2013 Environmental Accountability Report

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Providence HEALTH CARE
How you want to be treated.

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Promoting wellness. Ensuring care.

CONTENTS

WELCOME

Peter Goldthorpe, Vice President of Corporate Services and Facilities

"On behalf of the Lower Mainland Health Organizations (LMHOs), I am very pleased to present the 2013 Environmental Accountability Report.

This report reflects the commitment of each of the LMHOs to environmental stewardship as established in their respective Energy and Environmental Sustainability (EES) policies. It outlines all of the EES activities being conducted on behalf of Fraser Health, Providence Health Care, the Provincial Health Services Authority, and Vancouver Coastal Health including progress against various goals and performance measures. The report shows how patients ultimately benefit from sound conservation initiatives and clearly demonstrates the commitment and accountability of the health sector to promote health in its broadest sense.

The link between environmental and ecological health is undeniable. Through practices that minimize environmental impact and reduce energy consumption and emissions, the LMHOs hope to improve the lives of all citizens we serve. With support from the EES team of Lower Mainland Facilities Management, the LMHOs look forward to continuing to implement initiatives that promote EES while simultaneously creating healthy, healing environments for our patients, visitors and staff."

Peter Goldthorpe, *Vice President of Corporate Services and Facilities*

"Through practices that minimize environmental impact and reduce energy consumption and emissions, the LMHOs hope to improve the lives of all citizens we serve." - Peter Goldthorpe

WELCOME

Mauricio Acosta, Energy and Environmental Sustainability Director

"Managing the environmental impact of our operations and resource use within health care can be difficult, but is essential for the long-term sustainability of the system.

As the Director of the Energy and Environmental Sustainability (EES) group, I am proud of the accomplishments and changes we've been able to achieve within the Lower Mainland Health Authorities.

Significant accomplishments include being carbon neutral for the fourth year in a row, and the creation of the Carbon Neutral Capital Fund (CNCP) that will provide additional funding for the Health Authorities to implement greenhouse gas reduction projects.

To date, projects implemented since 2007 have resulted in a cumulative avoided increase in energy consumption of 7% for all the Health Authorities combined; this despite an increase of 18% in floor area and utilization intensity.

The Green Revolving Fund (GRF) also supported additional energy conservation projects and environmental sustainability initiatives in a self-sustained manner.

The EES team is committed to ensuring the Lower Mainland Health Authorities take responsibility for their environmental impact; and support them in creating the healthiest facilities and processes for patients, staff, and extended community.

We firmly believe in taking responsibility for our environmental impact and resource use in an effort to protect the health of our environment, and ultimately that of the communities we serve."

Mauricio Acosta, *Energy and Environmental Sustainability Director*

"The EES team is committed to ensuring the Lower Mainland Health Authorities take responsibility for their environmental impact" - Mauricio Acosta

WHO WE ARE

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

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

This partnership allows for consolidated operations across the four health organizations for greater efficiency, so health care dollars can be effectively focused on patient care.

This partnership, informally known as the "Lower Mainland Consolidation (LMC)", is an innovative approach to improve efficiency across health organizations in select non-clinical and clinical support areas. For purposes of this document, the relevant department within the LMC is facilities management, referred to as Lower Mainland Facilities Management (LMFM).

The new LMFM team 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.

COORDINATING OUR SUSTAINABILITY WORK

Consolidation enabled the creation of an Energy and Environmental Sustainability (EES) team within LMFM, dedicated to reducing the environmental impact of all the Lower Mainland Health Authorities. This has allowed for new opportunities to coordinate environmental and sustainability work across FH, PHC, PHSA, and VCH in a unified manner for greater impact.

The EES team, led by Mauricio Acosta, includes individuals focused on Energy Management for each Health Authority, as well as those focussed on broader sustainability topics such as waste and water usage reduction.

It is the goal of the EES team to unite the four health organizations in a commitment to reduce health care's environmental impact, while increasing the health and well-being of British Columbians. This is done by nurturing the important link between human and environmental health.

COMMITMENT TO SUSTAINABILITY

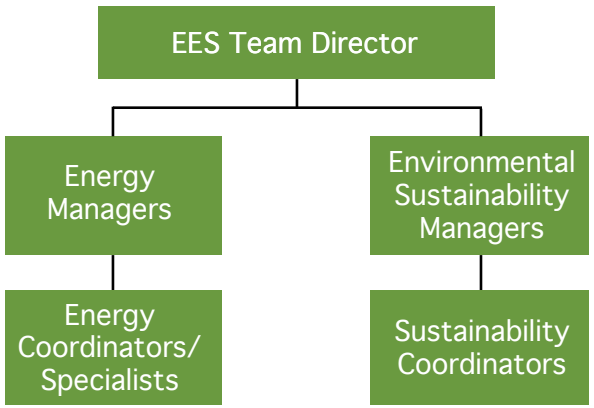
The four health care organizations have adopted a common Sustainability Policy:

"The Lower Mainland Health Care organizations will act as leaders with respect to environmental stewardship while engaging the healthcare community in a collaborative approach towards sustainability."

The full Sustainability Policy can be found here: https://bcgreencare.ca/resource/sustainability-policies

This policy provides a high level statement of commitment for efforts to improve the sustainability of all four health care organizations.

FIG 1. SIMPLIFIED EES ORG CHART



FRASER HEALTH

fraserhealth

2013 BC's Top Employers

Fraser Health is committed to improving the health of the population and the quality of life of more than 1.7 million people living in communities from Burnaby to Hope.

Fraser Health provides integrated health services. 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 British Columbia, which celebrated its 150th anniversary in 2012. Located in New Westminster, it is 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 capable of performing surgery for expectant women in British Columbia.

GROWING COMMUNITIES AND GREENER BUILDINGS

Three of Fraser Health's rapidly growing communities are Abbotsford, Maple Ridge, and Surrey. All three are served by expanding community-focused hospitals and related services.

OUR COMMUNITIES

Abbotsford, Agassiz, Burnaby, Chilliwack, Coquitlam, Delta, Harrison, Hope, Langley, Maple Ridge, Mission, New Westminster, Pitt Meadows, Port Coquitlam, Port Moody, South Surrey, Surrey, White Rock

7.7 million sq ft of facility space

150 distinct buildings

14,540 full-time staff

PROVIDENCE HEALTH CARE

Providence HEALTH CARE
How you want to be treated.

2013 BC's Top Employers

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

PROVIDENCE HEALTH CARE (PHC) OWNS AND/OR OPERATES 16 FACILITIES WITHIN THE VANCOUVER COASTAL HEALTH REGION.

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.

PHC is a party to the Master Agreement between the Denominational Health Care Facilities Association and the Province. This agreement provides PHC 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 (SPH)
- Mount Saint Joseph Hospital (MSJ)
- Holy Family Hospital (HFH)
- St. Vincent's: Langara
- St. Vincent's: Brock Fahrni (BF)
- 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

2	**million sq ft** of facility space
40	**distinct buildings**
4,900	**full-time staff**

PROVINCIAL HEALTH SERVICES AUTHORITY

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

2013 Canada's Greenest Employers

2013 BC's Top Employers

The Provincial Health Services Authority is the only health authority in Canada that has a mandate to deliver specialized health services province-wide.

PROVINCIAL HEALTH SERVICES AUTHORITY PROVIDE SPECIALIZED HEALTH SERVICES

Provincial Health Services Authority (PHSA) is a publicly funded health service provider in the province of British Columbia. Other Health Authorities in the province have a regional jurisdiction, but we are unique in Canada for being the only health authority having a province-wide mandate for specialized health services.

OPERATING NINE PROVINCIAL AGENCIES

PHSA services are provided either directly through PHSA agencies or through funding or collaboration with regional Health Authorities. PHSA operates and manages nine well-recognized specialized agencies and two divisions:

- BC Cancer Agency
- BC Centre for Disease Control
- BC Children's Hospital & Sunny Hill Health-Centre for Children
- BC Mental Health & Addiction Services
- BC Provincial Renal Agency
- BC Transplant Society
- BC Women's Hospital & Health Centre
- Cardiac Services BC
- Perinatal Services BC
- BC Emergency Health Services (incl. BC Ambulance Service)
- Health Shared Services BC

3.7 million sq ft of facility space

83 distinct buildings

10,650 full-time staff

VANCOUVER COASTAL HEALTH

Vancouver CoastalHealth
Promoting wellness. Ensuring care.

2013 BC's Top Employers

Vancouver Coastal Health is a health care provider that serves over one million people in British Columbia

VCH 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

THIRTEEN HOSPITALS

VCH operates in part of Greater Vancouver and in the Coast Garibaldi area. This includes nine hospitals, three diagnostic and treatment centers, and 15 community health centers. VCH also contracts services to third parties, primarily long term care facilities.

As a health authority in British Columbia, 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 BC's population, that is over 1 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.

8.8 million sq ft of facility space

231 distinct buildings

13,600 full-time staff

THE ENERGY AND ENVIRONMENTAL SUSTAINABILITY TEAM

> As of recently, the notion of 'climate change resiliency' and 'regenerative development' are taking health care beyond simply "doing less harm" to a place of preparing for future challenges and sustaining both human and environmental health."
>
> Glen Garrick,
> *Sustainability Manager*

The Energy and Environmental Sustainability team works to improve the environmental performance of the Lower Mainland Health Authorities' operations.

THE EES VISION STATEMENT

Transforming Health Care for a Thriving Environment.

GREENCARE

In 2010, consolidation of administrative and clinical support services created the Energy and Environmental Sustainability (EES) group within the Lower Mainland Facilities Management (LMFM) department.

GreenCare is the umbrella for all the environmental sustainability activities across the Lower Mainland Health Authorities. This includes all the work conducted throughout the EES strategic framework and facilitated through the various EES programs, including the Recycling Renewal, Green+Leaders, Active Transportation's Clean Commuter Challenge, and the online GreenCare Community website.

https://bcgreencare.ca

THE EES 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, & transparency to create sustainable and environmentally-responsible health care practices & systems.

ADVISORY COMMITTEE

Environmental Sustainability Advisory Committee (ESAC) is made up of various key Health Authority leaders across the lower mainland. These individuals provide strategic counsel and guidance on decisions related to energy and environmental sustainability work within health care.

GREENCARE STRATEGY

SUSTAINABILITY THROUGH STEWARDSHIP

The Lower Mainland Health Authorities strive to achieve sustainability by addressing the standard three pillars of sustainability, adapted to a health care context, as summarized below.

HEALTH & SOCIAL STEWARDSHIP

We will care for and promote better health and community.

ECONOMIC STEWARDSHIP

We will carefully manage our funding and reduce costs wherever possible.

ENVIRONMENTAL STEWARDSHIP

We will care for and preserve our natural resources and ecosystems.

AN INDIRECT FOCUS ON FINANCIAL STEWARDSHIP & HEALTH / SOCIAL STEWARDSHIP

The EES team is focused primarily on Environmental Stewardship. However environmental stewardship often provides economic and health & social benefits too. Thus, indirectly the EES team works on and provides support for economic and health & social stewardship.

EES STRATEGIC FRAMEWORK

In consultation with key stakeholders (Executive Leadership, external partnerships, and front line staff), and in conjunction with an evaluation of best practices within the health care sector, the EES 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.

https://bcgreencare.ca/framework

10 STRATEGIC AREAS OF ENVIRONMENTAL STEWARDSHIP

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

GREENCARE MILESTONES

The Energy and Environmental Sustainability team has achieved significant success, as highlighted through these key milestones since 2007.

2007

- Energy Commitment Letter adopted (PHC) (VCH)
- "GreenCare" is created (VCH)
- "Go Green" campaign (PHC)

2008

- PowerSmart Work Place Conservation Award, BC Hydro (VCH)
- Energy Manager of the Year Award, BC Hydro (PHSA)

2009

- "Green+Leaders" is created (PHSA)
- PowerSmart Leader Award, BC Hydro (VCH)
- PowerSmart Work Place Conservation Award, BC Hydro (VCH)
- PowerSmart Executive Leader Award, BC Hydro (PHSA)

2010

- "Green+Leaders" is adopted (FHA) (PHC) (VCH)
- "Cut the Carbon Community (C3)" campaign is launched (FHA) (PHSA) (PHC) (VCH)
- "GreenCare" is adopted (FHA) (PHSA) (PHC)
- Energy Manager of the Year Award, BC Hydro (FHA)
- PowerSmart Leader Award, BC Hydro (VCH)
- Recycling Renewal Program launched (FHA) (PHC) (VCH)
- Implementation of green energy (solar hot water system), (VCH) (Lions Gate Hospice)

2011

- GreenTech Award (VCH)
- Sustainability Policy adopted (FHA) (PHSA) (PHC) (VCH)
- Recycling Renewal Program launched (PHSA)

2012

- Greenest Employer Award, Canada's Top 100 Employers (PHSA)
- PowerSmart Leader Award, BC Hydro (FHA)
- PowerSmart Leader Award, BC Hydro (VCH)
- Urban Agriculture (community garden) Program Created (VCH)
- Implementation of green energy (solar hot water system), (FH) (Queens Park Care)

2013

- Outstanding Service Award, "Green+Leaders", BC Hydro (FHA) (PHSA) (PHC) (VCH)
- Greenest Employer Award, Canada's Top 100 Employers (PHSA)
- Implementation of green energy (geo-exchange), (VCH) (St. Mary's Hospital)
- Implementation of green energy (photo-voltaic), (VCH) (St. Mary's Hospital)
- GreenCare Community website relaunched (FHA) (PHSA) (PHC) (VCH)


"The science is conclusive, climate change is real and changing the environments in which we live.
As a doctor it is my responsibility to engage and lead people in achieving and maintaining better health in these changing environments.
But it is also my responsibility to the community at large to identify systems most vulnerable to climate change and seek process changes to improve the health of those systems and ultimately our own health.
Thus, as a health care professional, it is important that I, and the organization I work for, lead by example in addressing the health influencing changes ahead of us."
Dr. Graeme Duncan,
Radiation Oncologist, BCCA

2013 ENERGY & ENVIRONMENTAL SUSTAINABILITY SCORECARD

Environmental Stewardship through 10 strategic components.

Work Ahead of Schedule or Exceeding ▲
Work on Track But Requires Monitoring ■
Work in Progress But Falling Behind ▼

TOPIC	TARGETS	STATUS	PERFORMANCE
Culture of Stewardship Our goal is to create a culture of sustainability stewardship (environmental, social, economic) in the workplace and promote active staff engagement.	1. Recruit, train and maintain a minimum of 150 Green+Leaders for each of the LM Health Organizations	▲	270 total Green+Leaders trained
	2. Increase the number of registered staff on the GreenCare Community by 500 per annum	▲	453 new registrations in 2013
	3. Increase the number of Recycling Renewal Champions	▲	100+ new champions
Energy Conservation and Climate Neutral Our goal is to achieve energy efficiency (and support the achievement of climate neutral operations) through the implementation of energy retrofits & optimization projects and energy conservation campaigns aimed to reduce consumption.	1. Reduce Energy Use Intensity (EUI) of the core sites by 12% - 15% by 2020 (relative to a 2007 baseline)	▲	FH: -6.3%; PHC: -4.0%; PHSA: -0.6%; VCH: -8.8%
	2. Reduce carbon emissions by 33% by 2020 (relative to a 2007 baseline)	▼	FH: +6.2%; PHC: +3.8%; PHSA: +1.7%; VCH: -2.8%
	3. All new construction projects to be designed to achieve a specific Energy Use Intensity (EUI) target	▲	In Progress
Zero Waste Our goal is to minimize waste generated from the health care system and all its supporting systems and operations.	1. 50% waste diversion rate for acute and residential care sites in the Recycling Renewal Program (aligns with Metro Vancouver target) in 2014	■	FH: -36%; PHC: -43%; PHSA: -39%: VCH: -39%
	2. Increase waste diversion by 70% by 2015 (aligns with Metro Vancouver target)	■	n/a
	3. Implement the Recycling Renewal Program at 100% of all acute and residential care sites by 2016	▲	57% sites have the RRP
Active and Clean Transportation Make walking, cycling, public transit, the shuttle, car sharing and carpooling the primary transportation and commuting choice for LM Health Organizations Staff.	1. 25% of the staff will use active transportation to commute minimum 2 days per week by 2020	▲	In Progress
	2. Increase the number of staff who bicycle to work by 2% per annum	▲	In Progress
	3. Increase the number of staff that sign up for a transit pass by 2% per annum	▼	20 new transit pass registrations
Regenerative Design Our goal is to employ Regenerative Design principles and processes to enhance the built environment and improve human and environmental health.	1. Incorporate Regenerative Design principles into the healthcare culture and vocabulary by 2014	▲	In Progress
	2. Incorporate Regenerative Design principles into new construction and major renovation criteria by 2016	■	In Progress
	3. Achieve the Living Building Standard and Passive House Standard for one new facility by 2020	■	In Progress

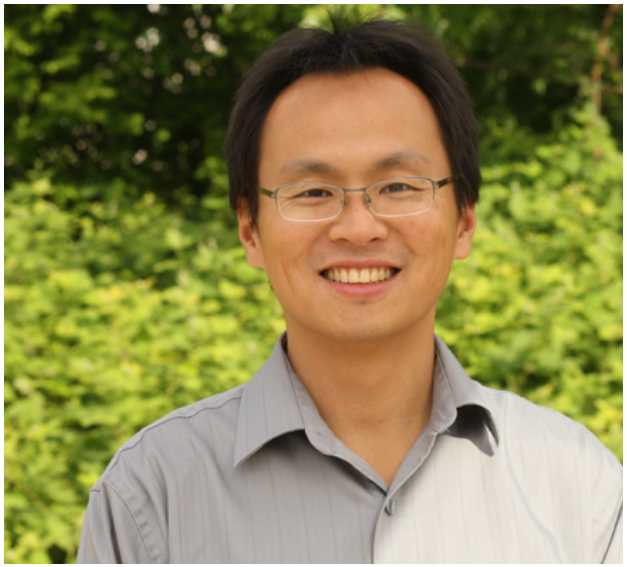
2013 ENERGY & ENVIRONMENTAL SUSTAINABILITY SCORECARD

Work Ahead of Schedule or Exceeding ▲
Work on Track But Requires Monitoring ■
Work in Progress But Falling Behind ▼

TOPIC	TARGETS	STATUS	PERFORMANCE
Water Conservation and Restoration Reduce water consumption through conservation and reuse measures, and contribute to restoring the natural water cycle.	1. 10% reduction in water consumption by 2020 (based on 2010 baseline)	■	FH: -6.1%; PHC: -13.4%; PHSA: +7.1%; VCH: -5.1%
	2. 20% reduction in water intensity (Building Water Performance Index (BWPI) (m3 / yr / m2))	■	FH: -68%; PHC: -13%; PHSA: +6%; VCH: -6%
	3. 10 new rainwater harvesting projects implemented by 2020	▼	1
	4. 4 new grey water reuse projects implemented by 2020	▼	0
Sustainable Supply Chain Our goal is for the Lower Mainland Health Care Organizations to become a Canadian leader in fostering healthy communities, workplaces and the eco-systems through leveraging the purchasing power of health care.	1. Reduce at source the volume of packaging waste entering the Healthcare system	■	In Progress
	2. Reduce paper usage by digitalizing files so that incoming and stored files are no longer produced and / or stored as paper. In 2013, this target will focus on Employee Records and Paystubs	▲	In Progress
	3. Make all electrical equipment and supplies purchasing by the Healthcare Organizations Energy Star certified	■	In Progress
	4. Include energy performance as additional relevant criteria in the selection of any type of equipment	■	In Progress
Zero Toxicity Our goal is to reduce the use of toxic chemicals, materials, and known carcinogens within health care settings.	1. Zero use of mercury based thermometers, thermostats, and blood pressure measuring machines within Health Care facilities	■	In Progress
	2. 25% use of "green" cleaners by staff	■	In Progress
	3. Zero use of cosmetic pesticides on Health Care property	▼	In Progress
	4. Reduction of the usage of PVC, DEHP, and Brominated Flame Retardants	▼	In Progress
Healthy Land and Food Our goal is to promote the connections between food systems, land use, and prevention-based health care.	1. Definition and adopt a "local food" policy for the LM HAs	▲	Complete
	2. Increase the number of community and patient run garden projects on health care property by 3 on health care property by 2015.	■	1 new garden
	3. Where applicable, promote the inclusion of green spaces within health care property in major renovations and long term master planning projects	▲	In Progress
Transparent Reporting Provide results orientated work reports on Carbon, Energy, and overall Sustainability, which are routine, transparent, engaging, and open for dialogue.	1. Publish an annual Carbon Neutral Action Report (CNAR)	▲	Complete
	2. Publish an annual Environmental Accountability Report (EAR)	▲	Complete
	3. Publish an annual Strategic Energy Management Plan (SEMP)	▲	Complete
	4. Publish an Energy Management Assessment (EMA)	▲	Complete
	5. Prepare and present BC Hydro Quarterly Reports	▲	Complete

ABOUT THIS REPORT

> "The Environmental Accountability Report provides us with a platform from which to connect with our staff and stakeholders to discuss our success, challenges, and our future initiatives. This communication is an important step in encouraging and ensuring environmental and economic stewardship for staff and patients."
>
> Alan Lin,
> *Energy Specialist*



The Environmental Accountability Report (EAR) is a voluntary report completed in collaboration with of FH, PHC, PHSA, and VCH.

The term "core sites", within the report, refers to facilities, which are either owned by one of the Health Authorities or operated by LMFM in conjunction with a Public / Private / Partnership (P3) Partner.

THE AUDIENCE

This report is intended to provide health care staff, key external partners, and the public at large with a clear understanding on the internal work, success, and challenges the health authorities are undertaking in order to achieve greater environmental stewardship.

KEY REPORTING CRITERIA

The scope and depth of reporting is governed by the Environmental Sustainability Advisor Committee (ESAC), which is an internal advisory committee comprised of key leaders and stakeholders across FH, PHC, PHSA, and VCH.

These leaders represent and are tasked with providing feedback on behalf of all internal stakeholders within health care.

In accordance with ESAC guidance, the report is a direct reflection of best practices in the health care sector as well as a materiality analysis, which involved key internal and external stakeholders.

External stakeholders and resulting commitments involve the Climate Action Secretariat of British Columbia, the Ministry of Health, BC Hydro, and FortisBC.

Key themes in the materiality assessment involve cost savings, resource conservation, waste diversion, risk mitigation, and innovation through patient centric best practices, lean design, and strategic change.

INTERNAL MATERIALITY PROCESS

The 10 components are based on a materiality process involving three steps:

- Discussions and guidance from ESAC
- A survey of various internal stakeholders
- One on one interview with key external stakeholders

The EAR is an opportunity to provide direct communication to all stakeholders on the issues that matter most to them concerning environmental conservation and improved organizational performance.

CULTURE OF STEWARDSHIP

> The Energy and Environmental Sustainability team fully embraces the importance of staff taking stewardship towards resource use and disposal. Our staff engagement programs will give them the tools to become more effective as we build key partnerships with staff and the extended community.
>
> Robert Bradley,
> *Energy Manager*

CONTEXT

A Culture of Stewardship within the LM Health Organizations (FH, PHC, PHSA, and VCH) means building capacity and leadership to integrate sustainability values into all decision-making and actions at work; this includes the development of improved systems and processes as well as daily habits and choices. Engagement of staff and leadership across organizations is critical to achieving this goal.

A Culture of Stewardship recognizes that the economic, social and environmental aspects of operations are linked, and must be considered together to achieve long-term success.

TOPIC GOAL

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

2013 TARGETS & PROGRESS REPORT

1. Recruit, train and maintain a minimum of 150 Green+Leaders for each of the LM Health Organizations

STATUS: Last year proved to be another successful year for the Green+Leaders (G+L) program, which now operates in all four of the Lower Mainland health Organizations. As of December, 2013, the program had 188 staff volunteers, with a total of 270 G+Ls trained since the program's inception in 2009.

HEALTH & SOCIAL STEWARDSHIP

Engagement improves quality of work and health. For example, higher scoring business units report 48% fewer safety incidents; 41% fewer patient safety incidents; and 41% fewer quality incidents

Harvard Business Review
http://bit.ly/1kLhaPN

ECONOMIC STEWARDSHIP

Disengaged employees can drag down others and impact everything from customer service to sales, quality, productivity, retention and other critical business areas.

Forbes
http://onforb.es/1u9mlaD

For more information on Culture of Stewardship please contact: **Ruth Abramson**,
email: **ruth.abramson@fraserhealth.ca**

The 2012/13 G+L survey respondents reported implementing a total of 371 campaigns at their work sites. The majority used toolkits, designed to reduce workplace use of energy and materials, improve recycling practices, promote active and clean transportation, and encourage social sustainability. Last year's Materials Reduction campaign received the highest rating, with 75 percent of G+Ls describing their outcomes as successful. In 2012/13, Green+Leaders also carried out more than 20 unique projects in their departments, ranging from recycling exam table paper to organizing car pools.

Because Green+Leaders is a staff engagement program, each year evaluation questions are included from the LMHAs'/Gallup staff engagement survey. G+Ls consistently score higher on these metrics than other HA employees. This demonstrates that staff who participate in sustainability efforts have higher levels of engagement at work, contributing to organizational success and supporting economic as well as environmental stewardship.

What's more:

98 percent reported that they found the Green+Leaders program enriching and would recommend it to a friend.

84 percent said they felt they were making a difference and fostering sustainable behaviours amongst their colleagues.

A Green+Leaders video was produced to enhance program outreach. It can be found here: https://bcgreencare.ca/discovergreenleaders-program-new-video

In 2014 this target will be kept as establishing 150 Green+Leaders per organization is considered an optimal number for influencing behavioural and cultural change organization-wide.

FIG 2. GREEN+LEADERS (Total Number)

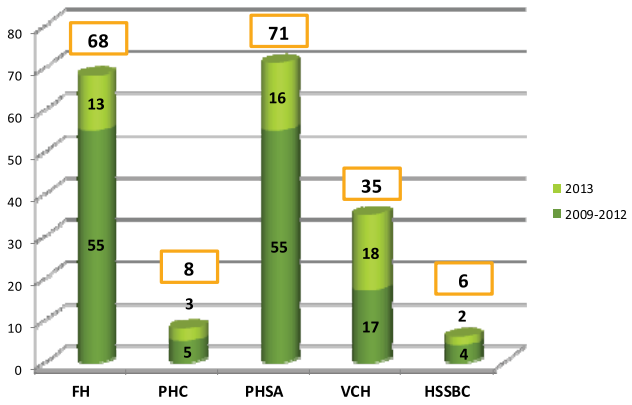
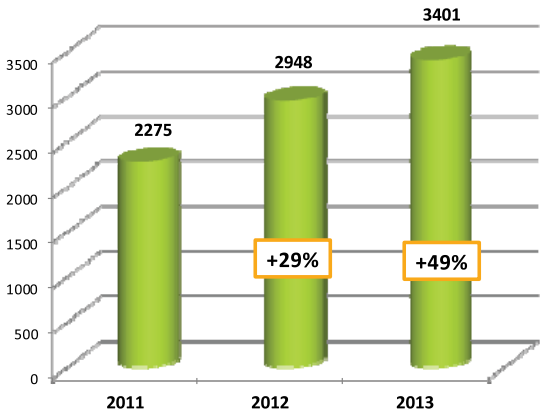


FIG 3. GREENCARE COMMUNITY REGISTRATIONS (Total and % Change from Baseline)



2. Increase the number of registered staff on the GreenCare Community by 500 per annum.

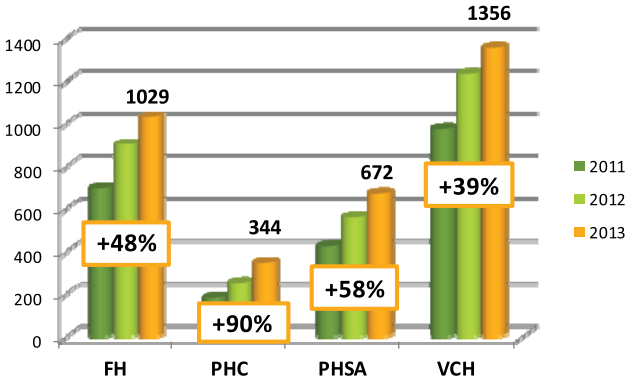
STATUS: The GreenCare Community (GCC) website was given a refresh and re-launched in the spring of 2013. The goal of the GCC website is to engage health care staff for the purpose of creating a work culture of environmental conservation and a culture of human and environmental sustainability across all four health care organizations.

The GCC has a public and a private side. The public side communicates EES team goals, GreenCare initiatives and shares a number of stories and resources with the public and external stakeholders. The private side is specifically for health care professionals across the lower mainland of British Columbia. The private side is designed for health care staff specifically to connect with each other through community discussions and / or join topic specific groups (Energy Conservation, Recycling Champions, etc…) as well as campaigns and challenges.

(Image: left to right) Ashley Edworthy and Joy Geddert model clothing Joy made from unused and discarded OR Drapes.

Green+Leaders and Recycling Champions at the Surrey Memorial Hospital Lab play a key role in promoting a cuture of stewardship

FIG 4. GREENCARE COMMUNITY WEBSITE REGISTRATIONS (per Health Authority) (Total and % Change from Baseline)



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

The GCC program has the potential to go provincial as Northern Health Authority, Interior Health Authority, and Vancouver Island Health Authority have all expressed interest in joining the community.

As this goal will be met in 2014, future targets in this area may include tracking engagement via click rates, time spent on the site, discussions and content created by members, or number of downloaded resources.

3. Increase the number of Recycling Renewal Champions Trained.

STATUS: In 2010, the Lower Mainland Health Authorities initiated the Recycling Renewal Program (RRP) at Health Authority owned hospitals and residential care sites with the objective of creating a united effort to reduce health care waste, and improve human and environmental health in the region.

To support the RRP, Recycling Champions have been trained at 10 acute care sites. Recycling Champions are volunteers that take ownership of the recycling program in their department by actively recycling, encouraging others to do the same, and monitoring recycling bins for contamination. Recycling Champions are a key component of recycling success and continuation.

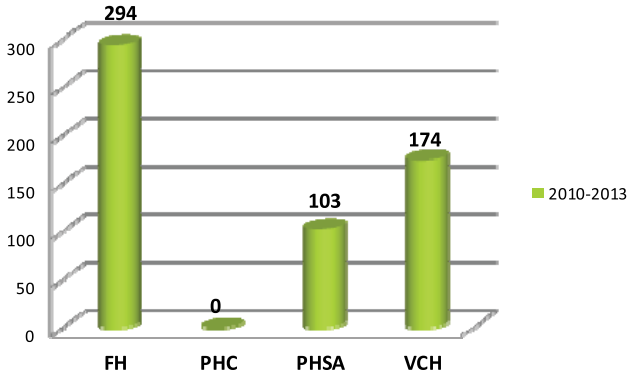
In 2013, more than 100 new Recycling Champions were trained at BC Children's and Women's Hospitals and Sunny Hill. The total number of Recycling Champions across all Health Authorities since the inception of the program is 574.

FH specifically has shown tremendous commitment by staff to implement and monitor the recycling efforts.

Important: The RRP was implemented at PHC sites prior to working with Recycling Champions to support the program. As RRP upgrades are made at PHC sites, recycling champions will be recruited and trained.

In 2014 the Recycling Renewal Champions target will be kept.

FIG 5. RecyclingRenewal Champions (Total)



ENERGY CONSERVATION & CLIMATE NEUTRAL

> I see this time in history as an opportunity to transform our relationship with planet Earth. We have an opportunity to take responsibility for the consequences of our actions. Practices such as energy conservation and systems improvements are one important part of this change.
>
> Olive Dempsey,
> *Green+Leaders Coordinator*

CONTEXT

Health care and society depend on energy for maintaining life. Unfortunately a majority of the energy used today also has a resulting environmental impact, including the production of Greenhouse Gases.

Over 95% of the Lower Mainland Health Authorities carbon footprint comes specifically from buildings within its portfolio. These facilities consume over $40 million in energy use every year. As one of the most energy intensive sectors, the health care sector has an increased need to reduce its energy consumption and reliance on fossil fuels.

TOPIC GOAL

Achieve energy conservation (and support the achievement of climate neutral operations) through the implementation of energy retrofits & optimization projects, awareness & education and influencing energy conservation design with new construction projects.

ECONOMIC STEWARDSHIP

As energy prices rise and energy security becomes an issue of increasing importance for the healthcare sector, reining in energy use will be paramount.

Practice Greenhealth,
http://bit.ly/TLutmE

ENVIRONMENTAL STEWARDSHIP

It's well-documented that health care facilities consume huge amounts of energy and are a leading source of greenhouse gas emissions.

Healthier Hospitals Initiative,
http://bit.ly/1koj3us

For more information on Energy Conservation & Climate Neutral please contact: **Robert Bradley,**
email: **robert.bradley@fraserhealth.ca**

20 kilowatt solar photovoltaic grid-tie panels, St. Mary's Hospital

2013 TARGETS & PROGRESS REPORT

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

STATUS: Energy Use intensity for Lower Mainland Health Authorities has been reduced by 7% since 2007. This has predominately been achieved through retrofit projects and optimization of existing building energy use systems. The following charts display the progress to date since 2007 for each individual Healthcare Organization.

In 2014, the EES team will begin to develop building sector and site specific targets. Currently there are 54 LMHA core sites which are monitored as part of the energy use database.

FIG 6 FHA ENERGY CONSUMPTION AND USE INTENSITY

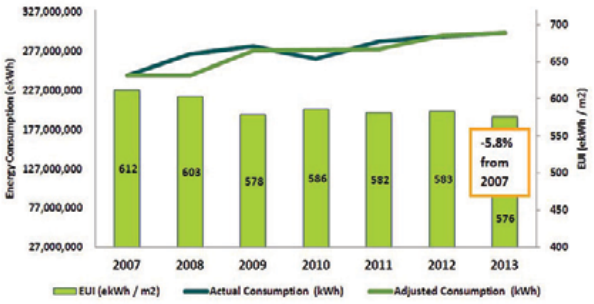


FIG 7 PHC ENERGY CONSUMPION AND USE INTENSITY

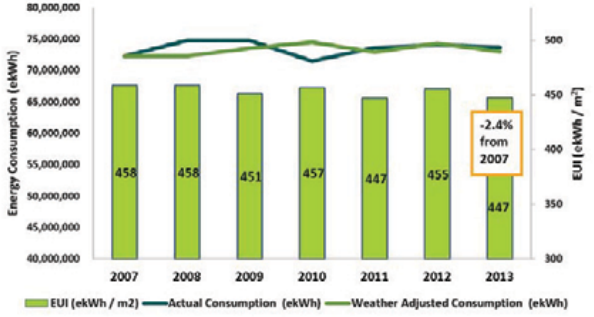


FIG 8 PHSA ENERGY CONSUMPTION AND USE INTENSITY

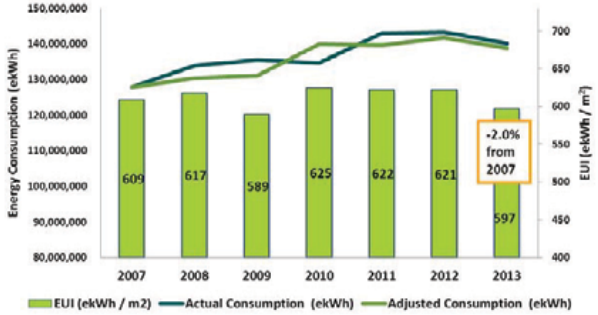
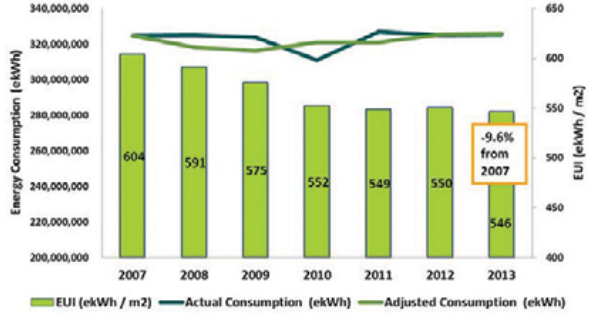


FIG 9 VCHA ENERGY CONSUMPTION AND USE INTENSITY



2. Reduce carbon emissions by 33% by 2020 (relative to a 2007 baseline)

STATUS: The carbon footprint of the LMHA is reported to the Climate Action Secretariat (CAS) of the B.C. Provincial Government in an annual Carbon Neutral Action Report (CNAR). The carbon reporting includes three main categories:

- Stationary Emissions (Buildings)
- Mobile Emissions (Fleet Vehicles)
- Supplies (Paper)

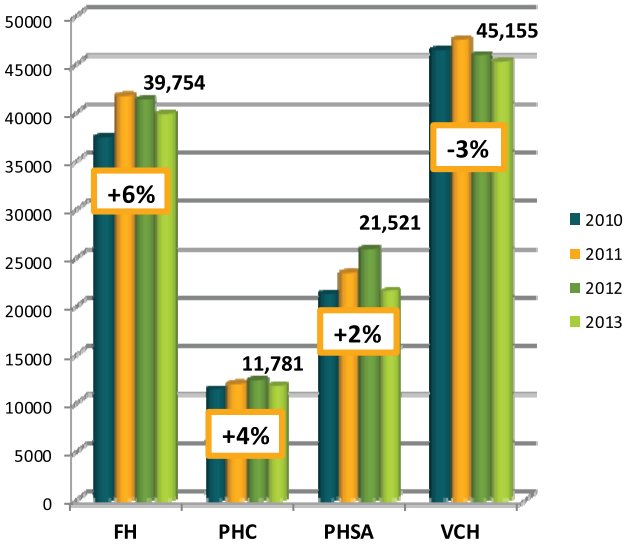
To help determine the entire public sector carbon footprint, the B.C. Climate Action Secretariat has provided an online tool "SMARTTOOL" to calculate our yearly total carbon footprint. This tool contains all the factors used to determine the most accurate footprint according to our specific region.

Using their criteria, our carbon footprint is roughly 96% energy, 1% fleet, and 3% waste related. But note the carbon data for Energy does not include factors such as facility space and weather changes.

Since 2010 VCH has seen the biggest drop at 3%. This is due to numerous energy conservation projects implemented across the region. FH has seen the biggest increase at 6%. This is due to the increase of staff and number of facilities to provide for a growing regional population.

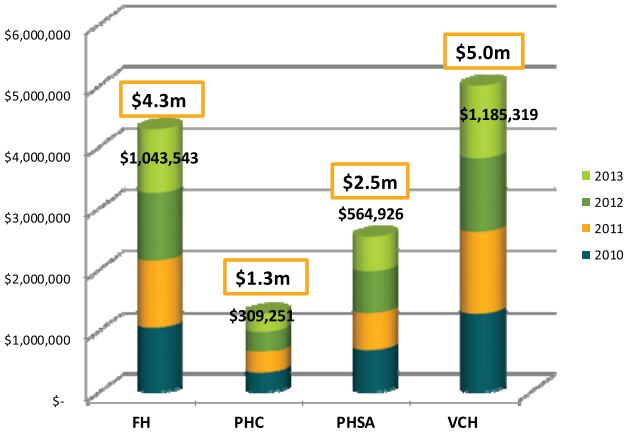
The 2013 Carbon Neutral Action Report's for FH, PHC, PHSA, and VCH have been attached as appendices to this document. Overall, all four organizations reduced their carbon footprint from 2012 (FH: -4%; PHC: -5%; PHSA: -17%; VCH: -2%).

FIG 10 TOTAL CARBON FOOTPRINT (in tonnes of carbon dioxide equivalent (tC02e)) & Percentage Change From Baseline (2010)



In 2014, this target will be kept as this is a Provincial Government target driven by the 2007 Greenhouse Gas Reduction Target Act. There has been no indication that this target will be revised even though for Healthcare a 33% reduction will be extremely difficult to achieve with the existing portfolio of buildings.

FIG 11 PURCHASED CARBON OFFSETS +HST/GST (2013 and Total 4yr Expense)



3. All new construction projects to be designed to achieve a specific Energy Use Intensity (EUI) target

STATUS: An Energy Design Guideline for New Construction projects has been developed. The intent of the guideline is to provide the design team with direction on:

- Energy performance Targets.
- Requirements of Energy Incentive Applications.
- Energy modelling, measurement and verification and commissioning requirements.
- Selection of energy systems that are consistent with the campus energy initiatives.

The guideline has grouped all health care facilities into three categories, based on their primary use. These three categories are "Support", "Inpatient", and "Acute Care and Research".

In addition, the guideline establishes mandatory levels of EUI for these three categories. These EUI's are Support (150); Inpatient (250); and Acute Care and Research (375). In 2014, the EUI targets will be driven by code requirements as well compliance with ASHRAE 90.1 standards.

Energy Efficiency Boiler Pump Upgrade, Burnaby General Hospital

ZERO WASTE

> Reducing waste production is not just a question of aesthetics. Our personal well-being remains linked to the health of the ecosystems we live in. As health care professionals, we can safeguard the future of our communities, societies and ecosystems simply by taking responsibility for the materials we buy and how they affect the environment we live in and the natural environment they are disposed in.
>
> Richard Wellwood,
> *Energy Specialist*

CONTEXT

Globally, waste disposal in landfills and incinerators can generate serious environmental and health impacts related to soil, air and water contamination; emission of greenhouse gases; and can affect the spread of infectious and respiratory diseases. In an effort to emulate nature, where pollution essentially doesn't exist, the Lower Mainland Health Authorities are taking a Zero Waste philosophy. Adopting Zero Waste is about reducing consumption, as well as designing products and industrial processes so that components can be dismantled, repaired, reused and recycled (Zero Waste International Alliance – http://zwia.org).

TOPIC GOAL

Minimize waste generated from the Lower Mainland Health Authorities and all its supporting systems and operations.

HEALTH & SOCIAL STEWARDSHIP

As they care for patients, hospitals generate an average of 26 pounds of waste per staffed bed in the course of a day.

Healthier Hospitals Initiative,
http://bit.ly/SOmB2R

ENVIRONMENTAL STEWARDSHIP

Solid waste can impact the environment in various ways, depending on how it is managed. For example, waste disposal may contribute to soil and water contamination, while methane gas produced at landfills contributes to greenhouse gas emissions.

Statistics Canada,
http://bit.ly/1oPENFC

For more information on Zero Waste please contact: **Ruth Abramson**,
email: **ruth.abramson@fraserhealth.ca**

Recycling Renewal Program at the Children's and Women's Hospital

2013 TARGETS & PROGRESS REPORT

1. A 50% waste diversion rate, by 2014, for acute and residential care sites in the Recycling Renewal Program. A 70% waste diversion rate, by 2015, for acute and residential care sites in the Recycling Renewal Program.

STATUS: Overall significant progress has been accomplished towards reaching this target by 2014. PHC (43%) is closest to reaching the 50% waste diversion target.

Six sites stood out for consistently having an overall average waste diversion rate above 40% during 2013: St. Mary's, Squamish General Hospital, Richmond Hospital (all VCH), Holy Family and St. Paul's Hospital (both PHC).

In 2014, this target will remain as it's aligned with the Metro Vancouver targets.

As a key stakeholder in this area, the Business Initiatives Support Services (BISS) department is directly responsible for waste management services, and provides operational support for service delivery to the various health care sites across the Lower Mainland.

BISS has continued to collect food scraps waste in all acute and residential care (FHA, VCH, PHSA and PHC) kitchens, with the exceptions of Fraser Canyon Hospital and Powell River Hospital. The collected food scraps are composted to produce rich organic soil.

It should be noted that the Health Authorities do conduct office organics diversion though this is typically only conducted at leased sites.

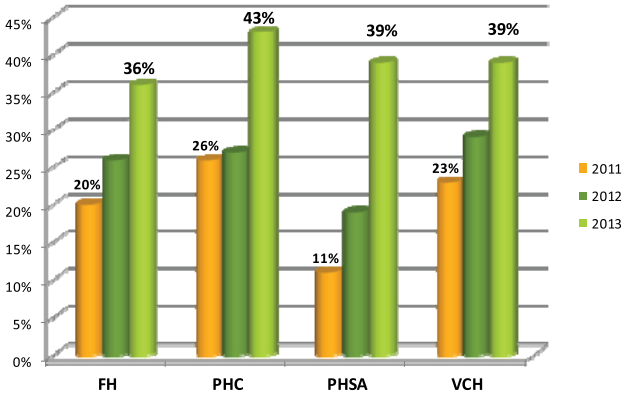
Currently office organics diversion is supported by: VCH (7 different office locations); PHSA (3 offices); and FH (1 office).

BISS hired a Hazardous Waste Coordinator who carried out training sessions for staff and revised the online management training module.

Notably, the battery recycling program continues to grow. In 2013, 11 new sites were included in the battery recycling program. They included PHSA (two new sites) and VCH (nine new sites). Battery recycling has now, in total, been successfully rolled out at 10 FH sites; 4 PHC sites; 5 PHSA sites and 27 VCH sites.

(left to right) PHSA staff Kim Steger and Cheryl Lewis are part of an office organics diversion (kitchen composting) pilot at their site

FIG 12 WASTE DIVERSION RATES (Percentage of total waste diverted from landfill/incineration by recycling or composting)



Source BISS - Biomedical and chemical waste streams are not included.

Data is a combination of actual and averaged weights as not all containers are weighed; some variability in diversion rates can be attributed to this.

For the purposes of waste, from owned facilities, organics recycling is only measured in kitchens that are managed by BISS.

In 2014, this target will remain as it's aligned with the Metro Vancouver targets.

2. Implement the Recycling Renewal Program at 100% of all acute and residential care sites by 2016.

STATUS: In 2013 the Recycling Renewal Program was rolled out at 10 new health care sites across the Lower Mainland Health Authorities. Of the total care sites across FH, PHC, PHSA, and VCH, 57% of them are now covered by the Recycling Renewal Program.

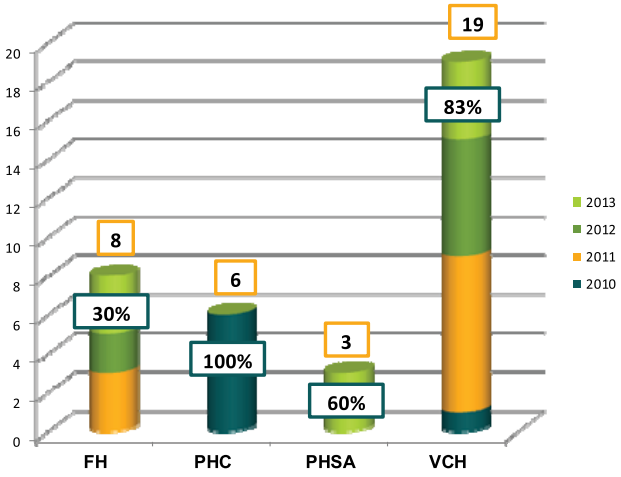
VCH led the way with recycling rolled out at 6 new sites: Squamish General Hospital and Hilltop House, Margaret Fulton Centre, Dogwood Lodge, George Pearson Centre, & Cedarview Lodge.

This brings the VCH total to 19 health care sites with full recycling.

PHSA rolled recycling out at BC Children's Hospital, BC Women's Hospital, & Sunny Hill Health Centre. This brings PHSA's total to 5 health care sites now completely covered by the Recycling Renewal Program.

In 2014, this target will remain. It is expected that the target will be reached by 2016.

FIG 13 RECYCLING RENEWAL IMPLEMENTATION (Total Number of Hospitals with Full Recycling Programs)



Source BISS

ACTIVE TRANSPORTATION

> Transportation affects many aspects of our lives. From the obvious like air pollutants and greenhouse gases; to the more abstract like physical activity levels, injury rates, health equity, and social cohesion. By making alternative transportation options like biking, walking, transit and carpooling more accessible, we promote better health and a cleaner environment.
>
> Ruth Abramson,
> *Sustainability Manager*

CONTEXT

Air pollution is a major contributor to the degradation of human and environmental health. Pollution from vehicle usage has a negative impact on regional human and environmental health.

Within the context of health care, Active & Clean Transportation will encompass any form of travel in which an individual actively pursues transportation alternatives to single occupancy vehicle use. This means transit, carpooling, and the shuttle service will be included within this topic area.

Integrated Protection Services is a key stakeholder in installing and maintaining bike cages, and providing shuttle service, and promoting carpooling and car sharing.

TOPIC GOAL

Make walking, cycling, public transit, the shuttle, car sharing and carpooling the primary transportation and commuting choice for LM Health Organizations Staff.

HEALTH & SOCIAL STEWARDSHIP

A shift to active transport (walking and cycling) and rapid transit/public transport combined with improved land use can yield much greater immediate health "co-benefits" than improving fuel and vehicle efficiency.

World Health Organization (WHO),
http://bit.ly/1pJ0K8X

ENVIRONMENTAL STEWARDSHIP

The transport sector is also a major source of greenhouse gas emissions, and thus an important focus of climate change mitigation.

World Health Organization (WHO),
http://bit.ly/1pJ0K8X

For more information on Active & Clean Transportation please contact: **Ruth Abramson,**
email: **ruth.abramson@fraserhealth.ca**

Bett Lauridson, Commuter Centre Manager, greets health care staff at the opening of the new VGH bike cage

2013 TARGETS & PROGRESS REPORT

1. 25% of the staff will use active transportation to commute minimum 2 days per week by 2020

STATUS: The definition of "active transportation" in this target is to commute to work in a way that is not a single occupancy vehicle (SOV) or carpooling. Taking transit, bicycling to work, or walking to work, would all qualify as active transportation by staff.

Despite the well-intended target, it has been impossible, to date, to measure a baseline or determine any change in staff around active transportation.

In 2014, this target will be redefined to provide a stronger focus, clear deliverables, and insight into current performance.

2. Increase the number of staff who bicycle to work by 2% per annum

STATUS: Encouraging staff to get out of their SOV and bicycle to work has both environmental and human health benefits.

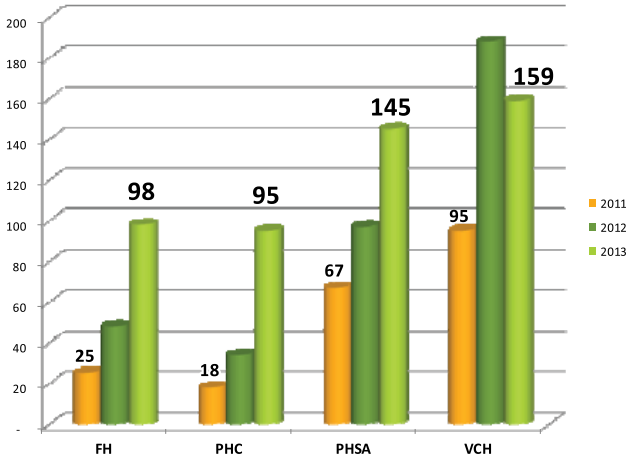
The "You & the Environment Survey" (2010) reported what percentage of staff at the various Health Authorities commute by bicycle to work. (FH: 1%; PHC: 6%; PHSA: 9%; VCH: 7%).

Unfortunately data of bicycle commuters since 2010 is challenging to confirm and it has been determined that an accurate progress report on this target cannot be obtained at this time.

One of the tactics to support this target is the Clean Commuter Challenge (CCC), which has been run every May / June since 2011.

The CCC is a three week internal campaign to get staff to reduce their commuting carbon footprint and improve personal wellness by carpooling, taking transit, biking, or walking to work.

FIG 14 CLEAN COMMUTER CHALLENGE (Total Participation)



The 2013 CCC had 497 participants. Through the challenge, the participants reduced their GHG emissions by 1,200 kg, which included the elimination of 1,608 km of single occupancy driving and an increase of 390 km of biking and walking to work.

In 2014, this target will remain though it has been determined more accurate surveys and data collection is needed to understand the staff behaviours and infrastructure needs for staff bicycling to work.

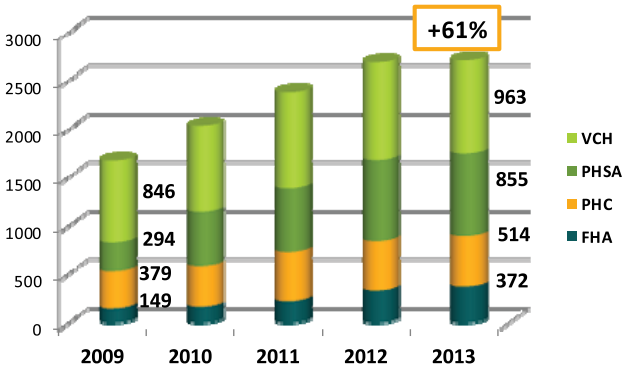
3. Increase the number of staff that sign up for a transit pass by 2% per annum

STATUS: Commuting via transit use can reduce stress, save time, and save money. As well, replacing a SOV with transit use also has the value of reducing a person's carbon footprint.

The Health Authorities have implemented an Employee Pass Program in conjunction with Translink.

In the past, Translink has provided a corporate discount to all staff under the Health Authorities. VCH and PHSA both added a subsidy to the translink discount, which essentially doubled the discount on fares.

FIG 15 TRANSIT PASS (Number of Staff Registered and % change from 2009 baseline)



From 2009 – 2013, the number of staff registered to receive a transit pass has increased by 61%. This exceeded expectations.

In 2012 Translink announced it would no longer offer a corporate discount (Employer Pass Program (EPP) for fares. In addition, Translink announced a change over to a new Compass Card transit fare system. These announcements / changes have stalled the efforts to increase staff adoption of the transit pass.

Though Translink elected to remove the corporate discount, VCH announced it would continue to offer a subsidy, which is to be determined in 2014. PHSA decided to not continue with the subsidy until it had a clearer understanding of the need and new process of the Compass Card.

This target will remain in 2014 as it is still unclear what the new Translink Compass Card will be like. In addition, it is unclear if Translink will provide a different version of the former Employer Pass Program.

(Image: left to right) Providence Health Care: Jane McCall is PHC's Commuter of the Year, Mary Procter (Vice President of Finance and Planning at PHC) presents the awards, Special Recognition Award to Nikki Koenig.

REGENERATIVE DESIGN

> Picture a hospital that was designed by diverse local community residents taking into account their unique history and needs. A hospital that not only contributes to the health of patients, but also, to the local community and ecosystems. This is how I see Regenerative Design in Health Care
>
> Sonja Janousek,
> *Recycling Coordinator*

CONTEXT

Our long term vision goes beyond Green Design, recognizing that we can do better than just "doing less harm". Regenerative Design creates buildings, systems, and infrastructure that restore, renew or revitalize; creating a sustainable built environment that positively impacts society and nature.

Regenerative Design can achieve significant operational savings and more importantly, positively impact health and well-being.

TOPIC GOAL

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

2013 TARGETS & PROGRESS REPORT

1. Incorporate Regenerative Design principles into the healthcare culture and vocabulary by 2014

STATUS: Notable and concrete progress has been made toward this goal and will accelerate over time as a critical mass of people get on board.

Accomplishments in 2013 included the establishment of a Regenerative Design section on the GreenCare Community website. The Regenerative Design page on the website is a

HEALTH & SOCIAL STEWARDSHIP

Increasingly, the scientific literature is also drawing correlations between environmental attributes such as daylighting, access to outdoor space and indoor air quality to clinical metrics such as reduced medication errors, shorter length of stay and reducing patient and family stress.

Practice Greenhealth,
http://bit.ly/1pIVW3s

ENVIRONMENTAL STEWARDSHIP

LEED designed and constructed buildings generate 34% less Greenhouse Gas Emissions and divert over 80 million tonnes of waste from landfills.

VIATechnik,
http://bit.ly/1ko9QlU

For more information on Regenerative Design please contact: **Alex Hutton,**
email: **alex.hutton@fraserhealth.ca**

starting place for learning about, and incorporating Regenerative Design principles into the healthcare culture and vocabulary.

In addition, a representative of the EES team was invited to be one of the sustainability practitioners to participate in a Regenerative Design workshop facilitated by Bill Reed. In 2014 this target will be kept, though revised to make it more specific and measurable.

2. Incorporate Regenerative Design principles into new construction and major renovation criteria by 2016

STATUS: Initial progress toward this target has been achieved by beginning to incorporate Regenerative Design principles and processes into the following projects: Dogwood Pearson Redevelopment, Children's and Women's Teck Acute Care Centre, Joseph and Rosalie Segal Health Centre, and the St. Paul's Hospital Ambulatory Care Centre. Each of the projects are in a different stage of development but have begun to incorporated Regenerative Design principles.

The Dogwood Pearson Redevelopment project achieved great success, evidenced in part by the "5 Whole Health Elements" integrated project framework that emerged through extensive engagement with the local community, and genuine exploration of the various site specific opportunities and constraints.

This project has helped to make some of the direct connections between sustainability and our core mandate of health, an outcome that is both evidence of, and fuel for further integration of Regenerative Design.

One of the key motto's for the site was: "Whole Health: Centred in health and wellness the Pearson Dogwood Neighbourhood is a place of wholeness and vitality".

Regenerative Design is not something that can be easily specified; it is both a process and an outcome that is inherently situation specific. Through testing, the adoption of these principles and processes on each new project, the EES team hopes to iteratively improve our ability to incorporate them into the next project.

In 2014 an adjusted version of this target will remain. As this goal will take time to achieve to the fullest extent across new construction and major renovation projects, the target will be extended to 2020.

The Dogwood Pearson Redevelopment project

3. Achieve the Living Building Standard or Passive House Standard for one new facility by 2020

STATUS: Achieving either of these advanced design standards would represent a significant step in the direction of Regenerative Design with the potential to yield operational cost savings as well as positive impacts on occupant comfort and satisfaction. The ideal pilot project would be construction of a new residential care or mental health type building, since these building types offer fewer challenges than an acute hospital.

In 2013 EES continued to have conversations with the Lower Mainland Facilities Management Planning group to make them aware of the benefits of pursuing advanced design standards, such as the Living Building Standard and Passive House Standard and to seek an appropriate pilot project.

In 2013 six staff from within Lower Mainland Facilities Management attended a half day workshop on Passive House design. In addition, the Richmond Lions Manor replacement project was identified as a potential pilot for integrating advanced design standards. The intention is to commission a detailed study during the Business Case stage of this project to explore the costs and benefits of pursuing Passive House Standard as compared to the LEED Gold baseline scenario.

In 2014 this target will be kept as it is considered a long range objective. Though challenging, this target is still deemed to be achievable by 2020 and thus will remain unchanged.

WATER CONSERVATION & RESTORATION

> Access to fresh water supplies is an increasingly large global challenge. That is why efficient water use through conservation, reuse and sustainable handling, results in greater fresh water security, reduced costs, and overall better quality of life.
>
> Eiselle Omampo,
> *Transportation Coordinator*

CONTEXT

Clean water is a critical element for human health. Though the Coastal British Columbia region largely does not currently have any critical supply issues with clean potable water, many parts of the world do have challenges obtaining enough clean water to support local economies and human health.

In 2013, the Lower Mainland Health Authorities combined, spent $4.8 million on water supplies to their various sites and facilities. This is a 10% increase in water cost, to the Health Authorities, from 2010. With municipalities expressing concerns over long term supplies and the likelihood of increased costs, it is very important that the Health Authorities take steps to decrease consumption and improve water efficiencies as much as possible. Committing to be global stewards of water use, hedging a growing demand and supply risk, and add an effort to be more fiscally responsible, water conservation is seen as a key focus area.

TOPIC GOAL

Reduce water consumption through mechanical improvements, behavioural change, and reuse measures.

2013 TARGETS & PROGRESS REPORT

ECONOMIC STEWARDSHIP

During the drier months, when demand on the water system is high, rates will increase by about 25%, to reflect the added cost of supplying water to the city.

City of Vancouver,
http://bit.ly/1pITw4R

ENVIRONMENTAL STEWARDSHIP

Canada's wasteful ways have set a bad example for the increasingly parched planet.

CBCNews "Canadians Waste Water Resources,
http://bit.ly/1jlceub

For more information on Water Conservation & Restoration please contact: **Glen Garrick,**
email: **glen.garrick@fraserhealth.ca**

1. 10% reduction in water consumption by2020 (based on 2010 baseline)

STATUS: The Lower Mainland Health Authorities have largely made strong progress towards reducing the amount of water it consumes. From a baseline year of 2010, Fraser Health (overall -6%) has seen large reductions at Surrey Memorial Hospital (-23%), Langley Memorial Hospital (-8%), and Ridge Meadows Hospital (-8%).

It was identified that replacing "once-through" cooling water condenser units for air cooled systems (ie. Refrigeration) is an efficient first step in reducing water consumption at sites. This was recently conducted at Delta Hospital.

Both Mission Memorial Hospital (+23%) and Eagle Ridge Hospital (+8%) have unfortunately seen large increases. Though further investigation is needed at Mission Memorial to determine the exact cause, a water audit recently conducted at Eagle Ridge identified water saving tactics such as more efficient spray nozzles in the kitchen, shower heads, toilets, and the replacement of the once through cooling water condensers for refrigeration.

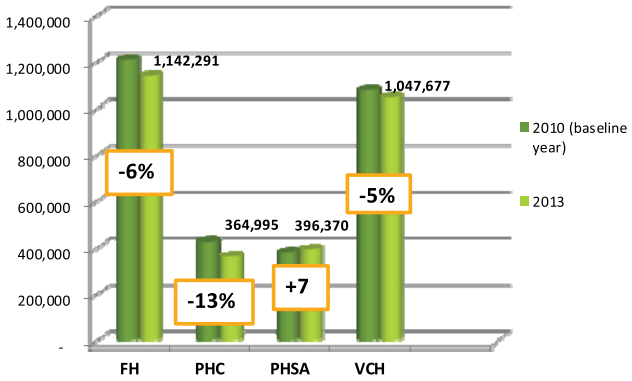
Vancouver Coastal Health (overall -5%) has seen large reductions at Vancouver General Hospital (-10%) and GF Strong (-9%). Lions Gate Hospital (+6%) remains a challenge. A water audit will be conducted at this location to determine opportunities to improve efficiencies and reduce the water consumption.

Providence Health Care (-13%) has realized water use efficiencies at Youville (-10%) and Mt. St. Joseph's Hospital (-8%). At Mt. St. Joseph's Hospital a new efficient boiler was put in place and is likely a big part of that sites reduction. Honoria Conway has unfortunately experienced a dramatic increase (+23%). Though the site needs a proper water audit, an initial investigation has led to the possibility that land scape irrigation may be a large part of the challenge at this location.

Provincial Health Services Authority has unfortunately experience an overall (+7%) in operational water consumption in 2013.

Sunnyhill Health Care Centre (+13%) and the BC Cancer Research Centre (+4%) water consumption remained high. Water audits at these locations have been planned and it is hoped opportunities for water conservation will be realized in 2014.

FIG 16. WATER CONSUMPTION (m3/yr)



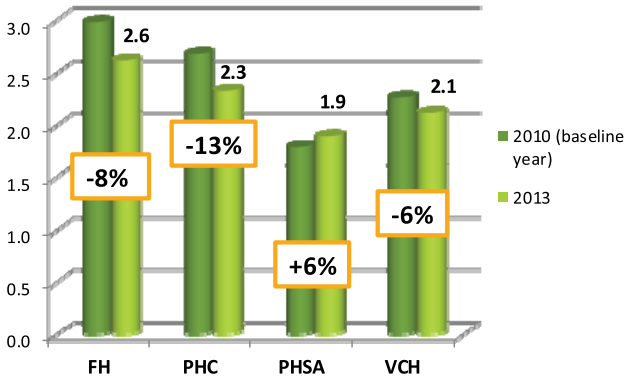
The Children's and Women's Hospital experienced (-10%) and the Vancouver Cancer Centre achieved a (-4%) of water consumption from the previous year. At the Children's and Women's Hospital corrections were made to landscaping irrigation, which resulted in a dramatic decrease in consumption.

In 2014, this target will remain as it continues to be relevant.

2. 20% reduction in water intensity (Building Water Performance Index (BWPI) (m3 / yr / m2))

STATUS: Despite staff and facility growth at most of the Health Authorities, overall the water use intensity continues to drop. Providence Health Care is leading the way with a 13% drop in consumption. Both Fraser Health and Vancouver Coastal Health continue to show strong leadership with 8% and 6% reductions in intensity.

FIG 17. BUILDING WATER PERFORMANCE INDEX (BWPI) (m3 / yr / m2)



In 2014, this target will remain as the health authorities continue to take water conservation steps to improve mechanical efficiencies and behaviours within their sites.

3. 10 new rainwater harvesting projects implemented by 2020

STATUS: Rainwater harvesting is seen as beneficial as it is easy to maintain, reduces water costs, and is suitable for irrigation. But rainwater harvesting is also seen as a challenge because it relies on unpredictable rainfall amounts, has high initial costs, and has storage limitations.

In 2012 the Jim Pattison Outpatient Care and Surgery Centre (JPOCSC) in Surrey implemented the first rainwater harvesting project within the Lower Mainland Health Authorities.

In 2013 the main goal was to monitor that water harvesting project to determine successes and challenges with implementing water harvesting within health care operations.

Though considered a success, several challenges were realized with the JPOCSC project. Most notably, the size of the water storage tank was determined to be under-estimated. It was recommended that future projects have larger capacity to ensure a longer use of stored rainwater.

In 2014, this target will be adjusted down to 5 to make it more realistic yet still a stretch target. The main challenge with implementing 10 new rainwater harvesting projects within health care is funding. External funding and partnerships will be sought to help achieve this target.

4. Four new grey water reuse projects implemented by 2020

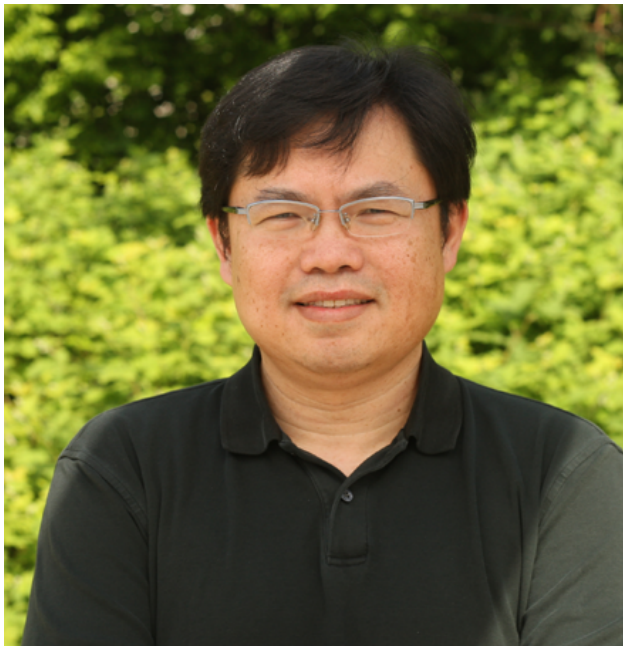
STATUS: Grey water reuse or recycling is seen as beneficial as it reduces the need for publically provided fresh water, reduces sewage / septic flows, and reduces the amount of energy needed to process grey water. Grey water reuse or recycling is seen as a challenge due to its high upfront costs, infrastructure changes, and negative perception.

To date, no grey water reuse projects have been implemented within health care sites across the Lower Mainland Health Authorities.

In 2014, this target will be adjusted to one new grey water reuse project implemented by 2020. Achieving one new grey water reuse project will require an external partner and associated external funding. In addition, a grey water reuse project will require infrastructure changes and a verification of its health and safety to patients and staff.

SUSTAINABLE SUPPLY CHAIN

> Integrating energy and environmental conservation principles within health care can dramatically improve the energy efficiencies and waste reduction within all health care sites. But the key to sustained change is to integrate energy efficiency and waste reduction into the policies, processes and contracts of the organization's procurement and supply chain."
>
> Jeson Mak,
> *Energy Coordinator*



CONTEXT

Supply chain sustainability is an organizational issue influencing the organization's suppliers as well as the logistics network. This, of course, is all in the context of environmental impact, risk, and waste costs.

Sustainability in the supply chain is considered by the Health Authorities as an essential aspect to establishing long-term efficiency.

Health Shared Services BC (HSSBC), a Division of the Provincial Health Services Authority (PHSA), does the majority of procurement for all the Health Authorities across British Columbia. HSSBC is a key stakeholder and has been instrumental in establishing supply chain sustainability. Their pursuit of creating sustainable supply chains and reducing waste is instrumental to achieving success.

The Energy and Environmental Sustainability team works with HSSBC to continue to reduce the organizations' waste and thus the environmental impact of health care related procurement and supplies.

TOPIC GOAL

For the Lower Mainland Health Care Organizations to become a Canadian leader in fostering healthy communities, workplaces and the ecosystems by leveraging the purchasing power of the health care system.

ECONOMIC STEWARDSHIP

Every time you spend money, you're casting a vote for the kind of world you want

Anna Lappé,
http://bit.ly/1ko277s

HEALTH & SOCIAL STEWARDSHIP

Often unknowingly, hospitals may purchase items that increase waste or have serious environmental impacts. Environmentally Preferable Purchasing is a system that identifies and avoids these problems. From eliminating unnecessary packaging, to seeking substitutes for products containing mercury or other toxic substances, purchasing decisions can have a major impact in providing health care without harm.

Health Care Without Harm,
http://bit.ly/1plNmll

For more information on Sustainable Supply Chain please contact: **Glen Garrick,**
email: **glen.garrick@fraserhealth.ca**

2013 TARGETS & PROGRESS REPORT

1. Reduce at source the volume of packaging waste entering the Healthcare system

STATUS: All health care generated packaging waste originally starts as a purchased product. That waste has an environmental impact as well as a financial (disposal) cost for the Health Authorities. Whereas the Zero Waste topic focuses on waste diversion (recycling), Sustainable Supply Chain focuses on reducing waste through purchasing products / materials with less packaging or obtaining products which are not single use devices (SUD).

HSSBC, Warehouse & Logistics, has initiated a wood pallet return program to reduce the number of pallets wasted and increase revenues from returned pallets. To date, the program has generated $40,000 for the Health Authorities.

In 2014 this target will be kept as it is seen as a large opportunity to reduce waste and save the Health Authorities money.

2. Reduce paper usage by digitizing files so that incoming and stored files are no longer produced and / or stored as paper. In 2013, this target will focus on Employee Records and Paystubs.

STATUS: The Health Authorities purchase, store and dispose of enormous amounts of paper each year. But technology can reduce this cost and waste by making documents digital.

In 2013 HSSBC Financial and Employee Services rolled out a paperless pay stub for PHSA. This will eliminate the need for paper pay stubs, which is a material cost and waste issue; and enable staff to access their data online. It is initially estimated that this project will save $60,000 per year just in paper costs.

HSSBC Employee Record's & Benefit's (ERB) completed their digitized file project in November 2013. This project digitized over 45,000 employee files for Providence Healthcare, PHSA, and Vancouver Coastal Health. This move to digitized documents reduces the need for paper (hard) copies and warehouse space to store such documents.

In addition, ERB is undergoing Phase II of a digitized file project with Iron Mountain, the company that currently stores paper files for the various Health Authorities. This project will allow HSSBC to reduce the use of five different locations and centralize files, which will allow for further digital creation and storage of files.

HSSBC Accounts Receivable has been involved in the continuous improvement of paper reduction including transforming paper reports to electronic reports and eliminating unnecessary reports where possible. In conjunction with paper-lite initiatives and refreshing instructions for double-sided printing, Accounts Receivable has reduced paper usage by over 50% compared to the prior year.

HSSBC Financial and Employee Services have digitized Payroll records. All future Payroll records will be digitized as well.

In 2014 this target will continue as many opportunities remain for reducing paper consumption and waste through digitization programs.

3. Make all electrical equipment and supplies purchased by the Healthcare Organizations "Energy Star" certified

STATUS: ENERGY STAR is a voluntary program created to assist individuals and organizations reduce their energy costs and environmental impacts. The program identifies, recognizes through labeling, and promotes energy–efficient products in order to reduce energy consumption, through efficiencies, for users.

In 2014 this target will be redefined due the fact that energy Star products have either become prevalent throughout many product lines, or are not applicable to medically specific equipment.

4. Include energy performance as additional relevant criteria in the selection of any type of equipment

STATUS: Establishing energy performance criteria for purchased equipment will ensure a level of energy usage efficiency needed to maintain the lowest energy usage possible.

In 2014 the HSSBC and the EES teams will re-evaluate this target to see if it continues to be relevant as stated or if it should be more specific to gain stronger efficiencies.

ZERO TOXICITY

> If we could create a health care system that is less toxic and gentler towards human and environmental health, shouldn't we? Be it cleaners, building materials, or simply the air quality, it is our goal to reduce toxic elements in our health care facilities.
>
> Alexandra Turnbull,
> *GreenCare Communications Coordinator*

CONTEXT

The Energy & Environmental Sustainability Team aims to reduce the risk to human and environmental health from the use of chemical toxins in health care operations.

Chemicals of concern include any substances, synthetic or naturally occurring, which have the potential to negatively impact human and environmental health.

The work towards Zero Toxicity takes a health and safety based approach to reduce, or eliminate the use (direct or indirect) of known chemicals of concern, and to encourage the appropriate usage and disposal of dangerous chemicals when safer alternatives are not available.

TOPIC GOAL

Reduce the use of toxic chemicals, materials, and known carcinogens within health care settings in the Lower Mainland (or "within Lower-Mainland health care operations).

HEALTH & SOCIAL STEWARDSHIP

Health care providers work every day to "first, do no harm" yet may inadvertently be affecting the health of patients, staff and the community through the selection and use of certain chemicals or products formulated with these chemicals.

Practice Greenhealth,
http://bit.ly/1s6y1iL

ENVIRONMENTAL STEWARDSHIP

Over the past century humans have introduced a large number of chemical substances into the environment. Some chemicals are useful but many are toxic and their harm to the environment and our health far outweighs their benefit to society.

Planet Agenda,
http://www.planetagenda.com/chemicals.htm

For more information on Zero Toxicity please contact: **Glen Garrick,**
email: **glen.garrick@fraserhealth.ca**

2013 TARGETS & PROGRESS REPORT

1. Zero use of mercury-based thermometers, thermostats, and blood pressure measuring machines within the Lower Mainland Health Authorities.

STATUS: Past progress with this target includes HSSBC's work to offer a program to exchange and replace mercury-based equipment. In addition, the EES team has conducted multiple "mercury free" take back programs during internal GreenCare fairs.

But identifying and replacing all relevant mercury based thermometers, thermostats, and blood pressure machines has been difficult. In 2013, work was done to establish a mercury reduction pilot project, which will be launched in collaboration with the Green+Leaders program in 2014.

In 2014 this target will be kept. Though the health authorities are no longer sourcing these older items, as new technology provides safer alternatives, it is believed that these items still exist as legacy supplies in various offices, clinics, and hospitals. Further audits and campaigns will continue until all these legacy products are removed from health care facilities.

2. 25% of use of "green" cleaners by staff

STATUS: Cleaning products designed to preserve human and environmental health by using only environmentally friendly ingredients are defined as "Green" cleaners. In a health care setting, these products need to maintain high standards of infection control, while reducing the patient and staff exposure to harmful chemicals linked to disorders in reproductive and respiratory systems, eye and skin irritants, and other negative health impacts.

Housekeeping services is currently out-sourced to various external vendors. These vendors have different methods of measuring and identifying green cleaners, which presents challenges for reporting and monitoring this target.

Infection control requirements often limit the transition to more environmentally friendly cleaners. However, as more research on safer alternatives becomes available, the Health Authorities are continuously evaluating and improving their cleaning practices in the context of reducing waste, risks to patients and staff, and the impact on the environment.

With the support of BISS, who manages housekeeping contracts, ongoing efforts are being made to determine a baseline for the use of green cleaners within health authority owned facilities. In 2014 this target will be kept as a common definition and baseline of "green" cleaners is established.

3. Zero use of cosmetic pesticides on Health Care property

STATUS: Over 2013, landscaping practices at several sites were analysed to determine the current pest management practices. In four cases, commitments were made to be pesticide / insecticide free.These four acute sites are Royal Columbian Hospital, UBC Hospital, Vancouver General Hospital, and St. Mary's Hospital.

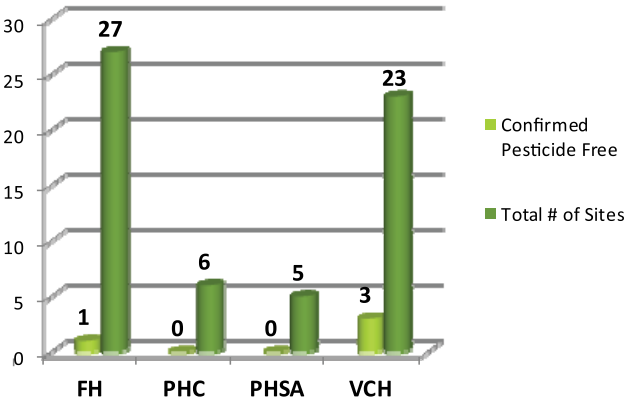
Royal Columbian Hospital (FH) maintains landscaping internally and employs integrated pest management practices, which rely on predation, parasitism, herbivory, or other natural mechanisms.

Some medical tubing may contain DEHP

In 2013, three sites at VCH were confirmed as pesticide / insecticide free. These sites are UBC Hospital, Vancouver General Hospital, and St. Mary's Hospital.

In 2014 this target will be kept. To date, no sites within PHC and PHSA have enough data to be declared pesticide / insecticide free. The EES team will continue to promote pesticide / insecticide free landscaping practices until all sites across the health authorities are declare free of this chemical based pest management approach.

FIG 18. CONFIRMED TOTAL NUMBER OF SITES THAT ARE PESTICIDE / INSECTICIDE FREE



4. Reduction of the usage of PVC, DEHP, and Brominated Flame Retardants

STATUS: Concerns with these products include:

Poly (vinyl) Chloride (PVC) comes in rigid and flexible states. Rigid PVC is used in construction pipes and profile applications in doors and windows. In a flexible state, PVC is used in plumbing, electrical, signage, and other uses. Dioxin, a known human carcinogen, is created in the manufacture or incineration of PVC. Both rigid and flexible PVC is used throughout our health care sites.

Di-(2-ethylhexyl) phthalate (DEHP) is known to have a range of adverse health effects most notably on small children. DEHP is used to soften PVC plastic and can leach out in use. DEHP is found in a majority of various bags and tubing used in health care. Medical device suppliers are voluntarily changing over a lot of their medical products to DEHP free.

It was determined that further analysis was needed to determine if DEHP was still a problem and if it should be discouraged or discontinued within health care.

Brominated Flame Retardants are found in a wide range of products such as IV pumps, televisions, computers, hospital beds, waiting-room chairs, and hospital privacy curtains.

Halogenated organic compounds generally have limited biodegradability and tend to accumulate in the environment as it leaches into the soil, plant and animal life.

Studies have indicated that toxic flame-retardant chemicals (polybrominated diphenyl ethers, or PBDEs) may cause neurodevelopmental delays, cancer, and fertility and thyroid problems.(EPA, http://1.usa.gov/1rllrSK)

In 2014 the EES team will continue to investigate these chemicals / products of concern. Specifically:

PVC: The EES team will work with Facilities Planning and Operations to determine current practices and possible alternatives to using PVC containing products.

DEHP: The EES team will work with HSSBC to determine the products, still in use containing DEHP. Alternative products will then be identified and encouraged.

Brominated Flame Retardants: The EES team will work with Facilities Planning and Operations to identify and reduce the risk associated with Brominated Flame Retardants.

HEALTHY LAND AND FOOD

> Bringing gardens and plants back into the design of health care facilities is supported by a growing body of evidence that demonstrates the benefit to patients and the health care system as a whole. Health outcomes across a variety of indicators including length of stay, reported satisfaction with healthcare services, and cost to deliver patient care are all improved when we take a more holistic approach to care."
>
> Alex Hutton,
> *Energy Manager*

CONTEXT

While often taken for granted, land use has a significant impact on social, environmental, and community health. In particular, the connection between urban land uses and food security has led to promoting both environmental and human health.

Through the topic area of "Healthy Land & Food" we recognize that health care operations have an opportunity to strengthen and promote the connection between land and food. This leads to the improved health of the environment, of our staff and our patients.

Population Health and BISS are instrumental in food management issues involving the health care sites and the surrounding community.

TOPIC GOAL

Promote the connection between food, food system sustainability, and prevention-based health care. Promote the connection between land, land use sustainability, and prevention-based health care.

HEALTH & SOCIAL STEWARDSHIP

Research confirms that community gardens can play a significant role in enhancing the physical, emotional and spiritual well-being necessary to build healthy and socially sustainable communities.

Designing Healthy Communities,
http://bit.ly/TKFGDT

ENVIRONMENTAL STEWARDSHIP

All aspects of the food system, including how food is grown, processed, packaged, transported, and consumed, have implications for the health of individuals, communities, and the environment.

New England Healthy Food in Health Care Project,
http://bit.ly/1oUWcLo

For more information on Healthy Land and Food please contact: **Glen Garrick,**
email: **glen.garrick@fraserhealth.ca**

A resident at the George Pearson Centre takes a moment to tend to the onsite community garden.

2013 TARGETS & PROGRESS REPORT

1. Define and adopt a "local food" policy for the LM HAs

STATUS: In 2013, the Environmental Sustainability Advisory Committee, representing FH, PHC, PHSA, and VCH, finalized a joint agreement on food purchasing in context of locally sourced food.

The joint agreement stated: "The definition of "local" can be seen through regional (kilometer radius), ecological (local ecological food shed), and geo-political (Provincial borders) points of view. The Lower Mainland Health Authorities will define "local" as a final product being produced and / or processed within the borders of British Columbia."

In 2014 this target will be replaced as it was fully achieved in 2013.

2. Introduce three new community and/or patient-run garden projects on health care property by 2015

STATUS: In 2013 PHSA created one new garden space at B.C. Children's and Women's hospital in Vancouver. Since 2010, a total of five gardens have been created across PHSA (BC Children's), PHC (St. Paul's Hospital), and VCH (George Pearson Centre, Lions Gate Hospital, Three Bridges Community Health Centre).

A lease agreement to implement future garden related partnerships has been developed

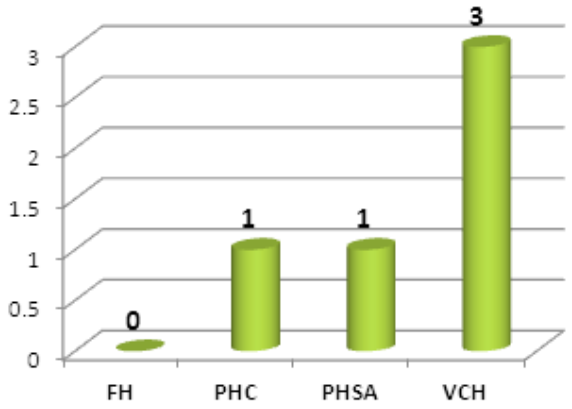
In 2014 this target will remain as more open land space is identified for the possible development of 3rd party or staff run community garden / urban agriculture, or therapeutic garden space.

3. Where applicable, promote the inclusion of green spaces within health care property in major renovations and long term master planning projects.

STATUS: The Energy and Environmental Sustainability team has worked with Facilities planning in creating more green spaces in and around the health care sites across the lower mainland.

In 2014 this target will be reframed to be more project specific with distinct and measurable deliverables.

FIG 18. TOTAL NUMBER OF COMMUNITY OR THERAPEUTIC GARDENS ON HEALTH CARE OWNED PROPERTY



TRANSPARENT REPORTING

> Transparency is critical to building trust with our stakeholders. It also provides us with an opportunity to ensure our energy projects are meeting targets and achieving the anticipated cost savings. Our patients, staff, stakeholders and administrators expect, and deserve, clear and transparent reporting."
>
> John Manougian,
> *Energy Manager*

CONTEXT

Performance reporting has been an important element of determining success and opportunities. In order to raise greater awareness, create dialogue, and establish benchmarking, targets, and milestones, the EES team is adopting transparent reporting as one of its ten focus areas for transforming health care into a more sustainable organization.

The EES team has strategized to provide five types of transparent reporting. These reports are stated as targets.

The EES team is using the following strategy in their reporting:

- State clear objectives in reporting
- Developed meaningful metric
- Provide the right information
- Engage the right stakeholders
- Present the information in the right format
- Present the information in a timely manner
- Present the information at an appropriate frequency

ECONOMIC STEWARDSHIP

In both industrialized and developing economies thousands of companies are reporting their sustainability performance as companies and their investors, customers, and employees have discovered the value of transparency for business, markets, and communities.

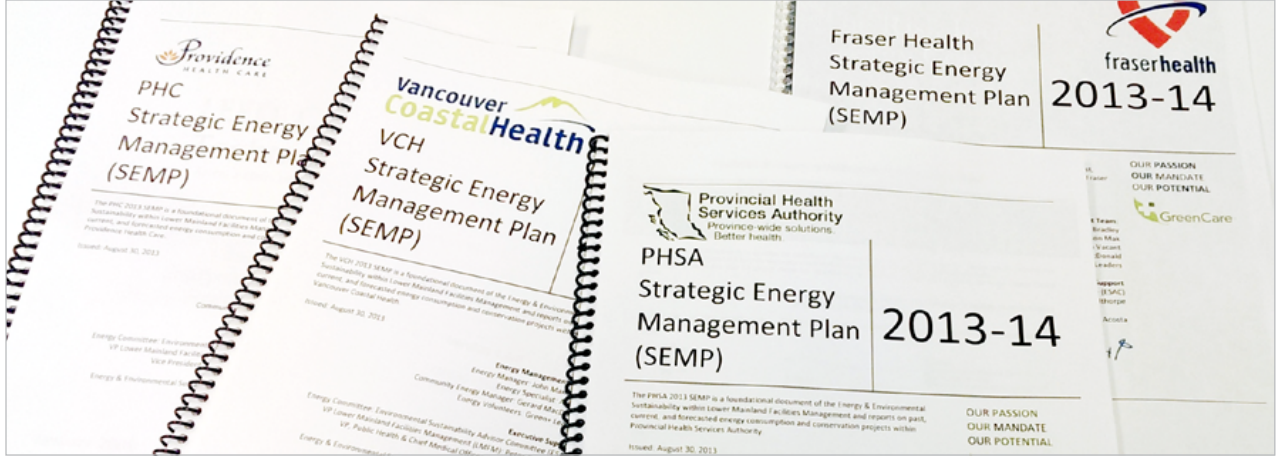
UNEP,
http://bit.ly/1uZ1usS

ENVIRONMENTAL STEWARDSHIP

You can't know about a company's sustainability without transparency.

Forbes,
http://onforb.es/1xJV1nX

For more information on Transparent Reporting please contact: **Glen Garrick,**
email: **glen.garrick@fraserhealth.ca**



The various 2013 reports are located on the following link:

https://bcgreencare.ca/resources/field_resource_topic_areas/transparent-reporting-24

TOPIC GOAL

Provide results orientated work reports on Carbon, Energy, and overall Sustainability that are routine, transparent, engaging, and open for dialogue.

2013 TARGETS & PROGRESS REPORT

- Publish an annual Carbon Neutral Action Report (CNAR)(required)
- Publish an annual Environmental Accountability Report (EAR)(voluntary)
- Publish an annual Strategic Energy Management Plan (SEMP)(voluntary)
- Publish an Energy Management Assessment (EMA)(voluntary)
- Prepare and present quarterly BC Hydro Quarterly Energy Reports (required)

The Carbon Neutral Action Report (CNAR) is a provincially mandated report on the carbon footprints of various health care organizations. It is a measure of the organizations efforts to reduce and offset that footprint and achieve carbon neutrality from year-to-year. The B.C. government provides a resource "SmartTool" to help the organizations calculate their carbon footprint. The CNAR contains the historical and current carbon footprint, and costs data.

The Environmental Accountability Report (EAR) is voluntarily produced to provide a de facto annual environmental sustainability report for the health care organizations. The goal is to assess and report on our environmental performance as they relate to our goals and targets within our strategic framework.

The Energy Managers produce a **Strategic Energy Management Plan (SEMP)** to encapsulate all the key elements influencing energy usage, reporting, conservation, and reduction efforts within the various organizations. The SEMP report is a comprehensive foundational document that guides the energy management within each organization.

BC Hydro has provided an **Energy Management Assessment (EMA)** tool to help Energy Managers assess the organizations' strategies around energy management. These assessments bring in key internal stakeholders like Chief Financial Officers, Chief Operations Officers, Executive Directors, and Managers to discuss organizational performances and challenges. The EMA report is produced every two years.

In order to help manage customers with high levels of energy consumption and associated funded Energy Managers, **BC Hydro has mandated Quarterly reports**. The Energy Managers for FH, PHC / PHSA, and VCH prepare quarterly presentations to communicate accomplishments, challenges, and opportunities within energy management at the various health care sites.

FIG 19. TRANSPARENT REPORTING (Checklist)

	2009	2010	2011	2012	2013
Carbon Neutral Action Report (CNAR)		X	X	X	X
Environmental Accountability Report (EAR)				X	X
Strategic Energy Management Plan (SEMP)	X	X	X	X	X
Energy Management Assessment (EMA)	X		X		X
BC Hydro Quarterly Reports	X	X	X	X	X

In 2014 this reporting structure will remain unchanged. The EES team feels this collection of reports communicates and promotes data transparency, and establishes goals and a vision for the future.

ASSURANCES AND RESOURCES

ASSURANCES

Internal Assurance

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

The EES group uses a data base, run by eFactor, to capture and analyze all utility data. Zero Waste data is kept by BISS and the EES Recycling Coordinator.

The EnergyStar data base and SoFI utility data tracking software packages are currently being tested out and will likely add another element of internal assurance once fully functional.

External Assurance

The Carbon Neutral Action Reports (CNAR) is verified through an internal and external assurance process. This assurance is subject to external audits by an independent third party. In 2012 for VCH and 2013 for FH, Deloitte reviewed and verified the internal assurances process as being transparent and accurate.

STRATEGIC PARTNERS

BC Hydro; http://www.bchydro.com/

FortisBC; http://www.fortisbc.com

Healthier Hospitals Initiative; http://healthierhospitals.org/

LOWER MAINLAND HEALTH CARE ORGANIZATIONS

Provincial Health Services Authority; http://www.phsa.ca

Fraser Health; http://www.fraserhealth.ca

Vancouver Coastal Health; http://www.vch.ca/

Providence Health Care; http://www.providencehealthcare.org

GreenCare Community; www.bcgreencare.ca

EXTERNAL RESOURCES

LiveSmart BC: 2010 Carbon Neutral Action Reports: Health Authorities; http://www.livesmartbc.ca/government/carbon_neutral/health_authorities.html

Bill 44 – 2007; Greenhouse Gas Reduction Targets Act; http://www.leg.bc.ca/38th3rd/1st_read/gov44-1.htm

Canadian Coalition for Green Health Care; http://www.greenhealthcare.ca/

ASHRAE 189.1 standard for new buildings and renovations; http://www.ashrae.org/resources--publications/bookstore/standard-189-1

Practice GreenHealth; https://practicegreenhealth.org/

Health Care Without Harm; https://noharm.org/

Canadian Association of Physicians for the Environment (CAPE); http://cape.ca/

Canadian Green Building Council (CaGBC); http://www.cagbc.org/

International Living Future Council; https://ilbi.org/lbc

2013 Carbon Neutral Action Reports

Lower Mainland Facilities Management

- **FRASER HEALTH** Carbon Neutral Action Report
- **PROVIDENCE HEALTH CARE** Carbon Neutral Action Report
- **PROVINCIAL HEALTH SERVICES AUTHORITY** Carbon Neutral Action Report
- **VANCOUVER COASTAL HEALTH** Carbon Neutral Action Report

The following reports contain the 2013 CO2 emissions profiles, offsets purchased, the actions taken in 2013 to reduce GHG emissions and the plans to continue reducing emissions in 2014 and beyond.

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Providence HEALTH CARE
How you want to be treated.

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

Vancouver CoastalHealth
Promoting wellness. Ensuring care.

fraserhealth Better health. Best in health care.

2013 Carbon Neutral Action Report

Fraser Health Authority

Executive Summary

Dr. Nigel Murray

President and Chief Executive Officer

I am proud to introduce our 2013 Carbon Neutral Action Report.
In accordance with the greenhouse gas reporting scope given to Fraser Health by the British Columbia Climate Action Secretariat, Fraser Health has now achieved carbon neutrality for four consecutive years.

In 2013 Fraser Health's adjusted carbon footprint offset was 39,754 tonnes of carbon dioxide equivalent (tCO_2e), which means we have been responsible for offsetting over 150,000 tonnes of CO2 gas over the last four years, while achieving carbon neutrality.

Fraser Health serves a growing population which will naturally need more services and facility space; resulting in an increased carbon footprint. To combat this, we have implemented various initiatives, including nine energy conservation projects. These nine projects have potential energy savings of 3.8 equivalent gigawatt hours (eGWh), resulting in a greenhouse gas reduction of 479 tCO_2e and a cost avoidance of $175,000.

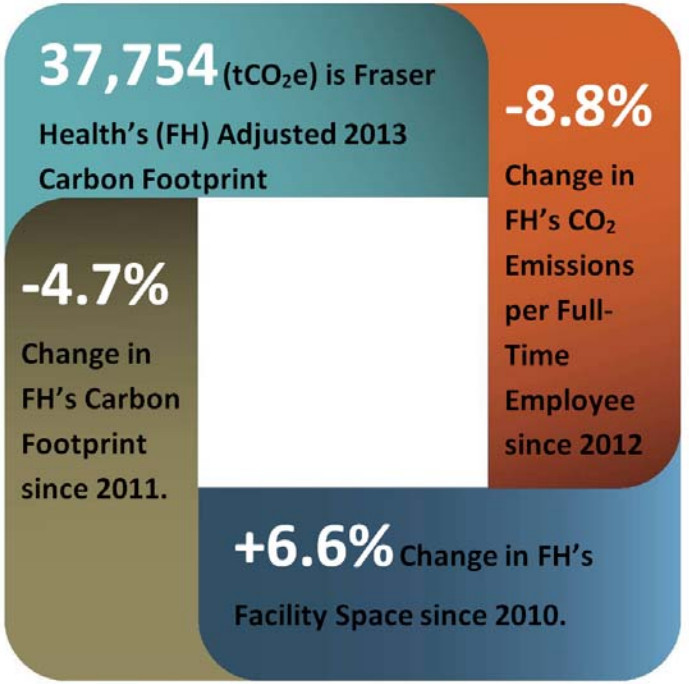
FH is committed to reducing its carbon and environmental footprint in 2014. A further 16 energy conservation projects will be implemented across Fraser Health. This will result in a further reduction of 5eGWh and associated savings.

I would like to congratulate everyone that was involved in helping to reduce our environmental footprint. Our communities are healthier because of this work.

Fraser Health's GHG Emissions and Offsets for 2013 (tCO_2e)

GHG Emissions created in calendar year 2013	
Total Emissions	*40,073*
Total Emissions for Offsets	*40,055*
Adjustments to GHG Emissions Reported in Previous	
Total Emissions	*-301*
Total Emissions for Offsets	*-301*
Credit owing from PCT at end of 2012 reporting year	
Credit Owing	*0*
Total Emissions for Offsets for the 2013 Reporting Year:	*39,754*

Table 1



Our CO_2 Footprint

2013 GREENHOUSE GAS EMISSIONS BREAKDOWN AND OFFSETS APPLIED TO BECOME CARBON NEUTRAL

Fraser Health 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 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 2013 Carbon adjusted Footprint offset was 39,754 tonnes of carbon dioxide equivalent (tCO_2e?). That represents a 6.2% increase in the carbon footprint offset since 2010. Over 96% of Fraser Health's in-scope emissions are attributed to our building portfolio.

To become carbon neutral in 2013, Fraser Health purchased carbon offsets from the Pacific Carbon Trust at a total cost of $1,043,543.

CHANGES TO FH PORTFOLIO AND WEATHER ADJUSTMENT

Fraser Health continues to grow and offer more services to a growing lower mainland population. Fraser Health's "useable" facility space and FTEs has grown by 7% since 2010.

The vast majority of Fraser 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 90% of the total building emissions.

fraserhealth
Better health. Best in health care.

Definition and Implications

In accordance with CNGR, the Climate Action Secretariat of British Columbia has outlined the types and sources of emissions that are in scope and which are out of scope.

All Health Authorities are required to report emissions from buildings (direct combustion, indirect purchased electricity, & fugitive emissions from HFC's), fleet, and paper.

In Scope

Six Green House Gases are in scope for measuring & reporting:

Carbon Dioxide - CO_2
Methane - CH_4
Nitrous Oxide - N_2O
Sulphur Hexaflouride - SF_6
Per fluorocarbons - PFCs
Hydro fluorocarbons - HFCs

Out of Scope

All other GHG gases are considered out of scope

The carbon emissions reported are not adjusted for changes in climate temperatures. Adjustment for temperatures would have an effect on the total emission and reduce the emissions per m² of usable floor space in 2013 to level slightly below that of 2010

BUILDINGS, FTE AND WEATHER	2010	2011	2012	2013
Distinct FHA Buildings	132	143	149	150
% Owned	82%	82%	82%	82%
% Leased	18%	18%	18%	18%
Usable Square Meters	667,654	677,965	686,512	711,701
Full-Time Employee Equivalents	13,626	14,900	13,660	14,539
Weather (summarized in Heating Degree Days) [1]	2,617	2,982	2,855	2,823

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

TABLE 2

Actions Taken To Reduce Our CO_2 Footprint

2013 LIST OF ACTIONS TAKEN TO REDUCE CO_2 FOOTPRINT

Stationary Fuel Combustion, Electricity (Buildings)

- Various energy retrofits have been

	Our Carbon Footprint (in tCO2e)	2010	2011 [2]	2012 [2]	2013
CO^2	Mobile Fuel Combustion (Fleet & other mobile equipment)	126	139	96	126
	Stationary Fuel Combustion & Electricity (Buildings)	36,233	40,501	40,190	38,626
	Supplies (Paper)	1,056	1,081	1,065	1,320
	Emissions Which Do Not Require Offsets [1]	0	-11	-11	-17
	Total Carbon Footprint (tCO2e)	37,415	41,710	41,340	40,055
	Adjustments / Corrections To Previous Years	0	0	0	-301
	Carbon Footprint (needing offsetting) in tCO2e	**37,415**	**41,710**	**41,340**	**39,754**
$	Purchased Carbon Offsets [2]	$ 933,720	$ 980,975	$ 1,052,650	$ 993,850
	Purchased Carbon Offsets +HST / GST	**$ 1,045,947**	**$ 1,098,692**	**$ 1,105,283**	**$ 1,043,543**
KPI	Emissions per Full-Time Employee	2.75	2.80	3.03	**2.76**
	Emissions per Meter Square Facility Space	0.056	0.062	0.060	**0.056**

[1] Biomass Emissions that do not require offset.

[2] Carbon Footprint adjusted in 2010, 2011 and 2012 and correction applied in 2013.

TABLE 3

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carried out in 2013. Resulting in energy savings of 13,735 GJ (3.84 eGWh) and GHG savings of 479 tCO2e.

- Over 40 optimization energy conservation measures implemented at Royal Columbian, Burnaby and Delta Hospitals as part of the BC Hydro Continuous Optimization program.

- Developed a strategy to improve engagement with Facilities Maintenance and Operations (FMO) staff with a focus on understanding the energy building use, identifying reduction opportunities and the optimization of existing equipment/plant.

- 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 awareness and behaviour change programs, such as Green+Leaders, GreenCare Community website and the BC Hydro Workplace Conservation Agreement program.

Mobile Fleet Combustion (Fleet and other vehicles)

- 44 Electric Vehicle charging stations installed across 6 core FH sites.
- A record 98 FH staff participated in the 2013 Clean Commuter Challenge (CCC), which is a campaign to get staff out of there single occupancy vehicle commuting.

Supplies (Paper)

- The Green+Leaders (G+L) behaviour change program recruited 13 more volunteers in the fall of 2013 and now there are 68 volunteers in FHA. As part of the paper/waste reduction campaign the volunteers were supplied with Paperless Meeting Toolkits to encourage their colleagues to reduce paper use.
- Our online GreenCare Community (GCC) site provides tips and toolkits on using less paper, such as promoting paperless meetings.

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

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- Virtual Meeting Technology has been implemented at various sites
- Installed web-conferencing software
- 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

2014 WORK TO REDUCE THE ORGANIZATION'S CO_2 FOOTPRINT

FHA plans to continue reducing GHG emissions and Energy use by:

- Implementing GHG/Energy reduction retrofit projects in our existing building portfolio.

- Optimizing the mechanical plant and controls in our existing building portfolio.
- 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 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

There have been many success stories in 2013 at Fraser Health in relation to Carbon Neutral Actions, but the one that stands out as a major success is the Continuous Optimization (C.Op.) program at Burnaby Hospital. By the time we commenced the investigation phase of the BC Hydro sponsored C.Op. program at this site, we had already seen good energy/GHG emission saving results from our pilot sites (Peace Arch and Langley Memorial Hospitals). So, it was no surprise when the engaged Consultant produced a thorough investigation report, and identified a very large number of potential Energy Conservation Measures (ECM) for Burnaby Hospital.

The investigation phase was completed and approved in 2012 and as part of the program we had until March 2014 to implement the 29 approved ECM. In addition to these approved ECM, the Consultant with great support for the Facilities Maintenance and Operations (FMO) staff identified a number of non C.Op. measures. With awesome collaboration from the key stakeholders, including the Consultant, Contractor, FMO and the Energy Team, all the ECMs were implemented in 2013 well before the March 2014 deadline.

The annual energy and GHG emission savings from the C.Op. initiatives are estimated to be in the region of 3,500 GJ and 122 tCO_2e respectively. From reviewing our energy use database at the end of the 2013 calendar year, we virtually achieved these savings even though some of the ECMs were only implemented in the last 6 months of the calendar year!

The energy use at Burnaby Hospital has dropped by 14% since the 2007 base year and this equates to an approximate GHG emissions reduction of 562 tCO_2e.

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2013 Carbon Neutral Action Report

Providence Health Care

Providence Health Care GHG Emissions and Offsets for 2013 (tCO_2e)	
GHG Emissions created in calendar year 2013	
Total Emissions	*11,748*
Total Emissions for Offsets	*11,743*
Adjustments to GHG Emissions Reported in Previous	
Total Emissions	*38*
Total Emissions for Offsets	*38*
Credit owing from PCT at end of 2012 reporting year	
Credit Owing	*0*
Total Emissions for Offsets for the 2013 Reporting Year:	*11,781*

Table 1

Executive Summary

Dianne Doyle

President

I am pleased to present the 2013 Providence Health Care (PHC) Carbon Neutral Action Report (CNAR).

At PHC, we believe an ethically responsible organization is one that lives its deeply held values. One of our six organizational values is stewardship, which we define as having accountability for the well-being of our community. An important way we put this value into action is by preserving natural and environmental resources.

PHC firmly believes that environmental stewardship starts with taking responsibility for the carbon footprint our operations and facilities produce.

In 2013 PHC had a carbon footprint of 11,781 eCO_2t, which was offset at a cost of $309,251.

In 2014 we will continue to learn and implement even better ways to reduce our environmental footprint while doing our part to improve human and environmental well-being.

Our CO_2 Footprint

2013 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 2013 Carbon footprint is 11,781 tCO_2e, a 5% decrease compared to 2012.

Emissions per PHC full-time employee (FTE) was 2.41 tCO_2e in 2013, which is a decrease of 9% since 2010.

To become carbon neutral in 2013, PHC purchased carbon offsets from the Pacific Carbon Trust at a total cost of $309,251.

CHANGES TO FACILITY SQUARE FOOTAGE AND WEATHER ADJUSTMENT

PHC's useable facility space has decreased 2% since 2010, despite a 13% increase in full time equivalent staff needed to serve a growing population and associated demand for health care services. As such, with increased intensity of use in the buildings it is not surprising that total emissions have increased almost 4% since 2010.

The carbon emissions reported are not adjusted for annual variations in weather. Adjustment for weather would result in 2013 emissions per unit of floor space being slightly below that of 2010.

Providence HEALTH CARE
How you want to be treated.

Definition and Implications

In accordance with CNGR, the Climate Action Secretariat of British Columbia has outlined the types and sources of emissions that are in scope and which are out of scope.

All Health Authorities are required to report emissions from buildings (direct combustion, indirect purchased electricity, & fugitive emissions from HFC's), fleet, and paper.

In Scope

Six Green House Gases are in scope for measuring & reporting:

Carbon Dioxide - CO_2
Methane - CH_4
Nitrous Oxide - N_2O
Sulphur Hexafluoride - SF_6
Perfluorocarbons - PFCs
Hydrofluorocarbons - HFCs

Out of Scope

All other GHG gases are considered out of scope

Actions Taken To Reduce Our CO_2 Footprint

2013 LIST OF ACTIONS TAKEN TO REDUCE CO_2 FOOTPRINT

Stationary Fuel Combustion, Electricity (Buildings)

PHC completed 1 energy savings project in 2013:

- New LED Lighting at the Corp. Office (1125 Howe Street).

This project is projected to achieve a total **estimated savings of 93,000 kWh of electricity, 2.3 (tCO_2e) of carbon and the cost avoidance of $6,000 / year.**

Mobile Fleet Combustion (Fleet and other vehicles)

PHC installed 52 electric vehicle charging stations at St. Paul's

BUILDINGS, FTE AND WEATHER	2010	2011	2012	2013
Distinct PHC Buildings	35	39	37	40
% Owned	94%	93%	93%	91%
% Leased	6%	7%	7%	9%
Usable Square Meters	182,161	182,994	176,186	179,222
Full-Time Employee Equivalents *	4,311	4,627	5,026	4,882
Weather (summarized in Heating Degree Days) [1]	2,853	2,963	2,874	2,828

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

Table 2

	Our Carbon Footprint (in tCO2e)	2010	2011 [2]	2012	2013
CO^2	Mobile Fuel Combustion (Fleet & other mobile equipment)	15	21	47	47
	Stationary Fuel Combustion & Electricity (Buildings)	11,266	11,886	12,056	11,441
	Supplies (Paper)	70	72	271	260
	Emissions Which Do Not Require Offsets [3]	0	-4	-7	-5
	Total Carbon Footprint (tCO2e)	11,351	11,975	12,367	11,743
	Adjustments / Corrections To Previous Year's Data	0	0	0	38
	Carbon Footprint (needing offsetting) in tCO2e	**11,351**	**11,975**	**12,367**	**11,781**
$	Purchased Carbon Offsets [4]	$ 283,767	$ 299,375	$ 309,575	$ 294,525
	Purchased Carbon Offsets +HST / GST	**$ 317,819**	**$ 335,300**	**$ 325,054**	**$ 309,251**
KPI	Emissions per Full-Time Employee	2.63	2.59	2.52	2.41
	Emissions per Meter Square Facility Space	0.06	0.07	0.07	0.07

[1] It was estimated that Fugitive Emissions from cooling equipment comprise less then 0.01% of Providence Health's total emissions and an ongoing effort to collect or estimate emissions from this source would be disproportionately onerous. For this reason, emissions from this sourc have been deemed out-of-scope and have not been included in our total greenhouse gas emissions profile.

[2] Carbon Footprint adjusted for 2011 in 2012, due to building data corrections from the Climate Action Secretariat.

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

[4] Purchased Carbon Offsets for 2012 include Carbon Footprint adjustment for 2011, due to building data corrections from the Climate Action Secretariat.

Table 3

Providence HEALTH CARE
How you want to be treated.

Hospital, which is located downtown Vancouver on the West End.

A record 95 PHC staff participated in the 2013 Clean Commuter Challenge (CCC), which is a campaign to get staff out of there single occupancy vehicle commuting.

Supplies (Paper)

The Green+Leaders (G+L) behaviour change program recruited 3 new PHC volunteers in the fall of 2013. This program now has volunteers across all the lower mainland Health Authorities.

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.

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

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

- Encouraged the use of the internally organized Jack Bell shuttle when traveling between 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.
- 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 CO_2 FOOTPRINT

In **2014** 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 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.

Providence HEALTH CARE
How you want to be treated.

SUCCESS STORY

Energy Management

Success in energy management builds over time and is contingent upon collaboration between various different people and departments within the health organizations.

Energy Management includes progressively looking for opportunities install or retrofit to more energy efficient lighting within PHC facilities.

One success story at PHC from 2013, in relation to Carbon Neutral Actions, is the LED Lighting that was installed at 1125 Howe Street as part of a tenant improvement project within that site / building.

Some events prior the project at 1125 Howe Street that led towards this success as outlined to show the full trajectory. A previous tenant improvement project at 1795 Willingdon Avenue that was managed by the same Project Manager (Rob Kolen) had been allocated a specific budget for energy conservation measures, due to a proactive approach of the Lower Mainland Facilities Management Executive Sponsor (Alan Grossert). As a result, PHC's new Energy Manager (Alex Hutton) collaborated with Rob Kolen to explore some potential energy conservation measures, some of which were successfully implemented.

PHC took over an additional two floors within the 1125 Howe building and needed to substantially upgrade the interiors prior to moving in. When Rob took on the role of Project Manager for the tenant improvement project he proactively engaged the Energy Manager to explore possible opportunities.

Energy saving features

A more energy efficient lighting strategy was implemented which included linear LED lighting resulting in estimated annual energy savings of 94,000 kWh, a reduction of 2 tCO_2e carbon, and $6,000/year in avoided energy costs. The overall project was completed on time and on budget.

The $26,000 incentive from BC Hydro (anticipated to be received within weeks, pending the final site visit) will be used to support future energy conservation projects.

The benefits of these collaborative connections did not stop there. Rob and Alex have also collaborated on an LED Demonstration project within the 520 West 6th Ave office (where many LMFM staff are located) in order to showcase and test the application of pendant style linear LED lighting.

2013 Carbon Neutral Action Report

Provincial Health Services Authority

Provincial Health Services Authority GHG Emissions and Offsets for 2013 (tCO_2e)	
GHG Emissions created in calendar year 2013	
Total Emissions	*20,815*
Total Emissions for Offsets	*20,805*
Adjustments to GHG Emissions Reported in Previous	
Total Emissions	*716*
Total Emissions for Offsets	*716*
Credit owing from PCT at end of 2012 reporting year	
Credit Owing	*0*
Total Emissions for Offsets for the 2013 Reporting Year:	*21,521*

Table 1

Executive Summary

Carl Roy

President and Chief Executive Officer

Provincial Health Services Authority (PHSA) strives to be leaders in providing better health and province wide solutions to meet today's health care challenges. It is with great pride, that I present PHSA's fourth annual Carbon Neutral Action Report (CNAR).

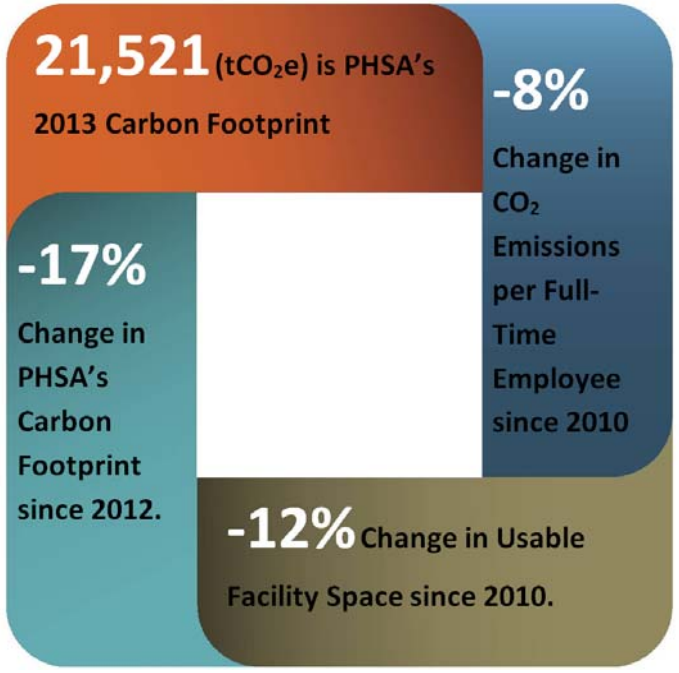
Taking responsibility for the organization's carbon footprint is one reason PHSA was named one of Canada's Greenest Employers in 2012 and 2013.

In 2013, PHSA had a carbon footprint of 20,805 tonnes of carbon dioxide equivalent (tCO2e), which was offset through Pacific Carbon Trust at a total cost of $564,926. This represents a 17 per cent decrease from the 2012 PHSA carbon footprint, and saved the organization more than $112,000 in carbon offset costs.

We decreased our carbon footprint by reducing steam usage at BC Cancer Research Centre as part of a recently completed energy conservation project at the site. We also decommissioned Riverview Hospital.

It is further estimated that the energy conservation projects completed in 2013 will reduce our energy consumption by 3.2 eGWH, and save PHSA $130,000 per year.

I look forward to again being named one of Canada's Greenest Employers as the organization continues to take firm steps to reduce its carbon and environmental footprint. The energy management team has nine projects in progress or pending, which are expected to achieve an additional 3.9 eGWh of estimated avoided energy consumption and $120,000 in energy savings.



Our CO_2 Footprint

2013 GREENHOUSE GAS EMISSIONS BREAKDOWN AND OFFSETS APPLIED TO BECOME CARBON NEUTRAL

Provincial Health Services Authority (PHSA) 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 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 2013 Carbon footprint was determined to be 21,521 tonnes of carbon dioxide equivalent (tCO_2e).

To become carbon neutral in 2013, PHSA purchased carbon offsets from the Pacific Carbon Trust at a total cost of $564,926.

CHANGES TO FACILITY SQUARE FOOTAGE AND WEATHER ADJUSTMENT

PHSA's useable facility space has decreased 12% since 2010, 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 7%. During this time, PHSA has controlled increases in facility space by seeking opportunities to optimize existing space use while maintaining safety and efficiency.

Since 2010, emissions per full-time employee at PHSA (2.05 tCO_2e/FTE) have decreased by 8%; however, emission per unit of floor area (0.061 tCO_2e/m^2) have increased 12%, suggesting that the intensity of space use has increased.

The carbon emissions reported are not adjusted for changes in weather.

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Definition and Implications

In accordance with CNGR, the Climate Action Secretariat of British Columbia has outlined the types and sources of emissions that are in scope and which are out of scope.

All Health Authorities are required to report emissions from buildings (direct combustion, indirect purchased electricity, & fugitive emissions from HFC's), fleet, and paper.

In Scope

Six Green House Gases are in scope for measuring & reporting:

Carbon Dioxide - CO_2
Methane - CH_4
Nitrous Oxide - N_2O
Sulphur Hexaflouride - SF_6
Per fluorocarbons - PFCs
Hydro fluorocarbons - HFCs

Out of Scope

All other GHG gases are considered out of scope

BUILDINGS, FTE AND WEATHER		2010	2011	2012	2013
Distinct PHSA Buildings		78	80	84	83
	% Owned	57%	57%	57%	68%
	% Leased	43%	43%	43%	32%
Usable Square Meters		389,883	392,728	400,444	342,311
Full-Time Employee Equivalents *		9,492	9,022	10,646	10,148
Weather (summarized in Heating Degree Days) [1]		2,853	2,963	2,874	2,828

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

Table 2

	Our Carbon Footprint (in tCO2e)	2010	2011 [2, 3]	2012 [2, 4]	2013
CO^2	Mobile Fuel Combustion (Fleet & other mobile equipment)	195	181	204	154
	Stationary Fuel Combustion & Electricity (Buildings)	20,079	22,302	24,609	19,890
	Supplies (Paper)	891	912	839	771
	Emissions Which Do Not Require Offsets [1]	0	-8	-10	-10
	Total Carbon Footprint (tCO2e)	21,165	23,387	25,642	20,805
	Adjustments / Corrections To Previous Year's Data	0	0	0	716
	Carbon Footprint (needing offsetting) in tCO2e	**21,165**	**23,387**	**25,642**	**21,521**
$	Purchased Carbon Offsets [2]	$ 617,907	$ 540,036	$ 644,750	$ 538,025
	Purchased Carbon Offsets +HST / GST	**$ 692,056**	**$ 604,841**	**$ 676,988**	**$ 564,926**
KPI	Emissions per Full-Time Employee	2.38	2.59	2.41	2.02
	Emissions per Meter Square Facility Space	0.069	0.060	0.064	0.063

[1] As outlined in the Carbon Neutral Government Regulation of the Greenhouse Gas Reductions Target Act, some emissions do not require offsets.
have been deemed out-of-scope and have not been included in our total greenhouse gas emissions profile.
[2] Carbon Footprint adjusted for 2011 in 2012, due to building data corrections from the Climate Action Secretariat.
3 Purchase Carbon Offsets for 2012 include Carbon Footprint adjustment for 2011, due to building data corrections from the Climate Action Secretariat.
[4] As outlined in the Carbon Neutral Government Regulation of the Greenhouse Gas Reductions Target Act, some emissions do not require offsets.

Table 3

Actions Taken To Reduce Our CO_2 Footprint

2013 LIST OF ACTIONS TAKEN TO REDUCE CO_2 FOOTPRINT

Stationary Fuel Combustion, Electricity (Buildings)

PHSA completed 3 energy savings projects in 2013:

- Coil Cleaning at the Children's and Women's Health Centre (CWHC) campus. Coil cleaning is an initiative to clean the heating and cooling coils within the mechanical systems that deliver fresh air to the building in order to improve indoor air quality and reduce

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energy consumption by improving heat transfer.

- Chilled Water Plant upgrades (Phase 1) at CWHC
- The implementation of optimization measures at BC Cancer Research Centre (BCCRC) as part of the BC Hydro and Fortis BC sponsored Continuous Optimization (C.Op.) program

These three projects are projected to achieve a total **estimated savings of 1.3 GWh of electricity, 6,700 gigajoules (GJ) of natural gas, 360 (tCO_2e) of carbon and $139,000.**

Mobile Fleet Combustion (Fleet and other vehicles)

PHSA installed 5 electric vehicle charging stations across 2 core sites: (CWHC) & Child & Family Research Institute (CFRI).

A record 145 PHSA staff participated in the 2013 Clean Commuter Challenge (CCC), which is a campaign to get staff out of there single occupancy vehicle commuting.

Supplies (Paper)

The Green+Leaders (G+L) behaviour change program recruited 16 new PHSA volunteers in the fall of 2013. This brings PHSA total to 71. This program now has volunteers across all the lower mainland Health Authorities.

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.

PHSA continues to support the GreenCare Community (GCC) website, which provides tips and toolkits on using less paper, such as promoting paperless meetings.

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

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

- Encouraged the use of the internally organized Jack Bell shuttle when traveling between 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.
- 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 CO_2 FOOTPRINT

In **2014** PHSA plans to continue reducing GHG emissions and Energy use by:

1. Implementing GHG/Energy reduction retrofit projects in our existing facilities.

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2. Optimizing the mechanical plant and controls in our 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.
6. Engaging with our external key stakeholders, such as utility partners, to identify energy reduction projects.
7. Engaging and educating our staff via the existing Green+Leaders program, GreenCare Community and the BC Hydro Workplace Conservation Agreement.
8. Building partnerships with our P3 partners to help them identify energy conservation opportunities.
9. Building partnerships with Cities and Municipalities to investigate District Energy Systems opportunities
10. Investigating renewable/clean cost effective energy solutions.

SUCCESS STORY

Alex Hutton, Energy Manager for PHSA, has laid a strong foundation for energy management in her first 2 years.

Energy Management

In 2013 PHSA had many success stories in reducing energy. In direct relation to Carbon Neutral Actions, the Continuous Optimization (C.Op.) program at the BC Cancer Research Centre (BCCRC) stands out as a major success.

This project stands out not just because of the significant energy savings, but also because of the level of engagement with the research staff, who occupy the building, as well as the degree of support from the Facilities Maintenance and Operations (FMO) staff. William Man (FMO Manager at BC Cancer Research Centre) and his team worked closely with the energy consultants on the implementation of the C.Op. program.

Energy saving features

The BCCRC maintenance staff worked with the consultant to identify an opportunity to reduce excess ventilation. Being a lab building high air change rates are required to balance the exhaust from fume hoods and biosafety cabinets. Through this project the general ventilation and exhaust rates were optimized to avoid wasting energy while maintaining safety and code requirements.
This project required a great deal of engagement with occupants and lab safety staff to gain full support for the ventilation optimization and explain how safety would be maintained.

The estimated annual savings, from this specific project, is approximately 0.88 GWh of electricity, 6,700 GJ of gas, 357 tCO_2e of carbon, and $100,000 in avoided energy costs.

After adjusting for weather variation, the steam use at BCCRC has reduced by 14% since the 2012 and this savings is attributed to this project.

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2013 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 2013 Carbon Neutral Action Report (CNAR).

This marks the 4th consecutive year Vancouver Coastal Health (VCH) has been carbon neutral.

Over those four years, VCH has offset a total of 184,950 tonnes of Carbon Dioxide equivalent (tCO_2e). 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 17 energy conservation projects, with a savings of 475 tCO_2e and $431,000, in 2013, and another 15 projects are planned for completion in 2014. These projects will achieve a savings of 876 tCO_2e and $447,000.

VCH is the only 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. In 2012 and 2013 the Green Fund will support the achievement of 7.1 gigawatt hours (GWh) of savings. In addition, the Green Fund, in 2014, will support energy conservation projects, which will save the organization 3.2 GWh.

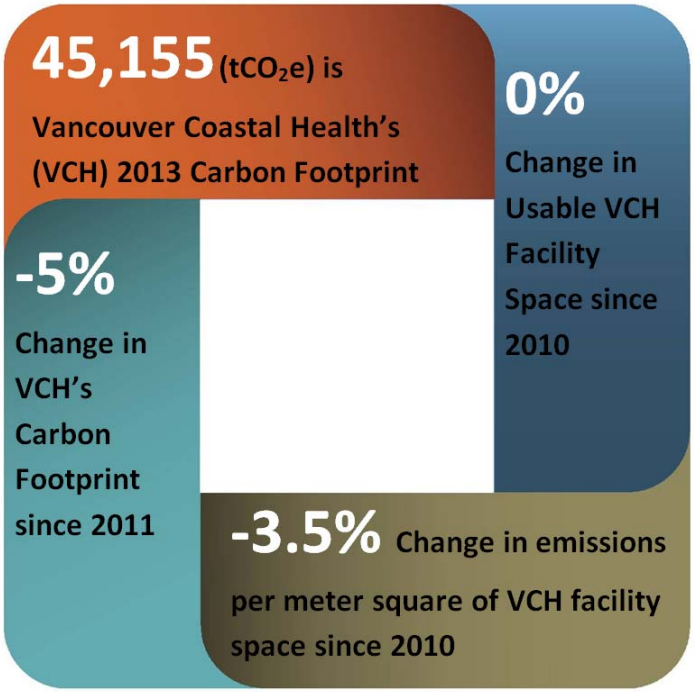
Lastly, I am proud to state that the new St. Mary's Hospital in Sechelt, seeking a LEED Gold rating, was built to be the Greenest Hospital in Canada. With 19-kilowatt photovoltaic solar panels on the roof, a geo-exchange energy system in the ground nearby, and a combination of green and white roofs, St. Mary's is projected to achieve 40% greater energy savings than other LEED Gold Hospitals.

As 2014 progresses, I will continue to support the innovation and entrepreneurialism, which drives VCH's commitment to reducing our carbon footprint.

Vancouver Coastal Health GHG Emissions and Offsets for 2013 (tCO_2e)

GHG Emissions created in calendar year 2013	
Total Emissions	*44,491*
Total Emissions for Offsets	*44,474*
Adjustments to GHG Emissions Reported in Previous	
Total Emissions	*681*
Total Emissions for Offsets	*681*
Credit owing from PCT at end of 2012 reporting year	
Credit Owing	*0*
Total Emissions for Offsets for the 2013 Reporting Year:	*45,155*

Table 1



Our CO_2 Footprint

2013 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 (tCO_2e). These gases are categorized in three main categories:

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

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VCH's 2013 Carbon adjusted footprint offset was 45,155 tonnes of carbon dioxide equivalent (tCO_2e). That represents a 5% decrease in the carbon footprint offset since 2011. Over 96% of Vancouver Coastal Health's in-scope emissions are attributed to the building portfolio.

To become carbon neutral in 2013, Vancouver Coastal Health purchased carbon offsets from the Pacific Carbon Trust at a total cost of $1,185,319.

CHANGES TO FACILITY SQUARE FOOTAGE AND WEATHER ADJUSTMENT

VCH has stabilized its growth over the last four years. VCH's "useable" facility space has hovered around 818,000 sq. meters and the Full-time equivalent staff population has maintained at around 13,600.

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 90% of the total building emissions,

The carbon emissions reported are not adjusted for changes in climate temperatures. Adjustment for temperatures would have an effect on the total emission and reduce the emissions per m^2 of usable floor space in 2013 to level slightly below that of 2010.

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Definition and Implications

In accordance with CNGR, the Climate Action Secretariat of British Columbia has outlined the types and sources of emissions that are in scope and which are out of scope.

All Health Authorities are required to report emissions from buildings (direct combustion, indirect purchased electricity, & fugitive emissions from HFC's), fleet, and paper.

In Scope

Six Green House Gases are in scope for measuring & reporting:

Carbon Dioxide - CO_2
Methane - CH_4
Nitrous Oxide - N_2O
Sulphur Hexaflouride - SF_6
Per fluorocarbons - PFCs
Hydro fluorocarbons - HFCs

Out of Scope

All other GHG gases are considered out of scope

BUILDINGS, FTE AND WEATHER	2010	2011	2012	2013
Distinct VCH Health Buildings	270	255	230	231
% Owned	81%	81%	81%	81%
% Leased	19%	19%	19%	19%
Usable Square Meters	817,753	816,880	812,792	818,097
Full-Time Employee Equivalents	13,600	12,936	13,293	13,596
Weather (summarized in Heating Degree Days) [1]	2,853	2,963	2,874	2,827

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

Table 2

Our Carbon Footprint (in tCO2e)		2010	2011 [2]	2012 [2]	2013
CO^2	Mobile Fuel Combustion (Fleet & other mobile equipment)	107	49	88	59
	Stationary Fuel Combustion & Electricity (Buildings)	44,973	46,040	45,135	43,570
	Supplies (Paper)	1,392	1,425	627	862
	Emissions Which Do Not Require Offsets [1]	-13	-12	-16	-17
	Total Carbon Footprint (tCO2e)	46,459	47,502	45,834	44,474
	Adjustments / Corrections To Previous Year's Data	0	0	0	681
	Carbon Footprint (needing offsetting) in tCO2e	**46,459**	**47,502**	**45,834**	**45,155**
$	Purchased Carbon Offsets [3, 4]	$ 1,147,124	$ 1,188,675	$ 1,142,350	$ 1,128,875
	Purchased Carbon Offsets +HST / GST	**$ 1,284,779**	**$ 1,331,316**	**$ 1,199,468**	**$ 1,185,319**
KPI	Emissions per Full-Time Employee	3.41	3.65	3.43	3.32
	Emissions per Meter Square Facility Space	0.057	0.058	0.056	0.055

[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] Purchased carbon offsets for 2011 include payment credit and space adjustments from 2010.

[4] Purchase Carbon Offsets for 2011 and 2012 include Carbon Footprint adjustment from 2010 and 2011, due to building data corrections from the Climate Action Secretariat.

Table 3

Actions Taken To Reduce Our CO_2 Footprint

2013 LIST OF ACTIONS TAKEN TO REDUCE CO_2 FOOTPRINT

Stationary Fuel Combustion, Electricity (Buildings)

VCH completed 17 energy savings projects in 2013 for a total estimated savings of **4.87 GWh of electricity, 6,901 GJ of natural gas, and a reduction of 475 tCO_2e of GHG.**

The greatest emissions reduction was from a Continuous Optimization (COP) energy reduction initiative at VGH. This project saved a total of 1.9 million kWh of electricity, 3,790 GJ of

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natural gas, and a reduction of 242 tCO_2e of GHG.

This initiative is still in progress and will be completed in June, 2014 with a final **estimated savings of 2.3 million kWh of electricity, 5,729 GJ of natural gas and a reduction of 349 tCO_2e of GHG.**

In addition, VCH completed 9 lighting retrofits in 2013 at 9 different facilities. This will result in a **total savings of 1.753 million kWh hours of electricity and estimated savings/reductions of 46.1 tCO_2e of GHG.**

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.

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

Supplies (Paper)

The Green+Leaders (G+L) behaviour change program recruited 19 new VCH volunteers in the fall of 2013. This program now has volunteers across all the lower mainland Health Authorities.

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.

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

- 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.
- 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

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FUTURE WORK TO REDUCE THE ORGANIZATION'S CO_2 FOOTPRINT

In **2014** VCH plans to continue reducing GHG emissions and Energy use by:

- 24 energy projects in-progress and/or approved for a total GHG reductions of 2,396 tCO_2e.

Planned for **2015**:

- 15 energy projects will be implemented for an estimated GHG reductions of 876 **tCO_2e**

Planned for **2016**:

- 12 projects to be implemented for an estimated reductions and 1,372 tCO_2e of GHG.

Of the above projects, over 60% of them projects are targeted towards boilers and building control systems.

SUCCESS STORY

St Mary's Hospital expansion project was completed in early 2013 and was occupied in March 2013. The new 60,000 square foot, 44-bed facility in Sechelt is a three storey building and the first LEED Gold certified building for VCH.

It has been praised as the greenest hospital in Canada and a state-of-the-art building, which celebrates a connection to nature that promotes health and healing.

Energy Management

John Manougian, Energy Manager for Vancouver Coastal Health, states that the St Mary's Hospital new extension building went through BC Hydro's New Construction Program (Energy Modelling). "We implemented energy savings and "green" measures, which are projected at annual savings of 360,501 kWh in electricity, 193 GJ in natural gas and GHG emissions reductions of 19 tCO_2e (19,000 kg). The electricity savings alone equate to the annual electrical needs of about 36 households (according to the BC Hydro average)", explains Manougian. "The cost savings are estimated at $34,000 annually and will be increasing as BC Hydro rates go up."

Energy saving features

Energy savings features include radiant heat piping in the ground slab that can either heat, or remove excess heating and cool the building in the summer months. The main heating system uses heat pumps connected to the geothermal field. The double envelope construction system exploits the thermal properties of air to enhance the energy performance of the building.

St Mary's is using 26.7% less energy annually.

Based on the energy data collected to date, it is estimated that the new addition will consume much less (26.7%) energy annually than a typical health care facility in British Columbia, according to Natural Resources Canada (NRCan) Office of Energy Efficiency (2012 report).

Looking forward, compared with our main VCH hospitals and facilities, St Mary's Hospital expansion project demonstrates great saving potential of 44.5% less energy than the average VCH Acute Care facilities, and 25.6% less energy when compared with our 7 VCH Residential Care facilities, and 42.8% from VCH total combined 16 Core Acute and Residential Care facilities.

As well, the 78 solar panels installed on the roof of St Mary's by Terratek Energy Solutions are estimated to save 21,450 kWh of energy annually, which equates to the annual energy use of 2 average households. The installation of the solar panels is an extra source of power for the hospital, and even on cloudy days the solar modules have the capacity to turn light into electricity to offset consumption.

Energy modelling, the integration of the solar system, as well as a focus on passive strategies like providing occupants access to natural daylight and ventilation, all work together to achieve a push-the-envelope hospital that VCH can be proud of.

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