being used and makes this new Tower a low carbon energy building with estimated annual emission of less than 1,100 tCO₂e.

In addition other sustainability features include the use of wood and natural materials, water-efficient landscaping, storm water reuse, provisions for alternative transportation, including electric vehicle charging stations, bicycle storage and change rooms. ■



2014 Carbon Neutral Action Report



Executive Summary
Dianne Doyle
President

I am proud to present the fifth annual Providence Health Care (PHC) Carbon Neutral Action Report (CNAR) for 2014.

PHC has now been carbon neutral for five consecutive years.

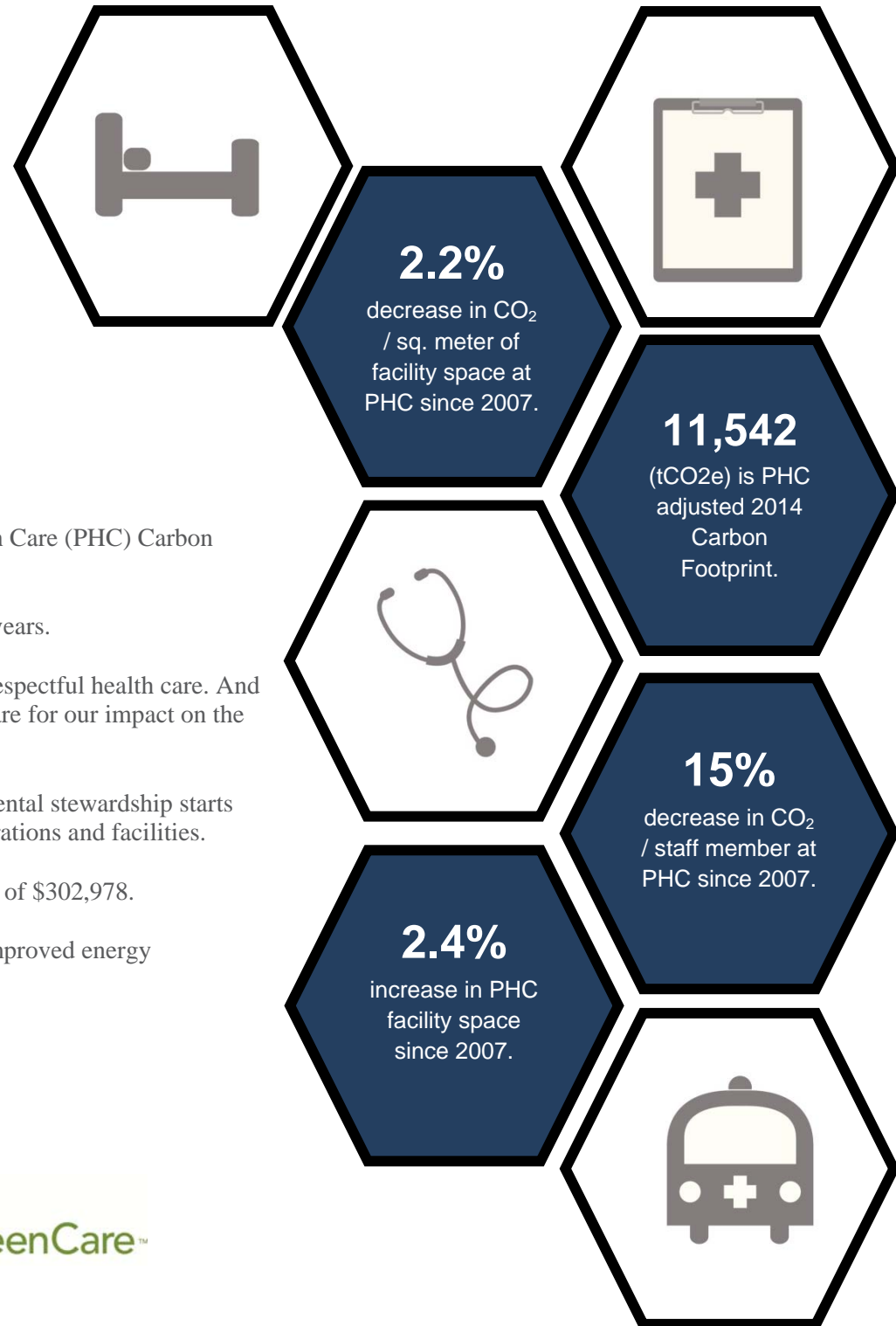
At PHC, we are committed to providing inclusive and respectful health care. And that extends past human health to a consideration and care for our impact on the environment too.

Within respectful health care, the PHC family firmly believes that our environmental stewardship starts with taking personal responsibility for the carbon footprint produced by our operations and facilities.

In 2014, PHC had a carbon footprint of 11,542 eCO₂t, which was offset at a cost of \$302,978.

In 2015, we will continue to improve our environmental performance through improved energy efficiency, recycling and fleet management.

Dianne Doyle



Our CO₂ Footprint

2014 GREENHOUSE GAS EMISSIONS BREAKDOWN AND OFFSETS APPLIED TO BECOME CARBON NEUTRAL

Providence Health Care (PHC) reports their organizational carbon footprint in accordance with the Greenhouse Gas Reduction Targets Act (GGRTA) and the Carbon Neutral Government Regulation (CNGR) under guidance from the B.C. Climate Action Secretariat (CAS).

CAS provides guidance on which greenhouse gas (GHG) emissions are considered in scope in accordance with the legislation (see side bar). In non-technical terms, the main sources of GHG emissions can be grouped in three categories:

1. Stationary emissions (buildings)
 - a. Direct fuel combustion
 - b. Indirect (purchased electricity)
 - c. Fugitive emissions (HFC's)
2. Mobile emissions (fleet vehicles)
3. Supplies (paper)

Over 95% of PHC's carbon footprint is related to the energy consumed by its owned and leased buildings. The majority of emissions from these buildings are related to fossil fuel use for heating.

Providence Health Care

PHC's 2014 carbon footprint is 11,542 tCO₂e. That is a 2% decrease compared to last year's 2013 CNAR.

Emissions per PHC full-time employee (FTE) were reduced in 2014 by 15% in comparison to the 2007 baseline.

The Climate Action Secretariat of British Columbia had determined which GHGs are in scope and which ones are out of scope.

| In Scope | Out of Scope |
|--|---|
| <ul style="list-style-type: none">• Six Green House Gases (GHG) are in scope for measuring and reporting:<ul style="list-style-type: none">• Carbon Dioxide - CO₂,• Methane - CH₄,• Nitrous Oxide - N₂O,• Sulphur Hexafluoride - SF₆,• Per fluorocarbons - PFCs,• Hydro fluorocarbons - HFCs | <ul style="list-style-type: none">• All other GHG gases are considered out of scope. |

To become carbon neutral in 2014, PHC purchased carbon offsets from the Pacific Carbon Trust at a total cost of \$302,978.

Changes to Facility Square Footage and Staff Count

PHC's useable facility space has increased 2.4% since 2007, despite a 17.7% increase in full time equivalent staff needed to serve a growing population and associated demand for health care services. Though the useable facility space and FTE count have both increased, the total overall carbon footprint has remained the same since 2007.



Actions Taken To Reduce Our CO₂ Footprint

2014 LIST OF ACTIONS TAKEN TO REDUCE CO₂ FOOTPRINT

Stationary Fuel Combustion, Electricity (Buildings)

PHC completed 2 energy savings projects in 2014:

- St. Vincent's: Langara - DDC & DHW upgrades
- Holy Family Hospital - DDC upgrade

These projects are projected to achieve a total estimated savings of 157,000 kWh of electricity, 73 (tCO₂e) of carbon and the cost avoidance of \$20,500 / year.

Mobile Fleet Combustion (Fleet and Other Vehicles)

PHC installed 52 (120v) electric vehicle charging stations at St. Paul's Hospital, which is located downtown Vancouver in the West End.

PHC supports a Jack Bell Shuttle service from several of their sites. In 2014 PHC had 23,980 health care staff use the shuttle from various PHC sites. 49 PHC staff participated in the 2014 Clean Commuter Challenge (CCC), which is a campaign to get staff out of their single occupancy vehicle commuting.

| PHC | | | | | | | |
|--|---|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Our Carbon Footprint (in tCO ₂ e) | | 2007 | 2010 | 2011 | 2012 | 2013 | 2014 |
| CO ₂ | Mobile Fuel Combustion (Fleet & other mobile equipment) | 15 | 15 | 21 | 47 | 47 | 43 |
| | Stationary Fuel Combustion & Electricity (Buildings) | 11,448 | 11,266 | 11,892 | 12,081 | 11,440 | 11,146 |
| | Supplies (Paper) | 70 | 70 | 72 | 271 | 260 | 358 |
| | Total Carbon Footprint (tCO₂e) | 11,533 | 11,351 | 11,985 | 12,400 | 11,747 | 11,547 |
| | Emissions Which Do Not Require Offsets ^{1, 2} | -1 | -1 | -4 | -7 | -5 | -5 |
| | Total Carbon Footprint (tCO₂e) | 11,532 | 11,350 | 11,981 | 12,393 | 11,742 | 11,542 |
| | Adjustments / Corrections | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Carbon Footprint - for offsetting (tCO₂e) | | 11,532 | 11,350 | 11,981 | 12,393 | 11,742 | 11,542 |
| \$ | Purchased Carbon Offsets | \$ - | \$ 283,767 | \$ 299,375 | \$ 309,575 | \$ 294,525 | \$ 288,550 |
| | Purchased Carbon Offsets +HST / GST | \$ - | \$ 317,819 | \$ 335,300 | \$ 325,054 | \$ 309,251 | \$ 302,978 |
| KPI | Emissions per Full-Time Employee | 2.77 | 2.63 | 2.59 | 2.47 | 2.41 | 2.36 |
| | Emissions per Meter Square Facility Space | 0.07 | 0.06 | 0.07 | 0.07 | 0.07 | 0.06 |
| <p>¹ It was estimated that Fugitive Emissions from cooling equipment comprise less than 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.</p> <p>² As outlined in the Carbon Neutral Government Regulation of the Greenhouse Gas Reductions Target Act, some emissions do not require offsets.</p> | | | | | | | |



Supplies (Paper)

The Green+Leaders (G+L) behaviour change program recruited 2 new PHC volunteers in the fall of 2014. PHC now has 8 G+L across the organization.

As part of the G+L paper/waste reduction campaign volunteers were supplied with Paperless Meeting Toolkits to encourage their colleagues to reduce paper use.

PHC continues to support the GreenCare Community (GCC) website, which provides tips and toolkits on using less paper, such as promoting paperless meetings. In 2014 PHC had a total of 349 staff registered on the site.

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

In addition to specific projects mentioned previously, PHC also did the following:

- Provided 226 bike parking stalls across various sites.
- Encouraged the use of the internally organized Jack Bell shuttle when traveling between various sites.

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

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 measurement designed to reflect the demand for energy needed to heat a building.

- Developed a staff engagement strategy to improve communication with Facilities Maintenance and Operations (FMO) staff with a focus on understanding the barriers to ongoing optimization of existing equipment and systems.
- 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.
- Continued to promote energy conservation and GHG emissions reduction through staff focused awareness and behaviour change programs, such as Green+Leaders, GreenCare Community website and the BC Hydro Workplace Conservation Agreement program.

FUTURE WORK TO REDUCE THE ORGANIZATION'S CO₂ FOOTPRINT

In 2015 PHC plans to continue reducing GHG emissions and energy use by:

- Implementing GHG / energy reduction retrofit projects
- Engaging with site operations staff and external consultants to identify GHG / energy opportunities.
- Engaging with strategic planners and capital project managers to ensure that energy conservation is embedded in their process and projects scopes.
 - Engaging with our external key stakeholders, such as utility partners, to identify capital incentive energy reduction projects.
 - Engaging and educating our staff via the existing Green+Leaders program, GreenCare Community and the BC Hydro Workplace Conservation Agreement.
 - Building partnerships with potential P3 partners to help them understand the priority PHC puts on energy conservation.
 - Building partnerships with cities and municipalities to investigate District Energy Systems opportunities with alternative energy solutions.
 - Investigating renewable/clean cost effective energy solutions.



SUCCESS STORY

Energy Management

One success story at PHC from 2014, in relation to Carbon Neutral Actions, is the DDC upgrade to the control system at the Holy Family Hospital.

The PHC energy management team in the lower mainland (LMFM) worked closely with the controls consultants to improve the efficiency of the mechanical systems in the hospital by upgrading the control system to significantly reduce the losses in the energy consumption.

The appointed controls contractor worked with facilities and maintenance staff at the hospital to achieve the best results at the most practical way.

The work was conducted in a very collaborative way to insure that the safety and the comfort of the occupants was maintained at all times.

The estimated annual savings, from this specific project, is approximately 33.3 MWh of electricity, 635 GJ of gas, 32.5 tCO₂e of carbon, and \$7,000 in avoided energy costs.

Energy Saving Features

A good example for a 2014 energy saving project is the DDC & DHW upgrades (CNCP) project that was completed at the St. Vincent's: Langara site.

This project was completed after a thorough study was conducted to investigate the benefits that can be obtained from such project, and the study confirmed some thoughts that were suggested by the facility and

maintenance staff on site.

This project did not only achieve great energy saving results, but also increased the comfort level of the occupants and solved technical problems in the mechanical system that lasted for many years in the past.

The upgrades gave the occupants and the FMO staff better control over the space temperature in the individual zones, which resulted in saving all the energy lost in the past due to excessive heat or “unnecessarily” open windows.

The estimated annual savings, from this specific project, is approximately 123.7 MWh of electricity, 744 GJ of gas, 40.2 tCO₂e of carbon, and \$13,500 in avoided energy costs. ■



2014 Carbon Neutral Action Report



Executive Summary

Carl Roy

President and Chief Executive Officer

I am pleased to present Provincial Health Services Authorities (PHSA) fifth annual Carbon Neutral Action Report (CNAR).

PHSA is proud of its leadership in reducing its carbon footprint and integrating green health care principles across the organization. It has led to PHSA being recognized as one of Canada's Greenest Employers for four consecutive years.

In 2014, PHSA had a carbon footprint of 18,902 tonnes of carbon dioxide equivalent (tCO₂e), which was offset at a total cost of \$496,253. This represents a 21.2 per cent decrease from the 2007 PHSA carbon footprint. Since 2010, PHSA has reduced its annual offset costs by \$195,803.

In 2014 we completed two energy conservation projects that resulted in a savings of 870 eMWh and a cost avoidance of \$42,390.

The domestic hot water and lighting upgrades at the Vancouver Island Cancer Centre stands out as a major project, not just because of the significant energy savings, but also the level of collaboration achieved with the site's facility and maintenance staff that operate and maintain the building. The facility and maintenance staff worked remotely with the PHSA energy management staff in the Lower Mainland, and worked closely with the energy consultants on the execution of this project.

The estimated annual savings, from this specific project, is approximately 111 MWh of electricity, 504 GJ of gas, 27.4 tCO₂e of carbon, and \$11,000 in avoided energy costs.

Looking ahead, in 2015, the energy management team has nine projects in progress or pending, which are expected to achieve an additional 7.0 eGWh of estimated avoided energy consumption and \$334,000 in energy savings.



11.2 %
decrease in CO₂
per m² of
facility space at
PHSA since



18,902
(tCO₂e) is
PHSA adjusted
2014 carbon
footprint



45.7%
decrease in
CO₂ per staff
member at
since 2007

11.3%
decrease in
PHSA facility
space since
2007



Our CO₂ Footprint

2014 GREENHOUSE GAS EMISSIONS BREAKDOWN AND OFFSETS APPLIED TO BECOME CARBON NEUTRAL

Provincial Health Services Authority (PHSA) reports its organizational carbon footprint in accordance with the Greenhouse Gas Reduction Targets Act (GGRTA) and the Carbon Neutral Government Regulation (CNGR) under guidance from the B.C. Climate Action Secretariat (CAS).

CAS provides guidance on which greenhouse gas (GHG) emissions are considered in scope in accordance with the legislation (see side bar). In non-technical terms, the main sources of GHG emissions can be grouped in three categories:

1. Stationary Emissions (Buildings)
 - a. Direct fuel combustion
 - b. Indirect (purchased electricity)
 - c. Fugitive emissions (HFC's)
2. Mobile Emissions (Fleet Vehicles)
3. Supplies (Paper)

More than 95 per cent of PHSA's carbon footprint is related to the energy consumption from its owned and leased buildings. The majority of emissions from buildings are related to fossil fuel use for space heating, hot water and process heating loads.

Provincial Health Services Authority

PHSA's 2014 Carbon footprint was determined to be 18,902 tonnes of carbon dioxide equivalent (tCO₂e).

To become carbon neutral in 2014, PHSA purchased carbon offsets at a total cost of \$496,253.

The Climate Action Secretariat of British Columbia had determined which GHGs are in scope and which ones are out of scope.

| In Scope | Out of Scope |
|---|--|
| <ul style="list-style-type: none">• Six Green House Gases (GHG) are in scope for measuring and reporting:<ul style="list-style-type: none">• Carbon Dioxide - CO₂,• Methane - CH₄,• Nitrous Oxide - N₂O,• Sulphur Hexafluoride - SF₆,• Per fluorocarbons - PFCs,• Hydro fluorocarbons - HFCs | <ul style="list-style-type: none">• All other GHG gases are considered out of scope. |

CHANGES TO PHSA PORTFOLIO AND WEATHER INFLUENCE

PHSA's useable facility space has decreased 11.3 per cent 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 45.1 per cent. During this time, PHSA controlled increases in facility space by seeking opportunities to optimize existing space use while maintaining safety and efficiency.

In 2014, emissions per full-time employee at PHSA (1.74 tCO₂e/FTE) have decreased by 45.7 per cent since 2007. And emissions per unit of floor area (0.06 tCO₂e/m²) have decreased 11.2 per cent since 2007.

The carbon emissions reported are not adjusted for changes in climate temperatures. The use of Heating Degree Days (HDDs) is a metric designed to reflect the demand for energy required to heat a building. The HDDs for 2014 were nine per cent 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.



Actions Taken To Reduce Our CO₂ Footprint

2014 LIST OF ACTIONS TAKEN TO REDUCE CO₂ FOOTPRINT

Stationary Fuel Combustion, Electricity (Buildings)

| PHSA | | | | | | | |
|---|---|---------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Our Carbon Footprint (in tCO ₂ e) | | 2007 | 2010 | 2011 | 2012 | 2013 ² | 2014 |
| CO ₂ | Mobile Fuel Combustion (Fleet & other mobile equipment) | 189 | 195 | 180 | 203 | 153 | 159 |
| | Stationary Fuel Combustion & Electricity (Buildings) | 22,930 | 20,413 | 22,497 | 24,949 | 19,887 | 17,923 |
| | Supplies (Paper) | 891 | 891 | 912 | 839 | 771 | 828 |
| | Total Carbon Footprint (tCO ₂ e) | 24,010 | 21,499 | 23,589 | 25,992 | 20,812 | 18,911 |
| | Emissions Which Do Not Require Offsets ¹ | -9 | -9 | -9 | -10 | -10 | -9 |
| | Total Carbon Footprint (tCO ₂ e) | 24,002 | 21,490 | 23,581 | 25,981 | 20,802 | 18,902 |
| | Adjustments / Corrections | 0 | 0 | 0 | 0 | 3 | 0 |
| Total Carbon Footprint - for offsetting (tCO₂e) | | 24,002 | 21,490 | 23,581 | 25,981 | 20,805 | 18,902 |
| \$ | Purchased Carbon Offsets | \$ - | \$ 617,907 | \$ 540,036 | \$ 644,750 | \$ 538,025 | \$ 472,622 |
| | Purchased Carbon Offsets +HST / GST | \$ - | \$ 692,056 | \$ 604,841 | \$ 676,988 | \$ 564,926 | \$ 496,253 |
| KPI | Emissions per Full-Time Employee | 3.21 | 2.26 | 2.61 | 2.44 | 1.95 | 1.74 |
| | Emissions per Meter Square Facility Space | 0.062 | 0.055 | 0.060 | 0.065 | 0.061 | 0.055 |
| 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. | | | | | | | |

PHSA completed two energy savings projects in 2014:

- Retro-commissioning consisting mainly of ventilation adjustments was performed at the Child and Family Research Institute North and South buildings on the same campus as BC Children's Hospital and BC Women's Hospital + Health Centre (C&W). These buildings are purposed toward ground-breaking research at the Centre of Molecular Medicine and Therapeutics. These buildings have high ventilation requirements, and thus, the corresponding energy savings potential for optimizing the HVAC system is also high.
- Two energy conservation measures were implemented at Vancouver Island Cancer Center on the Royal Jubilee Hospital campus in Victoria. These were the decoupling of the domestic hot water supply from the facility's main boiler to allow for more efficient operation during the summer and shoulder seasons as well as a lighting upgrade within many of the building's offices and common spaces.

These two projects are projected to achieve a total estimated savings of 300 MWh of electricity, 2060 gigajoules (GJ) of natural gas, 106 (tCO₂e) of carbon and \$42,390.

Mobile Fleet Combustion (Fleet and other vehicles)

PHSA installed six (5-120v; 1-240v) electric vehicle charging stations across two core sites: C&W and CFRI.

PHSA partners with Vancouver Coastal Health to provide staff a shuttle service between sites. In 2014, 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.

Supplies (Paper)

The Green+Leaders (G+L) behaviour change program recruited nine new PHSA volunteers in the fall of 2014. This brings PHSA total to 72.



| PHSA | | | | | | |
|---|---------|---------|---------|---------|---------|---------|
| BUILDINGS, FTE AND WEATHER | 2007 | 2010 | 2011 | 2012 | 2013 | 2014 |
| Distinct PHSAs Buildings | n/a | 78 | 80 | 84 | 83 | 84 |
| % Owned | n/a | 57% | 57% | 57% | 68% | 67% |
| % Leased | n/a | 43% | 43% | 43% | 32% | 33% |
| Usable Square Meters | 388,990 | 389,883 | 392,728 | 400,444 | 342,311 | 344,956 |
| Full-Time Employee Equivalents | 7,471 | 9,492 | 9,022 | 10,646 | 10,646 | 10,841 |
| Weather (summarized in Heating Degree Days) ¹ | 2,870 | 2,621 | 2,963 | 2,859 | 2,820 | 2,627 |

¹ 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.

- 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.
- Continued to promote energy conservation and GHG emissions reduction through staff-focused awareness and behaviour change programs, such as Green+Leaders, GreenCare Community website and the BC Hydro Workplace Conservation Agreement program.

As part of the G+L paper/waste reduction campaign, these volunteers were supplied with Paperless Meeting Toolkits to encourage their colleagues to reduce paper use. In addition, PHSAs continues to support the GreenCare Community (GCC) website, which provides tips and toolkits on using less paper, such as promoting paperless meetings. To date, 846 PHSAs staff have joined the GreenCare Community.

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

In addition to specific projects mentioned previously, PHSAs also did the following:

- A record 233 PHSAs staff participated in the 2014 Clean Commuter Challenge (CCC), which is a campaign to get staff out of their single occupancy vehicle commuting.
- Provided 730 bike parking stalls across sites.
- Encouraged the use of the internally organized Jack Bell shuttle when traveling commuting to various sites.
- Developed a staff engagement strategy to improve communication with Facilities Maintenance and Operations (FMO) staff with a focus on understanding the barriers to ongoing optimization of existing equipment and systems.

FUTURE WORK TO REDUCE THE ORGANIZATION'S CO₂ FOOTPRINT

In 2015, PHSAs plans to continue reducing GHG emissions and Energy use by:

1. Implementing GHG/Energy reduction retrofit projects in its existing facilities.
2. Optimizing the mechanical plant and controls in its existing facilities.
3. Engaging with site operations staff and external consultants to identify GHG / Energy opportunities.
4. Engaging with strategic planners and capital project managers to ensure that energy conservation is embedded in their process and projects scopes.
5. Engaging with our external key stakeholders, such as utility partners, to identify energy reduction projects.
6. Engaging and educating our staff via the existing Green+Leaders program, GreenCare Community and the BC Hydro Workplace Conservation Agreement.
7. Building partnerships with our P3 partners to help them identify energy conservation opportunities.
8. Building partnerships with cities and municipalities to investigate district energy systems opportunities.
9. Investigating renewable/clean cost effective energy solutions.



SUCCESS STORY

The Djavad Mowafaghian Child Care Centre, managed by the YMCA and awarded LEED Gold in 2014, is located on the campus of the BC Children's Hospital and BC Women's Hospital + Health Care Centre in Vancouver.

The 684 m² child care centre provides space for 49 children infants, toddlers and preschoolers. The centre provides indoor and outdoor play, quiet time, offices, a kitchen, and a staff lounge.

Energy Efficiency

The facility is designed to incorporate large overhangs to help prevent heat gain in the summer while allowing low winter sunlight to enter. This provides efficient light and warmth when needed most.

Various strategies enabled the project to eliminate the need for mechanical cooling.

- Windows are operable in the building to allow for passive rather than mechanical ventilation.
- An efficient envelope features an R-40 roof and high performance glazing to keep the building protected from extreme temperature fluctuations.
- Temperature set points for a small electrical /communication room were relaxed to reduce energy use.

These strategies helped reduce the overall energy use and demand by a minimum of 40 per cent more than the ASHRAE standard 90.1-2007

Other Sustainable Design Efficiency

- Smaller Maple trees were removed from the site and repurposed into climbing and play elements in the outdoor play spaces.
- The various energy conservation strategies will allow for the cooling demands to be satisfied with a fan rather than air conditioning. This will avoid the use of ozone depleting refrigerant chemicals.
- Parking was not increased on site. Sustainable transportation alternatives encouraged.



Figure 1

Source: Recollective Consulting, dys Arhitectural, CES Engineering Ltd., AME Group

- In landscaping, regional and native drought-tolerant and drought-resistant vegetation was used.
- For air quality, operable windows for natural ventilation were installed.
- Daylight is accessible in all regularly occupied spaces to reduce demand for electric lighting.
- Learning activities in the child care centre were specifically modified to reduce or eliminate process water use. Storm water is collected for use on landscaping.
- Addressing the durability of the building's material assembly, a Durable Building Plan was created by a building envelope professional, with resilience as a key consideration in product specification. ■

2014 Carbon Neutral
 Action Report
 Vancouver Coastal Health



Executive Summary
Mary Ackenhusen
President and Chief Executive Officer

It is my pleasure to present Vancouver Coastal Health's 2014 Carbon Neutral Action Report (CNAR).

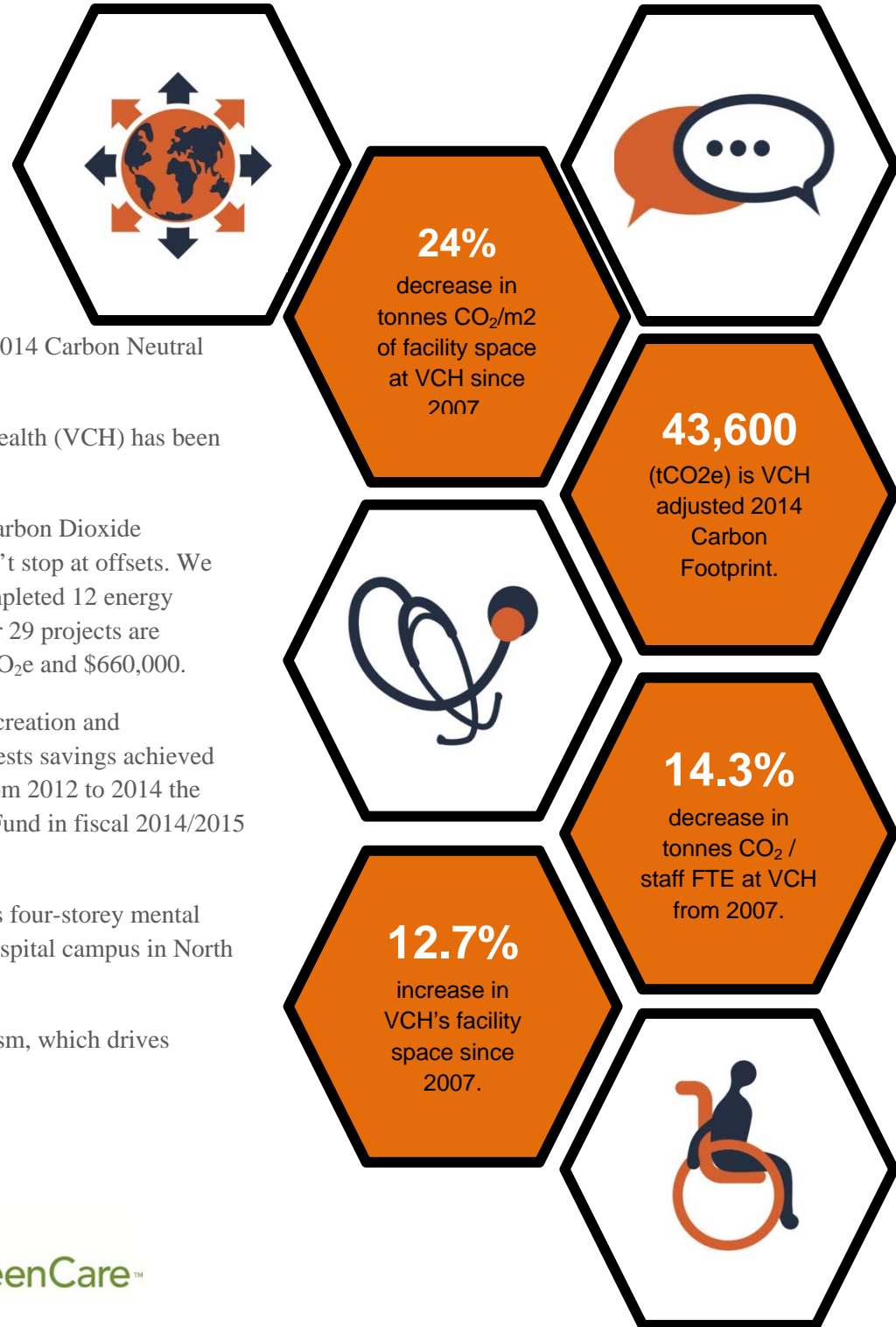
This marks the 5th consecutive year Vancouver Coastal Health (VCH) has been carbon neutral.

Over those five years (2010-2014), VCH has offset a total of 229,283 tonnes of Carbon Dioxide equivalent (tCO₂e). VCH's commitment to reduce its environmental impact doesn't stop at offsets. We strive to lead the province in energy reduction measures: Our health authority completed 12 energy conservation projects in 2014, with a savings of 343 tCO₂e and \$162,000. Another 29 projects are planned for completion in 2015. These projects will achieve a savings of 1,464 tCO₂e and \$660,000.

VCH was the first health authority in British Columbia to show innovation in the creation and implementation of the Green Fund. The Green Fund is a revolving fund that reinvests savings achieved through conservation projects back into additional energy reduction measures. From 2012 to 2014 the Green Fund achieved a total of 9.2 gigawatt hours (GWh) of savings. The Green Fund in fiscal 2014/2015 implemented energy conservation projects, which reduced 2.4 GWh of electricity.

Lastly, I am proud to state that the new HOpe Centre, which is a 14,000 sq. meters four-storey mental health and addictions facility located on the southeast corner of the Lions Gate Hospital campus in North Vancouver, is seeking LEED Gold certification.

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



Our CO₂ Footprint

2014 GREENHOUSE GAS EMISSIONS BREAKDOWN AND OFFSETS APPLIED TO BECOME CARBON NEUTRAL

Vancouver Coastal Health (VCH) reports the 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 (tCO₂e). These gases are categorized in three main categories:

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

Vancouver Coastal Health

VCH's 2014 Carbon footprint offset was 43,600 tonnes of carbon dioxide equivalent (tCO₂e). That represents a 13.7% decrease in VCH's carbon footprint since 2007.

Over 98% of Vancouver Coastal Health's in-scope emissions are attributed to the building portfolio.

To become carbon neutral in 2014, Vancouver Coastal Health purchased carbon offsets at a total cost of \$1,142,791.

The Climate Action Secretariat of British Columbia had determined which GHGs are in scope and which ones are out of scope.

| In Scope | Out of Scope |
|---|--|
| <ul style="list-style-type: none">• Six Green House Gases (GHG) are in scope for measuring and reporting:<ul style="list-style-type: none">• Carbon Dioxide - CO₂,• Methane - CH₄,• Nitrous Oxide - N₂O,• Sulphur Hexafluoride - SF₆,• Per fluorocarbons - PFCs,• Hydro fluorocarbons - HFCs | <ul style="list-style-type: none">• All other GHG gases are considered out of scope. |

CHANGES TO FACILITY SQUARE FOOTAGE AND WEATHER INFLUENCE

VCH has increased its "useable" facility space growth since 2007 by 79,657 sq. meters (12.7%). VCH's Full-time equivalent staff population has averaged at around 11,817 over the past 8 years (2007-2014).

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. If the adjustment for weather temperature were made, the emissions per m² would be around 18% less than 2007.

Actions Taken To Reduce Our CO₂ Footprint

2014 LIST OF ACTIONS TAKEN TO REDUCE CO₂ FOOTPRINT

Stationary Fuel Combustion, Electricity (Buildings)

VCH completed **12 energy savings projects** in 2014 for a total estimated savings of **2.16 GWh of electricity, 5,680 GJ of natural gas, and a reduction of 343 tCO₂e of GHG.**

An additional 29 energy projects will begin implementation in 2015 at a number of VCH facilities. When completed, these projects will result in a total estimated savings of 4.0 GWh of electricity, 27,008 GJ of Natural Gas and a reduction of 1,464 tCO₂e of GHG. The GHG savings represent emissions reduction of 3.68% from the 2014 Carbon Offsets totals at VCH.

Mobile Fleet Combustion (Fleet and other vehicles)

VCH supported the hiring of a Transportation Demand Management Coordinator to improve, promote and establish alternative transportation opportunities. This individual is now complimented with the full time support of a VGH Commuter Centre manager.

VCH opened a Cycle Centre at Vancouver General Hospital (VGH) in 2014. 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.

VCH installed 4 electric vehicle charging stations across 2 core sites.

| VCH (includes Bella Coola and RW Large) | | | | | | | |
|---|---|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | Our Carbon Footprint (in tCO ₂ e) | 2007 | 2010 ³ | 2011 ³ | 2012 | 2013 ³ | 2014 |
| CO ₂ | Mobile Fuel Combustion (Fleet & other mobile equipme | 104 | 107 | 49 | 89 | 59.48 | 57.48 |
| | Stationary Fuel Combustion & Electricity (Buildings) | 49,048 | 45,366 | 46,432 | 45,447 | 43,880 | 42,768 |
| | Supplies (Paper) | 1,402 | 1,402 | 1,435 | 636 | 871 | 797 |
| | Total Carbon Footprint (tCO₂e) | 50,554 | 46,875 | 47,916 | 46,172 | 44,811 | 43,623 |
| | Emissions Which Do Not Require Offsets ^{1, 2} | -19 | -20 | -22 | -25 | -25 | -23 |
| | Total Carbon Footprint (tCO₂e) | 50,535 | 46,855 | 47,894 | 46,147 | 44,786 | 43,600 |
| | Adjustments / Corrections | 0 | -9 | -12 | 0 | -7 | 0 |
| | Total Carbon Footprint - for offsetting (tCO₂e) | 50,535 | 46,846 | 47,882 | 46,147 | 44,779 | 43,600 |
| \$ | Purchased Carbon Offsets | \$ - | \$1,137,180 | \$1,148,380 | \$1,101,154 | \$1,066,423 | \$1,089,325 |
| | Purchased Carbon Offsets +HST / GST | \$ - | \$1,194,038 | \$1,205,799 | \$1,156,212 | \$1,119,744 | \$1,143,791 |
| KPI | Emissions per Full-Time Employee | 4.31 | 4.02 | 4.02 | 3.88 | 3.80 | 3.69 |
| | Emissions per Meter Square Facility Space | 0.081 | 0.070 | 0.071 | 0.067 | 0.065 | 0.062 |

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.

Supplies (Paper)

The Green+Leaders (G+L) behaviour change program recruited 12 new VCH volunteers in the fall of 2014. This program now has 56 staff volunteers across VCH.

As part of the G+L paper/waste reduction campaign volunteers were supplied with Paperless Meeting Toolkits to encourage their colleagues to reduce paper use.

VCH continues to support the GreenCare Community (GCC) site, which provides tips and toolkits on using less paper, such as promoting paperless meetings. In 2014 VCH had 1,451 staff registered on the site.

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

- 126 VCH staff participated in the 2014 Clean Commuter Challenge, which is a campaign to get staff out of their single occupancy vehicle commuting.
- Encouraged teleconferencing for meetings by installing web-conferencing hardware / software at various sites.
- Encouraged the use of the internally organized Jack Bell shuttle when traveling between various sites. In 2014, 45,100 health care staff were shuttled from VCH sites.
- Education and Awareness Communication / stories published in various internal communication channels / newsletters.
- Supported green teams by implementing a Green+Leaders program to support individual staff members, who join the program, with resources and training.
- Provided resources and a dedicated staff to support the Green+Leaders program and various green teams.

VCH (includes Bella Coola and RW Large)

| BUILDINGS, FTE AND WEATHER | 2007 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|-------------|-------------|-------------|-------------|-------------|-------------|
| Distinct VCH Health Buildings | n/a | 270 | 255 | 230 | 231 | 230 |
| % Owned | n/a | 81% | 81% | 81% | 81% | 81% |
| % Leased | n/a | 19% | 19% | 19% | 19% | 19% |
| Usable Square Meters | 626,469 | 670,526 | 673,660 | 687,068 | 688,296 | 706,126 |
| Full-Time Employee Equivalents | 11,738 | 11,657 | 11,911 | 11,907 | 11,795 | 11,816 |
| Weather (summarized in Heating Degree Days) ¹ | 2,870 | 2,621 | 2,963 | 2,859 | 2,820 | 2,627 |

¹ 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.

- Maintained a sustainability / green recognition program for the Green+Leaders
- Support green professional development through workshops and educational sessions sponsored by BC Hydro.

FUTURE WORK TO REDUCE THE ORGANIZATION'S CO₂ FOOTPRINT

In **2015** VCH plans to continue reducing GHG emissions and Energy use through:

- 29 energy conservation projects, which are in-progress and/or approved for a total GHG reductions of 1,464 tCO₂e.

Planned for **2016**:

- 21 energy projects will be implemented for an estimated GHG reductions of 317 tCO₂e



SUCCESS STORY

In 2014 VCH completed construction on a new 14,000 sq. meters \$62.2-million acute mental health facility, the Greta & Robert H.N. Ho Centre for Psychiatry and Education (HOpe Centre) at Lions Gate Hospital.

The HOpe Centre was built seeking a LEED Gold certification.

The facility, for Mental Health & Addictions (MH&A) patients, will not only provide an environment with more natural daylight and better air circulation; it will do so using less energy than a typical building.

Energy saving features

The HOpe Centre will be powered by the North Vancouver's Lonsdale Energy Corporation (LEC). The LEC is an energy provider that uses renewable sources such as solar and geothermal in the various energy portfolios.

The LEC, a project of the City of North Vancouver, has developed a system of underground piping and mini-plants to circulate and distribute hot water in order to heat the residential and commercial buildings in the region. This type of networked system is termed as district energy.

In addition to using alternative energy sources, using the LEC energy reduces the need for creating facility space to establish on-site energy generation. Without this need, and being tied to the Lions Gate Hospital back-up energy system, the HOpe Centre is able to make greater use of the facility space to create more patient care areas.

The HOpe Centre participated in BC Hydro's New Construction Program (Energy Modeling) to achieve maximize energy conservation. Eight (8) Energy Efficient Measures will generate an expected annual electricity savings of 1,130,735 kWh per annum when compared to ASHRAE 90.1 (2004) baseline model.



Figure 1: HOpe Center, North Vancouver

The energy conservation efforts at the HOpe Centre do not end with district energy.

Larger windows for greater use of daylight and a careful choice of materials used for construction will also lead to a more efficient energy usage.

For example, the wood-style siding on the side of the facility, will act as a significant insulator as it helps to maintain and regulate temperatures in the patient rooms.

Specially designed Louvered shades, which are seen on the side of the facility, reduces heat transfer from the sun but will not reduce the positive effects of natural light as well. ■